

Bogotá, D C, Febrero 4 de 2003

SUPERINDUSTRIA Y COMERCIO			
Radicacion	01064153	00000004	Folios 54
Fecha (MM)	2003-02-06	14:41:21	
Tramite	003 PATENTES	1 REGISTRO/	400 OPOSICION
Dependencia	2020 DIVISION DE NUEVAS CREACIONES		

Señores

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

División de Nuevas Creaciones

Referencia Oposición a Patente de Modelo de Utilidad

Expediente 01-64153

Solicitante Corporación Optilaser S A

Apoderado Rodolfo Rodríguez Madnd

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 Optico Digital Rectangular, cuya publicación en la gaceta de propiedad industrial se efectuo el 27 de diciembre de 2002 y con base en lo estipulado en el Artículo 42 de la decisión 486 del Régimen Común sobre Propiedad Industrial, estando dentro del los términos previstos, presento oposición validamente 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 el día 09 de agosto de 2001 bajo el N° 01-64153 Allí se reclama de acuerdo a las reivindicaciones " Un soporte óptico digital rectangular, caracterizado por un cuerpo plano laminar rectangular, que comprende una superficie plana por una de sus caras y una superficie con dos niveles en su superficie de reproducción que además contiene un área circular reflectora dentro del área de mayor espesor del área de dos niveles, así como una abertura central de diámetro convencional "

UNICA DI



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

La solicitud en referencia fue publicada en la gaceta 523 de 27 de diciembre de 2002

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 con solo algunos de los documentos que estamos anexando para tal efecto, dado el gran numero de ellos que se encuentran en el estado de la técnica y que enseñan éste tipo de soportes Dichos documentos son la prueba base de la cual se desprende el sustento técnico o justificación que 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
- Fotocopia de la portada de la Gaceta de la Propiedad Industrial N° 523 y de la página 438 de la misma Gaceta
- Documentos Técnicos (pruebas) Patente US5 982 736, Patente ES2156439, Patente US 6 016 298, Publicación WO 00/62249
- Anexo 1- justificación (sustento técnico)

Recibiré Notificaciones

Dirección: Carrera 12 No. 23 – 56 Funza – Cundinamarca.

Teléfono : 82 60 308

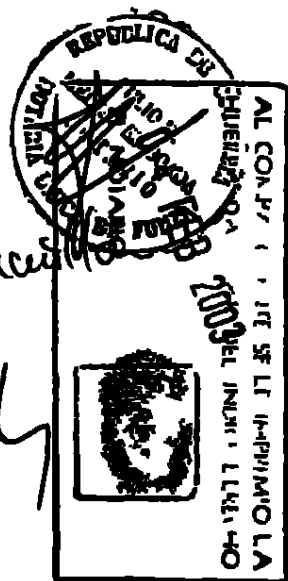
e-mail : j_martinez@cdsystems.com.co

JORGE HERNAN MARTINEZ JARAMILLO

Representante Legal

C C 19 261 611 de Bogotá

Como tal el UN del Circulo de Fuzza(Cunda)
 Huo con el que se dio un to fue presen-
 tado y reconocido a el mismo personalmente por
 Jorge Herman [Signature] [Signature]
 identificado con la Cedula de Ciudadania numero
19 261 611 expedida en
 [Signature] al numero
 [Signature] en [Signature]
 el suscribo [Signature]
 EL CUDARE [Signature]





Industria y Comercio
SUPERINTENDENCIA

SUPERINDUSTRIA Y COMERCIO
Radicación: 81064153 00000004
Fecha (MM) 2003-02-06 14 41 21 Folios. 54
Trámite 003 PATENTES D 1 REGISTRO/ 400 OPOSICION
Dependencia 2020 DIVISION DE NUEVAS CREACIONES

FORMULARIO ÚNICO DE OPOSICIÓN
2000-12

①

OPOSICIÓN A:

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

②

SOLICITUD
PUBLICADA

Número del expediente 01-54153
Solicitante CORPORACION OPTINASER S.A.
Apoderado RODOLFO RODRIGUEZ MADRID
Título de la nueva creación o denominación del signo
SOPORTE OPTICO DIGITAL RECTANGULAR
Gaceta 523 (27 diciembre 2002)

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 CC ☐ NT ☒ CE ☐ Otro ☐ Número 830-000.323-5
REPRESENTANTE O APODERADO (74)	Nombre JORGE HERNAN MARTINEZ JARAMILLO Dirección CARRERA 8 No. 84-32 APT. 302 Teléfono 6 21 31 77 Fax E-mail j.martinez@cdsystems.com.co	IDENTIFICACIÓN CC ☒ NT ☐ CE ☐ Otro ☐ Número 19261611 TP

FUNDAMENTOS DE LA OPOSICIÓN:

Causal ARTÍCULO 42 DECISION 486 REGIMEN COMUN SOBRE
PROPIEDAD INDUSTRIAL

Justificación VER ANEXO 1.

Comprobante de pago No.

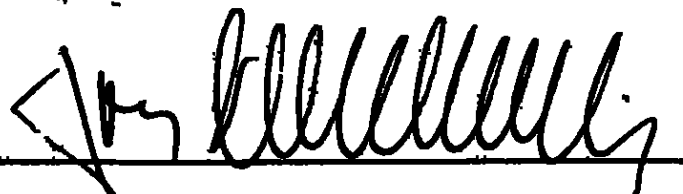
03-7794

Fecha

FE8 6/03

(6) 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: JÓRGE HERNÁN MARTÍNEZ JARAMILLO**FIRMA.**

C.C. 19.261.611

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 éste
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

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SUPERINDUSTRIA Y COMERCIO
Radicacion : 81064153 00000004 Folios 54
Fecha (RMB): 2003-02-06 14 41:21
Tramite : 003 PATENTES D 1 REGISTRO/ 400 OPOSICION
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

NIT : 000176089-2

RECIBO OFICIAL DE CAJA 03 - 7 794
FECHA FEBRERO 6 DE 2003

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No PAGO	FECHA PGO	Vr PAGO
JORGE H MARTINEZ	CONSIGNACION	BANCO POPULAR	050-00110-6	2693724	06/02/2003	212,000 00

***** CONCEPTO *****

CANT	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-04	PRESENTACION DE OBSERVACIONES	
12		MARCAS Y LENAS COMERCIALES	212,000
		TOTAL :	\$ 212 000 00

SOM DOSCIENTOS DOCE MIL PESOS

RESPONSABLE

RECIBO DE CAJA APLICADO AL EXPEDIENTE No _____



REPUBLICA DE COLOMBIA

Nº
523

ISSN 0121 - 2109

27 DIC 2002

GACETA DE LA PROPIEDAD INDUSTRIAL



Industria y Comercio
SUPERINTENDENCIA

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO			
SOLICITUDES DE PATENTES DE MODELO DE UTILIDAD			GACETA No. 523 Página 438
(19) CO	(11) N° de publicación: 122		(19)
	(21) N° de solicitud 01 084.153		(1)
	(51) Int Cl: G11B 7/24		(2)
(12) Solicitud de patente de modelo de utilidad sin examen previo			
(22) Fecha de presentación	de 2001/04/09	(71) Titular	CORPORACION OPTILASER C.A.
(30) Prioridad	(31) (32) (33)	(72) Inventores	KAY THIELEN ENGELBERTZ
(45) Fecha de anuncio de la concesión		(74) Agente	RODOLFO RODRIGUEZ MADRID
(45) Fecha de publicación del folleto de patente: 28/02/12/27			
(54) SOPORTE ÓPTICO DIGITAL RECTANGULAR			
Título:			
(57) Resumen		forme un escalonamiento con la superficie externa de menor espesor la cual está prevista para andar y fijar a la depresión correspondiente de un reproductor convencional de discos compactos.	
1.- Un soporte óptico-digital rectangular caracterizado por un cuerpo plano laminar rectangular que comprende una superficie plana por una de sus caras y una superficie con dos niveles en su superficie de reproducción que además contiene un área circular reflectora dentro del área de mayor espesor del área de dos niveles, así como una abertura central de diámetro convencional. 2.- Un soporte de acuerdo con la reivindicación 1 caracterizado porque el área de mayor espesor dentro de la superficie rectangular prevista para un área de grabación forme un espacio limitado o comprendido entre dos porciones de circunferencia, con espacio extremo del rectángulo de menor espesor. 3.- Un soporte de acuerdo con la reivindicación 1 caracterizado porque en dicha cara de grabación se dispone una franja circular o banda concéntrica de grabación, cuyo diámetro mayor está comprendido dentro de los límites del espacio transversal de la tujeta. 4.- Un soporte, de acuerdo con la reivindicación 1 en que la superficie de grabación el área de mayor espesor			

50
(19)

(1)
(2)
(3)
(4)

(1)
(2)

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. Pierson, 9931 Rivercrest Ct.,
Orlando, Fla. 32825

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

[22] Filed May 15, 1997

[51] Int. Cl.⁶ G11B 7/24

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

[58] Field of Search 369/77.1, 272,
369/273, 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	Dimitropoulos et al.	88/28
3,691,312	9/1972	Peterson	179/100.2 Z
4,812,633	3/1989	Vogelzang et al.	235/487
4,868,373	9/1989	Opbeij et al.	235/380
4,904,853	2/1990	Yabokawa	235/487
5,411,259	5/1995	Pearson et al.	273/93 C
5,417,431	5/1995	Glack	273/293
5,433,085	7/1995	Bayer	40/124.1
5,441,278	8/1995	Nalder	273/296
5,480,156	1/1996	Doederlein 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

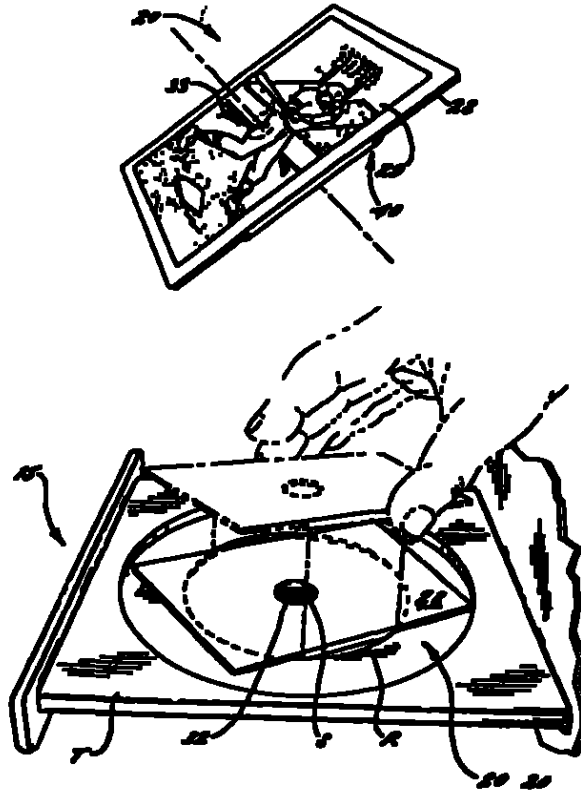
Tyler Gray, Shape of CD's to Come, May 28, 1997, Orlando
Sentinel, Business Section, p. B-1 and B-4, Article refers to
Shape CD Inc.

Primary Examiner—William R. Kozuch
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 Bamer titled "Tilting 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. The stamper is produced from electroplated stamper, and discs are molded from the negative images on the disc stamper. 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 adapter 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 spaced-apart outer side peripheries arcuately extend between each of the second pair of spaced-apart outer side peripheries. Each of the second pair of spaced-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 about an axis extending through the medial opening and generally perpendicular to the linearly-extending second pair of spaced-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 thereon in some compact disc formats, 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 spaced-apart outer side peripheries arcuately extends between each of the second pair of spaced-apart outer side peripheries. Each of the second pair of spaced-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. Thus, 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 fine 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 primes 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 be 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 defines 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 24, 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 36 (see also 36' of FIG. 2B and 36' 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 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. The 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 formats. 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 extend 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 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 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.

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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.

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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

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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

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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 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.

* * * * *

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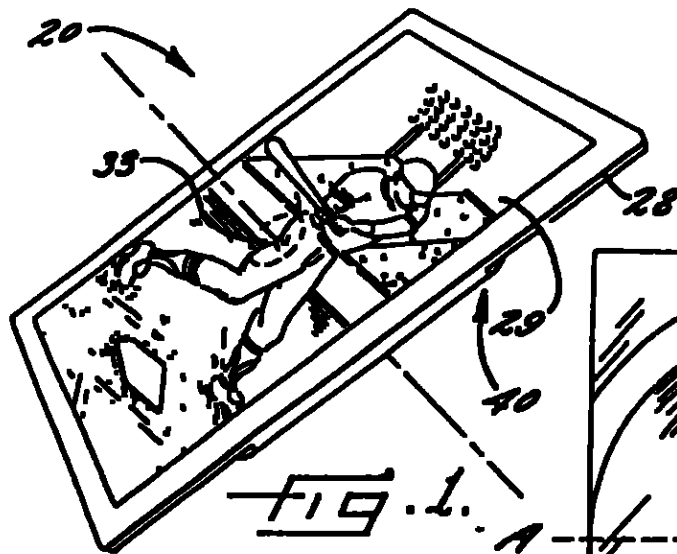


FIG. 1.

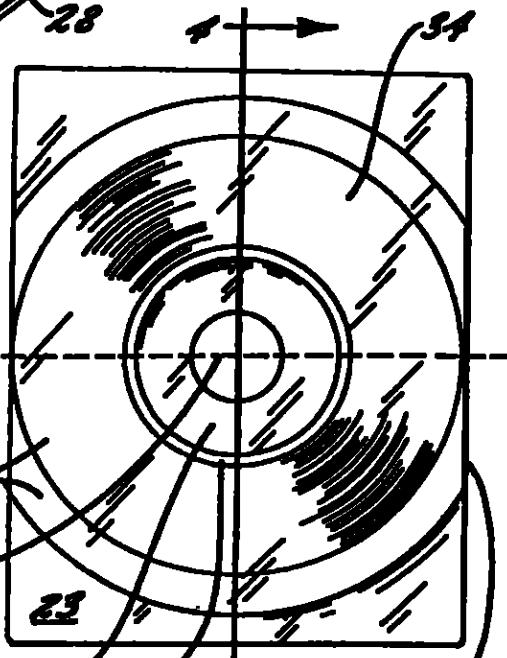


FIG. 2A.

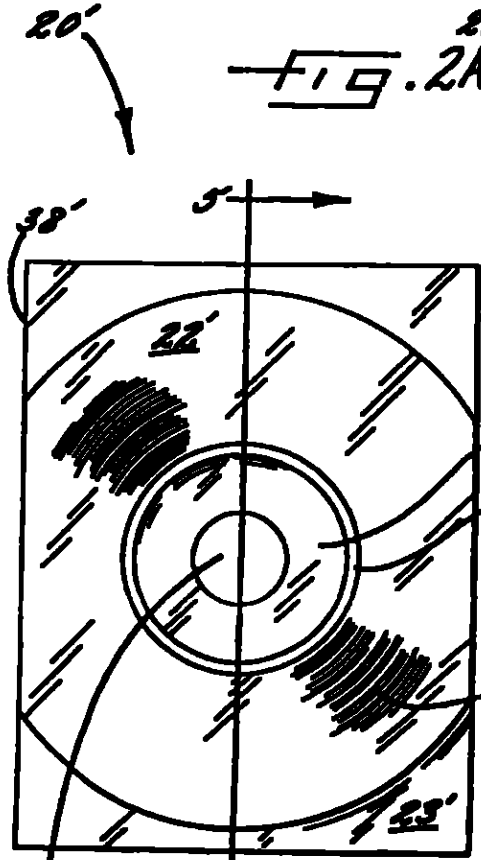


FIG. 2B.

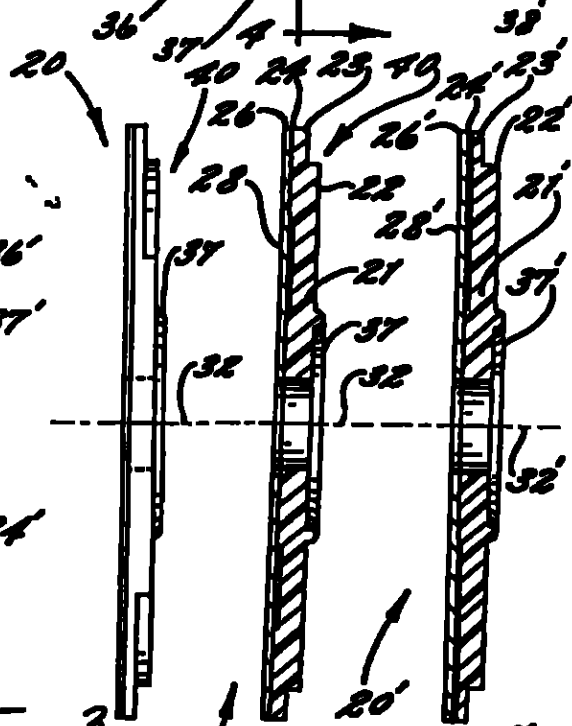


FIG. 3.

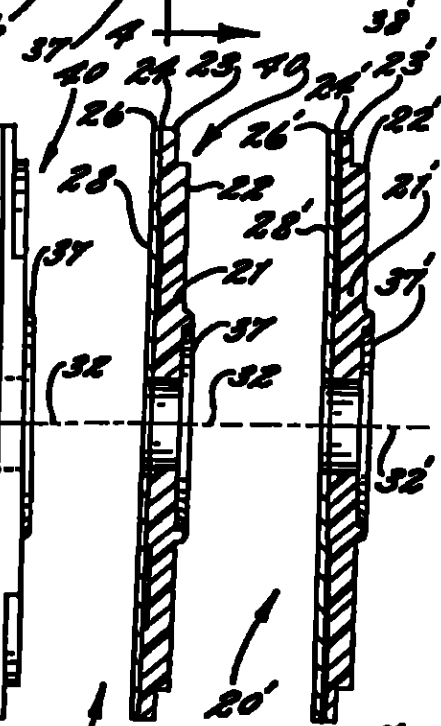


FIG. 4.

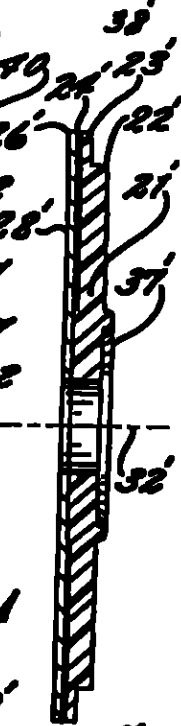


FIG. 5.

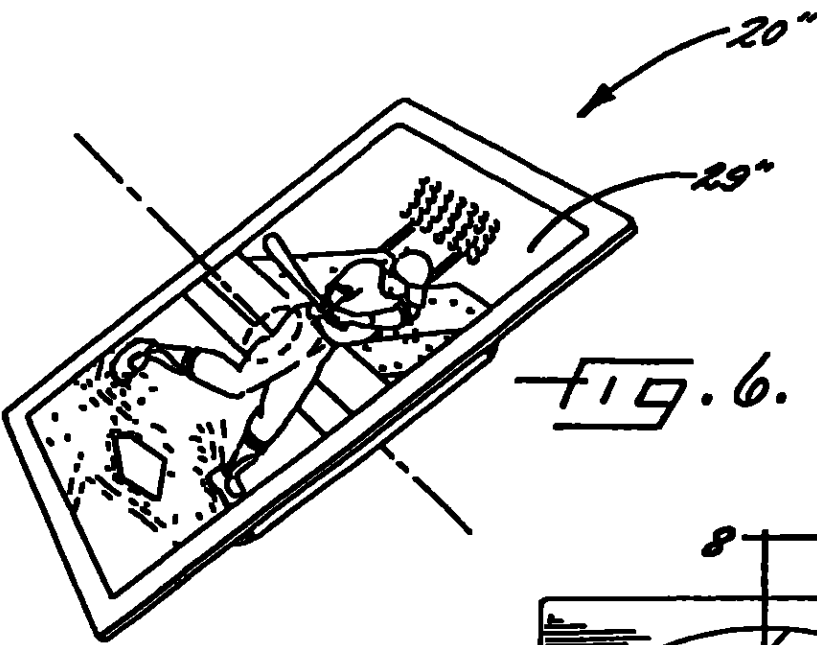


FIG. 6.

FIG. 7.

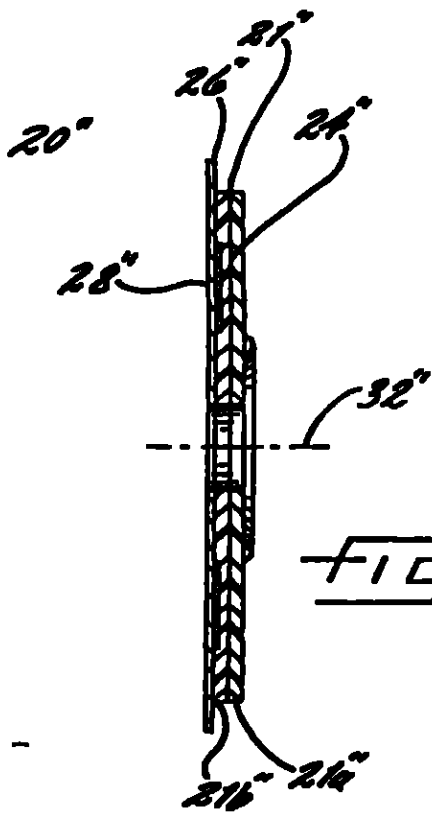
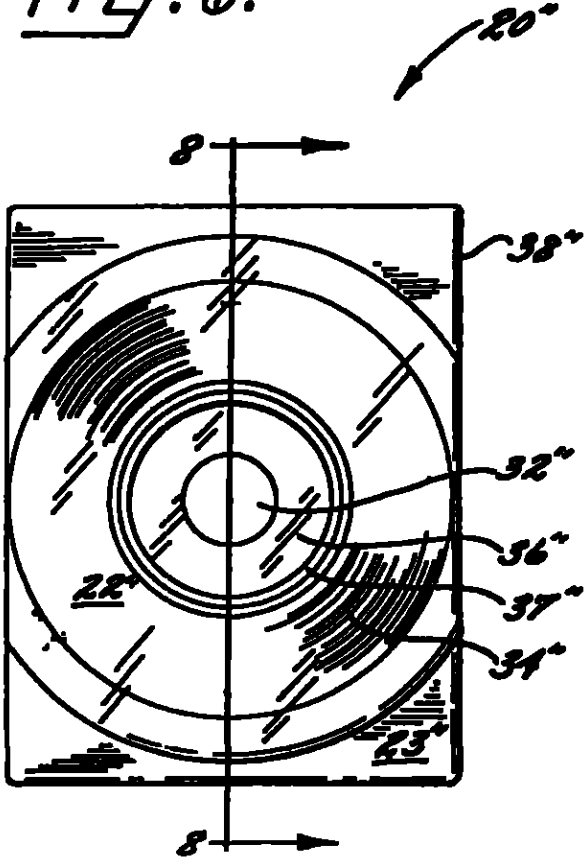
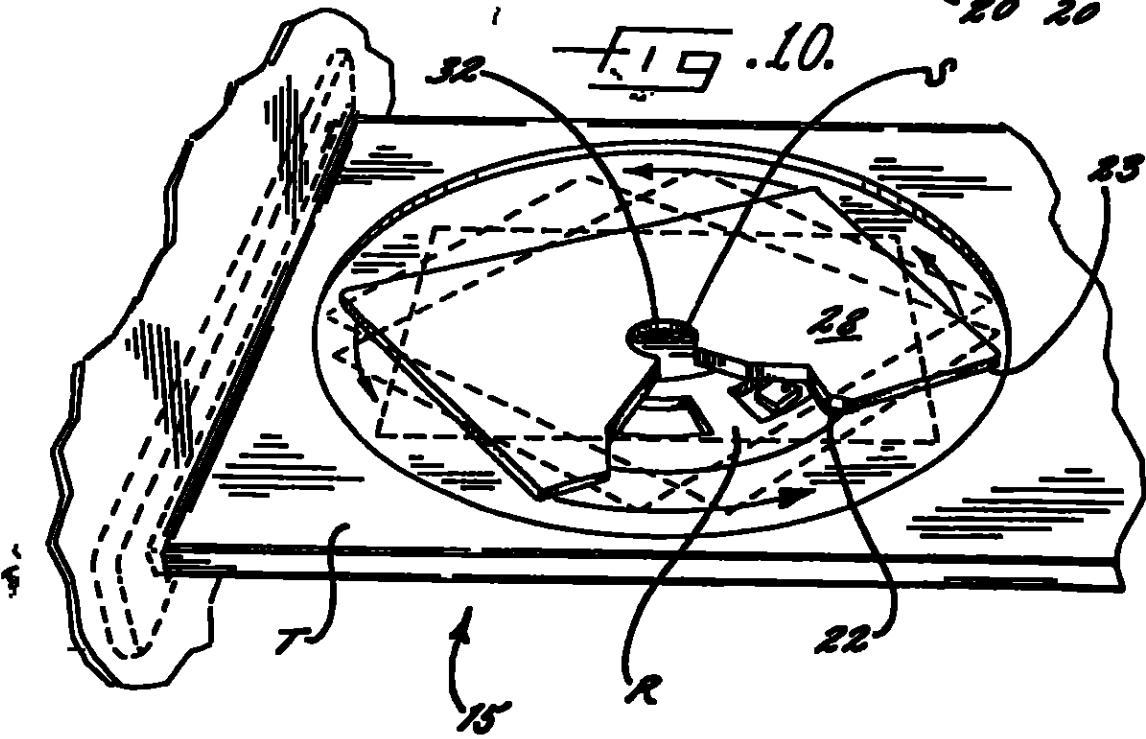
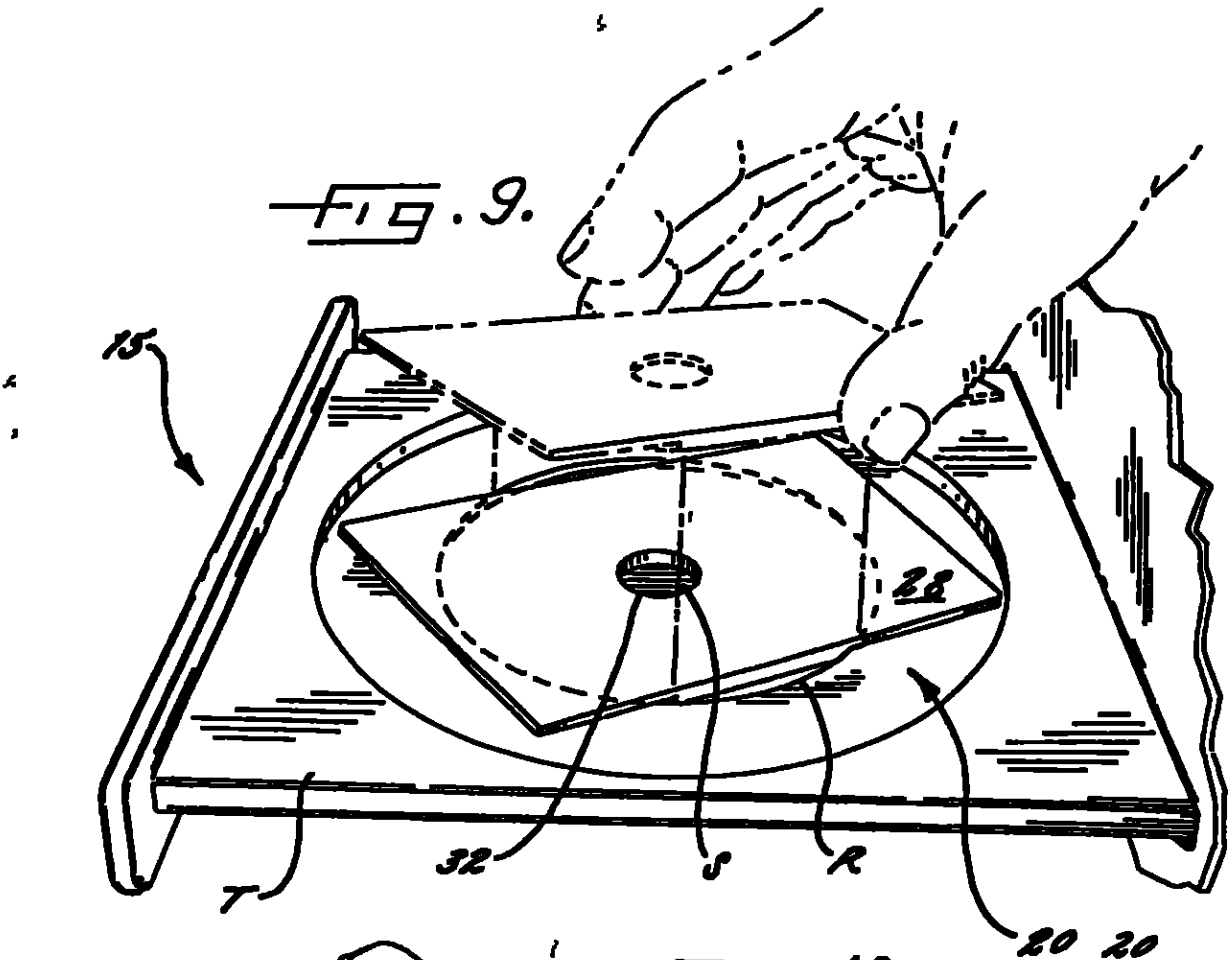


FIG. 8.





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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 relación 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 aislados, 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, vengan 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 aloja-

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) 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.

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 prejuzga que la patente esté o no incluida en la mencionada reserva.

Fig. 2

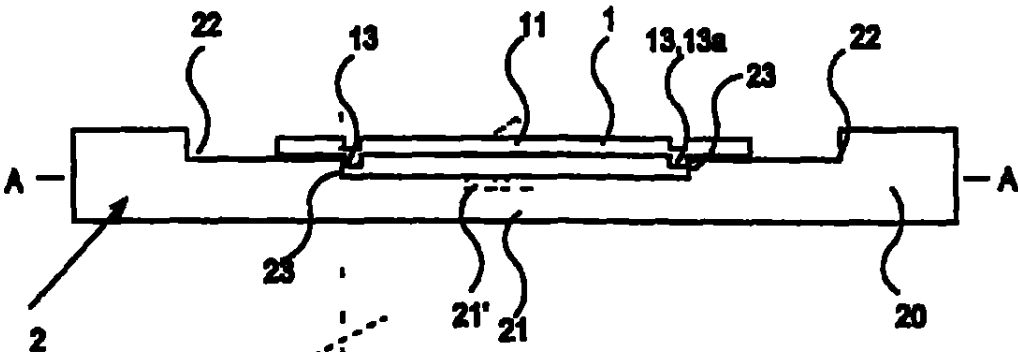


Fig. 1

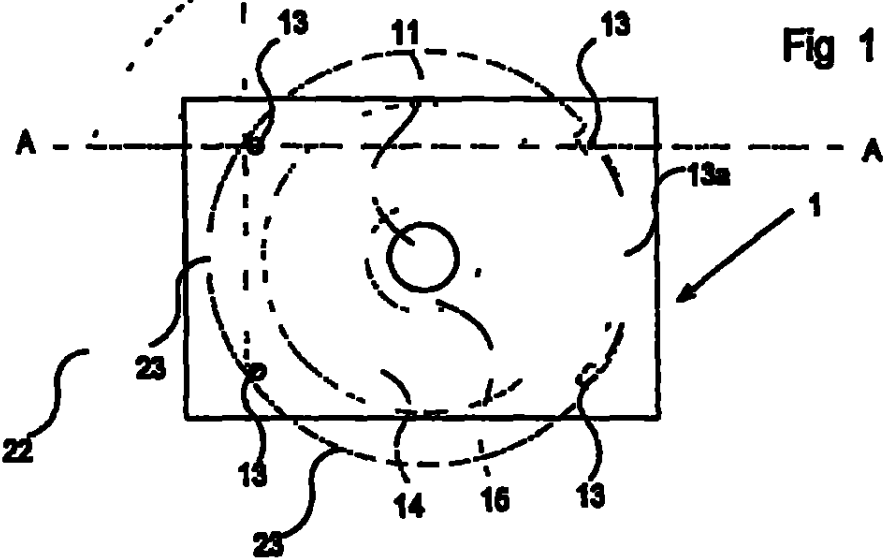
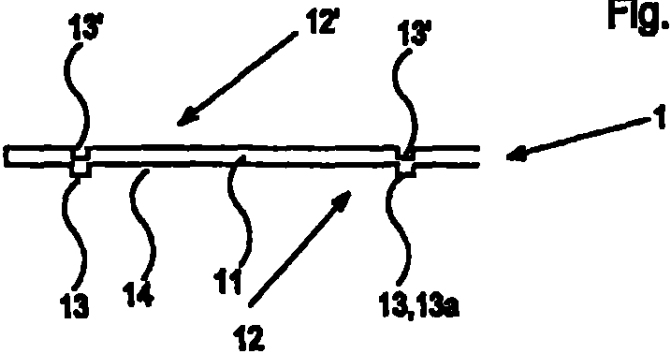


Fig. 3





US006016298A

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[54] **CALLING CARD**
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 [51] **Int. Cl.** G11B 7/02
 [52] **U.S. Cl.** 369/75.1, 235/487
 [58] **Field of Search** 369/75.1, 235/487

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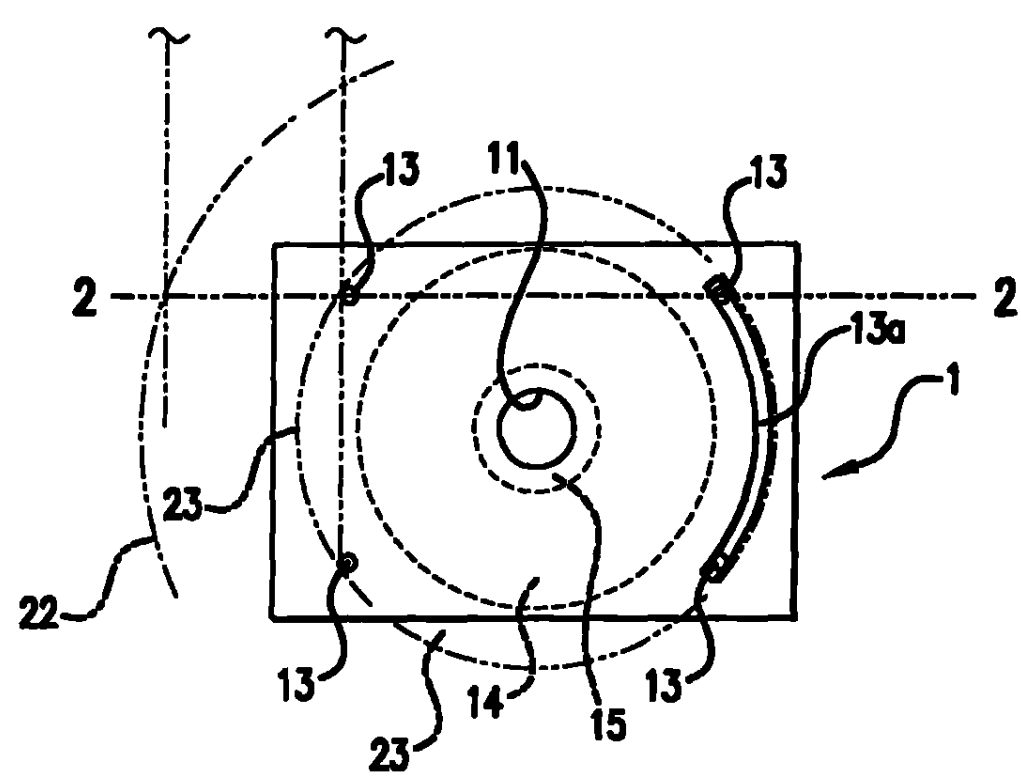
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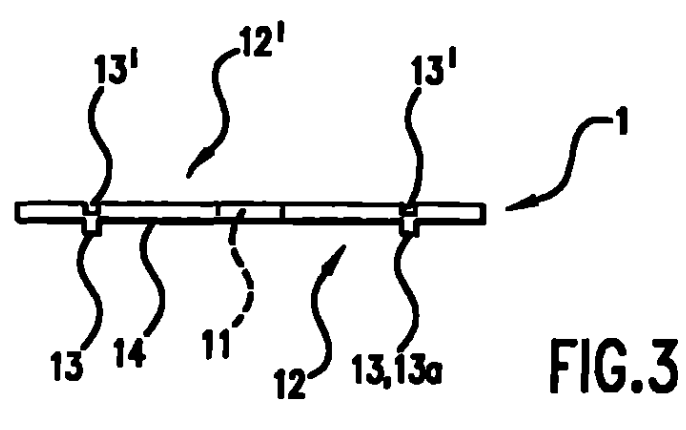
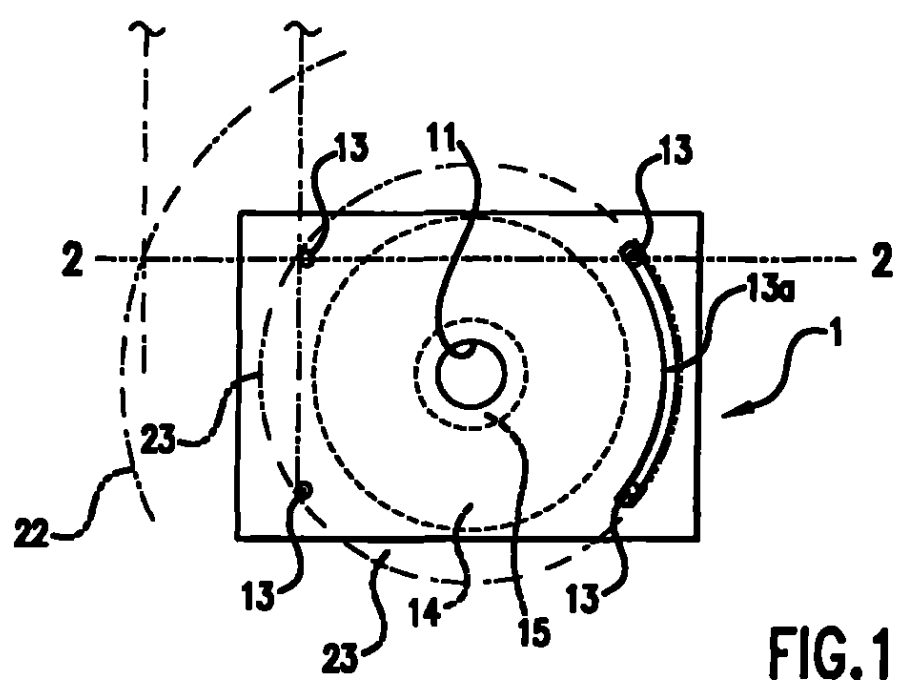
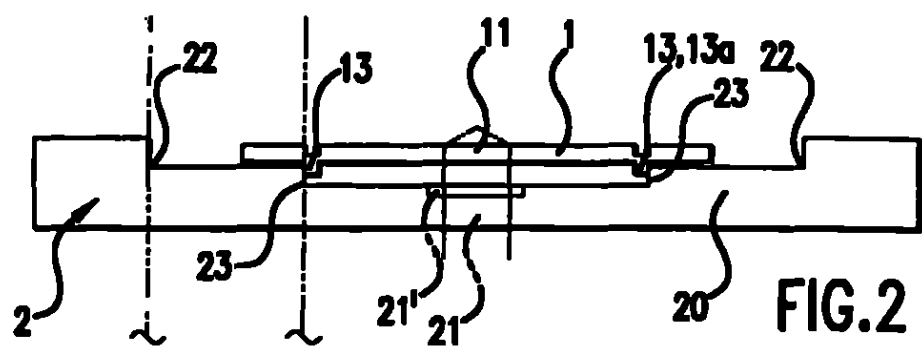
Primary Examiner—Harold I. Pitts
Attorney, Agent, or Firm—Pauloy Peterson Kinne & Fejer

ABSTRACT

A calling card which can be inserted into a conventional CD drive and read. The calling card is centered 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 flanged 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 give 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 5, 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.

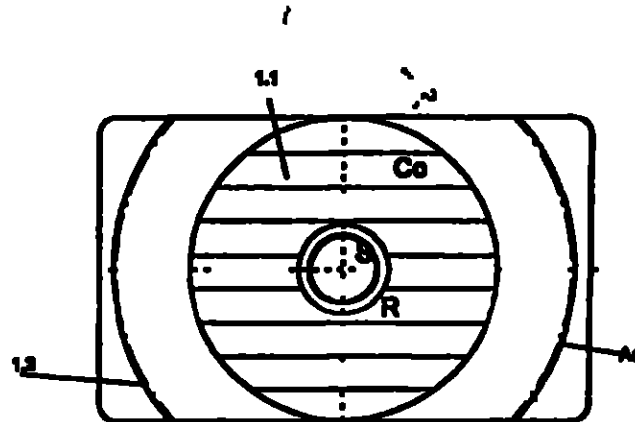
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(54) Title: DUAL SMART/OPTICAL CREDIT SIZE CARD WITH MICROPROCESSOR AND AN INTEGRATED SOFTWARE ENGINE GIVING INSTANT AND WORLDWIDE ACCESS TO THE INTERNET AND RELATED SERVICES WITHOUT INSTALLATION OF ANY SOFTWARE AND METHOD THEREFORE



(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 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
- 30** to establish a good credit rating.

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 are
an easy method to calculate business-related mileage driven during the
time period. Another enticement 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 connection and transparent
connection 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 built 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

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.
15 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. 5,433,035 by Bauer titled "Talking Entertainment Card." These
prior card devices, however, either used older methods of storing and
20 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
25 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.

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.
Each compact disc includes a series of either circular or spiral data
40 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 metallized, 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 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.

5 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. 5,579,298 by
10 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.

25 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
30 guarantying 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
35 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.
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- 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 56 mm and a length of about 86 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 600-700 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)
- 10 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.
- 15 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
- 20
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1. A card for use in a disc reader, the card comprising:
 a. a first plastic layer having a width of about 54mm up to 56 mm and a length of about 86 mm and including a microprocessor;
 b. a pattern of digital data encoded on the first plastic layer;
 c. a second layer formed on at least portions of the first plastic layer;
 d. a circular data zone having 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;
 e. a first non-metallic zone surrounding and extending outwardly a predetermined distance from the medial opening;
 f. a second non-metallic zone extending inwardly from the rectangular outer perimeter of the trading card optical compact disc a predetermined distance.

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 about an axis extending through the medial opening and generally perpendicular to the linearly-extending second pair of space-apart outer side peripheries.

5 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 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.

10 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 seating ring of the disc reader.

15 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 58 mm and a length of about 88 mm 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.

20 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 54 mm to 58 mm and a length of about 88 mm, the combination of the two layers 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 optical layer card.

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
5 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 card and associated methods were conceived and
developed while keeping in mind the commercial viability and ease
10 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
15 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
20 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.

The integrated software called DXPRESSO a new connection tool is a
highly customizable and extensible embedded software engine,
25 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

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).

35 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.

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

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 of 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
30 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
means for fixing only the non-conductive plastic substrate of the
module to the card body, the adhesive means including micro-
35 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,

- 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 0.8mm blank half to form one entity. The recording side is a sandwich of multiple layers including
- 5 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.
- 25 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 86mm 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)
- 30

- 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
- 35 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
- 40 a user of a disc reader

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- 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 0.8mm 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 58mm 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.
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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 (slimm 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 (slimm 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

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CLAIMS

- 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
 - 10 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,
 - 15 at least a first plastic rectangular layer having a width of about 54mm up to 58 mm and a length of about 86 mm and having a pattern of digital data encoded thereon,
 - a second metallic layer formed on at least portions of the first plastic layer, (sputtering) covering only the written data surface
 - 20 a third protective layer formed on at least the second layer for protecting the metallic layer;
 - 25 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
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- 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
at least a first polycarbonate rectangular layer having a width of about 54 mm to 56mm and a length of about 88mm 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.
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- 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

- 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;
- 6 2) activating the chips feature, if the consumer confirms the first activation,
- 4 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.

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 according to an embodiment of the invention preferably has at least
- 5** a first plastic rectangular layer having a width of about 54mm and a length of about 86mm 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
- 10** 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.

