

SUBCOMUNISTAS Y CUBANOS

Kamisacion : Utilidad \$0000000 **Paises : /6**

FOLIO LIBRO : 000-00-10 17:59:01

TRANSITO : VUL PUNTALIS D I MARSHALL TWO MARSHALLS

DEPENDENCIAS : CADU DIVISION DE MARVIA LAGUNILLAS

División de Nuevas Creaciones

C.C. 19.261.611 de Bogotá

El problema técnico que se pretende solucionar mediante este soporte óptico digital es el combinar la forma circular para la reproducción con un formato rectangular y adicionando un área de raspado.





261

La solicitud en referencia fue publicada en la gaceta 527 de 30 de abril de 2003.

2- FUNDAMENTOS DE LA OPOSICIÓN

Con base en lo anterior , podemos determinar que realmente no se trata de una invención patentable, puesto que en el arte previo son ampliamente conocidos los soporte ópticos digitales entre ellos los rectangulares, como se demuestra de acuerdo al documento CO 01-64153 perteneciente al mismo solicitante y con los documentos que anexamos para tal efecto; por lo demás, adicionar el área de raspado además de ser conocido per se, no contribuye con ninguna ventaja en el aspecto netamente técnico. Los documentos de prueba y el sustento técnico o justificación se presenta en el Anexo 1.

3-DOCUMENTOS APORTADOS

- Formato para oposición
- Recibo del pago de la tasa correspondiente (\$212.000)
- Certificado de Cámara de comercio
- Anexo 1- justificación (sustento técnico).
- Documentos Técnicos (pruebas): Patente US 5'982.736, Patente ES2156439, Patente US 6'016.298, Publicación WO 00/62269, Patente US 4,812,633 publicada 14.03-1989, Solicitud GB 2305393 publicada 09-04-95, Patente US 4,095,824 publicada 20-06-1978, Patente JP7032781 publicada 03-02-1995, Patente US 5.599.046 publicada 04-02-1997.

Recibiré Notificaciones

Dirección: Carrera 12 N° 23-56 Funza-Cundinamarca

Teléfono : 8260308

e-mail: j_martinez@cdsystems.com.co

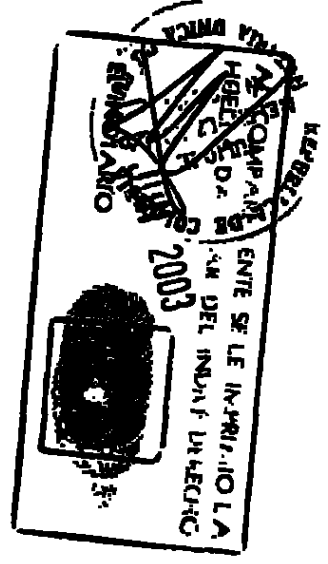

JORGE HERNÁN MARTÍNEZ JARAMILLO

Representante Legal

C.C.19.261.611 de Bogotá

Como Notario UN... del Circulo de Furza(Cund.)
Fueo conser que el anterior documento fue presen-
tado y reconocido su contenido personalmente por
Jorge Herman Flores
identificado con la cedula de ciudadanía numero
19.261.611 expedida Segeta
y tarjeta profesional numero
expedida por Minjusticia en consancia firma junto con
el suscrito Notario Hoy 08 JUN 2008
EL COMPARECIENTE EL NOTARIO

[Handwritten signature]
JULIO R. GONZALEZ
NOTARIO
CIRCULO DE FUERZA



FORMULARIO ÚNICO DE OPOSICIÓN

2000-12

4

OPOSICIÓN A:

- | | |
|--|--|
| ☐ Patente de invención. | ☐ Marca Colectiva. |
| ☒ Patente de Modelo de Utilidad. | ☐ Marca de Certificación. |
| ☐ Diseño Industrial. | ☐ Lema Comercial. |
| ☐ Esquema de Trazado para Circuitos Integrados. | |
| ☐ Marcas de Productos o Servicios. | |



Número del expediente: 01-101325

Solicitante: CORPORACION OPTILASER C.A.

**SOLICITUD
PUBLICADA**

Apoderado: MARGARITA CASTELLANOS ABONDANO

**Título de la nueva creación o denominación del signo: ELEMENTO DE SOPORTE
ÓPTICO DIGITAL RECTANGULAR DE PROPOSITOS MULTIPLES.**

Gaceta: 527 (ABRIL 30 DE 2003).

④ OPOSICIÓN PRESENTADA POR:

OPOSITOR	Nombre: CD SYSTEMS DE COLOMBIA S.A. Dirección: CARRERA 12 No. 23 - 56 Teléfono: 82. 60 308 Fax: 82. 58 242 E-mail: cdsystems@colomsat.net.co Domicilio: FUNZA - CUNDINAMARCA	IDENTIFICACIÓN C.C. ☐ NT ☒ C.E. ☐ Otro ☐ Número <u>830.000.323-5</u>
REPRESENTANTE O APODERADO (74)	Nombre: JORGE HERNAN MARTINEZ JARAMILLO Dirección: CARRERA 8 No. 84 - 32 APTO. 302 Teléfono: 6 21 31 77 Fax: E-mail: j_martinez@cdsystems.com.co	IDENTIFICACIÓN C.C. ☒ NIT ☐ C.E. ☐ Otro ☐ Número <u>19.261.611</u> TP _____

FUNDAMENTOS DE LA OPOSICIÓN:

Causa: ARTICULO 42 DECISION 486 REGIMEN COMUN SOBRE PROPIEDAD INDUSTRIAL.

Justificación: VÉR ANEXO 1.

Comprobante de pago No.

03-40135

Fecha

Junio 3/03

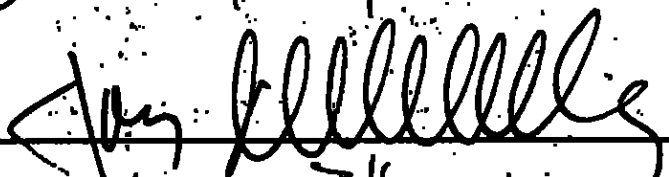
ANEXOS

- ☒ Comprobante de pago de la tasa.
- ☐ Poderes, si fuere el caso.
- ☒ Pruebas de los fundamentos de la oposición.
- ☐ Documentos que acrediten el legítimo interés, si fuere el caso.
- ☒ Certificado de existencia y representación legal de las partes, cuando sean personas jurídicas.

NOMBRE

Jorge Hernán Martínez Domínguez

FIRMA


C.C. 19.261.611.36 TP.

CÓMO DILIGENCIAR EL FORMULARIO UNICO DE OPOSICIÓN

- Si faltara espacio en algún recuadro de este impreso, utilice hojas complementarias.
- Los espacios sombreados corresponden a los requisitos mínimos que deben cumplirse para obtener fecha de presentación de la solicitud.
- Si alguna casilla del formulario no fuera cubierto, se cruzará una línea oblicua.

1. **Oposición a:** Corresponde al trámite al cual se le formula la oposición.
2. **Solicitud publicada:**
 - Número de expediente: Indicar el número asignado al trámite al cual se le formula oposición.
 - Solicitante: Indicar el nombre del solicitante del trámite al cual se le formula la oposición.
 - Apoderado: Indicar el nombre del apoderado en caso de que el solicitante del trámite al que se le formula la oposición actúe por intermedio de ésta.
 - Título de la nueva creación o denominación del signo: En caso de ser un trámite de patente deberá indicar el título de la solicitud a la cual se le formula oposición. En caso de ser un trámite de registro de signo deberá indicar la denominación del mismo.
 - Gaceta: Número de la publicación correspondiente.
3. **Oposición presentada por:** Corresponde a los datos de la oposición que se presenta.
 - Opositor: Es la persona jurídica o natural que presenta la oposición. Debe indicarse nombre, dirección, teléfono, fax, e-mail y domicilio (país, departamento y ciudad).
 - Representante o Apoderado: En este espacio debe indicarse el nombre del representante legal cuando el opositor sea una persona jurídica si no se está actuando a través de apoderado y deberá acreditarse tal calidad. Si se actúa a través de apoderado, debe indicarse el nombre del abogado que adelantará la actuación administrativa anexando el correspondiente poder. Si la solicitud la adelanta una persona natural sin apoderado, no debe diligenciarse esta casilla.
4. **Fundamentos de la oposición:**
 - Causal: corresponde a la indicación de la(s) causal(es) legales en que se basa la oposición, indicando expresamente la disposición normativa.
 - Justificación: motivos de hecho y argumentación en que se soporta la oposición.
5. **Comprobante de pago:** Referenciar el número y fecha del recibo de pago de la tasa establecida. Este comprobante deberá anexarse.
6. **Anexos:** Deben marcarse con una X las casillas correspondientes a los documentos que acompañarán la oposición. Al momento de presentar la oposición se deberán aportar las pruebas que el opositor tenga en su poder.
7. **Firma:** Si se actúa a través de abogado, la firma deberá ser la del apoderado; si actúa directamente una persona jurídica la firma deberá ser la de su representante legal, y si actúa directamente una persona natural ésta deberá firmar la solicitud.

IMPORTANTE:

Si no es especialista en la materia, le recomendamos:

Consultar la normatividad relacionada con este trámite en www.sic.gov.co o en la Biblioteca de la SIC, carrera 13 No. 27-00 piso 5 de lunes a viernes de 8:30 a.m. a 5:00 p.m, jornada continua.

Leer detenidamente los folletos y los instructivos para el diligenciamiento de los formularios.

Una vez radicada la solicitud, informarse permanentemente sobre el estado de su trámite y, si es del caso, contestar dentro del término los requerimientos notificados según las disposiciones legales vigentes.

SUPERINTENDENCIA I CONSTRUCCION
Indicacion : 0110125 00000000
FECHA UNED: 0512-06-10 14:33:21
FOLIO : 000 PRIENTIS 11 1 REVISADO 000 UNUSILUP
DEPENDENCIA: 2000 DIVISION DE NUEVAS MEDIDURAS

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 03 - 40,135
FECHA : JUNIO 10 DE 2003

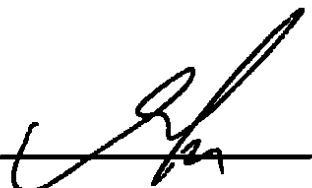
***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
JORGE H. MARTINEZ	CONSIGNACION	BANCO POPULAR	050-00110-6	13818918	10/06/2003	212,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-04	PRESENTACION DE OBSERVACIONES	
12		MARCAS Y LEHAS COMERCIALES	212,000.00
		TOTAL :	\$ 212,000.00

SON: DOSCIENTOS DOCE MIL PESOS

RESPONSABLE : 

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____



Cámara de Comercio de Facativá
CÁMARA DE COMERCIO DE FACATIVÁ
NIT.: 860.522.138-3
SEDE PRINCIPAL

Fecha : 20070524 Hora Certificada : 13:25:09

Operacion: 017010526086033020206 PAGINA No. 1

CERTIFICADO DE EXISTENCIA Y REPRESENTACION LEGAL O INSCRIPCION DE
DOCUMENTOS PARA SUCESEALES

LA CAMARA DE COMERCIO DE FACATIVÁ, CON FUNDAMENTO EN LAS
MATRICULAS E INSCRIPCIONES DEL REGISTRO MERCANTIL,

CERTIFICA :

NOMBRE : C. D. SYSTEMS DE COLOMBIA S.A.

SIGLA : NO REPORTADA

N. I.T. : 0930000323-5

DIRECCION COMERCIAL : AVDA. 9 NRO. 23-95

DOMICILIO : FUNZA

CERTIFICA :

MATRICULA NO. 00019907

FECHA DE MATRICULA EN ESTA CAMARA: 13 DE OCTUBRE DE 1999

RENOVO EL AÑO 2003 - EL 31 DE MARZO DE 2003

CERTIFICA :

QUE POR ESCRITURA PUBLICA Nro. 32 DEL 5 DE ENERO DE 1995,
OTORGADA EN LA NOTARIA 19 DE BOGOTÁ, INSCRITA EN ESTA CAMARA DE
COMERCIO, EL 13 DE OCTUBRE DE 1999 BAJO EL NUMERO 5860 DEL LIBRO
RESPECTIVO FUE CONSTITUIDA LA SOCIEDAD DENOMINADA: C. D. SYSTEMS
DE COLOMBIA LTDA.

CERTIFICA

QUE POR ESCRITURA PUBLICA Nro. 705 DEL 21 DE FEBRERO DE 1999
OTORGADA EN LA NOTARIA NRO. 51 DE BOGOTÁ, INSCRITA EN ESTA CAMARA
DE COMERCIO, EL 13 DE OCTUBRE DE 1999 BAJO EL NUMERO 5865 DEL
LIBRO RESPECTIVO, LA SOCIEDAD ANTES MENCIONADA SE TRANSFORMO EN
SOCIEDAD ANONIMA DENOMINADA: C. D. SYSTEMS DE COLOMBIA S.A.

0000705 1999/02/21 Notaria 51 de Bogotá	00005865 1999/10/13
0000250 1999/09/20 Notaria unica de Mosquera	00001266 1999/10/13
0001795 1995/05/19 Notaria 19 de Bogotá	00005861 1999/10/13
0003841 1996/07/30 Notaria 19 de Bogotá	00005864 1999/10/13
0000048 2000/01/21 Notaria unica de Funza	00005882 2000/01/28

CERTIFICA :

VIGENCIA: QUE LA SOCIEDAD NO SE HALLA DISUELTA DURACION HASTA EL
21 DE FEBRERO DEL 2010 .

CERTIFICA :

OBJETO SOCIAL: LA SOCIEDAD TENDRA POR OBJETO SOCIAL
PRINCIPAL: PRODUCCION, FABRICACION, REPRODUCCION, DISTRIBUCION,
REPRESENTACION COMRA, VENTA, IMPORTACION Y EXPORTACION DE
DISCOS COMPACTOS PARA MUSICA, VIDEO, INFORMATICA Y TODOS LOS
MODE QUE LA TECNOLOGIA QUE LE DE A ESTOS ELEMENTOS MAQUINARIA,
EQUIPOS Y REPUESTOS PARA LOS MISMOS MATERIA PRIMAS, UTILIZADOS
O UTILIZABLES EN ESTA ACTIVIDAD. EN DESARROLLO O INCREMENTO
DE SU OBJETO SOCIAL, LA SOCIEDAD PODRA OCUPARSE VALIDAMENTE
EN LOS SIGUIENTES ACTOS Y CONTRATOS: A) LA COMPRA Y VENTA DE

Facativá: Carrera 2 N° 2- 89 • Teléfonos: (081) 842 4603 - 842 4957 - 892 3232 - 892 3233 • Fax: 842 3151

Oficina Mosquera: Centro Comercial Hacienda Villanueva Carrera 13 N° 19 - 31 Of. 142 Tels: 827 5835

Oficina Gualivá: Carrera 8 N° 4 - 77 Of. 204 • Teléfono: 844 5488 • Villota

Oficina Pacho: Calle 7 N° 17 - 28 - 2° piso • Teléfono 854 2131

E-mail: ccfaca@col1.telecom.com.co

LA MATRICULA MERCANTIL DEBE RENOVARSE EN LOS TRES PRIMEROS MESES DEL AÑO



C. Cámara de Comercio de Facatativá

Nº.: 880.522.136-3

CERTIFICADO DE EXISTENCIA Y REPRESENTACION LEGAL PAGINA No. 2

 TODA CLASE DE BIENES INMUEBLES URBANOS O RURALES. MUEBLES Y ENFERES . P) LA IMPORTACION , EXPORTACION, COMPRA, VENTA Y DISTRIBUCION DE TODA CLASE DE MAQUINARIA , EQUIPOS, UTILES, PARTES, O ELEMENTOS Y ENFERES UTILIZADOS O UTILIZABLES EN EL CURSO ORDINARIO DE SUS ACTIVIDADES . C) RECIBIR DINERO EN MUTUO CON O SIN INTERES Y CON GARANTIA HIPOTECARIA DE SUS BIENES INMUEBLES O CON PIGNORACION DE SUS BIENES MUEBLES . D) REPRESENTAR CASAS NACIONALES O EXTRANJERAS CUYO OBJETO SOCIAL SEA IGUAL, SIMILAR O COMPLEMENTARIO CON EL SUYO. E) ABRIR, MANEJAR Y CLASIFICAR CUENTAS CORRIENTES EN LOS BANCOS COMERCIALES SEAN CASAS PRINCIPALES O AGENCIAS. E) GIRAR, ENDOSAR, ACEPTAR, TENER, PROTESTAR, AVALAR, PAGAR Y NEGOCIAR TODA CLASE DE TITULOS VALOR ASI COMO TENERLOS, PAGARLOS, COBRARLOS, NEGOCIARLOS Y PROTESTARLOS. G.) IMPORTAR Y EXPORTAR TODA CLASE DE MAQUINARIA, IMPLEMENTOS, MATERIAS PRIMAS PIEZAS, PARTES O REPUESTOS DE CUALESQUIERA ESPECIE O NATURALEZA. H.) FUSIONARSE CON OTRA Y OTRAS COMPANIAS. I). EN GENERAL DESARROLLAR IMPULSAR O INCREMENTAR CUALQUIER OTRA ACTIVIDAD LICITA DE COMERCIO QUE TIENDA AL MEJOR LOGRO DE SU OBJETO SOCIAL .

CERTIFICA :

CAPITAL:

** CAPITAL AUTORIZADO **

VALOR : \$642,296.000.00000

NO. DE ACCIONES: 642.296.00

VALOR NOMINAL : \$1.000.00000

** CAPITAL SUSCRITO **

VALOR : \$642,296.000.00000

NO. DE ACCIONES: 642.296.00

VALOR NOMINAL : \$1.000.00000

** CAPITAL PAGADO **

VALOR : \$642,296.000.00000

NO. DE ACCIONES: 642.296.00

VALOR NOMINAL : \$1.000.00000

CERTIFICA :

** JUNTA DIRECTIVA: PRINCIPAL(ES) **

DUE POR ESCRITURA PUBLICA NO. 0000354 Notaria univ. de Mosquera
 DEL 20 DE SEPTIEMBRE DE 1999 . INSCRITA EL 13 DE OCTUBRE DE 1999
 BAJO EL NUMERO 00005866 DEL LIBRO IX . FUE(RON) NOMBRADO(S):

NOMBRE	IDENTIFICACION
MIEMBRO JUNTA DIRECTIVA TITULAR	
CORTAZAR GARCIA LUIS GUILERMO	C.C. 00019290183
MIEMBRO DE JUNTA DIRECTIVA TITULAR	
JAIME CASTELLANO ECHVERRY	C.C. 00079141359
MIEMBRO DE JUNTA DIRECTIVA TITULAR	
CARDOZO RAMOS ALVARO	C.C. 00017033325

** JUNTA DIRECTIVA: SUPLENTE(S) **

DUE POR ESCRITURA PUBLICA NO. 0000354 Notaria univ. de Mosquera
 Facatativá: Carrera 2 N° 2- 88 • Teléfonos: (081) 842 4803 - 842 4957 - 892 3232 - 892 3233 • Fax: 842 3151
 Oficina Mosquera: Centro Comercial Hacienda Villanueva Carrera 13 N° 19 - 31 Of. 142 Tels: 827 5835
 Oficina Gualivá: Carrera 8 N° 4 - 77 Of. 204 • Teléfono: 844 5488 • Villeta
 Oficina Pacho: Calle 7 N° 17 - 28 - 2° piso • Teléfono 854 2131
 E-mail: ccfaca@col1.telecom.com.co

LA MATRICULA MERCANTIL DEBE RENOVARSE EN LOS TRES PRIMEROS MESES DEL AÑO



C. Cámara de Comercio de Facativá

Nº.: 860.522.136-3

CERTIFICADO DE EXISTENCIA Y REPRESENTACION LEGAL PAGINA No. 3

 DEL 20 DE SEPTIEMBRE DE 1999, INSCRITA EL 13 DE OCTUBRE DE 1999
 BAJO EL NUMERO 0005865 DEL LIBRO IX, FUE(ON) NOMBRADO(S):

NOMBRE	IDENTIFICACION
SUPLENTE DE MIEMBRO DE JUNTA DIR.	
ROMERO PUENTES LUZ YOLANDA	C.C.00033449538
SUPLENTE DE MIEMBRO DE JUNTA DIR.	
RIBERO PENA KATIA JOHANA	C.C.00051995143
SUPLENTE DE MIEMBRO DE JUNTA DIR.	
MEZIA CALLEJO LUZ MARTHA	C.C.00041630423

CERTIFICA :

** NOMBRAMIENTOS **

QUE POR ESCRITURA PUBLICA NO. 0000705 Notaria 51 de Bogotá DEL 21
 DE FEBRERO DE 1999 INSCRITA EL 13 DE OCTUBRE DE 1999 BAJO EL
 NUMERO 00005865 DEL LIBRO IX, FUE(ON) NOMBRADO(S):

NOMBRE	IDENTIFICACION
PRIMER SUPLENTE DEL GERENTE GENERAL	
CORTAZAR GARCIA LUIS TULLERMO	C.C.00019261611
	C.C.00019290163

CERTIFICA :

FACULTADES DEL REPRESENTANTE LEGAL: EL GERENTE EJERCERA TODAS LAS
 FUNCIONES PROPIAS DE LA NATURALEZA DE SU CARGO Y EN ESPECIAL LAS
 SIGUIENTES: 1. REPRESENTAR A LA SOCIEDAD ANTE LOS ACCIONISTAS,
 ANTE TERCEROS Y ANTE TODA CLASE DE AUTORIDADES DEL ORDEN
 ADMINISTRATIVO Y JURISDICCIONAL. 2. EJECUTAR TODOS LOS ACTOS
 U OPERACIONES CORRESPONDIENTES AL OBJETO SOCIAL, DE CONFORMIDAD
 CON LO PREVISTO EN LAS LEYES Y EN LOS ESTATUTOS. 3. AUTORIZAR
 CON SU FIRMA TODOS LOS DOCUMENTOS PUBLICOS O PRIVADOS QUE DEBAN
 OTORGARSE EN DESARROLLO DE LAS ACTIVIDADES SOCIALES O EN
 INTERES DE LA SOCIEDAD. 4. PRESENTAR A LA ASAMBLEA GENERAL EN
 SUS REUNIONES ORDINARIAS, UN INVENTARIO Y UN BALANCE DE FIN DE
 EJERCICIO, JUNTO CON UN INFORME ESCRITO DE LA SITUACION DE LA
 SOCIEDAD UN DETALLE COMPLETO DE LA CUENTA DE PERDIDAS Y GANANCIAS
 Y UN PROYECTO DE DISTRIBUCION DE UTILIDADES OBTENIDAS. 5.
 NOMBRAR Y RENOVER A LOS EMPLEADOS DE LA SOCIEDAD CUYO
 NOMBRAMIENTO Y REMOCION LE DELEGUE LA JUNTA DIRECTIVA. 6. TOMAR
 TODAS LAS MEDIDAS QUE LE RECLAME LA CONSERVACION DE LOS BIENES
 SOCIALES. VIGILAR LA ACTIVIDAD DE LOS EMPLEADOS DE LA
 ADMINISTRACION DE LA SOCIEDAD, E IMPARTIRLES LAS ORDENES DE
 INSTRUCCIONES QUE EXIGA LA BUENA MARCHA DE LA COMPANIA. 7.
 CONVOCAR LA ASAMBLEA GENERAL A REUNIONES EXTRAORDINARIAS
 CUANDO LO JUZGUE CONVENIENTE O NECESARIO Y HACER LAS
 CONVOCATORIAS DEL CASO CUANDO LO CONSIDERE NECESARIO O
 CONVENIENTE Y MANTENERLA INFORMADA DEL CURSO DE LOS NEGOCIOS
 SOCIALES. 8. CUMPLIR LAS ORDENES E INSTRUCCIONES QUE LE IMPARTAN
 LA ASAMBLEA GENERAL O LA JUNTA DIRECTIVA Y EN PARTICULAR SO
 LICITAR AUTORIZACIONES PARA LOS NEGOCIOS QUE SUPEREN UN MONTO
 EQUIVALENTE A CINCUENTA SALARIOS MINIMOS MENSUALES LEGALES, QUE
 DEBEN APROBAR PREVIAMENTE LA ASAMBLEA O LA JUNTA DIRECTIVA DE

Facativá: Carrera 2 N° 2- 89 • Teléfonos: (091) 842 4803 - 842 4957 - 892 3232 - 892 3233 • Fax: 842 3151

Oficina Mosquera: Centro Comercial Hacienda Villanueva Carrera 13 N° 19 - 31 Of. 142 Tels: 827 5635

Oficina Gualivá: Carrera 8 N° 4 - 77 Of. 204 • Teléfono: 844 5488 • Villota

Oficina Pacho: Calle 7 N° 17 - 28 - 2° piso • Teléfono 854 2131

E-mail: ccfaca@col1.telecom.com.co

LA MATRICULA MERCANTIL DEBE RENOVARSE EN LOS TRES PRIMEROS MESES DEL AÑO



C. Cámara de Comercio de Facatativá

Nº: 860.522.136-3

CERTIFICADO DE EXISTENCIA Y REPRESENTACION LEGAL PAGINA No. 4

 LOS PRESENTES ES TANTO CUMPLIR O HACER QUE SE CUMPLAN
 OPORTUNAMENTE TODOS LOS REQUISITOS O EXIGENCIAS LEGALES QUE SE
 RELACIONEN CON EL FUNCIONAMIENTO Y ACTIVIDADES DE LA SOCIEDAD.

CERTIFICA :

** REVISOR FISCAL: **

QUE POR ESCRITURA PUBLICA NO. 0000705 Notaria 5ª de Bogotá DEL 21
 DE FEBRERO DE 1998, INSCRITA EL 13 DE OCTUBRE DE 1999 BAJO EL
 NUMERO 00005835 DEL LIBRO IX, FUE(ON) NOMBRADO(S).

NOMBRE

IDENTIFICACION

REVISOR FISCAL

RUIZ OCHOA HENRY SANDER

C.C.00019323390

QUE POR ESCRITURA PUBLICA NO. 0000048 Notaria única de Funza DEL
 21 DE ENERO DE 2000 INSCRITA EL 28 DE ENERO DE 2000 BAJO EL
 NUMERO 00005932 DEL LIBRO IX, FUE(ON) NOMBRADO(S).

NOMBRE

IDENTIFICACION

REVISOR FISCAL SUPLENTE

MALDONADO LARROTTA SARA ESPERANZA

C.C.00041677707

INFORMA:

Que por Escritura Publica No. 000354 del 20 de Sep/bre del
 1999 Otorgada en la Notaria única de Mosquera
 inscrita en esta cámara de comercio, el 13 de Octubre de
 1999 bajo el No. 005834 del libro respectivo, la sociedad antes
 mencionada CAMBIO DE DOMICILIO DE SANTA FE DE BOGOTÁ A FUNZA

CERTIFICA :

DIRECCION DE NOTIFICACION JUDICIAL : AVDA. 7 NRO. 22-85
 MUNICIPIO : FUNZA

CERTIFICA :

QUE NO FIGURAN INSCRIPCIONES ANTERIORES A LA FECHA DEL PRESENTE
 CERTIFICADO, QUE MODIFIQUEN TOTAL O PARCIALMENTE SU CONTENIDO.

!!! NOTIFICACION !!!

LOS DOCUMENTOS DE REGISTRO ADJÚNTO CERTIFICADOS QUEMAN EN FIRME
 CINCO DIAS HABILES DESPUES DE SU INSCRIPCION EN EL LIBRO RES-
 PECTIVO, SIEMPRE Y CUANDO NO SE PRESENTE NINGUN RECURSO
 POR LA VIA SUBERNATIVA.

!!! IMPORTANTE !!!

RECUERDE QUE POR DISPOSICION DEL ARTICULO 16 DE LA LEY 713 DE
 2001, A MAS TARDAR EL 30 DE MARZO DE 2002, TODAS LAS PERSONAS
 ACTUAMENTE INSCRITAS EN EL REGISTRO MERCANTIL, DEBERAN INFORMAR
 A LA CAMARA DE COMERCIO DONDE SE ENCUENTREN INSCRITAS EL NIT QUE
 LE HAYA ASIGNADO LA DIAN. EL INCUMPLIMIENTO DE ESTA OBLIGACION
 DA LUGAR A LA IMPOSICION DE LA SANCION PREVISTA EN EL ARTICULO 37

Facatativá: Carrera 2 N° 2- 89 • Teléfonos: (091) 842 4603 - 842 4957 - 892 3232 - 892 3233 • Fax: 842 3151

Oficina Mosquera: Centro Comercial Hacienda Villanueva Carrera 13 N° 19 - 31 Of. 142 Tels: 827 5835

Oficina Gualivá: Carrera 8 N° 4 - 77 Of. 204 • Teléfono: 844 5488 • Villota

Oficina Pachó: Calle 7 N° 17 - 26 - 2° piso • Teléfono 854 2131

E-mail: ccfaca@col1.telecom.com.co

LA MATRICULA MERCANTIL DEBE RENOVARSE EN LOS TRES PRIMEROS MESES DEL AÑO



Cámara de Comercio de Facatativá

NIT: 860.522.136-3

CERTIFICADO DE EXISTENCIA Y REPRESENTACION LEGAL PAGINA No. 5

 DEL CODIGO DEL COMERCIO. SI EN SUS CERTIFICADOS APARECE
 CORRECTAMENTE SU NIT FAGA CASO OMISO DE ESTE AVISO. .

VALOR DEL CERTIFICADO : \$ 2300.00

DE CONFORMIDAD CON EL DECRETO 2150 DE 1995 Y LA AUTORIZACION
 IMPARTIDA POR LA SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO,
 MEDIANTE EL OFICIO DEL 1º DE NOVIEMBRE de 1996 LA FIRMA MECANICA
 QUE APARECE A CONTINUACION TIENE PLENA VALIDEZ PARA TODOS LOS
 EFECTOS LEGALES.

EL SECRETARIO DE LA CAMARA DE COMERCIO,

Facatativá: Carrera 2 N° 2- 89 • Teléfono: (091) 842 4603 - 842 4957 - 892 3232 - 892 3233 • Fax: 842 3151
 Oficina Mosquera: Centro Comercial Hacienda Villanueva Carrera 13 N° 19 - 31 Of. 142 Tels: 827 5835
 Oficina Gualivá: Carrera 8 N° 4 - 77 Of. 204 • Teléfono: 844 5488 • Villota
 Oficina Pacho: Calle 7 N° 17 - 26 - 2° piso • Teléfono 854 2131
 E-mail: ccfaca@col1.telecom.com.co

LA MATRICULA MERCANTIL DEBE RENOVARSE EN LOS TRES PRIMEROS MESES DEL AÑO

70
SUPERINTENDENCIA DE PROPIEDAD INDUSTRIAL
NOMINACIÓN Y VIGILANCIA DE MARCAS
FECHA DE REGISTRO: 2003-04-30 14:03:21
FOLIO: 78
PRESENTE A LOS EFECTOS DE LA NOMINACIÓN DE MARCA
DEPENDENCIA: CADA DIVISIÓN DE MARCAS CITA UNA

ANEXO 1. JUSTIFICACION

Referencia: Oposición a Patente de Modelo de Utilidad

Expediente: 01-101.325

Solicitante. Corporación Optilaser C.A.

Opositor: CD Systems de Colombia S.A.

NIT: 830.000.323-5

[Representante Legal: Jorge Hernán Martínez Jaramillo]

C.C. 19.261.611 de Bogotá

Considerando que el Modelo de Utilidad del expediente en referencia , consistente en un Soporte Óptico Digital Rectangular de propósitos múltiples, cuya publicación en la gaceta de propiedad industrial se efectuó el 30 de abril de 2003 y con base en lo estipulado en el Artículo 42 de la decisión 486 del Régimen Común sobre Propiedad Industrial, estando dentro de los términos previstos, presento oposición válidamente sustentada a la concesión de dicho modelo, dado que no reúne los requisitos de patentabilidad exigidos de acuerdo con la Legislación vigente para tal efecto.

1- Hechos:

La solicitud en referencia fue radicada bajo el día 26 de noviembre de 2001, bajo el N° 01-101.325 y en ella se reclama de acuerdo a las reivindicaciones " Un soporte óptico-digital rectangular de propósito múltiple, caracterizado por comprender un anverso y un reverso, con una área de raspado de clave de prepago, información o publicidad por dicho anverso y un área de grabación óptico digital por el opuesto, definiendo dicho conjunto en el uso de una tarjeta prepago."

El problema técnico que se pretende solucionar mediante este soporte óptico digital es el combinar la forma circular para la reproducción con un formato rectangular, y por el lado opuesto al de la grabación colocar un área de raspado de clave de prepago, información o publicidad.

La solicitud en referencia fue publicada en la gaceta 527 de abril 30 de 2003.

NOTARIO
JUAN BARRA
FERNANDEZ



71

2- Fundamentos de la oposición:

Con base en lo anterior , podemos determinar que realmente no se trata de una invención patentable, puesto que en el arte previo son ampliamente conocidos los soporte ópticos digitales, entre ellos los rectangulares con información y/o propaganda por el lado opuesto al área de grabación del soporte óptico-digital. Igualmente se conocen los elementos (tarjetas) tipo tiquetes de lotería por cobrar, que comprenden elementos de raspado y circuitos impresos; también se conocen las tarjetas de seguridad que comprenden un anverso y un reverso que utilizan el sistema de raspado o scratch-off, para ocultar información mientras esta cubierto por la capa protectora.

Si analizamos lo que dice la norma respecto a lo que se considera un modelo de utilidad tenemos:

"Artículo 81.- Se considera modelo de utilidad, a toda nueva forma, configuración o disposición de elementos, de algún artefacto, herramienta, instrumento, mecanismo u otro objeto o de alguna parte del mismo, que permita un mejor o diferente funcionamiento, utilización o fabricación del objeto que le incorpore o que le proporcione alguna utilidad, ventaja o efecto técnico que antes no tenía."

De lo anterior se puede determinar claramente que lo que se pretende proteger mediante modelo de utilidad no cumple con lo establecido en la legislación vigente porque de acuerdo con lo consignado en las reivindicaciones se trata de un soporte optico digital, cuya característica novedosa consiste en que " comprende un anverso y un reverso con un área de raspado de clave prepago, información o publicidad por dicho anverso", lo común en cualquier tarjeta, "y un área de grabación por el lado opuesto definiendo dicho conjunto una ampliación en el uso de una tarjeta prepago". De manera que como lo indica la reivindicación se trata de un elemento soporte digital, conocido en el arte previo e incluso objeto de protección de patente de modelo de utilidad en una solicitud anterior correspondiente al expediente N° 01-64153 al cual solamente se le ha agregado o colocado un área de raspado de clave que como se puede ver perfectamente en lo reivindicado, donde además se aclara, que se trata de una ampliación en el uso de una tarjeta prepago, todo lo cual no corresponde a lo establecido en el artículo relativo a los Modelos de Utilidad. Es decir que incorporar una clave oculta por una capa de raspado, no le proporciona ningún efecto técnico en cuanto a su funcionamiento porque no provee ninguna ventaja técnica. Es más la reivindicación N° 2, se refiere al elemento que "posee un anverso con un área de encubrimiento de una clave de prepago de un servicio cuyo encubrimiento puede rasparse comprendiendo además áreas dispuestas para ofrecer un mensaje visual " materia que no corresponde a una invención, y mucho menos a una combinación

LIBRARY
OF THE
JESUIT
PROVINCE OF
INDIA
1885





72

de elementos que proporcionen algún efecto o ventaja técnica al elemento soporte óptico digital, sino que es simplemente la utilización de algo conocido y utilizado en todo tipo de tiquetes, tarjetas, tiquetes de lotería, etcétera. Finalmente en la reivindicación N° 3 se reivindica un soporte óptico digital que se caracteriza porque el anverso dispone de un área circular concéntrica de grabación óptico digital de un mensaje, composición musical reproducible, soporte conocido como se anota anteriormente, que ya es materia de solicitud de patente anterior. Es necesario hacer notar que realmente lo que se pretende proteger, de acuerdo a la forma como se presentan las reivindicaciones, es un soporte óptico digital que posee un área circular concéntrica (CD) que es lo que muestra algún efecto técnico y lo cual es materia conocida como se desprende del análisis de la solicitud CO-01-64153 y también materia contenida en los documentos citados como antecedentes más adelante, además como se revela en las mismas reivindicaciones (1 y 2) se trata de un uso, no de un aporte técnico a un mejor funcionamiento del soporte digital; por lo demás las tarjetas prepago con anverso y reverso, área de raspado y publicidad son conocidas en el estado de la técnica y según se desprende de las mismas reivindicaciones la materia contenida en ellas no corresponde a una invención.

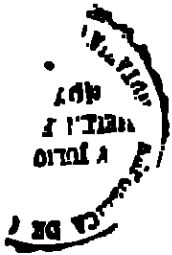
Los documentos que se relacionan a continuación muestran la materia que se pretende proteger, con relación a tarjetas con CD y tarjetas con zona de raspado:

(A) Patente US 5'982.736, publicada el 09-11-1999 que describe un disco compacto óptico en formato de tarjeta, siendo compatible con los lectores de discos compactos existentes ; la cual posee información gravada en una de sus caras tal como lo muestran las figuras 2A, 2B, 7 etc y que en su cara opuesta presenta niveles para que al insertarla en el lector quede centrada y acoplada.

(B) Patente ES2156439, correspondiente a la solicitud europea 0990220 publicada el 05-04-2000, que enseña una tarjeta de visita con CD-ROM que puede contener cualquier cantidad y tipo de información y puede ser leída en una unidad de CD normal , inclusive en dicho documento se indica que las tarjetas de visita son en general conocidas desde hace tiempo y citan allí documentos que lo demuestran.

(C) Patente US 6'016.298 publicada 18-01-2000. Describe un concepto básico en el que se combina la carta de visita con un CD-ROM, dicha carta puede ser insertada en un lector convencional de CD, con una cara que tiene impresa la información y la otra configurada para ser acoplada al lector convencional.

2004
2004
2004



(D) Publicación WO 00/62269 de 19-10-2000 que describe un disco óptico con formato y tamaño de una tarjeta de crédito, el cual es óptico e inteligente porque comprende un microprocesador y software integrado, para acceso inmediato a redes de comunicaciones mundiales.

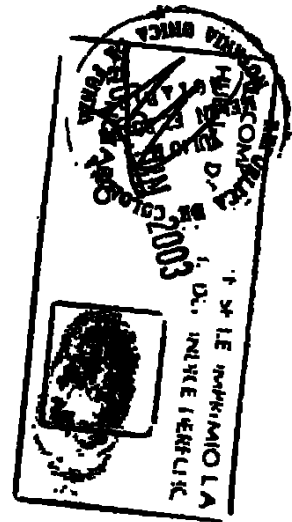
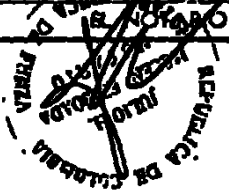
(E) Patente US 4,812,633 publicada 14.03-1989. Describe tarjetas con disco óptico para almacenar información; se citan también otros documentos que muestran elementos del mismo tipo.

(F) Solicitud GB 2305393 publicada 09-04-1997 que enseña tarjetas para teléfono con una sección de raspado.

(G) Patente US 4,095,824 publicada 20-06-1978; (H) Patente JP7032781 publicada 03-02-1995 e (I) patente US 5.599.046 publicada 04-02-1997, documentos que revelan tarjetas con área de raspado.

Como se desprende del análisis de los documentos citados, el soporte óptico digital que posee un área circular concéntrica (CD) con un área de raspado en el reverso, para el cual se está solicitando patente de modelo de utilidad es conocido en el arte previo, y colocarle una clave oculta en un área de raspado no es un elemento que agregue una ventaja técnica y corresponde a un elemento que también se ha utilizado en todo tipo de tarjetas .

Como Nuncio en el Circulo de Fuzza(Cunda)
 Fuzza consta que el anterior documento fue presen-
 tado y relacionado su contenido por lo mismo por
Don Hernan J. Ramirez Sarmiento
 identificado con la cedula de Ciudadania numero
19.261-61 expedida en Boquete
 y tarjeta profesional numero
 expedida por el Ministerio de Justicia en la ciudad de Lima junto con
 el suscrito Blasio Rios 10 JUN 2003
 EL COMANDANTE EN JEFE



United States Patent [19]

Pierson

[11] Patent Number: 5,982,736

[45] Date of Patent: Nov. 9, 1999

**[54] TRADING CARD OPTICAL COMPACT DISC
AND METHODS OF USING AND FORMING
SAME**

[76] Inventor: Gerald A. Pearson, 9931 Rivercrest Ct.,
Orlando, Fla. 32825

[21] Appl. No.: 08/856,915

[22] Filed: May 15, 1997

[S1] Int. Cl.⁶ _____ G11B 7/24

[52] U.S. Cl. _____ 369/273; 369/286

[58] **Field of Search** _____ 369/T7.1, 272,
369/T73, 274, 281, 283, 286, 292; 360/135,
137

[56] References Cited

U.S. PATENT DOCUMENTS

2,293,301	8/1942	Mitchell	274/42
2,961,922	11/1960	Schwartz et al.	88/28
3,302,520	2/1967	Dimitracopoulos et al.	88/28
3,691,312	9/1972	Peterson	179/100.2 Z
4,812,633	3/1989	Vogelmeier et al.	235/487
4,868,573	9/1989	Opheij et al.	235/580
4,904,853	2/1990	Yokokawa	235/487
5,411,259	5/1995	Farnon et al.	273/63 C
5,417,431	5/1995	Gluck	273/293
5,433,035	7/1995	Bayer	40/124.1
5,441,278	8/1995	Nalder	273/296
5,480,156	1/1996	Doodladin et al.	273/237
5,579,296	11/1996	Smith et al.	369/273
5,600,628	2/1997	Spector	369/291
5,740,155	4/1998	Spector	369/291

OTHER PUBLICATIONS

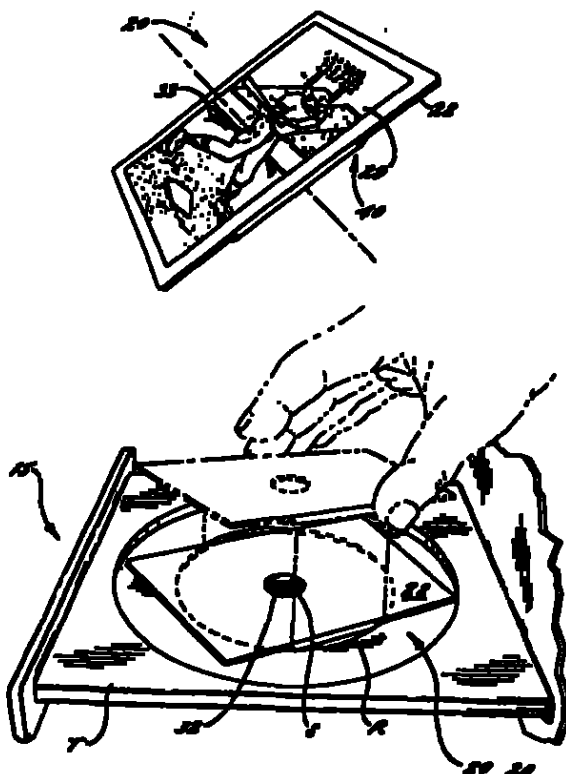
Tyler Gray, Shape of CD's to Come, May 28, 1997, Orlando Sentinel, Business Section, p. B-1 and B-4; Article refers to Shape CD Inc.

Primary Examiner—William R. Korzuch
Attorney, Agent, or Firm—Allen, Dyer, Doppelt, Milbrath & Gilchrist, P.A.

[57] **ABSTRACT**

A trading card optical compact disc and method of using and forming the compact disc are provided which are compatible with a disc reader having a centrally located spindle and a seating ring for supporting and rotating a compact disc positioned thereon. The trading card optical compact disc according to an embodiment of the invention preferably has at least a first plastic rectangular layer having a width of about 2.5 inches and a length of about 3.5 inches and having a pattern of digital data encoded thereon. A second metallic layer is formed on at least portions of the first plastic layer, and a third protective layer is formed on at least the second layer for protecting the metallic layer. An indicia bearing fourth layer is formed on the third layer and has a generally planar upper surface for displaying indicia therefrom. An opening extends through the first, second, third, and fourth layers in a medial portion thereof. A trading card interface seat is preferably integrally formed in at least the first layer for seating the trading card onto a loading tray of a disc reader so as to interface with only portions of the seating ring of the disc reader and to read digital data stored thereon from the trading card optical compact disc.

26 Claims, 3 Drawing Sheets



TRADING CARD OPTICAL COMPACT DISC AND METHODS OF USING AND FORMING SAME

FIELD OF THE INVENTION

This invention relates to novelty trading items and, more particularly, to novelty trading items for storing and communicating data to enthusiasts, hobbyists, and collectors.

BACKGROUND OF THE INVENTION

Over the years the trading card industry has developed as both a novelty item and a collectors item. As time goes by, the value of many of these trading cards which have printed indicia thereon has increased so that the trading card industry has grown significantly over the years and many trading cards have substantially increased in value. As technology has changed, however, various types of trading cards and methods of storing and communicating data have been developed.

The concept of associating card devices which store and communicate information to a user with indicia or an image thereon has been known for many years. Examples of such devices can be seen in U.S. Pat. No. 3,691,312 by Petersen titled "Tape Recording Apparatus And System Having A Very Thin Cassette," U.S. Pat. No. 4,904,853 by Yokokawa titled "Dual-Function Information-Carrying Sheet Device," U.S. Pat. No. 5,411,259 by Pearson et al. titled "Video Sports Game System Using Trading Cards," and U.S. Pat. No. 5,433,835 by Bauer titled "Talking Entertainment Card." These prior card devices, however, either used older methods of storing and communicating information such as cassettes or used integrated circuit technology. Accordingly, these prior methods can be expensive and complex to manufacture even in large volumes and neither understood nor appreciated the benefits, capabilities, design, or construction of optical digital data storage devices, and more particularly optical compact discs. Only recently has the technology and concepts related to the use of optical digital data storage devices really increased and been accepted in the market so that the relative price of optical digital data storage media has decreased dramatically.

Conventional compact discs, for example, are conventionally fabricated in either 80 millimeter ("mm") or 120 mm sizes and are formed of generally rigid plastic discs. As understood by those skilled in the art, the discs are often formed by the use of a mold-based replication system using injection molding techniques. Each compact disc includes a series of either circular or spiral data tracks which are illuminated and read by a source of coherent light such as a laser. In producing these compact discs, data is optically mastered from data files and positive copies of the data are made. Die stampers are produced from electroplated stamers, and discs are molded from the negative images on the die stampers. The discs are then individually metalized, and a lacquer coating is applied to each disc. The layer of rigid plastic positioned between each data track and the source of coherent light provides structural rigidity, protects the data tracks, and also functions as a single integral lens element to refract and focus the coherent light beam onto a selected data track. A disc label is also printed, and the disc inserted into a clam shell or other package for shipment to customers.

Recently, however, other thin film digital data storage medium and methods of manufacturing digital data storage media have been developed including for use with trading cards. An example of this thin film digital data storage medium and related methods can be seen in U.S. Pat. No.

5,579,296 by Smith et al. titled "Optically Readable Thin Film Digital Data Storage Medium." These recently developed trading cards, however, require extensive and new manufacturing investments, require a special adaptor to make the trading cards compatible with compact disc playing systems, and can be inhibited by marketing and manufacturing constraints, including the additional special adaptor, which can make this recently developed technology less commercially feasible.

SUMMARY OF THE INVENTION

With the foregoing in mind, the present invention provides a trading card optical compact disc and methods of using a compact disc which are readily compatible with existing disc readers and relatively inexpensive to manufacture. The present invention also advantageously provides a trading card optical compact disc and method of forming a trading card that stores and communicates trading card information to a user of a disc reader in a manner that is relatively easy to manufacture in conjunction with known optical compact disc manufacturing techniques and thereby does not require extensive additional molding and tooling costs. The present invention further provides a trading card optical compact disc which does not require a separate special adaptor for compatibility with existing disc readers.

More particularly, a trading card optical compact disc and method of using and forming the compact disc are provided which are compatible with a disc reader having a centrally located spindle and a seating ring for supporting and rotating a compact disc positioned thereon. The trading card optical compact disc according to a first embodiment of the present invention preferably has at least a first plastic rectangular layer having a width of about 2.5 inches and a length of about 3.5 inches and having a pattern of digital data encoded thereon. A second metallic layer if formed on at least portions of the first plastic layer, and a third protective layer is formed on at least the second layer for protecting the metallic layer. An indicia bearing fourth layer is formed on the third layer and has a generally planar upper surface for displaying indicia therefrom. An opening extends through the first, second, third, and fourth layers in a medial portion thereof. Trading card interface seating means is preferably integrally formed in at least the first layer for seating the trading card onto a loading tray of a disc reader so as to interface with only portions of the seating ring and not other portions of the seating ring of the disc reader and to read digital data stored thereon from the trading card optical compact disc.

According to the present invention, the trading card seating means is preferably provided by the at least a first plastic layer which has a major elevational portion having a first predetermined height and a minor elevational portion having a second predetermined height. The major elevational portion has the encoded digital data thereon, and the minor elevational portion is preferably devoid of the encoded digital data. For alignment, balancing, and compatibility purposes, the major elevational portion is advantageously formed in a medial portion of the trading card and has first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the major elevational portion. Each of the first pair of space-apart outer side peripheries accurately extend between each of the second pair of space-apart outer side peripheries. Each of the second pair of space-apart outer side peripheries extend generally linearly between each of the first pair of spaced-apart outer peripheries. Each of the accurately-extending first pair of spaced-apart outer side peripheries of the major elevational

portion are centered about an axis extending through the medial opening and generally perpendicular to the linearly-extending second pair of space-apart outer side peripheries. The encoded digital data of the major elevational portion of the first layer is formed within a circular data zone and preferably does not cover, i.e., less than, the entire surface area of the major elevational portion of the first layer. The circular data zone has a first inner circular periphery having a radius of at least 0.6 inches and a second outer circular periphery having a radius of less than 1.25 inches. The circular data zone is preferably capable of storing between 60-70 Megabytes of information or data therein in some compact disc format, e.g., audio or CD-ROM, or 450-500 Megabytes in other compact disc formats, e.g., digital video. A first non-metallic zone surrounds and extends outwardly a predetermined distance from the medial opening, and a second non-metallic zone extends inwardly from the rectangular outer perimeter of the trading card optical compact disc a predetermined distance.

By the provision of the trading card interface seating means, the trading card optical compact disc of the present invention advantageously allows a user thereof to readily position the disc into a conventional disc reader with any separate special attachments, adapters, or fasteners. The positioning of and construction of the trading card interface seating means also enables the disc to balance and rotate effectively within a conventional disc reader. By not requiring a separate adapter, the trading card optical compact disc advantageously can be easier to use and, in some embodiments, easier and less expensive to manufacture.

A method of using a trading card optical compact disc to communicate digitally encoded data to a user of an optical disc reader is also provided according to the present invention. The method preferably includes positioning a trading card optical compact disc having an opening extending through a medial portion thereof onto a loading tray of a disc reader so that the compact disc interfacingly seats onto only portions of a seating ring and not other portions of the seating ring of the disc reader.

Additionally, methods of forming a trading card optical compact disc are provided according to the present invention. A method preferably includes molding at least a first plastic rectangular layer having a width of about 2.5 inches and a length of about 3.5 inches and having a pattern of digital data encoded thereon. The at least a first plastic layer preferably includes a major elevational portion having a first predetermined height and a minor elevational portion having a second predetermined height. The major elevational portion has the encoded digital data thereon and the minor elevational portion is devoid of the encoded digital data.

Another method of forming a trading card optical disc preferably includes positioning a compact disc having a pattern of digital data encoded thereon onto a medial portion of a surface of a trading card having a width of about 2.5 inches and a length of about 3.5 inches, the combination of the compact disc and the trading card having a major elevational portion and a minor elevational portion so that the major elevational portion interfacingly seats the combination onto a loading tray of a disc reader so as to interface with only portions of the seating ring and not other portions of the seating ring of the disc reader and to read digital data stored thereon from the trading card optical compact disc. The major elevational portion has the encoded digital data thereon, and the minor elevational portion is preferably devoid of the encoded digital data. The major elevational portion has first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the major elevational portion.

Each of the first pair of space-apart outer side peripheries arcuately extends between each of the second pair of space-apart outer side peripheries. Each of the second pair of space-apart outer side peripheries extends generally linearly between each of the first pair of spaced-apart outer peripheries.

Because the trading card optical compact disc and associated methods were conceived and developed while keeping in mind the commercial viability and ease of manufacturing, the trading card optical compact disc is preferably formed using conventional compact disc manufacturing techniques. This, for example, advantageously allows training, tooling, and other associated manufacturing costs to be reduced and advantageously provides incentives for manufacturers to more readily accept the technology for manufacturing purposes. In contrast to other known concepts, by providing incentives to make this technology readily manufacturable by existing compact disc manufacturers, the present invention achieves a significant goal in reducing the overall price of the end product to ultimate purchasers.

BRIEF DESCRIPTION OF THE DRAWINGS

Some of the features, advantages, and benefits of the present invention having been stated, others will become apparent as the description proceeds when taken in conjunction with the accompanying drawings in which:

FIG. 1 is a perspective view of trading card optical compact disc according to the present invention;

FIG. 2A is a bottom plan view of a trading card optical compact disc according to a first embodiment of the present invention;

FIG. 2B is a bottom plan view of a trading card optical compact disc according to a second embodiment of the present invention;

FIG. 3 is a side elevational view of a trading card optical compact disc according to a first embodiment of the present invention;

FIG. 4 is a vertical sectional view of a trading card optical compact disc according to taken along line 4-4 for FIG. 2A according to a first embodiment of the present invention;

FIG. 5 is a vertical sectional view of a trading card optical compact disc taken along line 5-5 of FIG. 2B according to a second embodiment of the present invention;

FIG. 6 is a perspective view of a trading card optical compact disc according to the third embodiment of the present invention;

FIG. 7 is a bottom plan view of a trading card optical compact disc according to the third embodiment of the present invention;

FIG. 8 is a vertical sectional view of a trading card optical compact disc taken along the line 8-8 of FIG. 7 according to the third embodiment of the invention;

FIG. 9 is a perspective view of a trading card optical compact disc being positioned into a disc reader according to a first embodiment of the present invention; and

FIG. 10 is a fragmentary perspective view of a trading card optical disc positioned in a disc reader and being rotated for reading digital data therefrom.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in

which preferred embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein. Rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. Like numbers refer to like elements throughout, and prime and double prime notation are used to indicate similar elements in alternative embodiments.

FIG. 1 illustrates a perspective view of a trading card optical compact disc 20 according to an embodiment of the present invention. The trading card optical compact disc 20 is preferably compatible with a disc reader 15 (see FIGS. 9-10) which includes a centrally located spindle S and a seating ring R of a loading tray T for supporting and rotating a compact disc ("CD") positioned thereon. The trading card optical compact disc 20 has at least a first plastic rectangular layer 21 having a width of about 2.5 inches and a length of about 3.5 inches and having a pattern of digital data encoded thereon, i.e., pits and tracks as understood by those skilled in the art. The plastic of the first layer 21 is preferably a polycarbonate material or other optically transparent embossable plastic material as understood by those skilled in the art.

Various formats or data categories, including compact disc audio data, digital video disc ("DVD"), and/or compact disc read-only-memory ("ROM") data can be embossed into and stored on the first layer 21 by techniques known to those skilled in the art. For trading card applications (see FIG. 1), for example, digital data including visual information of photographs, video, textual information such as a person's or team's statistics and biographies, historical information, music, narration, and other data can be stored and recalled at will by a user of a disc reader 15. As understood by those skilled in the art, these trading card applications, for example, can include sports, music, entertainment, publishing, book, magazine, topical information, or various other types and formats of trading cards.

A conventional compact disc reader 15, for example, can include a loading tray T having a centrally located spindle S and a seating ring R for supporting and rotating a compact disc having planar upper and lower surfaces and embedded data tracks consisting of the encoded digital data. A compact disc reader 15 also has a digital data reading system which includes a source of light positioned for generating a light beam to illuminate the data tracks. A light beam is reflected from the data tracks and is modulated by the encoded digital data. A digital reading system of the compact disc reader 15 receives and converts a corresponding electrical signal for processing the read data, e.g., by a microprocessor-based decoding system.

Preferably, as illustrated in FIGS. 2A-2B, 3-5 and 8, a second metallic layer 24 is formed on at least portions of the first plastic layer 21, e.g., portions of or the entire major elevational portion 22 of the first plastic layer (see FIGS. 2A and 4). The metallic layer 24 preferably includes an aluminum material, such as conventionally used with forming optical compact discs, silver material, gold material, or other reflective metal material. The second layer 24 preferably provides a reflective surface for the light beam after it passes through the first optically transparent plastic layer 21 when attempting to read the digitally encoded data from the disc 20. As illustrated in FIGS. 2B and 5, for ease of manufacturing and aesthetic purposes, a second embodiment of the trading card 20' illustrates that the second layer 24' can also extend substantially the full length and width of the trading card optical compact disc 20'. The second embodiment also

includes a first layer 21', a major elevational portion 22', the second layer 24', a third layer 26', a fourth indicia bearing layer 28', and a medial opening 32' extending therethrough (see also opening 32" of FIG. 8) as illustrated. In either the first or second embodiments of the trading card optical compact disc 20, 20', however, a non-metallic zone 23, 23' (see also 23" of FIG. 7) is preferably formed around the entire peripheries of the trading card optical compact disc 20, 20'.

Additionally, a third protective layer 26 is preferably formed on at least the second layer 24 for protecting the metallic layer 24 such as from chipping, flaking, or other damage. The third layer 26 is preferably a lacquer material or other thin hard coat material which is formed on the first and second layers 21, 24 to enhance the scratch resistance and provide other protection for these layers 21, 24. A fourth indicia bearing layer 28 is preferably formed on the third layer 26 and has a generally planar upper surface for displaying indicia 29 therefrom (see also indicia 29" of FIG. 6). The indicia 29 is preferably a photograph, sketch, textual information, or other images formed by ink or other material formed or positioned onto either the lacquer layer or formed by another material, e.g., paper or plastic, formed on or adhered to the lacquer layer 26. Also, for example, if the indicia bearing layer is a paper material adhered to the lacquer layer 26, then an adhesive is preferably positioned therebetween. The thickness of the combination of the first, second, third, and fourth layers 21, 24, 26, 28 of the first and second embodiments is preferably less than about 0.06 inches or 1.5 mm.

As best shown in FIGS. 6-8, the thickness of the combination of the first, second, third, and fourth layers 21", 24", 26", 28" of the third embodiment of a trading card optical compact disc 20", e.g., a DVD format, which preferably uses a digital video data format is also preferably less than about 0.06 inches or 1.5 mm. This embodiment, as understood by those skilled in the art, preferably has at least two plastic layers 21a", 21b" each which are less than 0.03 inches or 0.75 inches or which form a composite layer and define a major elevational portion 22" as illustrated in the other embodiments. These two plastic layers 21a", 21b", however, are also preferably positioned prior to the metallic layer or second layer 24". These plastic layers 21a", 21b" are preferably used for data encoding, focusing, and image enhancement, especially in the DVD format as understood by those skilled in the art, have smaller pits, and form two levels of digitally encoded data.

An opening 32 preferably extends through the first, second, third, and fourth layers 21, 24, 26, 28 in a medial portion thereof (see FIGS. 1-2B and 6-7). The trading card optical compact disc 20 preferably has a perforated opening cover 33 which preferably attaches along perforation lines to either the third or fourth layers 26, 28. The opening cover 33 is preferably packaged and shipped with the trading card optical compact disc 20 so that the purchaser or user of the card can detach or remove the opening cover 33 from the card 20 for positioning the card 20 onto the spindle S of a disc reader 15. The opening 32 preferably has a diameter of about 0.6 inches, i.e., about 15 mm, and is primarily used to mount the card 20 onto the spindle S of a disc reader 15.

As illustrated in FIGS. 2A-2B, 3-5, and 7-8, a trading card optical compact disc 20 of the present invention also preferably has trading card interface seating means 40, e.g., preferably provided by a trading card interface seat, integrally formed in at least the first layer 21 for seating the trading card 20 onto a loading tray T of a disc reader 15 so as to interface with only portions of the seating ring R and

not other portions of the seating ring R of the disc reader 15 and to read digital data stored thereon from the trading card optical compact disc 20. The trading card seating means 40 preferably includes at least the first plastic layer having a major elevational portion 22 having a first predetermined height and a minor elevational portion 23 having a second predetermined height. The first predetermined height preferably is about 0.05 inches. The major elevational portion 22 has the encoded digital data thereon, and the minor elevational portion 23 is preferably devoid of the encoded digital data. By the provision of the trading card interface seating means 40, the trading card optical compact disc 20 therefore advantageously does not require a separate special adapter for compatibility with existing disc readers. The positioning of and construction of the trading card interface seating means 40 also enables the disc 20 to balance and rotate effectively within a conventional disc reader 15.

The major elevational portion 22 is formed in a medial portion of the trading card 20 and has first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the major elevational portion 22. Each of the first pair of space-apart outer side peripheries arcuately extend between each of the second pair of space-apart outer side peripheries. Each of the second pair of space-apart outer side peripheries extend generally linearly between each of the first pair of spaced-apart outer peripheries. Each of the arcuately-extending first pair of spaced-apart outer side peripheries of the major elevational portion 22 are centered about an axis A extending through the medial opening 32 and generally perpendicular to the linearly-extending second pair of space-apart outer side peripheries 38 (see also 38' of FIG. 2B and 38" of FIG. 7). A radius extending from a medial portion of the medial opening 32 to each of the arcuately-extending first pair of spaced-apart outer side peripheries of the major elevational portion 22 is less than 1.6 inches.

As perhaps best illustrated in FIG. 2A, the encoded digital data of the major elevational portion 22 of the first layer 21 is formed within a circular data zone 34 (see also 34' of FIGS. 2B and 5 and 34" of FIG. 7) and preferably does not cover, i.e., is less than, the entire surface area of the major elevational portion 22 of the first layer 21. The circular data zone 34 has a first inner circular periphery having a radius of at least 0.6 inches and a second outer circular periphery having a radius of less than 1.25 inches. The circular data zone 34 is preferably capable of storing between 60-70 Megabytes of digital information or digital data therein in some formats, e.g., audio or CD-ROM and capable of storing between 450-500 Megabytes of digital information in other formats, e.g., DVD. A first non-metallic zone 36 (see also 36' of FIGS. 2B and 5 and 36" of FIG. 7) surrounds and extends outwardly a predetermined distance from the medial opening 32. A second non-metallic zone 38 extends inwardly from the rectangular outer perimeter of the trading card optical compact disc 20 a predetermined distance. The first non-metallic zone 36 preferably includes a stacking ring 37 (see also 37' of FIGS. 2B and 5 and 37" of FIG. 7) surrounding the opening 32 for stacking another optical compact disc thereon such as used during mass production. It will be understood by those skilled in the art, however, that the stacking ring 37 is not necessary in the construction of the trading card optical compact disc 20 according to the present invention.

As illustrated in FIGS. 1-10, the present invention also advantageously provides methods of using and methods of forming a trading card optical compact disc 20 according to the present invention. As perhaps best illustrated in FIG. 9,

a method of using a trading card optical compact disc 20 to communicate digitally encoded data to a user of a disc reader 15 preferably includes positioning a trading card optical compact disc 20 having an opening 32 extending through a medial portion thereof onto a spindle S of a disc reader 15. The compact disc 20 preferably interfacingly seats onto only portions of a seating ring R and not other portions of the seating ring R of the disc reader 15. The trading card optical compact disc 20 can also be rotated so as to read digitally encoded data therefrom (see, e.g., FIG. 10).

A method of forming a trading card optical compact disc 20 according to the present invention preferably includes molding at least one plastic rectangular layer 21 having a width of about 2.5 inches and a length of about 3.5 inches and having a pattern of digital data encoded thereon. Prior to this molding step, however, and as understood by those skilled in the art, data for the disc 20 is optically, e.g., preferably by laser techniques, mastered from data files or other software programs. The master is then electroplated with a metal material, e.g., silver, and prepped for replicating positive mold copies or stamms. Die stampers are produced from the electro-plated stamms. The plastic layer 21 is then formed by injection molding from a negative image on a die stamper. Alternatively, as understood by those skilled in the art, two plastic layers 21a", 21b" can be formed as illustrated in FIG. 8 for DVD format. The plastic layer 21 preferably includes a major elevational portion 22 having a first predetermined height and a minor elevational portion 23 having a second predetermined height. The major elevational portion 22 preferably has the encoded digital data thereon, and the minor elevational portion 23 is preferably devoid of the encoded digital data. These major and minor elevational portions 21, 24 and the digitally encoded data are preferably formatted and implemented in the optical mastering step.

The major elevational portion 22 is preferably formed in a medial portion of the trading card optical compact disc 20 and has first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the major elevational portion 22. Each of the first pair of space-apart outer side peripheries arcuately extend between each of the second pair of space-apart outer side peripheries. Each of the second pair of space-apart outer side peripheries extending generally linearly between each of the first pair of spaced-apart outer peripheries. The encoded digital data of the major elevational portion 22 of the plastic layer 21 is preferably formed within a circular data zone 34 and comprises less than the entire surface area of the major elevational portion 22 of the plastic layer 21. The molding of the plastic layer 21 preferably includes molding an opening 34 extending through a medial portion of the plastic layer 21.

The method can also include applying a metallic layer 24 on at least portions of the plastic layer 21 and applying a third protective layer 26 on at least the metallic layer 24 for particularly protecting the metal material of the metallic layer 24. The metallic layer 24, for example, can be applied by metalizing the plastic layer 21 through a high speed spinning process or other metalizing processes known to those skilled in the art. The third layer 26 is preferably applied by pouring or spraying a curable liquid onto the second layer 24 in a controlled manner. The method can further include applying an indicia bearing layer 28 on the third layer 26. The indicia bearing layer 28 preferably has a generally planar upper surface for displaying indicia 29 therefrom. The formed disc 20 can then be packaged in a clam shell package, a custom package, or other compact disc package as understood by those skilled in the art. The present invention thereby advantageously provides a trading

card optical compact disc 20 and method of forming a trading card that stores and communicates trading card information to a user of a disc reader 15 in a manner that is relatively easy to manufacture in conjunction with known optical compact disc manufacturing techniques, e.g., an in-line production process, and thereby does not require extensive additional molding and tooling costs.

A method of forming a trading card optical compact disc 20 according to another embodiment of the present invention includes positioning a compact disc having a pattern of digital data encoded thereon onto a medial portion of a surface of a trading card having a width of about 2.5 inches and a length of about 3.5 inches. The combination of the compact disc and the trading card preferably have a major elevational portion and a minor elevational portion so that the major elevational portion interfacingly seats the combination onto a loading tray T of a disc reader 15 so as to interface with only portions of the seating ring R and not other portions of the seating ring R of the disc reader 15 and to read digital data stored thereon from the trading card optical compact disc 20. The major elevational portion 22 has the encoded digital data thereon and the minor elevational portion 23 is preferably devoid of the encoded digital data. The major elevational portion 22 has first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the major elevational portion 22. Each of the first pair of space-apart outer side peripheries arcuately extends between each of the second pair of space-apart outer side peripheries. Each of the second pair of space-apart outer side peripheries extends generally linearly between each of the first pair of spaced-apart outer side peripheries. The major elevational portion 22 is formed in a medial portion of the trading card 20 and has first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the major elevational portion 20. Each of the first pair of space-apart outer side peripheries arcuately extending from each of the second pair of space-apart outer side peripheries. Also, each of the second pair of space-apart outer side peripheries extending generally linearly from each of the first pair of spaced-apart outer peripheries. The combination preferably includes an opening 32 formed in a medial portion thereof. Each of the arcuately-extending first pair of spaced-apart outer side peripheries of the major elevational portion are centered about an axis extending through the medial opening 32 and generally perpendicular to the linearly-extending second pair of space-apart outer side peripheries. A radius extending from a medial portion of the medial opening to each of the arcuately-extending first pair of spaced-apart outer side peripheries of the major elevational portion is less than 1.6 inches.

Many modifications and other embodiments of the invention will come to the mind of one skilled in the art having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is to be understood that the invention is not to be limited to the specific embodiments disclosed, and that modifications and embodiments are intended to be included within the scope of the appended claims.

That which is claimed is:

1. A trading card optical compact disc compatible with a disc reader which includes a centrally located spindle and a recess in a loading tray thereof defining a seating ring for supporting and rotating a trading card optical compact disc positioned thereon, the trading card optical compact disc comprising:

at least a first plastic rectangular layer having a width of about 2.5 inches and a length of about 3.5 inches and having a pattern of digital data encoded thereon;

a second metallic layer formed on at least portions of the first plastic layer;

A third protective layer formed on at least the second layer for protecting the metallic layer;

an indicia bearing fourth layer formed on the third layer and having a generally planar upper surface for displaying indicia therefrom;

an opening extending through the first, second, third, and fourth layers in a medial portion thereof; and

trading card interface seating means integrally formed in at least the first layer for seating the trading card onto the loading tray of the disc reader so as to interface with only portions of the seating ring of the disc reader and to read digital data stored thereon from the trading card optical compact disc.

2. A trading card optical compact disc as defined in claim 1, wherein said trading card seating means comprises at least said first plastic layer including a major elevational portion having a first predetermined height and a minor elevational portion having a second predetermined height, the major elevational portion having the encoded digital data thereon and the minor elevational portion being devoid of the encoded digital data.

3. A trading card optical compact disc as defined in claim 2, wherein the major elevational portion is formed in a medial portion of the trading card and has first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the major elevational portion, each of the first pair of spaced-apart outer side peripheries arcuately extending between each of the second pair of spaced-apart outer side peripheries, and each of the second pair of spaced-apart outer side peripheries extending generally linearly between each of the first pair of spaced-apart outer peripheries.

4. A trading card optical compact disc as defined in claim 3, wherein each of the arcuately-extending first pair of spaced-apart outer side peripheries of the major elevational portion are centered about an axis extending through the medial opening and generally perpendicular to the linearly-extending second pair of spaced-apart outer side peripheries, and wherein a radius extending from a medial portion of said medial opening to each of the arcuately-extending first pair of spaced-apart outer side peripheries of the major elevational portion is no more than 1.6 inches.

5. A trading card optical compact disc as defined in claim 3, wherein the encoded digital data of the major elevational portion of said first layer is formed within a circular data zone and comprises less than the entire surface area of the major elevational portion of said first layer.

6. A trading card optical compact disc as defined in claim 5, wherein the circular data zone has a first inner circular periphery having a radius of at least 0.6 inches and a second outer circular periphery having a radius of less than 1.25 inches.

7. A trading card optical compact disc as defined in claim 1, wherein the plastic of said first layer comprises polycarbonate.

8. A trading card optical compact disc as defined in claim 1, further comprising a first non-metallic zone surrounding and extending outwardly a predetermined distance from the medial opening and a second non-metallic zone extending inwardly from a rectangular outer perimeter of the trading card optical compact disc a predetermined distance.

9. A trading card optical compact disc as defined in claim 8, wherein the first non-metallic zone includes a stacking ring surrounding the opening for stacking another trading card optical compact disc thereon.

10. A trading card optical compact disc compatible with a disc reader which includes a centrally located spindle and a seating ring for supporting and rotating a compact disc positioned thereon, the trading card optical compact disc comprising:

at least a first polycarbonate rectangular layer having a width of about 2.5 inches and a length of about 3.5 inches and having a pattern of digital data encoded thereon, said first polycarbonate layer including a major elevational portion having a first predetermined height and a minor elevational portion having a second predetermined height so that the major elevational portion interfacingly seats the trading card onto a loading tray of the disc reader so as to interface with only a portion of the seating ring of the disc reader and to read digital data stored thereon from the trading card optical compact disc, the major elevational portion having the encoded digital data thereon and the minor elevational portion being devoid of the encoded digital data, the major elevational portion being formed in a medial portion of the trading card and having first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the major elevational portion, each of the first pair of spaced-apart outer side peripheries arcuately extending between each of the second pair of spaced-apart outer side peripheries, and each of the second pair of spaced-apart outer side peripheries extending generally linearly between each of the first pair of spaced-apart outer side peripheries; a second metallic layer formed on at least portions of the first polycarbonate layer;

at least a third layer formed on at least the second layer for protecting the metallic layer and for displaying indicia therefrom; and

an opening extending through the first, second, and third layers in a medial portion thereof.

11. A trading card optical compact disc as defined in claim 10, wherein each of the arcuately-extending first pair of spaced-apart outer side peripheries of the major elevational portion are centered about an axis extending through the medial opening and generally perpendicular to the linearly-extending second pair of spaced-apart outer side peripheries, and wherein a radius extending from a medial portion of said medial opening to each of the arcuately-extending first pair of spaced-apart outer side peripheries of the major elevational portion is no more than 1.6 inches.

12. A trading card optical compact disc as defined in claim 11, wherein the encoded digital data of the major elevational portion of said first layer is formed within a circular data zone and comprises less than the entire surface area of the major elevational portion of said first layer.

13. A trading card optical compact disc as defined in claim 12, wherein the circular data zone has a first inner circular periphery having a radius of at least 0.6 inches and a second outer circular periphery having a radius of less than 1.25 inches.

14. A trading card optical compact disc as defined in claim 13, further comprising a first non-metallic zone surrounding and extending outwardly a predetermined distance from the medial opening and a second non-metallic zone extending inwardly from a rectangular outer perimeter of the trading card optical compact disc a predetermined distance.

15. A trading card optical compact disc as defined in claim 14, wherein the first non-metallic zone includes a stacking ring surrounding the opening for stacking another trading card optical compact disc thereon.

16. A trading card optical compact disc comprising:

at least a first plastic rectangular layer having a width of about 2.5 inches and a length of about 3.5 inches so as to define a rectangular outer perimeter and having a pattern of digital data encoded thereon, said first plastic layer including a major elevational portion and a minor elevational portion, the major elevational portion having the encoded digital data thereon and the minor elevational portion being devoid of the encoded digital data, the major elevational portion being formed in a medial portion of the trading card and having first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the major elevational portion, each of the first pair of spaced-apart outer side peripheries arcuately extending between each of the second pair of spaced-apart outer side peripheries, and each of the second pair of spaced-apart outer side peripheries extending generally linearly between each of the first pair of spaced-apart outer side peripheries;

a second metallic layer formed on at least portions of the first plastic layer;

at least a third layer formed on at least the second layer for protecting the metallic layer and for displaying indicia therefrom;

an opening extending through the first, second, and third layers in a medial portion thereof;

a first non-metallic zone surrounding and extending outwardly a predetermined distance from the medial opening; and

a second non-metallic zone extending inwardly from the rectangular outer perimeter of the trading card optical compact disc a predetermined distance.

17. A trading card optical compact disc as defined in claim 16, wherein each of the arcuately-extending first pair of spaced-apart outer side peripheries of the major elevational portion are centered about an axis extending through the medial opening and generally perpendicular to the linearly-extending second pair of spaced-apart outer side peripheries, and wherein a radius extending from a medial portion of said medial opening to each of the arcuately-extending first pair of spaced-apart outer side peripheries of the major elevational portion is no more than 1.6 inches.

18. A trading card optical compact disc as defined in claim 17, wherein the encoded digital data of the major elevational portion of said first layer is formed within a circular data zone and comprises less than the entire surface area of the major elevational portion of said first layer.

19. A trading card optical compact disc as defined in claim 18, wherein the circular data zone has a first inner circular periphery having a radius of at least 0.6 inches and a second outer circular periphery having a radius of less than 1.25 inches.

20. A trading card optical compact disc as defined in claim 16, wherein the first non-metallic zone includes a stacking ring surrounding the opening for stacking another trading card optical compact disc thereon.

21. A trading card optical compact disc having a width of about 2.5 inches and a length of about 3.5 inches, the trading card optical compact disc comprising:

at least a first plastic layer having a pattern of digital data encoded thereon, said first plastic layer including a major elevational portion having a first predetermined height and a minor elevational portion having a second predetermined height, the major elevational portion having the encoded digital data thereon and the minor elevational portion being devoid of the encoded digital data.

13

data, the major elevational portion being formed in a medial portion of the trading card and having first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the major elevational portion, each of the first pair of spaced-apart outer side peripheries arcuately extending between each of the second pair of spaced-apart outer side peripheries, and each of the second pair of spaced-apart outer side peripheries extending generally linearly between each of the first pair of spaced-apart outer side peripheries; a second metallic layer formed on at least portions of the first plastic layer; at least a third layer formed on at least the second layer for displaying indicia therefrom; an opening extending through the first, second, and third layers in a medial portion thereof; a first non-metallic zone surrounding and extending outwardly a predetermined distance from the medial opening; and a second non-metallic zone extending inwardly from a rectangular outer perimeter of the trading card optical compact disc a predetermined distance.

22. A trading card optical compact disc as defined in claim 21, wherein each of the arcuately-extending first pair of spaced-apart outer side peripheries of the major elevational portion are centered about an axis extending through the medial opening and generally perpendicular to the linearly-extending second pair of spaced-apart outer side peripheries, and wherein a radius extending from a medial portion of said medial opening to each of the arcuately-extending first pair of spaced-apart outer side peripheries of the major elevational portion is no more than 1.6 inches.

23. A method of forming a trading card optical compact disc, the method comprising the step of molding at least one

14

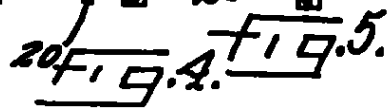
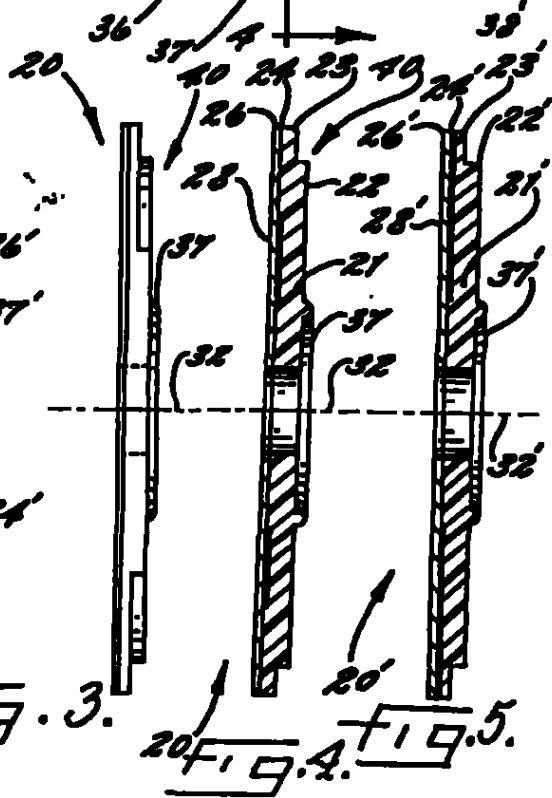
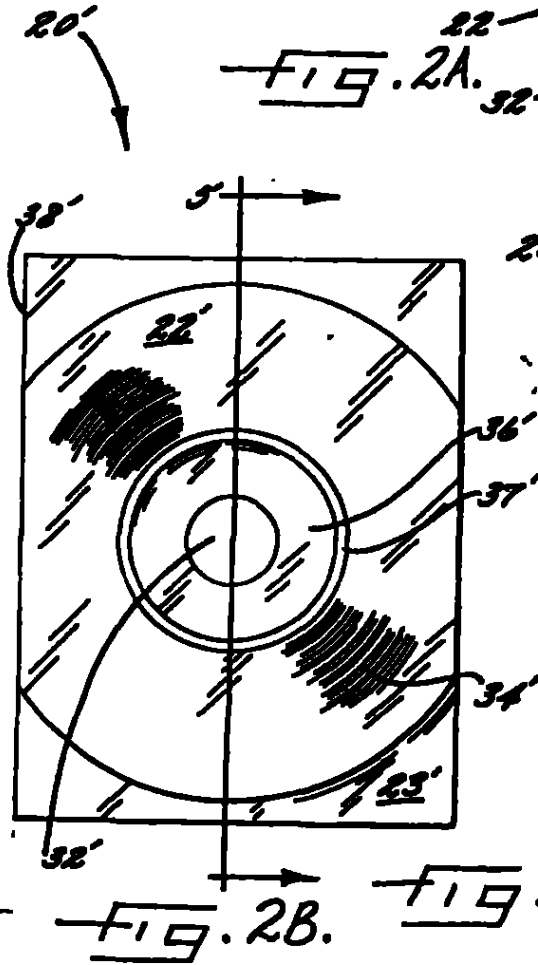
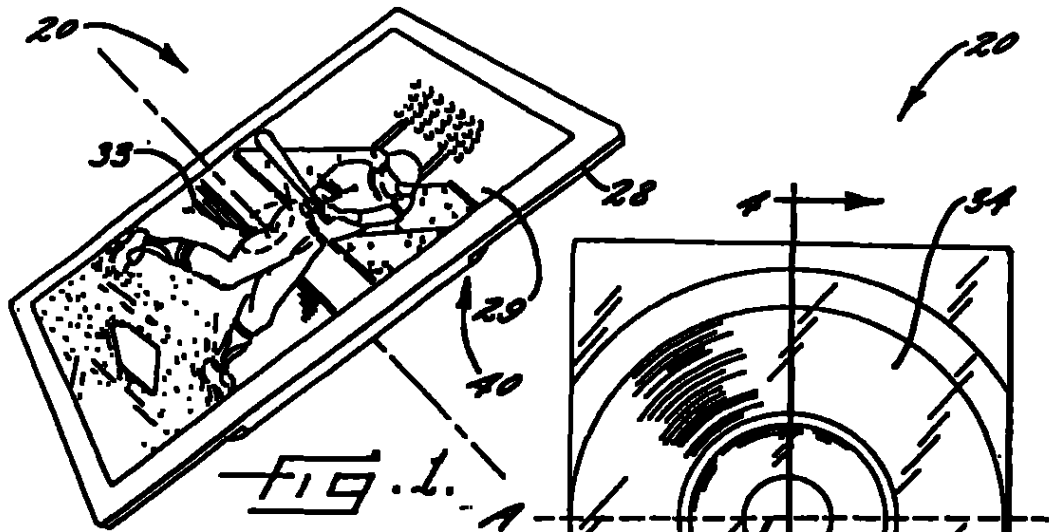
plastic rectangular layer having a width of about 2.5 inches and a length of about 3.5 inches and having a pattern of digital data encoded thereon, the at least one plastic layer having a major elevational portion and a minor elevational portion, the major elevational portion having the encoded digital data thereon and the minor elevational portion being devoid of the encoded digital data, the major elevational portion being formed in a medial portion of the trading card optical compact disc and having first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the major elevational portion, each of the first pair of spaced-apart outer side peripheries arcuately extending between each of the second pair of spaced-apart outer side peripheries, and each of the second pair of spaced-apart outer side peripheries extending generally linearly between each of the first pair of spaced-apart outer side peripheries applying a metallic layer on at least portions of the at least one plastic layer; and forming an indicia bearing layer overlying the at least one plastic layer and the metallic layer for bearing trading card indicia thereon.

24. A method as defined in claim 23, wherein the encoded digital data of the major elevational portion of the plastic layer is formed within a circular data zone and comprises less than the entire surface area of the major elevational portion of the plastic layer.

25. A method as defined in claim 24, wherein the step of molding the plastic layer includes molding an opening extending through a medial portion of the plastic layer.

26. A method as defined in claim 23, further comprising the step of applying a protective layer on at least the metallic layer for protecting the metallic layer.

* * * * *



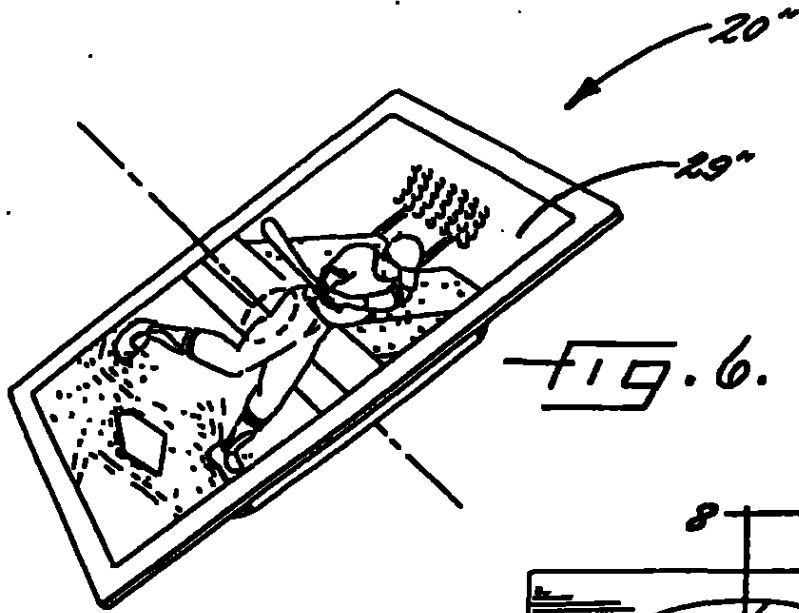


FIG. 6.

FIG. 7.

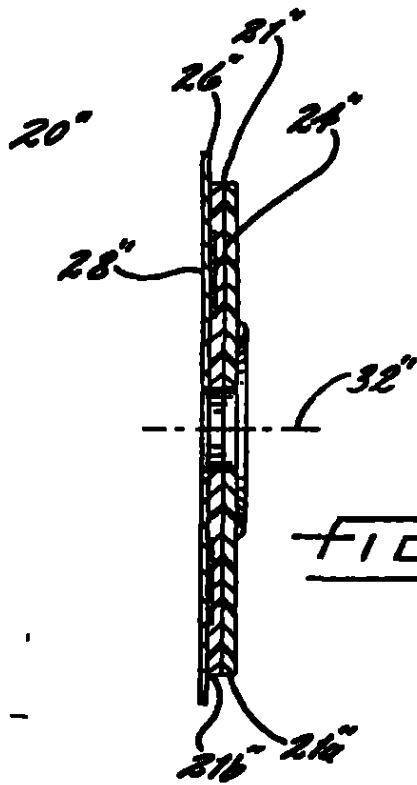
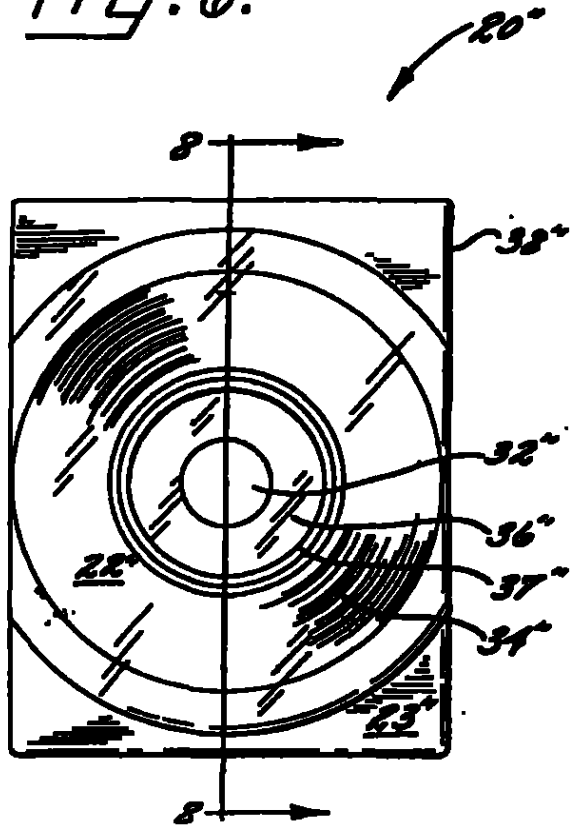
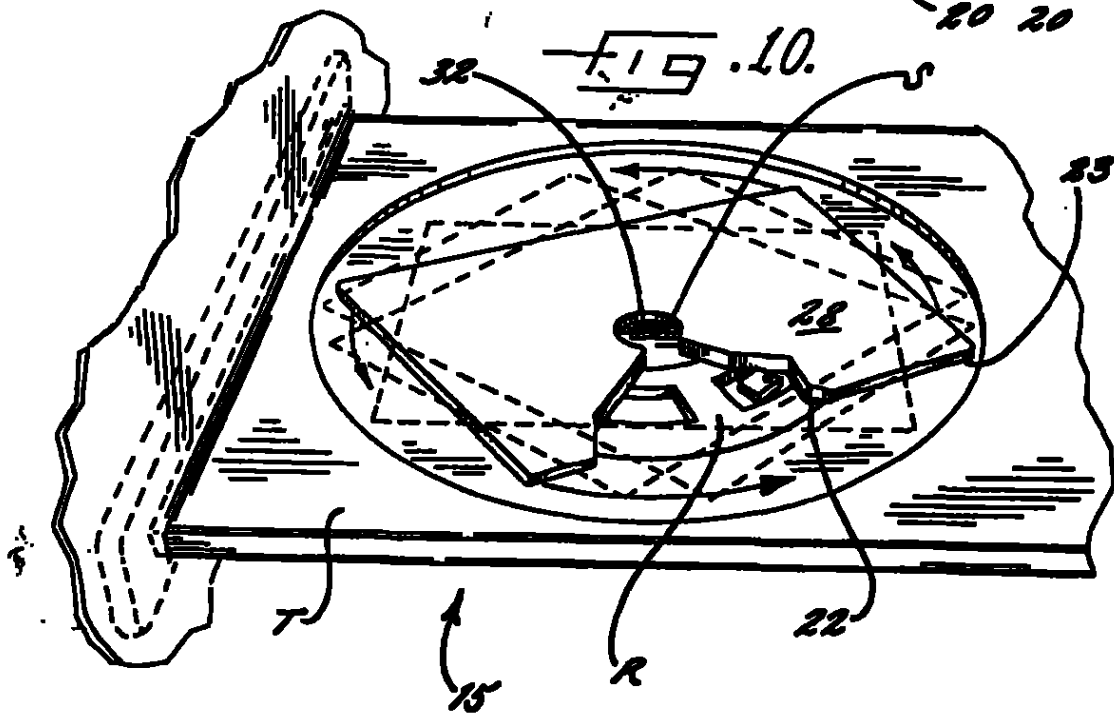
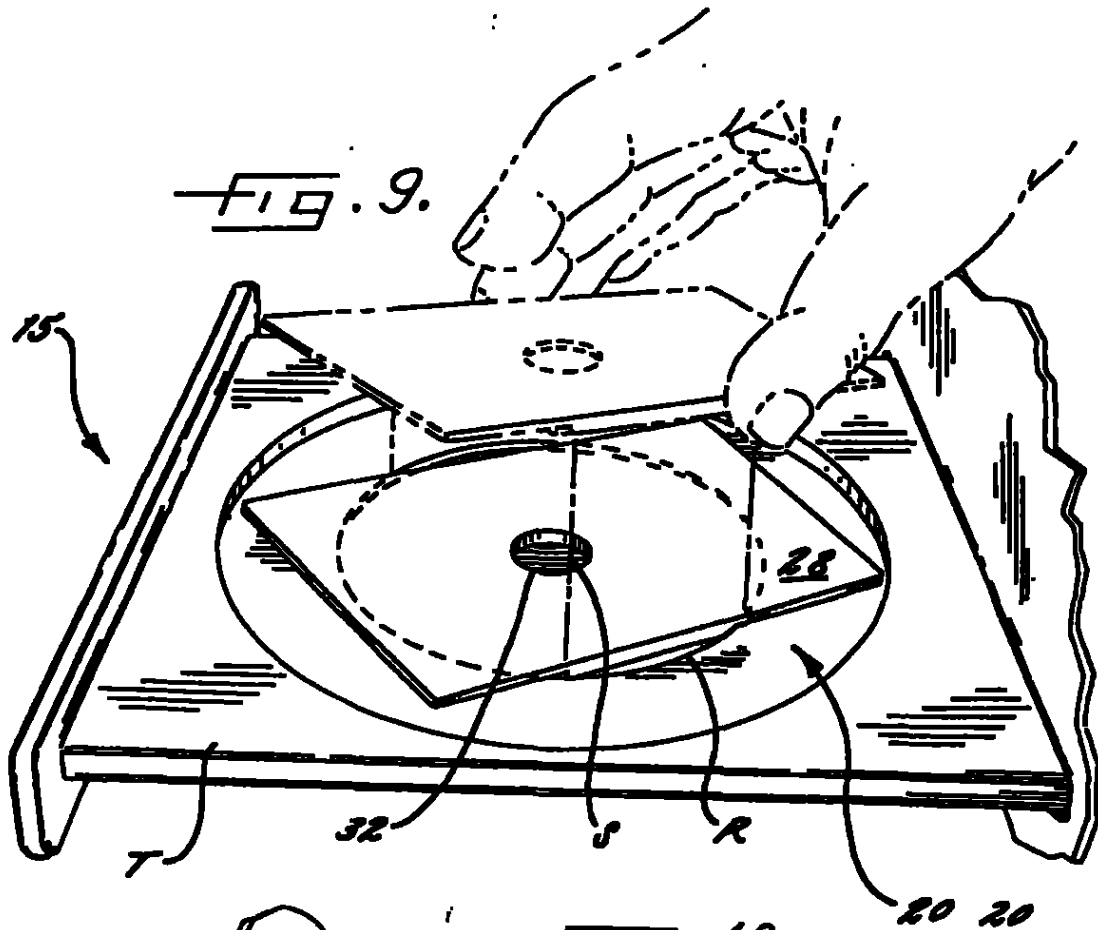
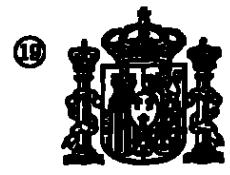


FIG. 8.



85



OFICINA ESPAÑOLA DE
PATENTES Y MARCAS

ESPAÑA

⑪ Número de publicación: **2 156 439**
⑫ Int. Cl.⁷: G06K 19/04
G11B 7/00
G11B 17/04

⑬ **TRADUCCION DE PATENTE EUROPEA** T3
⑭ Número de solicitud europea: **98912186.8**
⑮ Fecha de presentación : **15.04.1998**
⑯ Número de publicación de la solicitud: **0 990 220**
⑰ Fecha de publicación de la solicitud: **05.04.2000**

⑱ Título: **Tarjeta de visita con CD-ROM.**

⑲ Prioridad: **25.06.1997 CH 153797**
05.03.1998 CH 52698

⑳ Titular/es: **Advan High Tech Ltd.**
c/o Cox Hallett & Wilkinson,
18 Parliament Street
Hamilton HM 12, BM

㉑ Fecha de la publicación de la mención BOPI: **16.06.2001**

㉒ Inventor/es: **Flacher, Gerhard**

㉓ Fecha de la publicación del folleto de patente: **16.06.2001**

㉔ Agente: **Díez de Rivera de Elzaburu, Alfonso**

Aviso: En el plazo de nueve meses a contar desde la fecha de publicación en el Boletín europeo de patentes, de la mención de concesión de la patente europea, cualquier persona podrá oponerse ante la Oficina Europea de Patentes a la patente concedida. La oposición deberá formularse por escrito y estar motivada; sólo se considerará como formulada una vez que se haya realizado el pago de la tasa de oposición (art. 99.1 del Convenio sobre concesión de Patentes Europeas).

Venta de folletos: Oficina Española de Patentes y Marcas. C/Princesa, 1 - 28008 Madrid

ES 2 156 439 T3

DESCRIPCION

Tarjeta de visita con CD-ROM.

La invención se refiere a una tarjeta de visita según el preámbulo de la reivindicación principal.

Las tarjetas de visita son en general conocidas y habituales desde hace largo tiempo. Se proveen con nombres, designaciones de firmas y otras informaciones, reconocibles visualmente impresas en papel u otros materiales de base. Puesto que el formato es relativamente pequeño, solamente puede imprimirse en ellas una cantidad muy limitada de información. Esta cantidad de informaciones es suficiente en una transmisión directa a un interlocutor. En una consideración posterior de la tarjeta de visita, sin embargo, sería en general más satisfactorio cuando se tuviesen significativamente más informaciones en relación con el dador, respectivamente con la firma, para activar y completar la memoria.

Por el documento US 3,839,601 (Kimura) se conoce un aparato para leer tarjetas rectangulares de CD. Las tarjetas utilizadas tienen tres medios auxiliares de posicionamiento. Estos se componen de taladros pasantes. El aparato lector tiene tres salientes que se encajan en los taladros pasantes de la tarjeta. Una tarjeta semejante rectangular de registro se inserta fija en el aparato lector. El aparato lector presenta un dispositivo giratorio de lectura. Es decir, se necesita un aparato lector especial en el que la tarjeta permanece fija y el dispositivo de lectura gira alrededor de la tarjeta. Estas tarjetas no pueden utilizarse con un aparato corriente de CD. La tarjeta de CD presenta pues medios auxiliares de posicionamiento, pero ningún medio para centrar en una unidad normal de CD.

El documento JP 04040586 (Nippon Telegr.) muestra una tarjeta de crédito con zona de lectura de CD. Tiene un agujero centrador para alojar el pivote de un aparato de CD. Esta tarjeta puede enchufarse con el agujero centrador sobre el pivote impulsor de una unidad de CD. Esto sólo es posible en una unidad de disco total y libremente accesible por arriba, por ejemplo, en una unidad de disco con la etiqueta hacia arriba. Puesto que la zona de CD está dispuesta excéntrica a la tarjeta, una utilización de esta tarjeta, estropeará cualquier unidad de disco en la que gire la tarjeta.

Es misión de la invención presentar una tarjeta de visita que pueda imprimirse con informaciones en forma convencional, y que adicionalmente permita transmitir una gran cantidad de informaciones.

Esta misión se resuelve mediante la invención indicada en las reivindicaciones.

Una ventaja adicional de la invención es que como informaciones pueden disponerse en la tarjeta de visita, por ejemplo, informaciones completas de la firma, como programa de la firma, catálogos, formularios de pedido, y por ejemplo, hasta entrada automática en Internet a la página local de la firma.

Otra ventaja de la invención consiste en que la tarjeta de visita según la invención puede fabricarse también en formatos distintos.

La invención se describe a continuación en re-

lación con los dibujos. Se muestran:

Figura 1 Un ejemplo de una tarjeta de visita según la invención, en una vista desde abajo.

Figura 2 Una tarjeta de visita insertada en una unidad de CD - ROM.

Figura 3 Un ejemplo de una tarjeta de visita según la invención, en corte transversal.

La invención se describe ahora en detalle en relación con los dibujos.

La idea de la invención consiste en la combinación de tarjeta de visita y de CD - ROM. Por una parte existen tarjetas de visita, mayormente de papel, cartulina o plástico. Tienen un formato determinado, aproximadamente el mismo que es normal en las tarjetas de crédito y que está muy extendido en el mundo. Por otra parte se suministraron ya también por diversas firmas CD's con música o con catálogos e informaciones de las firmas. Evidentemente aquellos no pueden meterse en los campos de la tarjeta de visita, puesto que son demasiado grandes y redondos. Esto es válido también para los mini - CD's.

La nueva tarjeta de visita hace posible ahora las dos cosas. Se trata de un CD que en su formato corresponde a las tarjetas de visita y a pesar de todo se puede insertar y leer en una unidad normal de CD. Desde la tarjeta de visita se llega pues a una tarjeta de visita con CD.

Es bien conocido que una unidad corriente de CD, presenta un pivote central impulsor y un centrador de forma circular de la unidad de disco, en el que se inserta un CD. El centrador de la unidad de disco centra el CD insertado y lo acciona en la unidad de disco mediante el pivote impulsor. Durante el accionamiento el CD se encuentra guiado en y sobre una pequeña almohadilla de aire en el centrador de la unidad de disco, y es accionado mediante el pivote y el apoyo central. Para que en la misma unidad de disco puedan utilizarse CD's normales y mini - CD's, el centrador para los CD's está realizado en dos escalones adaptados para los dos diámetros diferentes. Como es sabido se separan mecánicamente uno de otro el accionamiento y el centrado, para que los CD's no se carguen mecánicamente y se dañen en la zona de su abertura de accionamiento.

Ya se han fabricado antes de ahora ciertos CD en determinadas formas diferentes del disco redondo, con fines publicitarios. Evidentemente aquellos presentan una forma en la que el borde corresponde siempre en varios puntos con el perímetro normal del CD. Cuando tales CD's están insertados en la unidad de disco, el pivote impulsor se encaja en la escotadura central de accionamiento del CD y el CD se apoya con varios puntos de su perímetro dentro del borde de centrado del centrador de la unidad de disco. Estos CD's se designan como "CD's conformados" Su forma se obtiene por fresado de un CD redondo corriente.

Sin embargo, un CD con el tamaño y la forma de una tarjeta de visita, es demasiado pequeño para apoyarse en el centrador de una unidad de disco. No corresponde en forma alguna al formato del CD normal o del mini - CD. El problema decisivo es el centrado en la unidad corriente de CD. Esto se resuelve ahora estructurando la tarjeta de visita como CD - ROM en el formato de tarjeta

de visita, y proveyéndola con medios apropiados para el centrado en la unidad de CD.

En la figura 1 está representada una tarjeta 1 de visita según la invención, vista desde abajo. Presenta un formato como el que es corriente para tarjetas de visita. Está fabricada como un CD corriente del mismo material y del mismo modo. En el centro se encuentra una escotadura 11 de accionamiento que está contorneada por una zona 15 de apoyo. Esta se continúa con la zona 14 de datos, sobre la que pueden escribirse datos, y que puede leerse en la unidad de CD. En un círculo están dispuestos un número, aquí de preferencia cuatro, salientes 13 de centrado. Los salientes 13 de centrado están dispuestos de manera que cuando la tarjeta de visita está insertada en la unidad de CD, los salientes 13 de centrado se apoyen en el escalón 23 de centrado (véase figura 2), y mantengan centrada la tarjeta de visita. Los medios para centrar en la unidad de CD, pueden comprender alternativamente, en lugar de un número de botones o salientes 13 alizados, bordones 13a de centrado dispuestos simétricamente a ambos lados respecto a la escotadura 11 de accionamiento. En la figura 2 esto sólo está representado en un costado. Cada uno de tales bordones describe un sector circular, en el que el radio está elegido de manera que las aristas exteriores de los bordones 13a de centrado, vengán a apoyarse con juego mínimo en el escalón 23 de centrado.

En la figura 2 está insertada una tarjeta 1 de visita según la invención en el portadisco 20 de una unidad 2 de CD. Está representada en el corte A - A según la figura 1. Puede verse bien cómo el portadisco 20 de la unidad de disco presenta un primer escalón 22 de centrado para CD's normales, y un segundo escalón 23 de centrado para mini - CD's. El pivote 21 impulsor y el apoyo 21' de accionamiento de la unidad de disco y la escotadura 11 de accionamiento de la tarjeta de visita, sólo están bosquejados, puesto que no se encuentran en el corte A - A. La tarjeta 1 de visita se apoya ahora sólo con sus medios 13, 13a para centrar que sobresalen hacia abajo, en la arista 23 de centrado para mini - CD's, de la unidad de disco. Esto garantiza un centrado seguro de la tarjeta 1 de visita en la unidad de disco. Naturalmente que al mismo tiempo se apoya en el apoyo 21' de accionamiento y que el pivote 21 impulsor penetra por la escotadura 11 de accionamiento. Al girar la tarjeta de visita se forma una almohadilla mínima de aire entre la tarjeta de visita y el portadisco, respectivamente la arista 23 de

centrado. Así se centra inequívoca y limpiamente la tarjeta de visita al insertarla en la unidad de disco, y al girar no se la solicita mecánicamente.

La fabricación de la forma se lleva a cabo ahora, no por fresado de la forma a partir de un CD terminado, sino mediante un proceso de estampación. Así pueden fabricarse en una única operación de trabajo, la forma y los medios para el centrado de la tarjeta de visita con CD. Para que se corte limpiamente la forma en el perímetro, y aquí puedan conformarse los salientes de centrado, el proceso de estampado tiene que desarrollarse despacio, de manera que al confeccionar los salientes 13 de centrado, se verifique una deformación, pero no una rotura. Aquí los salientes 13 de centrado se comprimen lentamente hacia abajo mediante pequeños punzones en la estampa, y el material se deforma plásticamente. Naturalmente aquí se generan oquedades 13' mínimas en la cara 12' superior imprimible. Durante el proceso de estampación se estampa por una parte la forma, y por otra parte solamente se deforma el material en la zona de los salientes 13 de centrado a formar. Este proceso hace posible la producción de la tarjeta de visita como tarjeta de visita con CD en una operación de trabajo, y por lo tanto realizarla muy barata y cuidadosamente. Naturalmente también es posible pegar los salientes de centrado sobre la cara 12 inferior, en una operación separada de trabajo.

En la cara superior la tarjeta de visita puede estar impresa normalmente como hasta ahora, con nombres, dirección y otros datos. En la inferior, la cara de los datos, se trata de un CD corriente que puede escribirse en un ordenador con datos legibles. Por ejemplo, pueden reflejarse un perfil de la firma, un catálogo de la firma e informaciones similares, incluso multimedia. Pero también es posible almacenar en ella un programa completo de ordenador. Como ejemplo, se cita un acceso automático a un ordenador o a una página local de una firma.

La técnica de la fabricación de la tarjeta 1 de visita y de la disposición de los salientes 13 de centrado, hace ahora también posible estructurar la tarjeta de visita en aproximadamente cualquier forma, quiere esto decir con aproximadamente cualquier contorno exterior, puesto que se centra en la unidad de disco mediante los salientes 13 de centrado y no mediante el perímetro exterior. Por ejemplo, una tarjeta semejante de visita, puede presentar el contorno exterior del pie editorial de una firma.

REIVINDICACIONES

1. Tarjeta (1) de visita, de plástico, con una cara (12') superior impresa con informaciones visuales legibles directamente, estando provista la cara (12) inferior de la tarjeta (1) de visita con datos preparados electrónicamente, que pueden reproducirse óptica o acústicamente mediante una unidad de CD, con un portadisco de la unidad de disco con escalón (23) de centrado para mini-CD's, caracterizada porque la tarjeta (1) de visita presenta medios que sobresalen hacia abajo de la cara (12) inferior, para su alojamiento centrado al insertarla en el portadisco (20) de la unidad de CD, los cuales vienen a apoyar con sus aristas exteriores que se sitúan en un sector circular, en el escalón (23) de centrado para mini-CD del portadisco (20) de la unidad de disco.
2. Tarjeta de visita según la reivindicación 1, caracterizada porque los medios para el alojamiento centrado en la unidad de CD, se componen de un número de salientes (13) de centrado que sobresalen hacia abajo de la cara (12) inferior, estando dispuestos los salientes (13) de centrado de manera que, estando insertada en una unidad (2) de CD, la tarjeta de visita se apoye al menos aproximadamente en el escalón (23) de centrado para mini-CD's.
3. Tarjeta de visita según la reivindicación 1, caracterizada porque los medios para el aloje-

miento centrado en la unidad de CD, se componen de un número de bordones (13a) de centrado que sobresalen hacia abajo de la cara (12) inferior, estando dispuestos los bordones (13a) centradores de manera que, estando insertada en una unidad (2) de CD, la tarjeta de visita se apoye al menos aproximadamente en el escalón (23) de centrado para mini-CD's.

4. Tarjeta de visita según la reivindicación 2 ó 3, caracterizada porque los salientes (13) de centrado o los bordones (13a) de centrado, están producidos por deformación plástica.

5. Tarjeta de visita según la reivindicación 2 ó 3, caracterizada porque los salientes (13) de centrado o los bordones (13a) de centrado, están pegados sobre la cara (12) inferior.

6. Tarjeta de visita según alguna de las reivindicaciones 1 a 5, caracterizada porque como contorno exterior presenta en el perímetro cualquier forma.

7. Tarjeta de visita según la reivindicación 6, caracterizada porque la forma puede producirse mediante un proceso de estampación a partir de un CD.

8. Tarjeta de visita según la reivindicación 7, caracterizada porque los salientes (13) de centrado o los bordones (13a) de centrado, y la forma, pueden producirse en el mismo proceso de estampación.

NOTA INFORMATIVA: Conforme a la reserva del art. 167.2 del Convenio de Patentes Europeas (CPE) y a la Disposición Transitoria del RD 2424/1988, de 10 de octubre, relativo a la aplicación del Convenio de Patente Europea, las patentes europeas que designen a España y solicitadas antes del 7-10-1992, no producirán ningún efecto en España en la medida en que confieran protección a productos químicos y farmacéuticos como tales.

Esta información no prejuga que la patente esté o no incluida en la mencionada reserva.

Fig. 2

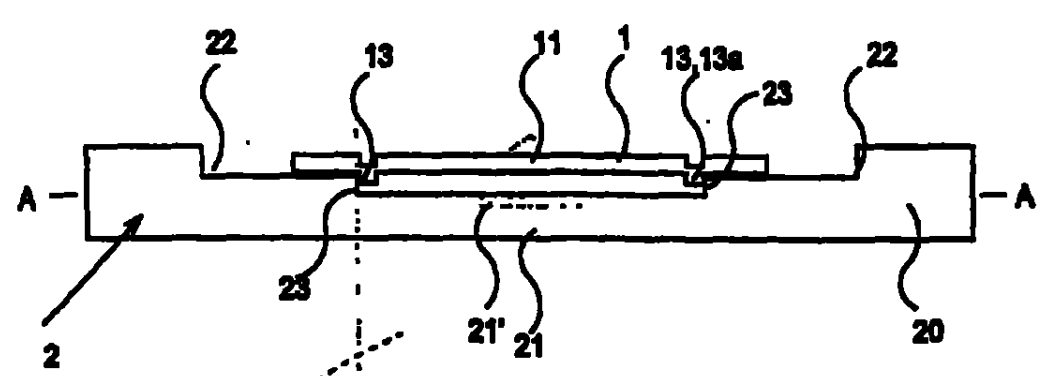


Fig. 1

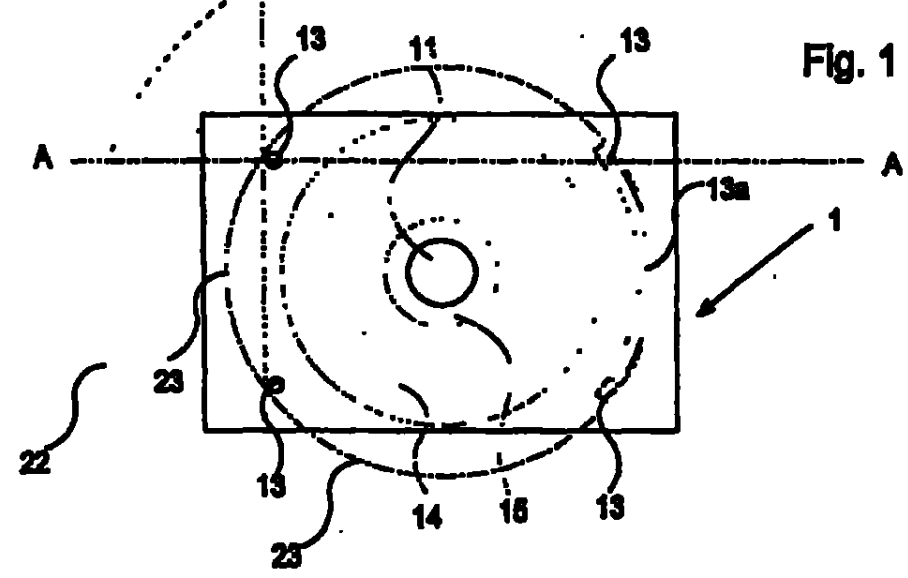
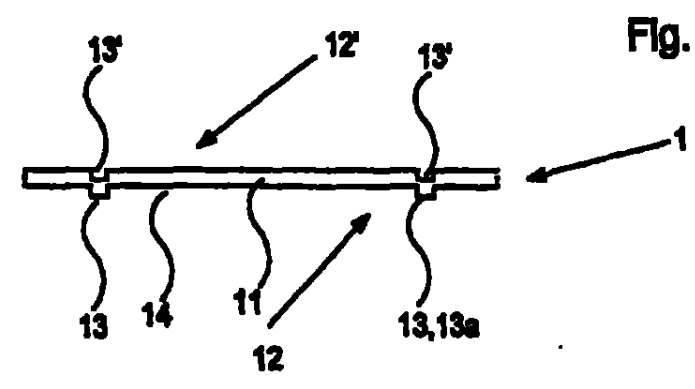


Fig. 3



(51) Internationale Patentklassifikation 6 : G06K 19/04, G11B 7/00, 17/04	A1	(11) Internationale Veröffentlichungsnummer: WO 99/00765 (43) Internationales Veröffentlichungsdatum: 7. Januar 1999 (07.01.99)
(21) Internationales Aktenzeichen: PCT/CH98/00140 (22) Internationales Anmeldedatum: 15. April 1998 (15.04.98) (30) Prioritätsdaten: 1537/97 25. Juni 1997 (25.06.97) CH 526/98 5. März 1998 (05.03.98) CH (71) Anmelder: ADIVAN HIGH TECH AG (CH/CH); Lutholz 17, CH-8835 Wangen (CH). (72) Erfinder: FISCHER, Gerhard; Rosenstrasse 18, CH-6032 Emmen (CH). (74) Anwalt: PATENTANWALTSBÜRO FELDMANN AG; Kanalstrasse 17, CH-8152 Glattbrugg (CH).	(51) Bestimmungsstaaten: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DE (Gebrauchsmuster), DK, EE, ES, FI, GB, GR, GM, GW, HU, ID, IL, IN, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO Patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), europäisches Patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), europäisches Patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI Patent (BF, BI, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Veröffentlicht Mit internationalen Recherchenbericht. Mit getätigten Ansprüchen.	
(54) Title: VISITING CARD WITH CD ROM (54) Bezeichnung: VISITENKARTE MIT CD-ROM		
(57) Abstract The invention relates to a new visiting card (1) which in addition to being used in the usual fashion can also be inserted into a normal CD player (2) and read in this way. This is made possible by special coating means in a CD player (2). The visiting card becomes a CD visiting card having a printed upper side visually perceived by the eye and a lower side which can be inscribed with data and read by a computer.		
(57) Zusammenfassung Es wird eine neue Visitenkarte (1) vorgeschlagen. Diese Visitenkarte kann zusätzlich zum üblichen Gebrauch auch in ein normales CD-Laufwerk (2) eingelegt und so gelesen werden. Dies wird durch besondere Mittel zum Zentrieren in einem CD-Laufwerk (2) ermöglicht. Aus der Visitenkarte wird also eine Visitenkarte CD mit einer bedruckten und vom Auge visuell erkennbaren Oberseite und einer mit Daten beschreibbaren und mittels Computer lesbaren Unterseite.		



US006016298A

United States Patent [19]
Fischer

[11] Patent Number: 6,016,298
[45] Date of Patent: Jan. 18, 2000

[54] CALLING CARD

[75] Inventor: Gerhard Fischer, Emmen, Switzerland

[73] Assignee: Adivan High Tech AG, Wangen,
Switzerland

[21] Appl. No.: 09/049,697

[22] Filed: Mar. 27, 1998

[30] Foreign Application Priority Data

Jun. 25, 1997 [CH] Switzerland 1537/97
Mar. 5, 1998 [CH] Switzerland 0526/98

[51] Int. Cl.⁷ G11B 7/02

[52] U.S. Cl. 369/75.1; 235/487

[58] Field of Search 369/75.1; 235/487

[56] References Cited

U.S. PATENT DOCUMENTS

3,839,601 10/1974 Kimura et al. .
4,014,604 3/1977 Schwartz .
4,114,181 9/1978 Ishi .
4,592,042 5/1986 Lemelson et al. .
4,680,460 7/1987 Drexler .
4,683,371 7/1987 Drexler .
4,745,268 5/1988 Drexler .
4,868,373 9/1989 Ophof et al. .
4,916,687 4/1990 Flodo 369/75.1

5,045,676 9/1991 Kimo .
5,058,774 10/1991 Kuba et al. .
5,107,099 4/1992 Smith .

FOREIGN PATENT DOCUMENTS

0 230 069 7/1987 European Pat. Off. .
292 720 11/1988 European Pat. Off. .
0 479 340 4/1992 European Pat. Off. .
0 618 711 10/1994 European Pat. Off. .
343 982 5/1995 European Pat. Off. .
2 668 277 4/1992 France .
M 97 02 996 3/1997 Germany .
M 97 04 019 4/1997 Germany .
297 08 978 5/1997 Germany .
297 09 648 6/1997 Germany .
56-003471 1/1981 Japan .
04040586 2/1992 Japan .
WO 99/12159 3/1999 WIPO .

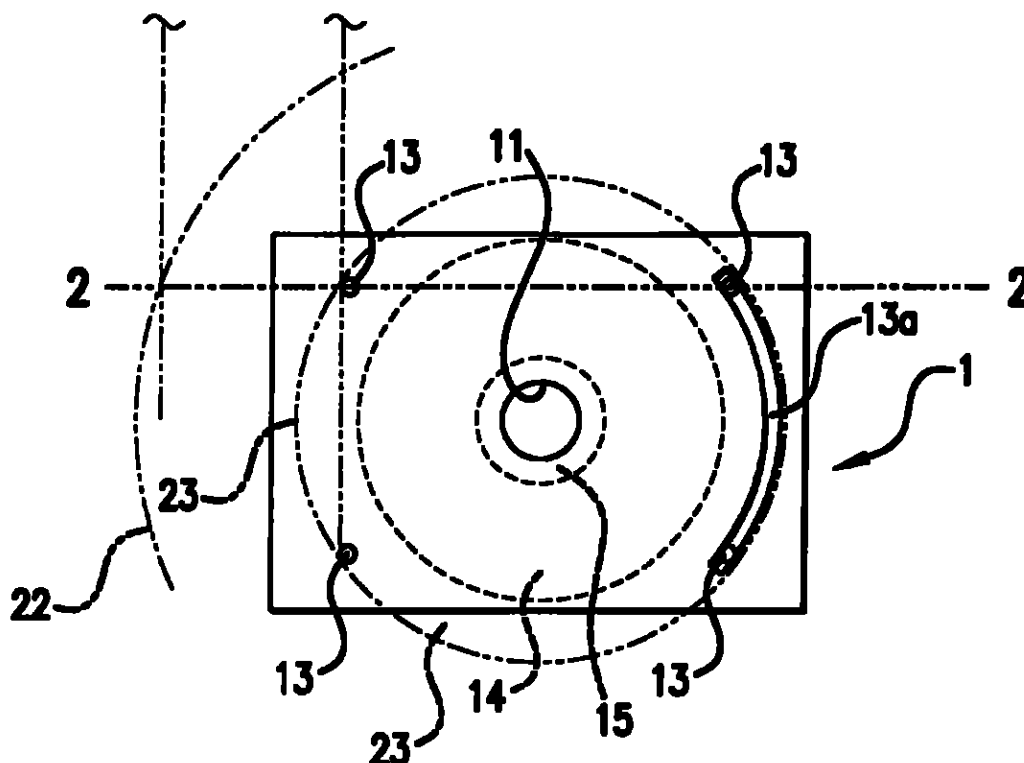
Primary Examiner—Harold I. Pitts

Attorney, Agent, or Firm—Pamley Peterson Kinne & Fejer

[57] ABSTRACT

A calling card which can be inserted into a conventional CD drive and read. The calling card is contained in a CD drive. Thus, the calling card becomes a calling card CD with a printed upper side, which can be visually detected by an eye, and an underside on which data can be recorded and read by a computer.

13 Claims, 1 Drawing Sheet



CALLING CARD

BACKGROUND OF THE INVENTION

1. Field of The Invention

This invention relates to a calling card made of plastic with a printed upper side with directly visually readable information.

2. Description of Prior Art

Calling cards have been known and used for a long time. Known calling cards are printed on paper or other base stock and have a name, company designation and other visually recognizable information. Since the format is relatively small, only a relatively limited amount of information can be printed on known calling cards. The amount of information is sufficient when directly presented to a person being visited. However, when later looking at known calling cards it would be nice if considerably more information would be available, such as related to the presenter, or respectively the company, in order to jog and complete the memory of the person being visited.

SUMMARY OF THE INVENTION

It is one object of this invention to provide a calling card on which information can be printed in a conventional way, and which also makes it possible to supply a large amount of information.

This object is attained by this invention as disclosed in the claims.

An additional advantage of this invention is that for example the complete company information, such as the company program, catalogs, order forms and, for example, even an automatic Internet access to the home page of the company, can be provided as information on the calling card.

A further advantage of this invention is that the calling card in accordance with this invention can also be produced in different formats.

BRIEF DESCRIPTION OF THE DRAWINGS

This invention will be described below in connection with the drawings.

FIG. 1 shows a bottom view of one preferred embodiment of a calling card in accordance with this invention;

FIG. 2 shows a front view of the calling card of FIG. 1, inserted into a CD-ROM drive; and

FIG. 3 shows a cross-sectional view of a calling card in accordance with one preferred embodiment of this invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

This invention will now be described in more detail in connection with the drawings.

One basic concept of this invention is a combination of a calling card with a CD-ROM. On one hand, known calling cards are mostly made of paper, semi-cardboard or plastic. Known calling cards have a defined format, approximately the same as is customary and widespread all over the world in connection with credit cards. On another hand, various companies have already shipped CDs with music or with catalog and company information. However, these cannot be inserted in calling card holders, because they are too large and they are round. This also applies to mini-CDs.

The calling card of this invention now makes both possible. This is a CD with format corresponding to that of a

calling card, but nevertheless can be inserted into a normal CD drive and read. Thus, the calling card of this invention is a calling card CD.

The usual CD drive is known to contain a central drive spindle and a circular-shaped drive centering device, into which a CD is inserted. The drive centering device centers the inserted CD, and the CD is driven by the drive spindle in the drive. During operation the CD is guided in the drive centering device on a small air cushion and is driven by the spindle and the central positioning device. So that normal CDs and mini-CDs can be used in the same drive, centering the CDs is accomplished in two stages matched to the two different diameters. It is known to mechanically separate the drive and the centering device, so that the CDs are not mechanically stressed and damaged in the area of the drive opening.

For advertising purposes, some conventional CDs are produced in defined shapes which differ from the round disk. But such conventional CDs have a shape wherein the edge always corresponds at several places to the normal circumference of CDs. If such CDs are inserted into the drive, the spindle engages the central drive opening of the CD, and the CD rests with several places of its circumference inside on the centering edge of the drive centering device. These CDs are called "shaped CDs". Their shape is milled from a customary round CD.

However, a CD of the size and shape of a calling card is too small for resting against the drive centering device. In no way does the format of a calling card correspond to the format of a normal or a mini-CD. It is important to center a CD in a conventional CD drive. According to this invention, the calling card is designed as a CD-ROM in a calling card format and has suitable means for centering the calling card, designed as a CD-ROM, in the CD drive.

A calling card in accordance with this invention is shown in FIG. 1, in a bottom view. The calling card of this invention has a format which is customary for calling cards. Like a conventional CD, the calling card is made of the same material and in the same way. As shown in FIG. 1, drive opening 11, which is bordered by a placement area 15, is located in the center. Adjoining the placement area 15 is the data area 14, on which data can be written and which can be read in the CD drive. A number of centering pins 13, in this case preferably four, are arranged on a circle. The centering pins 13 are arranged in such a way that, when the calling card is inserted into the CD drive, the centering pins 13 rest against the centering shoulder 23, as shown in FIG. 2, and maintain the calling card centered. The means for centering in the CD drive can, in place of a number of individual pins or pins 13, alternatively comprise centering beads 13a, which are arranged on both sides symmetrically relative to the drive opening 11, as shown on one side only in FIG. 2. The centering beads 13a form a sector of a circle, wherein the radius is selected such that the outer edges of the centering beads 13a rest against the centering shoulder 23, with minimal play.

In FIG. 2, a calling card 1 in accordance with this invention is inserted into a drive drawer 20 of a CD drive 2, as shown in a section along line A—A in FIG. 1. The drive drawer 20 has a first centering shoulder 22 for a conventional CD and a second centering shoulder 23 for a conventional mini-CD. The drive spindle 21 and the drive placement device 21' of the drive and the drive opening 11 of the calling card 1 are shown in broken lines since they are not

located in the section A—A. With downward projecting centering means 13, 13a, the calling card 1 rests against the centering edge 23 of the drive for conventional mini-CDs, which assures dependable centering of the calling card 1 in the drive. The calling card 1 simultaneously rests on the drive placement device 21', and the drive spindle 21 projects through the drive opening 11. A minimal air cushion is formed between the calling card 1 and the drawer with respect to the centering edge 23, during rotation of the calling card 1. In this way the calling card 1 is clearly and cleanly centered when inserted into the drive and is not mechanically stressed when running.

The production of the shape does not take place by milling the shape out of a finished CD, but by a stamping process. It is thus possible to produce the shape and the means for centering the calling card CD 1 in one single production step. The stamping process must be performed slowly, so that the shape is cleanly cut around the circumference and the centering pins can be formed in the process, and so that when producing the centering pins 13a deformation, but not a break-through, occurs. In the process the centering pins 13 are slowly pushed downward by small dies in the stamping tool and the material is plastically deformed, creating minimal depressions 13' in the printed upper side 12'. During the stamping process the shape is stamped out on the one hand and, on the other hand, the material is only deformed in the area of the centering pins 13 to be formed. This procedure makes it possible to perform the production of the calling card 1 as a calling card CD 1 in one process step and therefore very cost-effectively and gently. It is of course also possible to glue the centering pins 13 to the underside 12 in a separate process step.

The calling card 1 can be imprinted, as before, on the upper side with the name, address and further information. The underside, the data side, is a customary CD, on which data which can be read by a computer can be inscribed. For example, a company profile, a company catalog and similar information, including multimedia, can be recorded. It is also possible to store an entire computer program on the calling card 1. Automatic access to a computer or a home page are mentioned as examples.

The technique for producing the calling card 1 and the arrangement of the centering pins 13 now makes it possible to design the calling card 1 in approximately any desired shape, such as with approximately any desired outer contour, since the calling card 1 is centered in the drive by the centering pins 13 and not by the exterior circumference. For example, such a calling card 1 can have the exterior contour of a company logo.

What is claimed is:

1. A plastic calling card with an upper side printed with directly visually readable information, comprising: an underside (12) of the calling card having electronically processed data, which can be reproduced one of optically and acoustically by a CD drive, and the plastic calling card having means for receiving the plastic calling card in a centered position in a CD drive (2).

2. The calling card in accordance with claim 1, wherein the means comprise a plurality of centering pins (13) projecting downward from the underside (12) wherein the centering pins (13) are arranged in such a way that the centering pins (13) at least approximately rest against a centering shoulder (23) for a mini-CD when the calling card (1) is in the CD drive (2).

3. The calling card in accordance with claim 1, wherein the means comprise a plurality of centering beads (13a) projecting downward from the underside (12), wherein the centering beads (13a) are arranged to at least approximately rest against the centering shoulder (23) when the calling card (1) is inserted in the CD drive (2).

4. The calling card in accordance with claim 3, wherein one of the centering pins (13) and the centering beads (13a) are created by plastic deformation.

5. The calling card in accordance with claim 3, wherein one of the centering pins (13) and the centering beads (13a) are glued to the underside (12).

6. The calling card in accordance with claim 3, wherein the calling card (1) has an arbitrary peripheral shape.

7. The calling card in accordance with claim 6, wherein the arbitrary peripheral shape is created by a stamping process.

8. The calling card in accordance with claim 7, wherein one of the centering pins (13) and the centering beads (13a) and the shape is created in the stamping process.

9. The calling card in accordance with claim 2, wherein one of the centering pins (13) and the centering beads (13a) are created by plastic deformation.

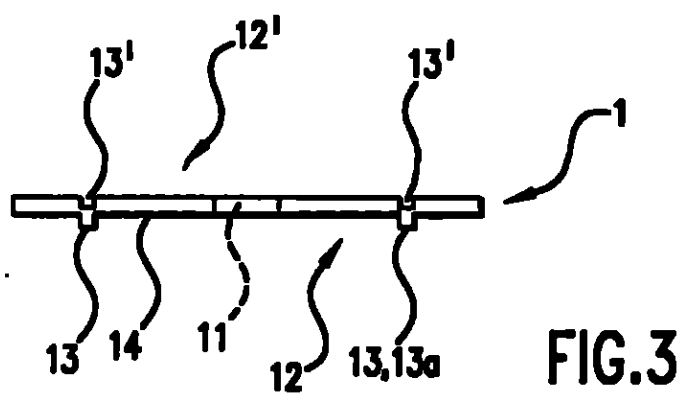
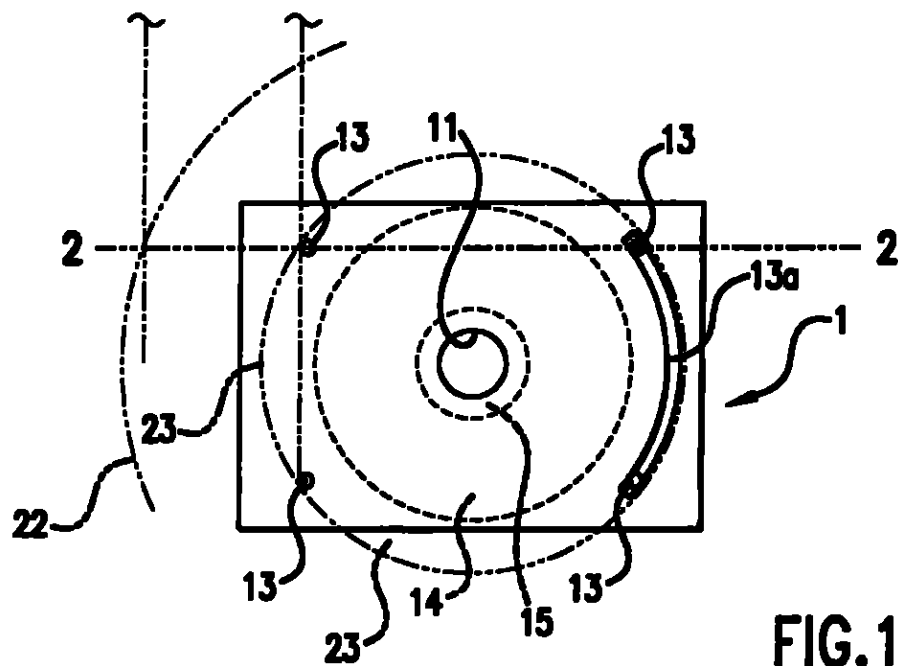
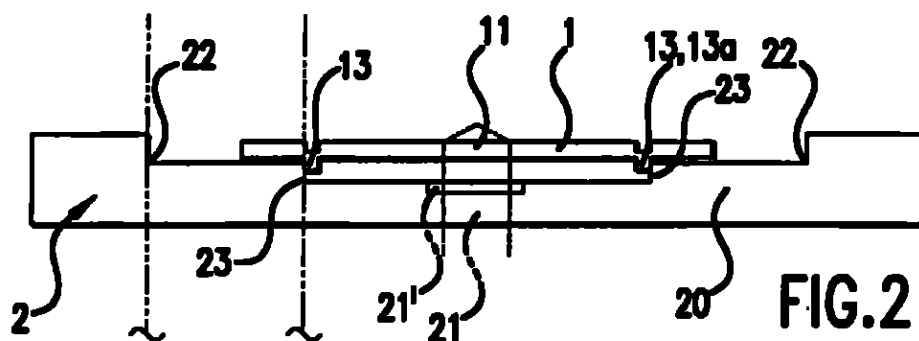
10. The calling card in accordance with claim 2, wherein one of the centering pins (13) and the centering beads (13a) are glued to the underside (12).

11. The calling card in accordance with claim 1, wherein the calling card (1) has an arbitrary peripheral shape.

12. The calling card in accordance with claim 11, wherein the arbitrary peripheral shape is created by a stamping process.

13. The calling card in accordance with claim 12, wherein one of the centering pins (13) and the centering beads (13a) and the shape is created in the stamping process.

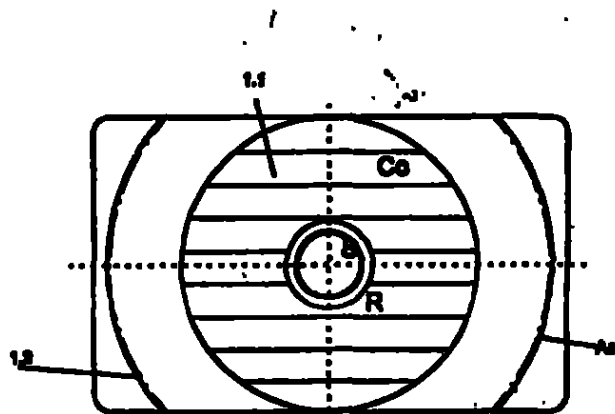
• • • • •



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7: G06K 19/08		A2	(11) International Publication Number: WO 00/62249
			(43) International Publication Date: 19 October 2000 (19.10.00)
(21) International Application Number: PCT/BE00/00023		(81) Designated States AE, AT, AU, BG, BR, CA, CH, CN, DE, DK, ES, FI, GB, HU, IL, IN, JP, KP, KR, LU, NO, NZ, PL, PT, RU, SE, SG, SI, TR, US, VN, ZA, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(22) International Filing Date: 10 March 2000 (10.03.00)			
(30) Priority Data:			
9900239	7 April 1999 (07.04.99)	BE	
9900246	9 April 1999 (09.04.99)	BE	
2000/0047	24 January 2000 (24.01.00)	BE	
2000/0186	9 March 2000 (09.03.00)	BE	
(71) Applicant (for all designated States except US): GMS-SOFTMED SC [BE/BE]; Rue Pierre du Diable 34 box 9, B-5100 Jambes (BE).		Published Without international search report and to be republished upon receipt of that report.	
(72) Inventor; and (73) Inventor/Applicant (for US only): STOCK, Robin [BE/BE]; Rue Pierre du Diable 34 box 9, B-5100 Jambes (BE).			

(54) Title: DUAL SMARTOPTICAL CREDIT SIZE CARD WITH MICROPROCESSOR AND AN INTEGRATED SOFTWARE ENGINE GIVING INSTANT AND WORLDWIDE ACCESS TO THE INTERNET AND RELATED SERVICES WITHOUT INSTALLATION OF ANY SOFTWARE AND METHOD THEREFORE



(57) Abstract

An optical/smartcard disc and method of using and forming the disc are provided which are compatible with a disc reader having a centrally located spindle and a seating ring for supporting and rotating a compact disc positioned thereon. The optical disc according to an embodiment of the invention preferably has at least a first plastic rectangular layer having a width of about 54 mm and a length of about 86 mm and having a pattern of digital data encoded thereon. A second metallic layer is formed on at least portions of the first plastic layer, and a third protective layer is formed on at least the second layer for protecting the metallic layer. An opening extends through the first, second, third, and fourth layers in a medial portion thereof. A card interface seat is preferably integrally formed in at least the first layer for seating the card onto a loading tray of a disc reader so as to interface with only portions of the seating ring of the disc reader and to read digital data stored thereon from the optical/smartcard disk. A layer including the microprocessor. The integration of a full software engine giving transparent and direct connection worldwide without any need to install any software on the host machine.

Dual smart/optical credit size card with microprocessor and an integrated software engine giving instant and worldwide access to the Internet and related services without installation of any software and method therefore.

DESCRIPTION

TECHNICAL FIELD

1 This invention relates to novelty marketing and Internet communications and connexion, e-commerce and banking. The dual smart and/or optical card with and/or without microprocessor integrated produced in polycarbonate/acrylic or PVC is a double layer card and comprises an optical data device and/or a microprocessor layer which performs smart card functions.

5 The invention also relates to transaction and payment cards, including credit cards, bank cards, debit cards, telephone calling cards and the like, and more particularly to a transaction card or payment card which can be activated to have an alternative or secondary use as a credit card by adding a credit feature.

10 The card provides a user with a primary use as an optical card that can be read on any type of CD-DVD compatible reader and which can be further activated to have a secondary use as a credit card by the use of an integrated microprocessor (chips) that can be read on any traditional and compatible smartcard reader. The activation of the
15 card as an optical card enables transfer and storage of digital information. The card allows the user to access local digital information and the integrated software connect them directly and transparently to any type of network but more specifically TCP/IP networks as Internet. Those features allows the user to purchase
20 goods and services from one specific vendor on and offline and to establish a relationship with that vendor for the goods or services rendered while enjoying reward benefits based on those purchases. Activation of the credit feature of the card allows the customer to interact with any merchant that accepts traditional credit cards such
25 as VISA.RTM., MASTERCARD.RTM., AMERICAN EXPRESS.RTM., or DISCOVER.RTM. Today, credit card usage is virtually a part of a customer's daily life because customers recognize the many advantages of obtaining credit cards. For example, credit cards are safer to carry than money, and they can help a customer to establish a good credit rating.

30

1 Additionally, they can serve as a source of convenience should the
customer need to make an unexpected purchase for which they may
not have the cash immediately available. As a result of this growing
trend, the credit card industry is a booming and profitable industry;
thus, customers are constantly inundated with many different credit
5 card offers. For example, customers are offered department store
credit cards, gasoline product cards (oil companies), telephone
calling cards, VISA.RTM. credit cards, MASTERCARD.RTM. credit
cards, AMERICAN EXPRESS.RTM. credit cards, debit cards, and/or
the like.

10 One of the most appealing features of a credit card purchase is that
it allows customers to buy now and pay later. Another advantage is
that transaction cards permit customers to establish direct
relationship with specific types of business, for example, a telephone
calling card or a gasoline product payment card. With a gasoline
15 product card, a cardholder has the convenience of purchasing
gasoline products from a specific oil company, without conducting a
cash transaction, and receiving one itemized bill at the end of the
billing period. The itemized billing statement is beneficial for
providing businesses or entrepreneurs with a detail summary, at the
20 end of the month or year, of the amount of gasoline which was
purchased during the time period. The itemized billing statements an
easy method to calculate business-related mileage driven during the
time period. Another anticernent of credit card usage is that some
credit card issuers offer to their customers "reward points or reward
25 offers" as an incentive to increase the amount of the customer's
purchases or to increase the frequency in which the customer
transacts purchases with their credit card. On the Internet e-
commerce will and is already using credit card systems.

30 The combination of a optical/smartcard device and an integrated
software allows the user a direct connexion and transparent
connexion to any type of network thanks to an integrated dialup
system and database containing the ISP coordinates. The integrated
browser is fully compatible with most Internet standards and file
systems (HTML, XML, DHTML, JAVASCRIPT, JAVA.TM, CORBA,
VRML, FLASH.TM,

35 The integrated software engine is build using advanced standards
and techniques giving cross platform portability and
interoperability. The card can include any combination of pictures,
animation, speeches, video clips or any appropriate information and
present them to your targeted audience in an interactive effective
40 manner. Extreme Long Shelf Life, Water Proof, Pocket Size, Large
Storage Capacity Enhancing Corporate Image and Product Show.

98

BACKGROUND OF THE INVENTION

1 Over the years the CD industry has developed many type of shape
CD which are cutted out of 120 millimeter ("mm") traditional round
CD as both a novelty item and a collectors item. As time goes by, the
value of many of these cards which have printed indicia thereon has
increased so that the shape CD industry has grown significantly over
5 the years and many trading cards have substantially increased in
value. As technology has changed, however, various types of shape
CD cards and methods of storing and communicating data have
been developed.

10 The concept of associating card devices which store and
communicate information to a user with indicia or an image thereon
has been known for many years. Examples of such devices can be
seen in U.S. Pat. No. 3,691,312 by Petersen titled "Tape Recording
Apparatus And System Having A Very Thin Cassette," U.S. Pat. No.
4,804,853 by Yokokawa titled "Dual-Function Information-Carrying
15 Sheet Device," U.S. Pat. No. 5,411,259 by Pearson et al. titled
"Video Sports Game System Using Trading Cards," and U.S. Pat.
No. 5,433,035 by Bauer titled "Talking Entertainment Card." These
prior card devices, however, either used older methods of storing and
communicating information such as cassettes or used integrated
20 circuit technology. Accordingly, these prior methods can be
expensive and complex to manufacture even in large volumes and
neither understood nor appreciated the benefits, capabilities, design,
or construction of optical digital data storage devices, and more
particularly optical compact discs. Only recently has the technology
25 and concepts related to the use of optical digital data storage devices
really increased and been accepted in the market so that the relative
price of optical digital data storage media has decreased
dramatically.

30 Conventional compact discs, for example, are conventionally
fabricated in either 80 millimeter ("mm") or 120 mm sizes and are
formed of generally rigid plastic discs. As understood by those skilled
in the art, the discs are often formed by the use of a mold-based
replication system using injection molding techniques.

40 Each compact disc includes a series of either circular or spiral data
tracks which are illuminated and read by a source of coherent light
such as a laser. In producing these compact discs, data is optically
mastered from data files and positive copies of the data are made.
Die stampers are produced from electroplated shims, and discs are
molded from the negative images on the die stampers. The discs are
then individually metalized, and a lacquer coating is applied to each
45 disc.

1 The layer of rigid plastic positioned between each data track and the source of coherent light provides structural rigidity, protects the data tracks, and also functions as a single integral lens element to retract and focus the coherent light beam onto a selected data track. A disc label is also printed, and the disc inserted into a clam shell or other package for shipment to customers.

10 Recently, however, other thin film digital data storage medium and
methods of manufacturing digital data storage media have been
developed. An example of this thin film digital data storage medium
and related methods can be seen in U.S. Pat. No. 5,579,288 by
Smith et al. titled "Optically Readable Thin Film Digital Data Storage
Medium." These recently developed trading cards, however, require
extensive and new manufacturing investments, require a special
adaptor to make the trading cards compatible with compact disc
playing systems, and can be inhibited by marketing and
15 manufacturing constraints, including the additional special adaptor,
which can make this recently developed technology less
commercially feasible.

20 The injection technology used allows to shape a traditional CD into the shape of a name card and turn it into a dynamic marketing tool. Instead of trimming a CD with a laser beam or the heavy pressing machines into sharp-edged shapes which is the actual type of production. The molding offers a high precision product avoiding high pitch whistling sound.

Internet connection and communication goes through installation of heavy software on the computer with the risk of introducing virus and unwanted information on the local disk. Most browser are still incompatible with each other and dialup systems are proprietary to local ISP's. There is no proper worldwide roaming system guaranteeing a safe connection to the user in any part of the world. Today you still have to walk around with your mobile and have a local access in each country. You need also to install each time new configuration and several type of files request the download of specific plugins. The integrated software with browser and email system includes a dialup system with a database that is updated and offers a virtual roaming system.

SUMMARY OF THE INVENTION

- 1 With the foregoing in mind, the present invention provides an optical compact disc and methods of using a compact disc which are readily compatible with existing disc readers and relatively inexpensive to manufacture. The present invention also advantageously provides an optical compact disc and method of forming a cd card that stores and communicates digital information to a user of a disc reader in a manner that is relatively easy to manufacture in conjunction with known optical compact disc manufacturing techniques and thereby does not require extensive additional molding and tooling costs. The present invention further provides an optical compact disc which does not require a separate special adapter for compatibility with existing disc readers. The same is true for the Chips layer part which is easy to produce and is also fully compatible with market standards. The integrated software handles the connection between both layers and the network.
- 5
- 10
- 15 A mixed data card system allows the user to carry a single card which may be modified at will to be in effect a clone for any one of the user's provider data cards, while allowing the existing industry infrastructure for data card transactions to remain unchanged. The card carries only data for one provider at a time, eliminating the problems inherent with carrying data for multiple providers on a single data card.
- 20
- 25 A mixed data card system comprises a user card and a portable data management device. The user card includes a first memory for storing data issued by a service provider. This could be an optical layer. The user card also includes a second memory for storing a set of data unique to the user. This could be a microelectronic chip. The second memory is spaced apart and totally separate from the first memory so as to make it impossible to be read with the first memory. The data set unique to the user may include any indicia desired for identification of the user consistent with the level of security needed. For instance, for a high level of security the indicia could include the name of the user and a number randomly (generated by the device and copied onto the second memory each time the user card is inserted into the device.
- 30
- 40 The data management device has an apparatus for automatically activating the device upon insertion of the user card or a provider's card into a slot in the device with the user card inserted into the data management device and the device activated, the device reads the

1 unique user data set on the second memory. The device compares the unique user data on the second memory with information stored in the device's memory.

5 More particularly, the card and method of using and forming the compact disc layer are provided which are compatible with a disc reader having a centrally located spindle and a seating ring for supporting and rotating a compact disc positioned thereon. The card according to a first embodiment of the present invention preferably has at least a first plastic rectangular layer having a width of about 54mm up to 58 mm and a length of about 88 mm and includes the microprocessor it is also having a pattern of digital data encoded thereon. A second layer is formed on at least portions of the first plastic layer. The encoded digital data of the major elevational portion of the first layer is formed within a circular data zone and preferably does not cover, i.e., less than, the entire surface area of the major elevational portion of the first layer. The circular data zone has a first inner circular periphery having a radius of at least 15 mm and a second outer circular periphery having a radius of less than 80mm. The circular data zone is preferably capable of storing between 40-80 Megabytes of information or data therein in some compact disc formats, e.g., audio or CD-ROM, or 800-700 Megabytes in other compact disc formats, e.g., DVD. A first non-metallic zone surrounds and extends outwardly a predetermined distance from the medial opening, and a second non-metallic zone extends inwardly from the rectangular outer perimeter of the trading card optical compact disc a predetermined distance. (sputtering)

15 An opening extends through the first and second layers in a medial portion thereof. The card, interface seating means is preferably integrally formed in at least the first layer for seating the card onto a loading tray of a disc reader so as to interface with only portions of the seating ring and not other portions of the seating ring of the disc reader and to read digital data stored thereon from the card optical layer.

20 According to the present invention, the card seating means is preferably provided by the at least a first plastic (polycarbonate) layer which has a major elevational portion having a first predetermined height and a minor elevational portion having a second predetermined height. The major elevational portion has the encoded digital data thereon, and the minor elevational portion is preferably devoid of the encoded digital data. For alignment, balancing, and compatibility purposes, the major elevational portion is advantageously formed in a medial portion of the card and has first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the major elevational portion. Each of the first pair of space-apart outer side peripheries arcuately extend between each of the second pair of space-apart outer side peripheries. Each of the

1 second pair of space-apart outer side peripheries extend generally
linearly between each of the first pair of spaced-apart outer
peripheries. Each of the arcuately-extending first pair of spaced-apart
outer side peripheries of the major elevational portion are centered
5 about an axis extending through the medial opening and generally
perpendicular to the linearly-extending second pair of space-apart
outer side peripheries.

By the provision of the card interface seating means, the card of the
present invention advantageously allows a user thereof to readily
position the disc into a conventional disc reader with any separate
special attachments, adapters, or fasteners. The positioning of and
10 construction of the trading interface seating means also enables the
disc to balance and rotate effectively within a conventional disc
reader. The outer side peripheries elevation guarantees also that the
card will run in the new generation of high speed readers up to X40
and X50.

15 A method of using a card to communicate digitally encoded data to
a user of an optical disc reader is also provided according to the
present invention. The method preferably includes positioning a card
having an opening extending through a medial portion thereof onto a
loading tray of a disc reader so that the compact disc interfacingly
seats onto only portions of a seating ring and not other portions of the
20 seating ring of the disc reader.

Additionally, methods of forming a card are provided according to the
present invention. A method preferably includes molding at least a
first plastic rectangular layer having a width of about 54 mm up to
58mm and a length of about 86 mm and having a pattern of digital
25 data encoded thereon. The at least a first plastic layer preferably
includes a major elevational portion having a first predetermined
height and a minor elevational portion having a second
predetermined height. The major elevational portion has the encoded
digital data thereon and the minor elevational portion is devoid of the
30 encoded digital data.

Another method of forming a trading card optical disc preferably
includes positioning a compact disc having a pattern of digital data
encoded thereon onto a medial portion of a surface of a trading card
having a width of about 54mm to 58mm and a length of about
86mm, the combination of the two layers having a major elevational
35 portion and a minor elevational portion so that the major elevational
portion interfacingly seats the combination onto a loading tray of a
disc reader so as to interface with only portions of the seating ring
and not other portions of the seating ring of the disc reader and to
read digital data stored thereon from the optical layer card.

103

- 1 The major elevational portion has the encoded digital data thereon, and the minor elevational portion is preferably devoid of the encoded digital data. The major elevational portion has first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the major elevational portion. Each of the first pair of space-apart outer side peripheries arcuately extends between each of the second pair of space-apart outer side peripheries. Each of the second pair of space-apart outer side peripheries extends generally linearly between each of the first pair of spaced-apart outer peripheries.
- 5 Because the card and associated methods were conceived and developed while keeping in mind the commercial viability and ease of manufacturing, the card is preferably formed using conventional compact disc manufacturing techniques DVD and CD. This, for example, advantageously allows training, tooling, and other associated manufacturing costs to be reduced and advantageously provides incentives for manufacturers to more readily accept the technology for manufacturing purposes. In contrast to other known concepts (cutting), by providing incentives to make this technology readily manufacturable by existing compact disc manufacturers, the present invention achieves a significant goal in reducing the overall price of the end product to ultimate purchasers and insures a high safety and secure running card. The final finishing touch and the edges are much better than cutted shape CD's. Data can be burned randomly and red again without problems which is by far not the case on cutted shape CD's.
- 10 15 20 25 The integrated software called Xpresso a new connection tool is a highly customizable and extensible embedded software engine, providing built in Web support and is fully portable to most industry-standard operating systems and platforms, easy to distribute and simple to use, the concept is a dynamic new communication tool. The engine is suitable for rendering HTML with a full support for JAVA.TM - XML and VRML, FLASH.TM.
- 30 GIF,JPEG,MP3,MPEG1-2,AVI,MOV,QUICKTIME
- 35 The engine is built using the most advanced software standards and techniques. It uses a programming language, to give cross platform portability and interoperability. The engine fully supports the HTML3.2 and 4.0 standard as ratified by the W3C (World Wide Web Consortium).
- Security relies entirely on the software technology. It accepts all downloaded programs and runs them within a security "sandbox". Think of the sandbox as a security fence that surrounds the program and keeps it away from your private data. As long as there are no holes in the fence, you are safe.

104

1 The engine sandbox works on a permissions model, where all code is considered unsafe, unless specifically allowed system resource access, based on a predefined policy. The policy can be customized for each user or for groups of users through a concept called "protection domains."

5 The engine offers full strength RSA public key cryptography, DSA, RC4, RC2, Triple-DES, a wide range of cipher (asymmetric and symmetric), hashing, key exchange algorithms. Strong random number generators are supplied with the toolkit. Keys and other data can be saved using standard passphrase based encryption. In addition the engine supports X.509 certificates, allowing cert requests to be generated, certs to be parsed and verified and CRLs to be retrieved from LDAP directories. Many of the PKCS standards are supported allowing easy secure exchange of data with other products. The low-level API allows fine manipulation of data. The engine can be used for any application including Internet Communications, File Storage/Retrieval, Digital Signature, Message Authentication, Secure Login, Data Auditing etc.

15 In addition to standard HTML support and typical browser functionality that you might see in a stand-alone browser, The the engine offers a high degree of customization. Designers can have total control over the look, feel and operation of the engine interface. Besides that, the engine offers specific tools that are customizable, Internet-aware and extensible.

20 The architecture of the engine is designed with size, and flexibility in mind and makes it highly suitable for use in small devices where memory is at a premium. The cache management facilities inside the engine aid in keeping the memory usage low in situations where this is important.

25 The engine is based on a new framework for web content visualization. The new architecture relies on dynamically loadable rendering and scripting modules to provide unprecedented opportunities for presenting dynamic content.

30 A rendering module is responsible for the actual rendering of some content. This is somewhat similar to the traditional plug-ins in the current browsers. Unlike a plug-in a pilot is platform-independent, quite compact and could be loaded dynamically. This in turn makes it similar to an applet. But unlike the applet a pilot has much tighter integration with the underlying browser system to provide a better support for displaying content. So, in short, a pilot can be viewed as a blend between a plug-in and an applet.

35

105

1 A scripting module is used to provide a "glue" between various pilots
and the framework. Basically a scripter knows how to execute
commands in the scripting language it supports. It also allows pilots
to expose themselves into the scripting environment without being
dependent on a particular scripter. The engine architecture allows to
5 have dynamically loadable scripting modules giving full CSS 2
implementation and support for ECMAScript up to 1.5 even and
generic scripter interface for other scripting languages. Full W3C
Level 1 DOM support available in ECMAScript and Java. Document
Object Model (DOM) for dynamically changing documents.

10 INDUSTRIAL APPLICABILITY

Various formats or data categories, including compact disc audio
data, digital video disc ("DVD"), and/or compact disc
read-only-memory ("ROM") data can be embossed into and stored on
15 the first layer by techniques known to those skilled in the art.

The optical card, comprising:
a body;
an optical disk in polycarbonate or acrylic molding compound in
credit card format and size and shape which is readable on any CD
20 - DVD compatible reader and;
a central sputtering covering only the written data surface and the
use of stampers with several zones with different linear velocity L_v
and T_p to increase data capacity through the increase of the
physical bit density. The radial density can be increased by
25 decreasing the track pitch (T_p) of the wobble grooves on the
substrate taking care of keeping the hard limit for the pickup which
is specified in the Red book.

A second layer in blank polycarbonate or acrylic molding compound
or PVC comprising a cavity therein with a smart card device
including a module with a semiconductor chip implanted
permanently in the cavity of the card body, the module having a non-
conductive plastic substrate; and micro-encapsulated adhesive
30 means for fixing only the non-conductive plastic substrate of the
module to the card body, the adhesive means including micro-
capsules containing adhesive and the microprocessor positioned in
the body to be used by a cellular telephone, and also to perform any
smart card functions and;

106

- 1 The Optical/smartcard can take several forms and may be manufactured in either single sided or double sided configurations. A single-side disc is composed of a minimum 0.8 mm thick recording half bonded to a maximum 0.6mm blank half to form one entity. The recording side is a sandwich of multiple layers including
- 6 a pre-grooved polycarbonate /acrylic compound substrate a dye layer, metal reflector and protective lacquer overcoat. An adhesive layer bonds the two halves together.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

- 10 The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which preferred embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein. Rather,
- 15 these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. Like numbers refer to like elements throughout, and prime and double prime notation are used to indicate similar elements in alternative embodiments.

- 20 FIG. 3 illustrates a perspective view of a trading card optical compact disc according to an embodiment of the present invention. The optical/smart card is preferably compatible with a disc reader which includes a centrally located spindle S and a seating ring R of a loading tray T for supporting and rotating a compact disc ("CD") positioned thereon. The optical/smart card has at least a first plastic rectangular layer having a width of about 54mm up to 58 mm and a length of about 88mm and having a pattern of digital data encoded thereon, i.e., pits and tracks as understood by those skilled in the art. The plastic of the first layer is preferably a polycarbonate material or other optically transparent embossable plastic material as understood by those skilled in the art (Acrylic, PVC).
- 25
- 30

- 35 Various formats or data categories, including compact disc audio data, digital video disc ("DVD"), and/or compact disc read-only-memory ("ROM") data can be embossed into and stored on the first layer by techniques known to those skilled in the art. For optical/smart card applications for example, digital data including visual information of photographs, video, textual information such as a person's or team's statistics and biographies, historical information, music, narration, and other data can be stored and recalled at will be a user of a disc reader.
- 40

107

- 1 As understood by those skilled in the art, these optical/smart card applications, for example, can include sports, music, entertainment, publishing, book, magazine, topical information, or various other types and formats.
- 5 A conventional compact disc reader, for example, can include a loading tray T having a centrally located spindle S and a seating ring R for supporting and rotating a compact disc having planar upper and lower surfaces and embedded data tracks consisting of the encoded digital data. A compact disc reader also has a digital data reading system which includes a source of light positioned for generating a light beam to illuminate the data tracks. A light beam is reflected from the data tracks and is modulated by the encoded digital data. A digital reading system of the compact disc reader receives and converts a corresponding electrical signal for processing the read data, e.g., by a microprocessor-based decoding system.
- 10 Preferably, as illustrated in FIGS. 3, a metallic layer is formed on at least portions of the first plastic layer, e.g., portions of or the entire major elevational portion of the first plastic layer (see coupe Cc Fig 3). The metallic layer preferably includes an aluminum material, such as conventionally used with forming optical compact discs, silver material, gold material, or other reflective metal material. The second layer preferably provides a reflective surface for the light beam after it passes through the first optically transparent plastic layer when attempting to read the digitally encoded data from the disc.
- 15 As best shown in FIGS. 3, the thickness of the combination of the first and second layers is similar to a DVD production and format, which preferably uses a digital video data format is also preferably less than about 1.2 mm. This embodiment, as understood by those skilled in the art, preferably has at least two plastic layers each which are less than 0.6mm or which form a composite layer and defines a major elevational portion as illustrated in the other embodiments.
- 20 A method of forming a optical/smartcard according to the present invention preferably includes molding at least one plastic rectangular layer having a width of about 54mm to 56mm and a length of about 86mm and having a pattern of digital data encoded thereon. Prior to this molding step, however, and as understood by those skilled in the art, data for the disc is optically, e.g., preferably by laser techniques, mastered from data files or other software programs.
- 25
- 30
- 35

BRIEF DESCRIPTION OF THE DRAWINGS

Some of the features, advantages, and benefits of the present invention having been stated, others will become apparent as the description proceeds when taken in conjunction with the accompanying drawings in which:

Fig. 1 is a bottom plan view of an optical/smartcard disc.

- 1.1 is the sputtered data surface
- 1.2 is the layer with the 80mm ring

Fig. 2 is a side left and right view of 2 layers for CD version

- 2.1 is the ring holding the CD in the reader

Fig. 3 is a side front and back view of the 2 layers for DVD with 81mm card integrated

- 3.1 is the layer containing the microprocessor (81mm card)
- 3.2 is the holder for the microchips
- 3.3 is the layer containing the data

Fig. 4 is a side front and back view of the 2 layers for DVD with Antenna micro-processor integrated

- 4.1 is the layer protecting the antenna(81mm card)
- 4.2 is the antenna
- 4.3 is the layer containing the data

Fig. 5 is a top view of the 2 layers for DVD with 81mm card integrated

- 5.1 is the microchips holder
- 5.2 is the data holder which is sputtered

109

CLAIMS

- 1 1. A dual smartcard and optical layered card comprising:
- 1 An optical layer comprising:
- a body;
- 5 an optical disk in polycarbonate or acrylic molding compound in credit card size and shape which is readable in any CD-DVD compatible reader.
- an a centrally located spindle and a recess in a loading tray thereof defining a seating ring for supporting and rotating an optical disc positioned thereon,
- 10 at least a first plastic rectangular layer having a width of about 54mm up to 58 mm and a length of about 88 mm and having a pattern of digital data encoded thereon;
- 15 a second metallic layer formed on at least portions of the first plastic layer; (sputtering) covering only the written data surface
- a third protective layer formed on at least the second layer for protecting the metallic layer;
- 20 an opening extending through the first, second and third layers in a medial portion thereof; and
- 25 2. An optical disc as defined in claim 1, wherein said card seating means comprises at least said first plastic layer including a major elevational portion having a first predetermined height and a minor elevational portion having a second predetermined height, the major elevational portion having the encoded digital data thereon and the minor elevational portion being devoid of the encoded digital data.
- 30 3. An optical disc as defined in claim 2, wherein the major elevational portion is formed in a medial portion of the trading card and has first and second pairs of spaced-apart outer side peripheries defining outer boundaries of the the major elevational portion
- 35

110

- 1 4. An optical disc as defined in claim 3, wherein each of the arcuately-extending first pair of spaced-apart outer side peripheries of the major elevational portion are centered about an axis extending through the medial opening and generally perpendicular to the linearly-extending second pair of spaced-apart outer side peripheries.
- 5 5. An optical disc as defined in claim 3, wherein the encoded digital data of the major elevational portion of said first layer is formed within a circular data zone and comprises less than the entire surface area of the major elevational portion of said first layer.
- 10 6. An optical disc as defined in claim 5, wherein the circular data zone has a first inner circular periphery having a radius of at least 15 mm and a second outer circular periphery having a radius of less than 80mm.
- 15 7. An optical disc as defined in claim 1, wherein the plastic of said first layer comprises polycarbonate or acrylic.
- 20 8. An optical disc as defined in claim 1, further comprising a first non-metallic zone surrounding and extending outwardly a predetermined distance from the medial opening and a second non-metallic zone extending inwardly from a rectangular outer perimeter of the trading-card optical compact disc a predetermined distance.
- 25 9. An optical compact disc as defined in claim 8, wherein the first non-metallic zone includes a stacking ring surrounding the opening for stacking another trading card optical compact disc thereon.
- 30 10. An optical disc compatible with a disc reader which includes a centrally located spindle and a seating ring for supporting and rotating a compact disc positioned thereon, the trading card optical compact disc comprising:
- 35 at least a first polycarbonate rectangular layer having a width of about 54 mm to 58mm and a length of about 58mm and having a pattern of digital data encoded thereon, said first polycarbonate layer including a major elevational portion having a first predetermined height and a minor elevational portion having a second predetermined height so that the major elevational portion interfacingly seats the card onto a loading tray of the disc reader so as to interface with only a portion of the seating ring of the disc reader and to read digital data stored thereon from the trading card optical compact disc.

141

- 0 a second metallic layer formed on at least portions of the first polycarbonate layer;
- 5 a third layer formed on at least the second layer wherein the circular data zone has a first inner circular periphery having a radius of at least 15 mm and a second outer circular periphery having a radius of less than 80mm.
- an opening extending through the first, second, and third layers in a medial portion thereof.
- 10 11. A microchip included in layer 1
12. A method of using a computer system for a real-time customer activation of a multi-feature card having a primary feature and at least one secondary feature, the primary feature functioning as a stored value card feature and the at least one secondary feature functioning as a credit card feature, wherein the system automatically processes a user's activation of the card, said system including a data entry processing center, a workstation, a graphical user interface, and a data storing means; comprising the steps of:
- 15 a) offering to the user a first activation of the multi-feature card as a primary transaction card having the primary feature;
- b) receiving the user's request into said system to activate the primary feature of the primary transaction card;
- 20 c) employing at least one safety feature during the first activation request to determine whether the user is the person whose name is printed on the primary transaction card; and
- 25 d) offering the user a direct connection and dialup worldwide and without any installation on his hard disk
- 30 e) offering the user a direct and transparent connection to Internet and email services
- 35 f) integration of a complete embedded and standalone navigation system to surf the network update local information, send email and compatible with most file standards

112

- 1 d) offering the customer an option of activating the chips transaction card by:
- 1) confirming the customer's desire to activate the chip feature;
- 5 2) activating the chips feature, if the consumer confirms the first activation;
- 4) allowing the user to use the multi-feature card as an optical card having only the CD-DVD feature;
- 10 e) offering to the user a subsequent activation of the multi-feature card that determines the customer's election to add the microprocessor feature onto the card
- 15 f) determining the customer's request to activate any additional use features.

WO 00/62249
PCT/SE00/00023
18
112

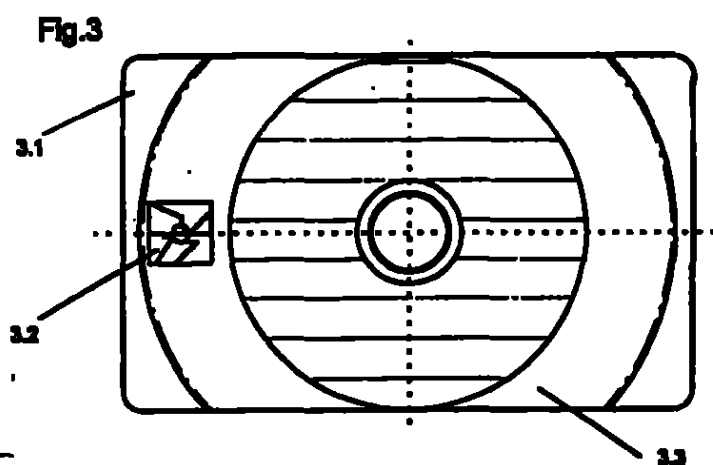
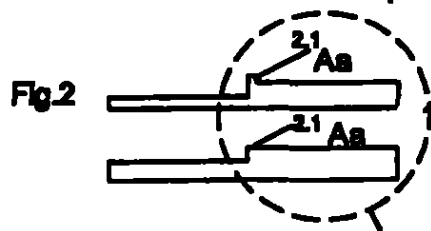
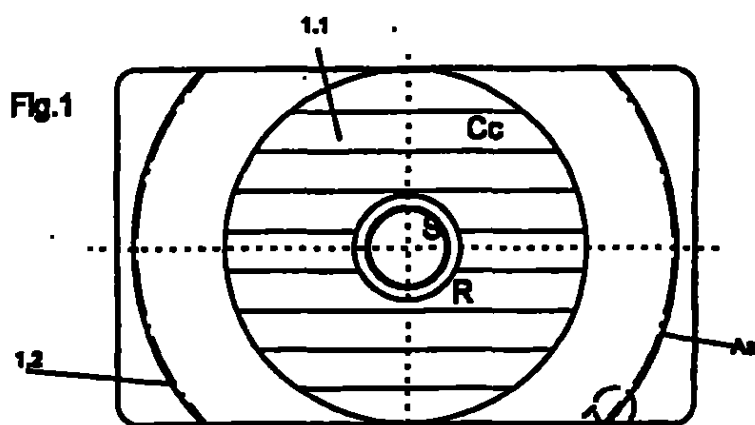
HB

Dual smart/optical credit size card with microprocessor and an integrated software engine giving instant and worldwide access to the Internet and related services without installation of any software and method therefore.

- 1 An optical/smartcard disc and method of using and forming the disc are provided which are compatible with a disc reader having a centrally located spindle and a seating ring for supporting and rotating a compact disc positioned thereon. The optical disc
- 5 according to an embodiment of the invention preferably has at least a first plastic rectangular layer having a width of about 54mm and a length of about 88mm and having a pattern of digital data encoded thereon. A second metallic layer is formed on at least portions of the first plastic layer, and a third protective layer is formed on at least the
- 10 second layer for protecting the metallic layer. An opening extends through the first, second, third, and fourth layers in a medial portion thereof. A card interface seat is preferably integrally formed in at least the first layer for seating the card onto a loading tray of a disc reader so as to interface with only portions of the seating ring of the disc reader and to read digital data stored thereon from the
- 15 optical/smartcard disk. A layer including the microprocessor. The integration of a full software engine giving transparent and direct connection worldwide without any need to install any software on the host machine.

11/27/00
11/27/00
11/27/00
11/27/00

114



8615

United States Patent

Vogelgang et al.

[11] Patent Number: 4,812,633

[45] Date of Patent: Mar. 14, 1989

[54] OPTICAL DATA CARD

[73] Inventors: Peter J. Vogelgang; John W. Ulseth, both of Roseville; Norman L. Giorgi, W. St. Paul; Judith D. Edwards, Oakdale, all of Minn.

[73] Assignee: Minnesota Mining and Manufacturing Company, St. Paul, Minn.

[21] Appl. No.: 179,318

[22] Filed: Apr. 8, 1988

[51] Int. Cl. G06K 19/00

[52] U.S. Cl. 235/487; 235/492; 235/493

[56] Field of Search 235/487, 492, 493

[56] References Cited

U.S. PATENT DOCUMENTS

4,772,672 9/1988 Nesat 235/492 X

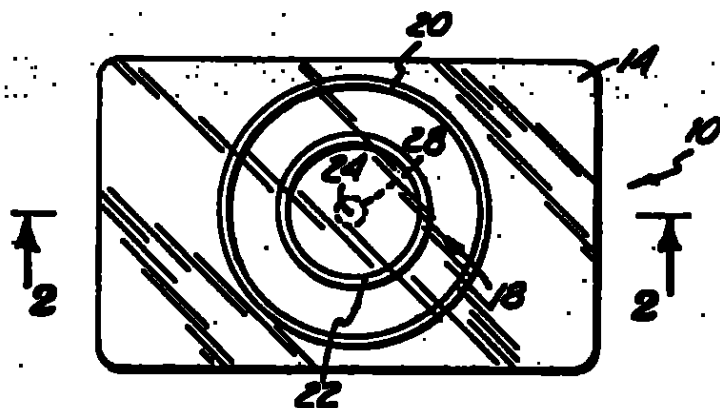
Primary Examiner—Harold L. Pitts

Attorney, Agent, or Firm—Donald M. Sell; Walter N. Kim; Douglas B. Little

[57] ABSTRACT

A wallet-sized data card includes a magneto-optic active region configured for rotational recording of data. A finder projecting outwardly from the card is disposed adjacent an outer circumference of the recording region for protecting the magneto-optic recording region.

13 Claims, 2 Drawing Sheets



OPTICAL DATA CARD

FIELD OF THE INVENTION

The present invention relates to a wallet-size data card, and in particular, it relates to a data card having a magneto-optic layer for storage and retrieval of information thereon.

BACKGROUND OF THE INVENTION

Wallet-size cards are in widespread and general use as credit cards, identification cards, passes, membership cards, driver's licenses and the like. Such cards are typically made of a solid plastic or a plastic laminate and carry visible indicia, plus embossed and/or raised characters which carry the person's identification, the card's identification and other information. Such cards are used in imprinting devices for imprinting sales receipts. In addition, most of such cards carry magnetic strips which contain limited amounts of digitally encoded data. The cards are inserted whole into a reader, such as in an automatic teller machine, or one edge portion of the card containing the strip is passed through a reader, such as a credit card reader.

In recent years, there has been a great deal of work done in the area of optical recording media, the equipment to record and read such media, and the form or substrate on which the media are deposited. One form of an optical recording element is a disk which includes a groove pattern that is embossed on one side of the substrate. The grooves consist of a series of concentric circles or alternatively a continuous spiral. To read such disks, readers rotate the disk while a focused laser beam is utilized to read information stored on the disk.

Another form of an optical recording device includes a strip format of optical recording media. Such strip formats on wallet-size cards are disclosed in the Drexler U.S. Pat. Nos. 4,500,777, 4,542,288, 4,544,835, 4,680,460, 4,680,458 and 4,680,456.

As described in the Drexler '777 patent, the laser recording medium is approximately 15 mm wide and extends the length of the card. The strip is applied to the card by an adhesive and is covered by a transparent laminating sheet which serves to keep the strip of laser recording medium flat as well as protecting the strip from dust and scratches. The card is read by moving the card linearly with respect to a laser beam.

The Boukda U.S. Pat. No. 4,463,089 mentions several configurations for optical recording media including a disk format, square sheet-like material with a central hub, and a non-rotating rectangular plate.

The Drexler et al. U.S. Pat. No. 4,543,307 describes a method for protecting optical surfaces of an optical recording tape by coating the edges of the surface. Alternatively, the edges of the tape may be deformed by embossing the surface such as to create raised protuberances.

SUMMARY OF THE INVENTION

A wallet-sized data card includes a magneto-optic active region configured for rotational recording and reading of data. A flange projecting outwardly from the card is disposed adjacent an outer circumference of the recording region for protecting the magneto-optic recording region.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top view of the card of the present invention.

FIG. 2 is a cross-sectional side view of the card of the present invention taken along the line 2-2 in FIG. 1.

FIG. 3 is a top view of an alternative embodiment of the card of the present invention.

FIG. 4 is a top view of a card blank used to make the card of FIG. 3.

FIG. 5 is a side view of the card blank used to make the card of FIG. 3.

FIG. 6 is a top view of the optical disk of the card illustrated in FIG. 3.

FIG. 7 is a cross-sectional view taken along the line 7-7 in FIG. 6.

FIG. 8 is a sectional view of a portion of an alternative embodiment of the card of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A first embodiment of a card of the present invention is generally indicated at 10 in FIGS. 1 and 2. The card 10 includes an opaque layer 12, a transparent layer 14 and a magneto-optic layer 16 disposed between the transparent layer 14 and the opaque layer 12. The layers 12, 14, and 16 are affixed together to form the laminated card 10.

As used herein, the term transparent means sufficiently transmissive to the laser light used in a read/write apparatus to allow such light to pass through and affect the magneto-optic layer in the intended way, e.g., raising its temperature to the compensation or curie temperature at a spot to allow recording a data bit.

Preferably, the layer 12 is an injection molded plastic sheet. Although the layer 12 is preferably opaque, the layer 12 can be transparent. A groove pattern is formed on the layer 12 on a side 13 or layer 14 on side 18 adjacent the magneto-optic layer 16. The groove pattern is a conventional type of groove pattern and can consist of either a series of concentric circles for random access to data, or a continuous spiral where a continuous data stream is desired. The grooves optionally include track I.D. and sector I.D. codes to facilitate data access to information in the same manner as conventional optical disks. When the layers 12, 14 and 16 are bound together, the limits of the groove pattern are defined by flanges 20 and 22. The flange 20 defines the outer diameter of the groove pattern and the flange 22 defines the inner diameter of the groove pattern.

The magneto-optic layer is deposited on the surface of the layer 12 or layer 14 containing the groove pattern. Magneto-optical thin film recording media and deposition processes are described in the Gardner U.S. Pat. No. 4,615,944. The deposition of such media as thin films on substrates is known in the art. In the embodiment illustrated, the magneto-optic layer 16 covers the entire surface 13. Alternatively, the magneto-optical layer may be deposited on a top surface 15 of the layer 14. However, it is sufficient that the magneto-optic layer 16 is deposited such that the layer 16 covers the area circumscribed by flange 20.

The transparent layer 14 serves at least two purposes. First, the transparent layer 14 protects the magneto-optic layer 16 from being scratched. Second, the transparent layer 14 serves as a dust defocusing layer; that is dust particles that adhere to the surface of the layer 14 are positioned from the magneto-optic layer such that

interference which may be caused by the particles with reading of or writing on the magneto-optic layer is minimized.

In one embodiment, the transparent layer 14 is injection molded and has a transparent and flat surface. The layer 14 needs to be optically clear and flat over only the active area 18.

A readable and writable magneto-optic active area 18 is defined between the fenders 20 and 22. The fenders 20 and 22 are concentrically disposed about a central axis 24. The fenders extend outwardly from the layer 14, preferably from about 0.025 CM to about 0.0762 CM.

The fenders 20 and 22 do not interfere with optically writing on or reading off of the card 10. The fenders prevent the active area 18 from coming into contact with another surface, such as an adjacent card in a wallet or on the surface of a table or a desk on which the card may be placed. Preventing such contact minimizes the chances of the surface of the layer 14 between the fenders from being scratched. Scratches and other types of abrasions on the surface of the layer 14 may affect the reading and writing characteristics of the magneto-optic layer.

In one working example of the present invention, the radial distance between the fenders is about 0.953 CM. The radial distance between the fenders requires a high level of localized pressure to bend or deform the card to such an extent that the active layer is exposed to contact with a foreign object or surface.

To add further protection against abrasion, the active area 18 is coated with a hardcoat polymer layer 26, as best illustrated in FIG. 2. Hard coat polymers which are applied to surfaces for abrasion resistance are well known. A non-birefringent, transparent coating composition which adheres well to layer 14 is preferred. One such composition, believed to be a multi-functional acrylate mixed with a monomer containing an N-vinyl amide group such as N-vinyl-2-pyrrolidone and obtained as GAFGARD 233D from GAF Corp. has been used in forming layer 26. This composition was cured with ultraviolet light after applying it to active area 18.

A registration depression or dimple 28 is disposed on an outer surface 29 of the layer 12. The registration dimple 28 is preferably formed during molding of the layer 12. As best illustrated in FIG. 1, the dimple 28 is disposed about the axis 24 and is the centerpoint for the fenders 22 and 20 and the active area 18.

The card 10 of the present invention is used in association with a machine or device (not shown) that is capable of writing and/or reading the magneto-optic layer in the active area 18. The card may be positioned in the machine by referencing one end portion and one edge portion of the card, as is done with conventional magnetically striped cards. The card is held in a holder and the holder rotated to read the card.

An alternative method of aligning the card of the present invention is to engage a registration dimple 28 of the present invention with a pin (not shown) located within a read/write apparatus (not shown). The engagement of the registration dimple by the pin aligns the magneto-optic active area 18 for proper reading. Alternatively, a hole (not shown) may be used instead of registration of dimple 28.

An alternative embodiment of the present invention is generally indicated at 30 in FIG. 3. The card 30 includes a known card blank 32 with a magneto-optic disk 34 affixed to a top surface 36 of the blank 32. The disk 34

is disposed to one side of the card blank 32 to provide ample room for various indicia 33 that are typically found on a bank or credit card.

The optical disk 34 is approximately 2.54 CM in diameter and is capable of storing about three megabytes of data. The card blank 32 of FIG. 4 preferably has a width dimension of approximately 54 mm and a length dimension of approximately 85 mm. These dimensions are typical of credit cards presently used. Such cards easily fit into a wallet and have been adopted as a convenient size for use in automatic teller machines and the like. The card blank is made of a polymeric material such as polyvinylchloride and includes a colorant such as titanium dioxide.

The card blank 32 prior to printing, embossing, and the attachment of the optical disk 34 is illustrated in FIGS. 4 and 5. A circular area 38 is skived, milled, or otherwise formed into the surface 36 of the blank 32. The depth of area 38 should be sufficient to accept the disk 34. In one working embodiment, the depth was approximately 0.076 CM.

The optical disk 34 is illustrated separately in FIGS. 6 through 7. In one embodiment, the optical disk 34 includes a polycarbonate substrate 40 made by injection molding. A top surface 42 is optically smooth and transparent. Circular ridges or fenders 44 and 46 on the top surface 42 are formed during the injection molding of the disk 40. The fenders 44 and 46 are concentrically disposed about an axis 48. An active magneto-optic area 50 in which data is stored is defined between the fenders 44 and 46.

A magneto-optic coating 52 is deposited on a bottom surface 54 of the disk 40 in a manner that is known in the art. Optical tracking grooves are provided in the surface 54 during the molding of the disk 40 and optionally include track and sector identification codes. In one embodiment, the magneto-optic coating 52 comprises several layers (not shown) which are known in magneto-optical media construction. Going from the top of FIG. 7 down, a first layer of SiO_2 serves as a chemical barrier and heat insulator. A second layer includes the active magneto-optical thin film recording medium for storing data. A third layer of SiO_2 serves as a chemical barrier and heat insulator. A fourth and final layer of aluminum serves as an optical reflecting layer.

The disk 34 is cemented into the area 38 of the card blank 32.

Similar to the fenders of the card illustrated in FIGS. 1 and 2, the fenders 44 and 46 protect the active area 50 from being scratched by surfaces of adjacent cards, tabletop or desk surfaces or a wallet surface. The fenders extend from the disk surface and from the surface of the card about 0.041 CM. The radial difference between the fender 46 and the fender 44 is approximately 0.48 CM and a height of 0.041 CM provides an ample protective barrier for the active area 50.

Another alternative embodiment of a card of the present invention is generally indicated at 60 in FIG. 8. The embodiment 60 includes a different manner of affixing an optical disk 62 onto a card blank 64. Instead of providing a skived area as in the card of FIGS. 3 through 7, the card blank has an aperture 66 formed therein. An outer ridge or fender 68, similar to the outer fender 44 is formed in the card blank 64 instead of in the optical disk. The disk 62 is similar in all respects to the disk 34 described previously with the exception that no fenders are molded in the polycarbonate substrate. The same layers are deposited on the substrate to form the

active magneto-optic area as previously discussed with respect to the disk 34 of FIGS. 6 and 7.

In this embodiment, cone-shaped dimple 70 is molded into the polycarbonate substrate at the center point of the substrate. The dimple 70 is used to center the disk 62 within a read/write apparatus (not shown) in the same manner as the dimple 28 of FIG. 2. The card 64 is rotated about the cone-shaped dimple 70.

To affix the disk 62 within the card blank 64, the disk is set into the aperture 66. The disk has an outside diameter equal to or less than the diameter of the opening 66. A thin laminate layer 72 capable of bonding to both the card blank 64 and to the back side of the disk 62 is used to secure the disk 62 to the card blank 64.

Although the present invention has been described with reference to preferred embodiments, workers skilled in the art will recognize that changes may be made in form and detail without departing from the spirit and scope of the invention.

What is claimed is:

1. A data card comprising:
 - a substrate having a magneto-optic active region configured for rotational recording of data; and
 - first finder means for protecting the magneto-optic recording region disposed adjacent an outer circumference of the recording region.
2. The card of claim 1 and further including second finder means for protecting the magneto-optic active region disposed along an inner circumference of the recording region.
3. The card of claim 1 wherein the first finder means is a continuous ridge extending outwardly from the substrate.
4. The card of claim 2 wherein the second finder means is a continuous ridge extending outwardly from the substrate.
5. The card of claim 1 further comprising, as a centering means, a depression disposed on a center point of the magneto-optic active region for centering the magneto-optic active region during rotation.

6. The card of claim 1 wherein the first finder means extends outwardly from the substrate at least approximately 0.025 CM.

7. The card of claim 1 wherein the substrate includes a backing layer, a transparent top layer and a magneto-optic medium layer disposed between the backing, the top layer and at least a portion of the magneto medium layer being disposed within the magneto-optic active region.

8. A method of making a data card comprising: providing a rectangular substrate and an optical disk having a magneto-optic medium for recording of data in a magneto-optic active area, the disk being smaller in diameter than the width and length of the substrate;

forming an area of the substrate sufficient in diameter to accept the disk and sufficient in depth such that a top surface of the disk is substantially even with a top surface of the substrate; and joining the disk to the substrate.

9. The method of claim 8 and further including: providing a first protruberance in the substrate adjacent the disk, the first protruberance means extending outwardly from the substrate a sufficient distance to provide protection to the magneto-optic active area.

10. The method of claim 9 wherein the first protruberance is a continuous ridge.

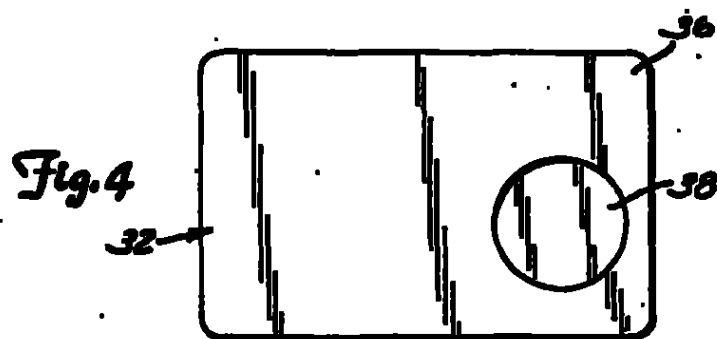
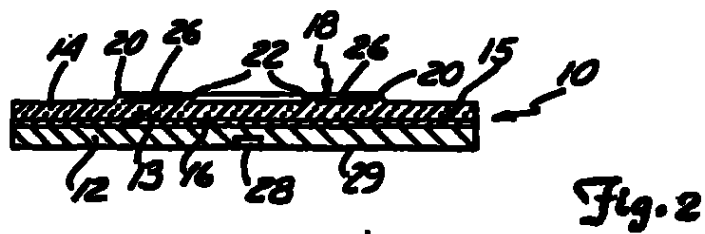
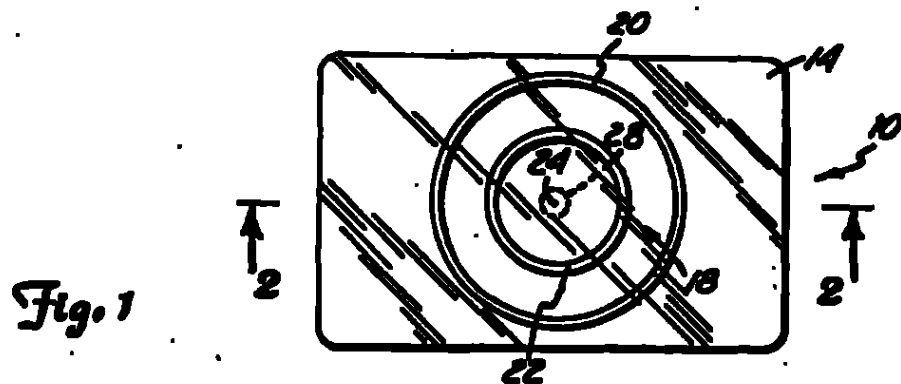
11. A method of making a data card comprising: providing a substrate having an aperture therein; providing an optical disk having a magneto-optic medium for recording of data in a magneto-optic active area, the disk having a diameter equal to or smaller in diameter than the aperture of the substrate;

positioning the disk within the aperture; and fixedly attaching the disk to the substrate within the aperture.

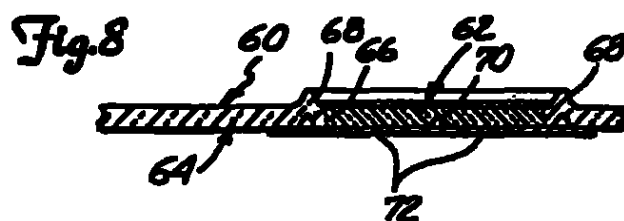
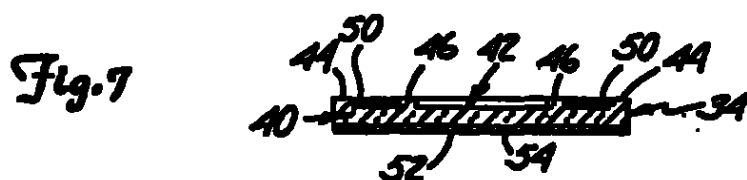
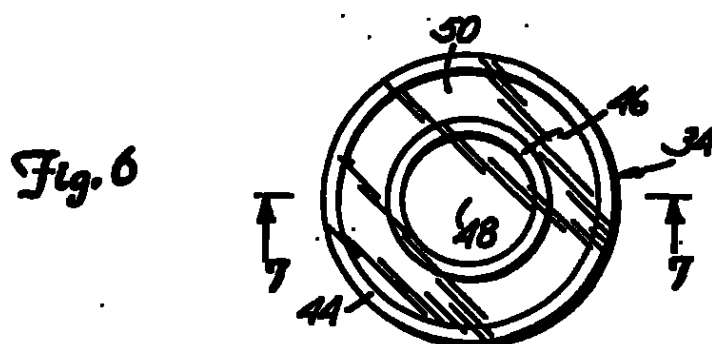
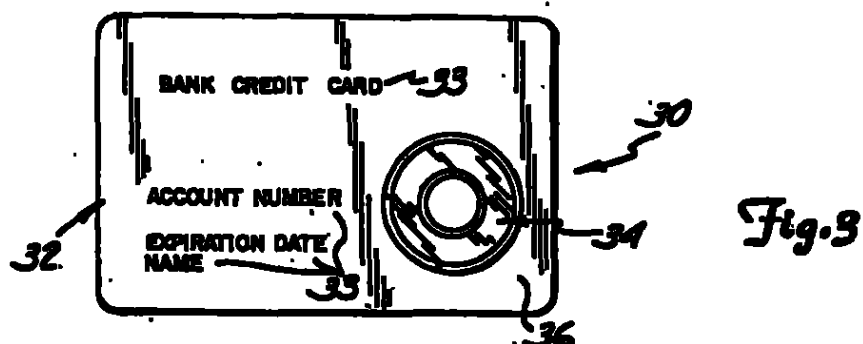
12. The method of claim 11 and further including providing a protruberance means in the substrate adjacent the circumference of the aperture.

13. The method of claim 12 wherein the protruberance means includes a continuous ridge adjacent the aperture.

* * * * *



7-20



121

(12) UK Patent Application (19) GB (11) 2 305 393 (13) A

(43) Date of A Publication 08.04.1997

(31) Application No 9817718.8

(32) Date of Filing 31.08.1998

(71) Applicant(s)

Powerhouse Marketing Limited

Incorporated in the United Kingdom

58 Thomas Village, Hartington Road, Chiswick,
LONDON, W4 3UF, United Kingdom

Richard James Noble Warren
58 Thomas Village, Hartington Road, Chiswick,
LONDON, W4 3UF, United Kingdom

(72) Inventor(s)

Richard James Noble Warren

(74) Agent and/or Address for Service

Richard James Noble Warren
58 Thomas Village, Hartington Road, Chiswick,
LONDON, W4 3UF, United Kingdom

(51) INT CL⁸

H42D 15/10 // H42D 11/00

(52) UK CL (Edition O)

H6A AC43 AL

(56) Documents Cited

GB 2282270 A

(58) Field of Search

UK CL (Edition N) H6A AL ATC
INT CL⁸ H42D 15/10

(54) Telephone card with scratch-off panel

(57) A telephone card includes a randomly-generated account number protected by a scratch-off panel. The card is activated by the user telephoning a computer for validation and on-line payment.

GB 2 305 393 A

PHONECARD ACTIVATION

This invention relates to a new commercial application associated with the telecommunications product known as a remote-memory phonecard (or telephone card) which is credit-card sized, often made of plastic - or a similar material - and which is sold with "value" representing so many minutes of phonecall time.

Phonecards are products generally used in conjunction with phone boxes or call boxes and which are traditionally inserted into the slots within a phone box or "swiped" to enable the user to make one or more telephone calls. The phonecard itself provides the value for the phonecalls, and this value is monitored by the information provided to the callbox - and hence to the relevant Exchange. The information can be "read" by way of magnetic stripe (as with the traditional ITT card) and more recently by way of more sophisticated techniques involving microchips imbedded in the phonecards - known as "smart cards". All such cards are provided with "value", contained as electronic information stored within the card, and, when sold, the purchaser is effectively buying "prepaid" phontime. Some call boxes also allow users to make calls on inserting or swiping their credit cards, such calls being debited directly to those credit cards, but credit cards are not technically phonecards in that they have other specific functions.

The type of phonecard to which this invention particularly applies is known as a remote memory phonecard which differs from the above in that the phonecard is neither inserted into or swiped through the phone box or call box. The remote memory phonecard operates by dint of a special Account Number or PIN (Personal Identity Number) published on the card, which when correctly entered via any telephone, will enable the caller to use the facilities to a certain value as offered by the service provider.

All phonecards are bought and stocked for the full value of the calls as displayed on the card. Wholesalers and retailers (and traders) cannot opt to buy a stock of phonecards for a nominal sum and decide when to put call value on to those cards i.e. they cannot choose to activate the cards at the time of purchase or later, or give purchasers the choice of purchasing a phonecard which is either activated or not.

According to the present invention there is provided on the reverse of certain remote memory phonecards a unique and randomly generated 10 digit account number covered by a scratch-off panel. There is also printed a special telephone number which connects to a bespoke on-line validation computer software programme. The combination of random account number and on-line validation service enables a phonecard to be remotely activated at a time to suit the purchaser.

A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawings and documentation in which: -

Figure 1 shows the front of a phonocard in two dimensions.

Figure 2 shows the reverse of the same phonocard in two dimensions which can be activated at the discretion of the seller or the purchaser at any time.

Document 3 is an outline of the basic specification of the required "on-line" validation software programme which will allow activation of such phonecards.

Document 4 is the User Guide which is proposed to be available to purchasers of the phonecards which describes the special activation process and unique method of operation embodied with this special type of phonocard.

Referring to Figure 2, the reverse of the phonocard comprises operational text and information combined together with a scratch-off panel which conceals a randomly generated 10 digit account number which is unique to every card produced. Adjacent to the account number is a panel which contains details of the value of that card when activated and the number of international call minutes available to the country designated.

This special software programme described in Document 3 enables the caller to put value on the phonocard for call purposes at any time by providing details of the account number, the value, and suitable credit details for the appropriate credit to be transferred "on-line" to the card service provider.

Document 4 is a detailed User Guide available to the purchaser of each remote memory phonocard, which explains clearly and in some detail the method of operation and the various advantages of the particular phonocard service. Although not wholly relevant to the application, the paragraphs headed Activation, Account Number, and Topping Up refer specifically to the inventive aspects of the service.

In this example, payment of £10 will activate the card, and will enable the user to make 33 minutes of telephone calls from the UK to any standard number in the United States. This concept of remote activation can be applied to phonecards supplying a voice service from any country to any other country.

Document 3

PRIVATE & CONFIDENTIAL

- 1. System "answers" (C.I.I. Identification)
and "requests" 10 digit Account No. - *"Welcome to the Phonecard Services
Activation line. Please enter the Account Number"*

*(If starts with 2 = English Speaking
if starts with 3 = German Speaking
if starts with 4 = French Speaking
if starts with 5 = Japanese Speaking
if starts with 6 = Italian Speaking
if starts with 7 =
if starts with 8 = etc.)*

If OK, (all 10 digits received in 10 seconds starting with 2,3,4,5,6,7 or 8), then:

- 2. System "requests" value of card - *"Please enter the value of the card in £"*

If OK (2 digits received, minimum 10, maximum 99), either

- 3. System "reports" account no. and value - *"Thank you; the card no. is _____
and the value is - pounds.
Please press * for YES or # for NO"*

and if "*" / or

- 4. System "acknowledges" receipt - *"Thank you. Please hold"*
System searches database for correct percentage figure against acct. no. and value
System carries out immediate "on-line" debit transaction with credit card account
of Caller for fixed percentage of above card value; If authorised, updates database
then delivers account number and value data to another host computer

- 5. System confirms activation - *"We confirm authorisation; thank
you for using Phonecard Services Ltd"*

- 6. System terminates call

If NOT OK (<10> digits received in 10 seconds, or commence with 0,1 or 9)

- 2(a) System "requests" user to re-try - *"The account number must be 10 digits
and you need a tone-dial telephone. Please try again"* >2 attempts, then terminated.

If NOT OK (number <10>99, more than two digits, >5 seconds)

- 3(a) System "requests" user to retry - *"The value must be between £10 and £99.
Please try again"* >2 further attempts, call terminated.

If #

- 4(a) System "requests" user to re-try - *"Please re-enter the account number"*
then if OK, to 3. If not OK, then: *"This account no. appears to be incorrect. Please
telephone 0181 xxxxxx for assistance"*. Then System terminates call.

If debit transaction denied

- 5(a) System "reports" to user - *"We regret that we are unable to activate this card
at this time. Please telephone 0181-xxxxxx for assistance"* Call then terminated.

Document 4

Souvenir or GSM

Each phonecard is specially made and printed in the UK and the front shows a picture of a famous national tourist attraction. At the time of printing, there are 20 different pictures in the Souvenir Range. Each card is credit-card sized to fit neatly into a wallet or handbag, is a perfect souvenir or gift, and is printed in the appropriate language.

Languages and Nationalities

This range of souvenir phonecards has been produced for visitors from eight countries: USA, JAPAN, AUSTRALIA, CANADA, SOUTH AFRICA, GERMANY, FRANCE and ITALY - and there are currently phonecards available in five different languages - ENGLISH, JAPANESE, GERMAN, FRENCH and ITALIAN, with clear activation instructions printed on the reverse of each card.

Activation

These cards will not operate as phonecards until they have been activated. Activation is achieved by paying the full amount specified on the reverse of the card; this payment can be made either when the card is purchased, or by the user telephoning* a special activation telephone number listed on the reverse of the card, and quoting valid credit card details. Activation also requires the private Account Number on the phonecard to be quoted. (* This service should be available by January 1996)

Account Number

Each card has a private and confidential Account Number printed on the reverse. When the card is new, this is initially protected by a scratch panel. Careful scratching with a finger nail will reveal the number - a sharp instrument should not be used. Every Account Number begins with a * and is unique to each card; it should not be revealed to anyone after activation has taken place. For security purposes, the user will be asked to enter the Account Number each time he or she dials the Access Number to the telephone service.

Service Access Number

The Access Number is the telephone number that has to be dialled to access the phone service, and is printed immediately under the Account Number on the reverse of the card. If this number is a Freephone Number (0800, 0500 etc.) there will be no local access charge to the service. Any other number will incur a local access charge but this will be small (less than 6p per minute) in comparison to the large savings made on international telephone calls, which are currently the cheapest call rates of any UK visitor phonecard service.

Cheapest Call Rates - FREE Call minutes - Cheaper than BT, AT&T, Sprint, MCI Calling Cards

Phonecard Services Ltd is committed to bringing lower and lower phonecall prices to users of its service. The service will continually improve. Each Souvenir Phonecard offers the lowest cost international calls by a phonecard service from the UK to any other country worldwide, but has a specially low rate to the country featured on the reverse of the card, and identified by the national flag shown in the panel - see below.



In the above example, the user would be entitled to make 33 minutes of calls to the USA for £10 i.e. a rate of only 33p per minute. There are also £20 and £30 card values which, by further discounting the call costs, entitle the purchaser to FREE extra call minutes - see the phonecards for details. Elsewhere in this user guide is an example of the reverse of a Souvenir Phonecard.

How to Use the Service

Once the card has been activated as described, the user should telephone the Access Number given, using only a "Touch-Tone" telephone - a telephone which uses a tone rather than a pulse to transmit signals down a telephone line. (Most UK telephones are Touch-Tone, but some phonobooks or callboxes in the UK are not Touch Tone. The card should not be inserted into a payphone.) When the service answers, the user should enter his/her Account Number, and on acceptance, will then hear a menu spoken in the appropriate language. The menu will prompt the user to select different options by using the keypad on the telephone, e.g. "Press 1 to make an International Call" and low cost international calls can then be made immediately, using the full international dialling code. Follow-on calls can be made by pressing the # on the telephone keypad at the end of each call, and once credit has been used up, it is possible to top up the credit by reactivating the card.

Topping up*

To top-up the card, the user goes through the same direct activation process as described above, telephoning the number printed the bottom of the reverse of each phonocard but he/she may choose the exact amount of additional credit required which can be any amount up to £99. By limiting the amount of credit, the amount subject to the possibility of loss by fraud is reduced. For information about the Souvenir Phonocards, and Account and other enquiries, the user should telephone customer services. (* This service should be available by January 1996)

Customer Services

Our Customer Service is available to help all users holding valid account numbers with any queries or problems they may have. The telephone number is the same as for Topping-up and Activation referred to above, and will connect to an Operator during normal hours 9.30am to 5 pm.

Free Information Service for UK Visitors and Tourists

From 1st January 1996, a special information service will link users direct to:-

Mobile Phone Hire, Box Office and Ticket Agency, Car Hire, Taxi Service, Travel and Tour Agency, Hotel Information, Language School, Tax and Duty Free Shop etc.

All this useful information can be obtained by selecting the option on the menu provided after the Account Number.

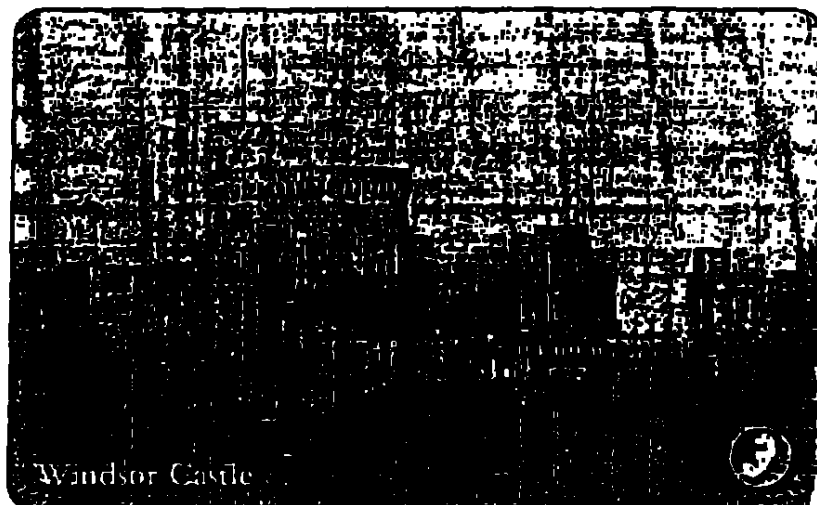


Figure 1

ACTIVATION INSTRUCTIONS

REVERSE OF PHONECARD - NOT TO SCALE

Souvenir Activation Phonecards

This phonecard may be bought unactivated as a gift or souvenir.

- On payment of the amount shown below, the purchaser of this Phonecard is entitled to make international calls to that value.
- Activation can be carried out when purchased or at a later time.
- Special rates apply for calls to the nation whose flag appears. The number after the flag shows the call minutes available.

£10 USA (Ten Pounds) (Initial rate - 10 digits hold)

- To operate the service, telephone 0171 629 2346. When answered, enter account number above (remove scratch-off panel to reveal).
- Dial in your international number. For next onward call, press 2.
- For customer service, activation, top-up telephone 01711234567
- In a phone box, dial access number above, and press * button on answer. (The touch-tone phone only, some phoneboxes unavailable.)

NOTE: A local connection charge is payable when using this service.

© Crownpoint Marketing Ltd Patent Applied for 1992

UNIQUE ACCOUNT NUMBER OR PIN COVERED BY A SCRATCH PANEL.

Figure 2

[54] SECURE CONTEST CARD

[75] Inventor: Gilbert Bachman, Atlanta, Ga.

[73] Assignee: Dittler Brothers, Inc., Atlanta, Ga.

[21] Appl. No.: 701,989

[22] Filed: Jul. 1, 1976

[51] Int. Cl.² B42D 15/00

[52] U.S. Cl. 283/6; 273/39;

35/9 R

[58] Field of Search 283/6; 35/9 R; 273/39

[56] References Cited

U.S. PATENT DOCUMENTS

2,985,820 6/1961 Neville et al. 35/9 R
3,055,117 9/1962 Bernstein et al. 283/6 X
3,938,993 2/1976 Royke et al. 35/9 R X

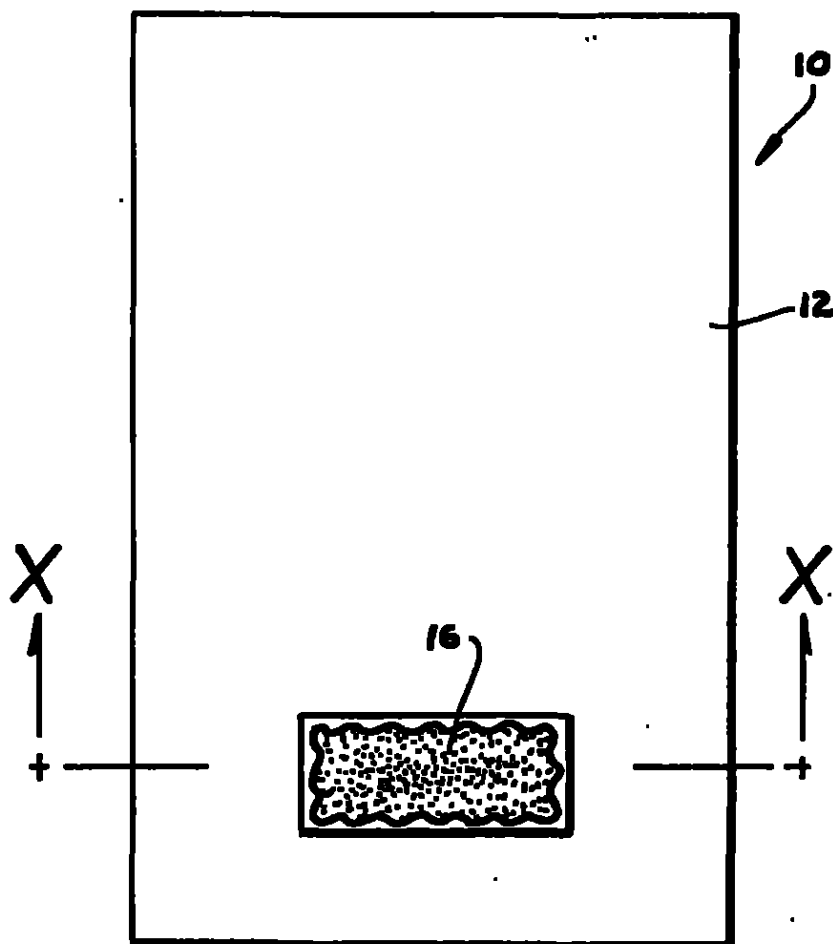
Primary Examiner—Stephen C. Pellegrino
Attorney, Agent, or Firm—Jones, Thomas & Askew

[57]

ABSTRACT

A secure contest card which is not susceptible to compromise by both simple and sophisticated techniques comprises printed indicia disposed on the upper surface of card stock material, a patterned intermediate layer disposed over the printed indicia and an opaque removable mask disposed over the intermediate layer and over the printed indicia. In a second embodiment of the invention a patterned background layer is disposed between the card stock and the printed indicia and the patterned intermediate layer is eliminated. In a third and preferred embodiment, the patterned background layer and the patterned intermediate layer are both employed. It has been found that the pattern in the background and intermediate layers creates an irregular relationship with the indicia and defeats certain new techniques for compromise of apparently secure contest cards.

5 Claims, 15 Drawing Figures



SECURE CONTEST CARD

This invention relates to a contest card bearing meaningful indicia such as words, numbers, messages or appropriate emblems or designs which have been covered by an opaque removable mask capable of being mechanically removed only through the destruction of the mask. More particularly the present invention concerns a secure contest card which includes a patterned layer immediately beneath printed indicia or immediately above printed indicia, or patterned layers both above and below printed indicia on the card.

Games involving a contest card bearing concealed information have become quite popular in the last few years. A typical example of such a card is an instant lottery ticket wherein a customer removes a concealing mask to discover the information printed thereunder. If the information meets the criteria of the contest involved, the customer wins the designated award. In order for contest card games, and particularly instant lottery games, to be successful the contest card must be secure against compromise. If it is possible for one to determine, through either simple or relatively sophisticated techniques, the indicia beneath the opaque mask without removing the mask, then the card is not secure and it is possible for one to compromise the card. If cards can be compromised and the word of such fact spreads among customers and potential customers, the sale of such cards normally will decrease drastically and the entire contest card game will fail. Consequently those involved in the manufacture and sale of contest cards are quite concerned about the security of contest cards.

The security of contest cards and the like have been the subject of previous patents including U.S. Pat. Nos. 2,764,821; 2,961,777; 2,986,820; 3,033,117; 3,508,344; 2,210,897; 3,823,022; 2,410,800; 3,877,153. While these patents have increased the security of contest cards and produced acceptable solutions to problems encountered, they have not provided the answer to more sophisticated methods of compromise. One particular technique has been developed recently wherein previously secure lottery tickets can be photocopied on a conventional photocopy machine, and the resulting paper photocopy will show the printed indicia in readable form and the opaque mask on the ticket will not be altered to any recognizable degree. Tickets produced according to the previous patents have been subjected to this method of compromise and have been found to be insecure.

Consequently, it is an object of the present invention to provide a contest card which is both convenient and economical to manufacture and is not susceptible to compromise by photocopy machines and other compromising techniques.

These and other objects, features and advantages of the present invention will become apparent from reviewing the following detailed description and the accompanying drawings in which:

FIG. 1 is a top plan view of a contest card having an opaque mask over printed indicia on an area of the card;

FIG. 2 is a top plan view of the contest card of FIG. 1 showing one method of removal of the mask to expose the printed indicia;

FIG. 3 is a cross-sectional view of one embodiment of the present invention taken along line x-x of FIG. 1;

FIG. 4 is a cross-sectional view of a second embodiment of the present invention taken along line x-x of FIG. 1;

FIG. 5 is a cross-sectional view of a third embodiment of the present invention taken along line x-x of FIG. 1;

FIGS. 6-15 show various patterns which are used in the printing of patterned layers according to the present invention.

The objects of the present invention are accomplished by utilizing patterned layers of material to render visually hidden indicia on a contest card indistinguishable to a photocopy machine and thus conceal the presence, absence, nature or position of the indicia. This result may be accomplished by careful attention to several factors including the design and position of the patterned layer. The patterned layer should not interfere with or inhibit the transmission of light rays from the indicia to the retinal screen of the eye and an observer must be capable of easily reading the indicia once the mask is removed. However, the patterned layer must render any light rays which may be transmitted from the indicia to the paper of a photocopy process indistinguishable from the light rays transmitted from the patterned layer to the paper so that the image which appears on the paper of the photocopy process does not disclose the hidden indicia.

According to the present invention a secure contest card 10 includes initially a base material 12 such as card stock. Conventionally card stock which is used in the manufacture of contest cards, such as instant lottery tickets, includes a layer of metallic foil either sandwiched into the middle of the card stock or distributed on the upper and lower surfaces of the card stock. The metallic foil contributes to the security of the card by reducing or eliminating the transmission of light through the card. It should be understood that other types of printing paper or other suitable medium could be used in place of the card stock.

Contest indicia 14 are printed on one surface of the card according to the rules of the game involved. Such indicia include words, numbers, messages or appropriate designs or emblems. In order to conceal the indicia from visual observation, the indicia are covered by a thin masking layer of elastomeric material 16 including sufficient opaque pigment material to render the mask opaque. The opaque mask is conventionally applied by silk-screen methods at a thickness of about 0.0005 to 0.0015 inches. The mask is applied in a fluent state to adhere to the face of the card stock and resist removal therefrom in one complete section. After drying the elastomeric mask is smooth, even, hard, non-sticky to the touch, resistant to chemical removal, and quite adherent to the face of the card stock. For mechanical removal, the mask may be abraded or scratched away with a suitable implement such as a fingernail, coin or pencil eraser. During removal the mask sections into strips or portions of strips and its integrity is destroyed thereby obviating the possibility of repositioning the mask over the indicia after its removal therefrom. Because of its elastomeric nature, the mask is easily applied to the card stock and when removed leaves a relatively clean surface so that the indicia can be easily read. It should be clearly understood that the present invention is not limited by the type of material used as the opaque mask and the elastomeric material disclosed herein is suggested as only one type of suitable opaque mask. Any type of covering material which will provide a

suitable visual mask is contemplated by the present invention so long as it meets the criteria of masking the visual identification and recognition of the indicia therebeneath and is removable only in sections so that it cannot be repositioned after observation of the indicia.

The composition of a suitable elastomeric opaque mask is as follows:

Ingredient	Amount or Parts by Weight	Commercial or Trade Name
Natural Rubber		
Kraton(1)	4.447	FLIOLITE NR-50
Styrene Butadiene Rubber Resin(2)	18.717	KRATON 101
Antioxidant(3)	.073	IONOL
Carbon Black(4)	1.844	ELF 75
Extender(5)	.361	Barium Sulphate
Aluminum Powder(6)	14.470	ALCAN 7100
Wetting Agent(7)	.081	Chico Acid
Solvent for Rubber Resins	10.834	Stoddard(8)
	24.881	SACO 100(9)
	22.020	SACO 150(10)

(1)Crystalline rubber compound having a specific gravity in the range of 1.00 to 1.30 and a softening point in a range of 50-70 Degrees C. FLIOLITE NR-50 is a product of Goodrich Tire & Rubber Co. of Akron, Ohio.

(2)Styrene butadiene block copolymer having a molecular weight in a range of 50,000 to 200,000 and a styrene content from 5 to 65%. KRATON 101 is a product of Shell Chemical Corp. of New York, New York.

(3)Phenyl or phenyl type having a chemical structure similar to L.S. antioxidant 2A, 6-tyl (2,5-di-tert-butyl 4-hydroxy benzyl), or 2,6-di-tert-butyl 4-methyl phenol. IONOL is a product of the Shell Chemical Corp. of New York, New York.

(4)Any opaque black pigment with a particle size range from 10-70 microns. ELF 75 is a product of Cabot Corp. of Boston, Mass. Other opaque and opaque pigments can also be used.

(5)Any extender having a molecular index in a range of 1.40 through 1.70.

(6)Aluminum powder having a surface area in a range of 1,000 to 25,000 sq./gm. ALCAN 7100 is a product of Alcan Metal Powder, Inc., a subsidiary of Aluminia, Ltd. of Montreal, Quebec.

(7)Wetting types can be used - not essential.

(8)Aromatic napthalene having a Kauri butanol value - 24, boiling point (distillation range) from initial 210 Degrees F. to end point 360 Degrees F. STODDARD is a product of American Mineral Spirit Company, New York, New York, a subsidiary of Atlantic Refining Company. Other suitable napthalene include those having a Kauri butanol value - range 25 through 34, boiling point (distillation range) from initial 200 Degrees F. to end point 350 Degrees F. and initial 420 Degrees F. to end point 460 Degrees F.

(9)Aromatic hydrocarbon having a Kauri butanol value - 94.5, boiling point (distillation range) from initial 220 Degrees F. to end point 380 Degrees F. SAGO 100 is a product of Standard Solvents, American Mineral Spirit Co., Division of Union Carbide of California.

(10)Aromatic hydrocarbon having a Kauri butanol value - 94.5, boiling point (distillation range) from initial 240 Degrees F. to end point 410 Degrees F. SAGO 150 is a product of Standard Solvents, American Mineral Spirit Co., Division of Union Carbide of California.

Other solvents for the rubber resins can be used, including aromatic hydrocarbons having a Kauri butanol value in the range of from 80 through 104, and boiling point (distillation range) from initial 270° F. to end point 305° F. and from initial 360° F. to end point 540° F.

Various pigments can be substituted for the carbon black, and the aluminum powder can be eliminated entirely. The presence of the aluminum, however, increases the opacity of the mask and also helps insure that the mask will not be removed intact.

The construction of the card stock material of the present contest card is also non-critical to the present invention. The only requirements necessary are that the surface present a suitable texture for printing of the required information thereon and that the card stock material not permit the transmission of light there-through. Preferably the card stock material is a relatively stiff paperboard material with a metal foil (normally aluminum) coating on the top and bottom surfaces. The surfaces, as coated, are relatively hard and smooth so as to permit printing of information thereon and removal of the mask therefrom.

At this point it should be clear that the present contest card includes those essential and conventional features required for the general type of contest card

herein contemplated, i.e., card stock, indicia printed on the card stock and a removable opaque mask over the indicia. As explained earlier, such a contest card may not be susceptible to compromise by simple visual examination, but by more sophisticated but relatively inexpensive techniques these contest cards can be quickly and easily compromised.

In order to insure that such a contest card is impervious to compromise by these more sophisticated techniques, such as by examination with a photocopy machine, it has been found that complete temporary concealment of the indicia may be obtained through the use of an appropriately positioned patterned layer of material between the card stock and the opaque mask. Patterned layers of material have been used in the past as optical confusion patterns but such confusion patterns have consisted of irregular opaque areas and have always been positioned on the top surface or bottom surface of the card stock in order to optically confuse the visual observation of the contest card. In addition, others have used a combination of a patterned indicia together with an optical confusion pattern to confuse the visual observation of a contest card. These standard confusion patterns have not been successful in defeating compromise of game cards when examined with suitable photocopy machines.

In the present invention a patterned layer of material is applied either immediately above or immediately below the indicia on the card stock. In a preferred embodiment of the present invention, both patterned layers are used to produce the maximum amount of security for the contest card. The pattern may comprise a plurality of light absorbing or light transmitting areas, such as lines, forms or spots separated from one another by physical or optical interstices, or light reflecting patterns, or light scattering or diffracting patterns. For any given indicia the pattern may advantageously combine any one or more elements of form, size, orientation and contrast which will best conceal the indicia by confusion as to the interpretation of the image obtained on the paper of a photocopy machine. It has been observed that a pattern is successful if the pattern is regular or irregular; if the pattern consists of the same indicia as that of the response and the pattern is translated and/or rotated in random registers; and if the pattern generally corresponds to the response in the prominent characteristics of the response such as curves, angles and solids. Also it has been observed that one may perfect a selected pattern which does not quite completely conceal the response by adding to the imperfect pattern irregular and unevenly spaced dots or a splash pattern in patches of similar size to the openings in the imperfect pattern.

It has been found that the presence or absence of color in the pattern layer does not affect its ability to conceal the indicia from compromise by the more sophisticated techniques. A pattern layer of no color so that it is completely transparent to visual observation, will perform in excellent fashion to conceal the indicia from compromise by the sophisticated techniques. This result is quite remarkable since the pattern layer will not be observed or recognized by visual examination of the contest card after removal of the opaque mask. However, the pattern layer is "seen" in the sophisticated techniques and will conceal the indicia. If desired, color can be used in the patterned layer so long as the color is

130

not so intense as to conceal the indicia from visual examination.

It has been found that color in the pattern layer immediately beneath the indicia is desired so that the pattern layer may also function as a tamper-proof pattern to reveal any attempted modification of the printed indicia. It has also been found that color in the pattern layer immediately above the indicia is not desired since even slight color shading makes the indicia more difficult to read after removal of the opaque mask. The concealing characteristics of these pattern layers work equally well with or without color and there does not appear to be any security advantages gained by adding color to the layers.

It is recognized that fine screen dots have been used in the past as a background tamper proof pattern immediately beneath indicia on a contact card. Such a fine screen dot pattern does not conceal the indicia during examination of the card by the more sophisticated techniques.

It is to be noted that in selecting the design of a pattern to effect complete concealment, the area and shape of the interstices of such pattern and the area and shape of the printed portion of the pattern should be considered in light of the dimensions and shape of the matter to be hidden thereby. That is, it has been found that if at least approximately fifty percent of the response itself is actually covered by the pattern, complete concealment of the response is more readily obtained. It should be understood that by use of the word "covered" it is meant that the pattern when either below or above the indicia, covers or is beneath at least fifty percent of the indicia. It is important and most critical to recognize, however, that if the layer beneath or above the indicia is a continuous and non-patterned layer, the sophisticated techniques will see through the layer and reveal the indicia. Consequently, it is most critical that the layer have some recognizable pattern to it in order to conceal the indicia. FIGS. 6-15 disclose several patterns which have been found to be successful in concealing indicia even though printed in colorless materials. The patterns are shown in FIGS. 6-15 in black ink for purposes of identification only. In the preferred embodiment of this invention these patterns would be invisible to visual examination.

In the past it has been customary to use a "barrier" layer of transparent material to protect indicia on a game card from compromise by "see through" and "show through" and from mutilation during mechanical removal of an opaque mask, see for instance U.S. Pat. Nos. 3,033,117; 2,986,820; and 2,961,777. Each of the barrier layers disclosed in these patents was a continuous and non-patterned layer which successfully protected the indicia from visual compromise and from physical destruction during mechanical removal of an opaque mask. However, the continuous barrier layer did not prohibit the discovery of the indicia by examination of the game card with a photocopy machine prior to removal of the opaque mask.

The pattern layers of the present invention are preferably composed of conventional printing materials such as pigmented and non-pigmented vehicles and standard overprint colored and non-colored varnishes. If a pigmented vehicle or a colored varnish is used in the present process the color tone must be adjusted so as to provide proper contrast with the indicia printed on the game card so that the indicia can be easily read once the opaque mask is removed. A typical example of a color-

less overprint varnish for use in printing a patterned layer on top of the indicia is composed primarily of a urethane alkyd varnish plus small amounts of wax, driers and antioxidants. A typical example of a pigmented vehicle for use in printing a patterned layer beneath the indicia is composed of the following materials (all percentages are by weight):

Ingredient	Percent
Oil-soluble oil	7.5
Modified linseed oil, 60 parts	19.0
Modified linseed oil	18.0
Modified phenoctic resin, melting point 130 to 140 degrees C	23.0
Petroleum solvent 300 to 350 degrees boiling point, F	20.0
Oil-soluble driers, 4 percent metal	1.0
Lead-stearate paste drier	1.0
Bismuth yellow	12.5
Compound consisting of 70% by part of linseed oil, 25% by part of wax and 5% by part of cup grease, and 1% by part of cum resin	6.0

The patterned layers of the present invention may be referred to as the patterned intermediate layer when the layer is positioned immediately on top of the indicia and the patterned background layer when the layer is positioned immediately beneath the indicia. FIGS. 3-5 show the arrangements of various materials for the three embodiments of the present invention. In FIG. 3, the opaque mask 16 is the uppermost material. The next material beneath the mask is the patterned intermediate layer 18. The next material beneath the patterned intermediate layer is the printed indicia 14. The last material is the card stock material 12. In FIG. 4, the opaque mask 16 is uppermost. The next material beneath the mask is the printed indicia 14. The next material is the patterned background layer 20 and the final material is the card stock material 12. In FIG. 5, the opaque mask 16 is uppermost. The next material is the patterned intermediate layer 18. The following material is the printed indicia 14. The next material is the patterned background layer 20 and the final material is the card stock material 12. It should be clearly understood that these materials have been shown in a schematic sense for the purposes of illustration only and that the actual finished materials are very thin in cross-section as compared to the materials shown in FIGS. 3-5. In addition, certain non-essential materials (non-essential for the purpose of understanding the present invention) such as the aluminum coatings on the card stock material, background color, background designs and messages, and other such material have been deleted. It is within the contemplation of the present invention to conceal indicia from discovery by sophisticated techniques by using patterned intermediate and background layers which are composed of a plurality of dots, bars, squares, lines (both parallel and non-parallel) and regular and irregular patterns of lines and shapes. The style, texture, tone and printing method used in the printing of the indicia should be taken into consideration in the selection of the form, size and shape of the pattern to be used in the pattern layers. In other words, the selection of the patterns for the patterned layers and the printing styles, texture, tone and the like for the indicia should be regulated by the fact that each should complement the other to effect optimum concealment. Thus it has been found that if an indicia is printed, for instance, in a fine dot pattern and a patterned overprint varnish layer is

printed in the same fine dot pattern over the indicia, the indicia will be effectively concealed from compromise by a technique such as examination by a photocopy machine. This discovery is particularly unique in that fine dot patterns have been used in the past for a background pattern, but only with solid indicia and continuous intermediate or barrier layers of varnish, and those background layers have not precluded compromise of the game card with a photocopy machine.

As shown in FIGS. 6-15, a large number of different types of patterns have been considered and found to be effective in concealing indicia from compromise by a technique such as examination by a photocopy machine. From a review of the diversity of patterns considered, it is apparent that the essential criterion for the pattern layer is that it have a recognizable pattern and be anything but continuous and uniform. It has been found that the most effective concealment of indicia has been obtained with the use of the very irregular Chinese character pattern of FIG. 14 and the very irregular swirl pattern of FIG. 15. In these two patterns the arrangement of pattern areas is irregular and the intersections between pattern areas are irregular in shape. When examined with a suitable photocopy machine, the responsive surface of the machine detects confusion patterns rather than the indicia concealed beneath the opaque mask.

It should be understood that it is significant that there be an irregular relationship between the patterns employed in the patterned layers and the printed indicia in order to achieve desired security. As discussed earlier, when solid printed indicia are used together with a fine screen background dot pattern, the relationship between the dot pattern and the indicia is too regular and the indicia are subject to discovery. In addition, the fine screen dot pattern as previously used for a background tamper-proof pattern does not provide adequate "coverage" as discussed previously. When the relationship between the indicia and the patterned layers is irregular, adequate protection from compromise is obtained. Irregularity can be achieved by employing (1) standard solid lines for the indicia together with patterned layers as disclosed herein; (2) or by using a screen pattern for the printing of the indicia together with a similar or dissimilar screen pattern for the patterned layers as disclosed herein (the relationship between the screen pattern of the indicia and the patterned layers being automatically irregular); or by using a screen pattern for the indicia and patterned layers as disclosed herein.

In a preferred embodiment of the present invention, a very effective concealing arrangement is obtained when a patterned layer is used both below and above the indicia. While successful results have been achieved when these two layers are used alone, much greater success has been obtained, as a general matter, when both layers are used together. In a most preferred embodiment of the present invention, the most complete

concealment of indicia has been obtained through the use of the swirl pattern of FIG. 15 as the patterned background layer and the Chinese character pattern of FIG. 14 as the patterned intermediate layer.

While this invention has been described in detail with particular reference to preferred embodiments thereof, it will be understood that variations and modifications can be effected within the spirit and scope of the invention as described hereinbefore and as defined in the appended claims.

I claim:

1. A contest card for temporarily and completely concealing the presence, absence, position or nature of indicia printed on said card comprising a smooth surface card stock material having an upper surface and a lower surface, indicia printed on the upper surface of said card stock material, an opaque sectionally removable mask overlying said indicia, and a patterned intermediate layer of material positioned immediately above said indicia but beneath said opaque mask, said patterned layer being transparent so that an observer may read the indicia after removal of the mask.

2. Contest card of claim 1 including a patterned background layer of material positioned immediately below said indicia and on top of said upper surface of said card stock material.

3. Contest card for temporarily and completely concealing the presence, absence, position or nature of indicia printed on said card comprising a smooth surface card stock material having an upper surface and a lower surface, indicia printed on the upper surface of said card stock material, an opaque sectionally removable mask overlying said indicia, a patterned intermediate transparent layer of material positioned immediately above said indicia but beneath said opaque mask, and a patterned irregular background layer of material positioned immediately below said indicia and on top of said upper surface of said card stock material.

4. A contest card for temporarily and completely concealing the presence, absence, position or nature of indicia printed on said card comprising a smooth surface card stock material having an upper surface and a lower surface, indicia printed on the upper surface of said card stock material, an opaque sectionally removable mask overlying said indicia, a patterned intermediate layer of material positioned immediately above said indicia but beneath said opaque mask, said patterned layer being transparent so that an observer may read the indicia after removal of the mask, and a patterned irregular background layer of material positioned immediately below said indicia and on top of said upper surface of said card stock material.

5. Contest card of claim 4 wherein said indicia has sufficient color contrast with the patterned irregular layer to permit visual examination of the indicia.

• • • • •

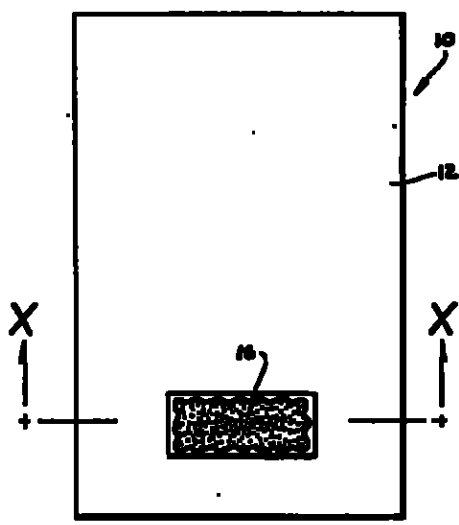


FIG. 1

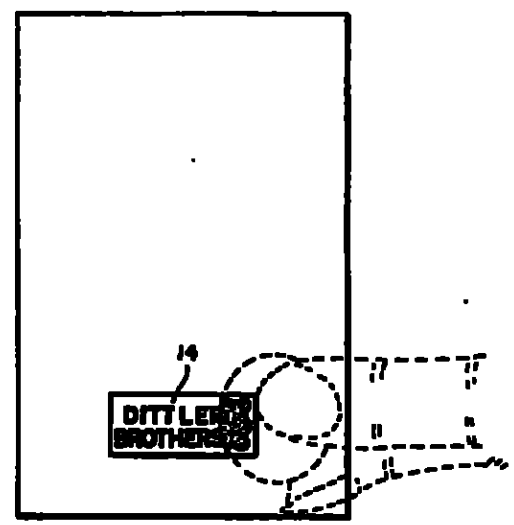


FIG. 2



FIG. 3



FIG. 4



FIG. 5

234



Fig. 6



Fig. 7

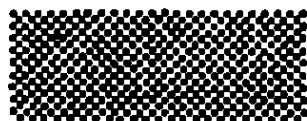


Fig. 8

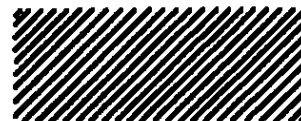


Fig. 9

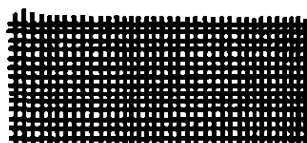


Fig. 10

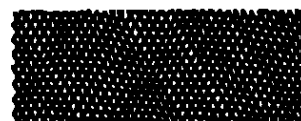


Fig. 11



Fig. 12



Fig. 13



Fig. 14



Fig. 15

135

SCRATCH-OFF LOTTERY TICKET

Patent Number: JP7032781
Publication date: 1995-02-03
Inventor(s): TAGAWA NOBUYUKI
Applicant(s): TOPPAN PRINTING CO LTD
Requested Patent: ☐ JP7032781
Application Number: JP19930178829 19930716
Priority Number(s):
IPC Classification: B42D15/10
EC Classification:
Equivalents:

Abstract

PURPOSE: To provide a scratch-off lottery ticket which has a lottery information layer having a characteristic part which cannot be falsified and in which the characteristic part is difficult to be identified by contact feeling and in which, even if a lack of numeric characters and characters occurs, a character cutout part can be specified.

CONSTITUTION: Numeric characters or character shapes of a lottery information layer have outline type character part 11 having a gap 12, and a shaded part 13 provided adjacent to the part 11 in a predetermined direction thereby to prevent falsification by providing characteristic parts in the numeric characters or the character shapes and to simultaneously eliminate concentration of hitting, a base does not protrude due to deformation, prevents identification of the numeric characters or the characters by a finger contact feeling. Further, since the numeric characters or the character shapes have the characteristic parts, even if a lack of the characters or the shapes occurs, a character cutout part can be specified.

Data supplied from the esp@cenet database - I2



US005599046A

136

United States Patent [19]

Behm et al.

[11] Patent Number: 5,599,046

[45] Date of Patent: *Feb. 4, 1997

[54] LOTTERY TICKET STRUCTURE WITH
CIRCUIT ELEMENTS[75] Inventors: William F. Behm, Marietta; Kenneth
E. Irwin, Jr., Alpharetta; Mark C.
Tevie, Cumming, all of Ga.

[73] Assignee: Scientific Games Inc., Alpharetta, Ga.

[*] Notice: The term of this patent shall not extend
beyond the expiration date of Pat. No.
5,475,205.4,087,082 5/1978 Krause et al.
4,095,824 6/1978 Bachman
4,099,721 7/1978 Logander
4,120,445 10/1978 Carter et al.
4,157,829 6/1979 Goldmann et al.
4,174,857 11/1979 Koss
4,230,344 10/1980 Bell, Jr. et al.
4,231,393 11/1980 Bell, Jr. et al.
4,241,942 12/1980 Bachman

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

2001944 7/1971 Germany
305694 12/1980 Japan 283/83
0027489 5/1991 Japan
404085093A 3/1992 Japan
2073918 11/1981 United Kingdom
8700285 12/1987 WIPO

Primary Examiner—David P. Bryant

Attorney, Agent, or Firm—Michael B. McMurtry; Kathleen
A. Ryan

[21] Appl. No.: 263,888

[22] Filed: Jun. 22, 1994

[51] Int. Cl.⁶ B42D 15/00[52] U.S. Cl. 283/83; 283/100; 283/901;
283/903[58] Field of Search 283/57, 58, 59,
283/60.1, 72, 83, 84, 100, 102, 901, 903;
233/487, 490, 492

[56] References Cited

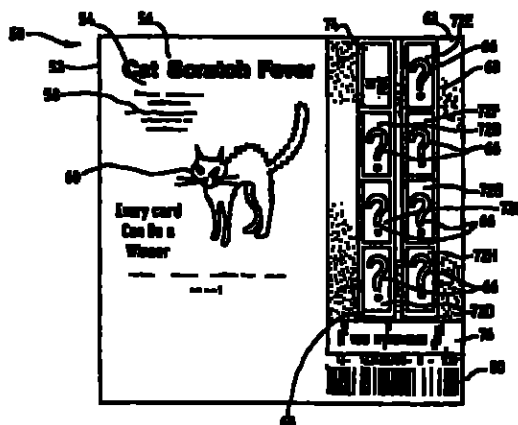
U.S. PATENT DOCUMENTS

2,384,667 9/1945 Dowd
2,961,777 11/1960 Neville et al.
2,986,820 6/1961 Neville et al.
3,035,117 9/1962 Bernstein et al.
3,356,530 1/1971 Barr et al.
3,594,004 7/1971 Barr et al.
3,617,374 11/1971 Hodson et al.
3,687,072 8/1972 Fynn
3,698,311 10/1972 Dunbar
3,790,754 2/1974 Black et al.
3,868,057 2/1975 Chavez 283/83
3,876,863 4/1975 Ellis 283/83
3,877,155 4/1975 Raykin et al.
3,907,694 9/1975 Lu
3,930,673 1/1976 Sanden
3,938,993 2/1976 Raykin et al.
3,983,683 10/1976 Lu et al.
3,993,842 11/1976 Hirsch et al.
4,033,611 7/1977 Johnson
4,059,444 11/1977 Lu et al.
4,074,911 2/1978 Stipeck, Jr.

[57] ABSTRACT

Information can be retrieved from lottery tickets and lottery ticket security can be improved by printing electronic circuits or circuit elements on the ticket. Conductive or semi-conductive ink can be printed on the ticket by using gravure, relief, planographic, letter press or flexographic methods to form the circuit elements. In one embodiment the circuit elements are printed over play indicia and under a scratch-off coating so that they are removed when the ticket is played. An electronic verification machine can then be used to determine which portions of the scratch-off coatings covering the play indicia have been removed. A second group of circuit elements can also be printed under the play indicia which improves security by blocking light that may be shined through the ticket and by being tested, along with the first group of circuit elements, for integrity by the electronic verification machine. Printing circuit elements on lottery tickets is particularly suitable for probability tickets because it makes it possible to automatically detect which latex play spots covering the play indicia have been removed or tampered with.

28 Claims, 13 Drawing Sheets



SOLICITUDES DE PATENTES DE MODELO DE UTILIDAD

(19) CO

(11) N° de publicación: 23

(21) N° de solicitud: 01 101.325

(51) Int Cl: B42D 19/10
G11B 25/04

(12) Solicitud de patente modelo de utilidad sin examen previo

(22) Fecha de 2001/11/28

presentación:

(30) (31) 2766/00 (32) 2000/12/11 (33) VE
Prioridad

(71) Titular(es) CORPORACIÓN OPTILASER, C. A.

(72) Inventores KAY THIELEN ENGELBERTZ

(45) Fecha de anuncio de la concesión

(45) Fecha de publicación del 2003/04/30

Folleto de patente:

(74) Agente: MARGARITA CASTELLANOS A.

(54) ELEMENTO DE SOPORTE ÓPTICO DIGITAL RECTANGULAR DE PROPÓSITOS MÚLTIPLES.

Título:

(57) Resumen:

1. Elemento de soporte óptico-digital rectangular de propósitos múltiples, caracterizado por comprender un anverso y un reverso, con un área de raspado de clave de pre-pago, información o publicidad por dicho anverso y un área de grabación óptico-digital por el opuesto, definiendo dicho conjunto una ampliación en el uso de una tarjeta de pre-pago.
2. Un elemento, de acuerdo con la reivindicación 1, caracterizado porque dicho anverso dispone de un área de encubrimiento de una clave de pre-pago de un servicio, cuyo encubrimiento o revestimiento puede rasparse, comprendiendo además áreas dispuestas para ofrecer un mensaje visual.
3. Un elemento, de acuerdo con la reivindicación 1, caracterizado porque el anverso dispone de un área circular concéntrica para grabación óptico digital de un mensaje o composición musical reproducible en aparatos de disco compacto convencionales, conteniendo dicho espacio de

grabación dentro del espacio máximo del ancho de la tarjeta al cual se aplica y con una capacidad de unos 50 MB de grabación, comprendiendo dicho elemento, además del relieve propio de un disco compacto, un escalonamiento hacia los extremos menores del rectángulo formado, para su anclaje en un espacio correspondiente en el reproductor de discos compactos.

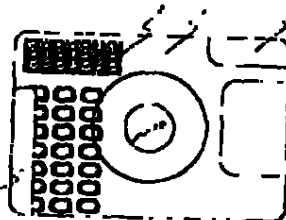


Fig. 1