

PETITORIO

Industria y Comercio
SUPERINTENDENCIA

SECRETARÍA DE INDUSTRIA Y COMERCIO
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Página web: www.secrecom.gov.co

FORMULARIO UNICO DE SOLICITUD DE PATENTE PCT ENTRADA EN FASE NACIONAL

①

SOLICITUD DE:

☒ X

Patente de Invención

☐

Patente de Modelo de Utilidad

☐

Capítulo I

☒ X

Capítulo II

②

SOLICITANTE
(71)

Nombre: **FARGO ELECTRONICS INC.**

Dirección: 6533 Flying Cloud Drive, Eden Prairie, MN
55344, Estados Unidos de América

Nacionalidad o Domicilio: Minnesota, Estados Unidos de
América

Lugar de Constitución: Estados Unidos de América

Teléfono: 3123600 Fax: 3122410

E-mail: general@cardenasycardenas.com

IDENTIFICACION

C.C.

☐

NIT

☐

C.E.

☐

Otro

☒ X

Cual

Número

③

REPRESENTANTE
O APODERADO

Nombre: **DARIO CARDENAS NAVAS**

Dirección: Carrera 7 No 71-52 Torre B Piso 9

Teléfono: 3123600 Fax: 3122410

E-Mail: general@cardenasycardenas.com

IDENTIFICACION

C.C.

☒ X

NIT

☐

C.E.

☐

Otro

☐

Cual

No 17.066.629 TP 1.250

④

INVENTOR(ES)
(72)

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2. Chadwick M. Johnson
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5. Gary M. Klinefelter
6. Ryan G. Park
7. Matthew K. Dunham
8. Jeffrey D. Upin
9. Gary A. Lenz
10. Leon Gershenovich
11. Thomas C. Platner

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Nacionalidad o Domicilio:

1. Minnesota, Estados Unidos de América
2. Minnesota, Estados Unidos de América
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4. Minnesota, Estados Unidos de América
5. Minnesota, Estados Unidos de América
6. Minnesota, Estados Unidos de América
7. Minnesota, Estados Unidos de América
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10. Minnesota, Estados Unidos de América
11. Minnesota, Estados Unidos de América

⑤ PCT (86)

Solicitud Internacional No. PCT/US2004/010216 Fecha Abril 2, 2004
Publicación Internacional No. WO 2004/089633 A2 Fecha Octubre 21, 2004

⑥ Título(54):

TARJETA DE IDENTIFICACION PARA CARTUCHO DE CINTA PARA IMPRESORA

⑦ Clasificación Internacional (51):

B 41 J 17/36 0412 35/60

⑧ Prioridad

SI ☒ NO ☐

(33)País de Origen

(32)Fecha

(31)N° de Solicitud

USA

Abril 2, 2003

60/459,712

USA

Agosto 25, 2003

10/647,798

⑨ Comprobante de Pago No.:

05-14,524

Fecha

Febrero 24, 2005

⑩

ANEXOS

- ☒ Comprobante de pago de la tasa de presentación de la solicitud.
- ☐ Documento que acredita la existencia y representación legal cuando el solicitante sea persona jurídica.
- ☐ Poderes, si fuere el caso.
- ☐ Documento de cesión del inventor al solicitante o a su causante.
- ☐ Declaraciones
- ☒ Copia de la solicitud internacional. (Resumen, descripción, reivindicaciones, dibujos)
- ☒ Traducción de la solicitud internacional al castellano. (Resumen, descripción, reivindicaciones, dibujos)
- ☐ Copia del examen preliminar internacional efectuado por la Autoridad Internacional de Examen Preliminar (IPEA).
- ☐ Traducción del examen preliminar internacional efectuado por la IPEA.
- ☐ De ser el caso, copia del contrato de acceso.
- ☐ De ser el caso, documento que acredite la licencia o autorización de uso de conocimientos tradicionales de las comunidades indígenas.
- ☐ De ser el caso, certificado de depósito del material biológico.
- ☒ Arte final 12x12.
- ☐ De ser el caso, información sobre otras solicitudes de patente o títulos obtenidos en el extranjero por el mismo titular o su causante, relacionadas parcial o totalmente con la invención de esta solicitud.
- ☐ De ser el caso, modificaciones efectuadas a la solicitud internacional.
- ☐ Otros.

12

Solicito la Concesión de la patente,

NOMBRE:

DARIO CARDENAS NAVAS

FIRMA:



OK.C.C.

17.066.629 BTA TP.

1.250
C.S.J.

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 05 - 14.524
FECHA : FEBRERO 24 DE 2005

XXXX CONSIGNACION XXXX

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PAGO	VR. PAGO
CARDENAS Y CARDENAS S.I.	CONSIGNACION	BANCO POPULAR	050-00110-6	37960513	24/02/2005	8.412.000.00

XXXX CONCEPTO XXXX

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01	SOLICITUDES	1
		TRAMITES DE SOL. DE PATENTE DE IN	443.000.00
		TOTAL :	443.000.00

SON: CUATROCIENTOS CUARENTA Y TRES MIL PESOS

RESPONSABLE :

RECIBO DE CAJA APLICADO AL EXPEDIENTE No.

TARJETA DE IDENTIFICACION PARA
CARTUCHO DE CINTA PARA IMPRESORA.3

37960513
FEB 24 2005
15

VS **PCT**

FIRST NOTICE INFORMING THE APPLICANT OF
THE COMMUNICATION OF THE INTERNATIONAL
APPLICATION (TO DESIGNATED OFFICES WHICH
DO NOT APPLY THE 30 MONTH TIME LIMIT
UNDER ARTICLE 22(1))

(PCT Rule 47.1(c))

To:

KAUL Brian D.
Westman, Champlin & Kelly, P.A.
Suite 1600 - International Centre
900 Second Avenue South
Minneapolis, MN 55402-3319
ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year)

04 November 2004 (04.11.2004)

Applicant's or agent's file reference

F12.13-0116

IMPORTANT NOTICE

International application No.

PCT/US2004/010216

International filing date (day/month/year)

02 April 2004 (02.04.2004)

Priority date (day/month/year)

02 April 2003 (02.04.2003)

Applicant

FARGO ELECTRONICS, INC.

1. **ATTENTION:** For any designated Office(s), for which the time limit under Article 22(1), as in force from 1 April 2002 (30 months from the priority date), **does apply**, please see Form PCT/IB/308(Second and Supplementary Notice) (to be issued promptly after the expiration of 28 months from the priority date).
2. Notice is hereby given that the following designated Office(s), for which the time limit under Article 22(1), as in force from 1 April 2002, **does not apply**, has/have requested that the communication of the international application, as provided for in Article 20, be effected under Rule 93bis.1. The International Bureau has effected that communication on the date indicated below:
21 October 2004 (21.10.2004)

CH

In accordance with Rule 47.1(c-bis)(i), those Offices will accept the present notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

3. The following designated Offices, for which the time limit under Article 22(1), as in force from 1 April 2002, **does not apply**, have not requested, as at the time of mailing of the present notice, that the communication of the international application be effected under Rule 93bis.1:

FI, LU, SE, TZ, UG, ZM

In accordance with Rule 47.1(c-bis)(ii), those Offices accept the present notice as conclusive evidence that the Contracting State for which that Office acts as a designated Office does not require the furnishing, under Article 22, by the applicant of a copy of the international application.

4. TIME LIMITS for entry into the national phase

For the designated Office(s) listed above, and unless a demand for international preliminary examination has been filed before the expiration of **19 months** from the priority date (see Article 39(1)), the applicable time limit for entering the national phase will, **subject to what is said in the following paragraph**, be **20 MONTHS** from the priority date.

In practice, **time limits other than the 20-month time limit** will continue to apply, for various periods of time, in respect of certain of the designated Offices listed above. For **regular updates on the applicable time limits** (20 or 21 months, or other time limit), Office by Office, refer to the *PCT Gazette*, the *PCT Newsletter* and the *PCT Applicant's Guide*, Volume II, National Chapters, all available from WIPO's Internet site, at <http://www.wipo.int/pct/en/index.html>.

It is the applicant's **sole responsibility** to monitor all these time limits.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

Athina Nickitas-Etienne

Facsimile No. +41 22 740 14 35

Facsimile No. +41 22 338 89 95

PCT

To:

BRIAN D. KAUL
WESTMAN, CHAMPLIN & KELLY, PA
SUITE 1600- INTERNATIONAL CENTER
900 SECOND AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55402-3319

NOTIFICATION CONCERNING PAYMENT OF PRESCRIBED FEES

(PCT Rules 14, 15 and 16 and Administrative
Instructions. Sections 102bis(c), 304,
323(b), 707(b) and 803)

Date of mailing
(day/month/year)

07 Jun 2004

Applicant's or agent's file reference

F12.13-0116

PAYMENT DUE

see item 3 for time limits

International application No.

PCT/US2004/010216

International filing date/Date of receipt
(day/month/year) 02 APR 2004

Priority date (day/month/year)

02 Apr 2003

Applicant

FARGO ELECTRONICS, INC.

1. The applicant is hereby notified that this receiving Office has received:



the payment of all the prescribed fees, and



an overpayment, which will be refunded in due course.



no or insufficient payment of the prescribed fees and the applicant is hereby invited to pay the balance due, as
summarized under item 2, within the time limit(s) indicated under item 3.

2. Fees and payment calculation:

2,170.00

Total fees payable

Amount paid

Balance



The details of the calculation are given in the Annex.

3. Time limit(s) for payment and amount(s) payable (Rules 14.1, 15.4 and 16.1(f)):



within ONE MONTH from the date of receipt of the international application (for the transmittal fee (if any), the search
fee and the international filing fee). The amount payable for each fee is the amount applicable on the date of receipt of the
international application.



within 16 MONTHS from the priority date (only for the fee for priority document). The applicant's attention is drawn to the
fact that the request made by the applicant under Rule 17.1(b) will be considered not to have been made unless the fee is paid
within that time limit.

4. Additional observations (if necessary):



The search copy will not be transmitted to the International Searching Authority until the search fee is paid (therefore the
start of the international search will be delayed) (Rule 23.1(a) and (b)).

Name and mailing address of the receiving Office

Mail Stop PCT, Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450

Facsimile No. 703-305-3230

Authorized officer

Elnora Rivera

Telephone No. 703-305-3678

T Transmittal Fee

Prescribed amount: 300.00 **T**
 Amount paid: 300.00
 Balance: 0.00

☒ correct amount
☐ overpayment
☐ balance due

S Search Fee

Prescribed amount: 300.00 **S**
 Amount paid: 1,000.00
 Balance: 700.00

☐ correct amount
☒ overpayment
☐ balance due

I International Filing Fee

Fixed amount for first 30 sheets: 1,134.00 **i1**
 $\frac{33}{\text{Number of sheets in excess of 30}} \times \frac{12.00}{\text{Fee per sheet}} = 396.00$ **i2**
 Additional component: .400 $\times \frac{0.00}{\text{Fee per sheet}} = 0.00$ **i3**

Reduction where the international application is filed
 (See PCT Applicant's Guide, Volume I, General Part,
 for details on the availability of this reduction):

using the PCT-EASY software: 0.00 **r**

or

in electronic form where the text of the
 description, claims and abstract is not in
 character coded format: 0.00 **r**

or

in electronic form where the text of the
 description, claims and abstract is in character
 coded format: 0.00 **r**

Sub-total: 1,530.00 **i1-i2+i3-r**

Prescribed total amount (The amount to be entered at I is the sub-total
 entered at (i1+i2+i3-r), except where the applicant is (or all applicants
 are) entitled to a reduction of 75%, in which case the amount to be
 entered at I is 25% of the sub-total (i1+i2+i3-r); certain applicants from
 certain States are entitled to a reduction of 75% of the international
 filing fee; see Notes to the Fee Calculation Sheet as annexed to the
 Request Form, PCT/RO/101, for details): 1,530.00 **I**

Amount paid: 1,530.00
 Balance: 0.00

☒ correct amount
☐ overpayment
☐ balance due

P Fee for Priority Document

Prescribed amount: 40.00 **P**
 Amount paid: 40.00
 Balance: 0.00

☒ correct amount
☐ overpayment
☐ balance due

PCT

To:

BRIAN D. KAUL
WESTMAN, CHAMPLIN & KELLY, PA
SUITE 1600- INTERNATIONAL CENTER
900 SECOND AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55402-3319

NOTIFICATION OF THE INTERNATIONAL
APPLICATION NUMBER AND OF THE
INTERNATIONAL FILING DATE

(PCT Rule 20.5(c))

Date of mailing
(day/month/year)

07 Jun 2004

Applicant's or agent's file reference

F12.13-0116

IMPORTANT NOTIFICATION

International application No.

PCT/US2004/010216

International filing date (day/month/year)

02 Apr 2004

Priority date (day/month/year)

02 Apr 2003

Applicant

FARGO ELECTRONICS, INC.

Title of the invention

IDENTIFICATION CARD PRINTER RIBBON CARTRIDGE

1. The applicant is hereby notified that the international application has been accorded the international application number and the international filing date indicated above.

2. The applicant is further notified that the record copy of the international application:



was transmitted to the International Bureau on

07 Jun 2004



has not yet been transmitted to the International Bureau for the reason indicated below and a copy of this notification has been sent to the International Bureau*:



because the necessary national security clearance has not yet been obtained.



because (reason to be specified):

* The International Bureau monitors the transmittal of the record copy by the receiving Office and will notify the applicant (with Form PCT/IB/301) of its receipt. Should the record copy not have been received by the expiration of 14 months from the priority date, the International Bureau will notify the applicant (Rule 22.1(c)).

3. FOREIGN TRANSMITTAL LICENSE INFORMATION

Completed by: ER



Additional license for foreign transmittal not required. This subject matter is covered by a license already granted or the equivalent U.S. national application. Refer to that license for information concerning its scope.



License for foreign transmittal not required. 37 CFR 5.11(e)(1) or 37 CFR 5.11(e)(2). However, a license may be required for additional subject matter. See 37 CFR 5.15(b).



Foreign transmittal license granted, 35 U.S.C. 184; 37 CFR 5.11 on

02 Jun 2004

(date)



37 CFR 5.15(a)



37 CFR 5.15(b)

Name and mailing address of the receiving Office

Mail Stop PCT, Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450

Facsimile No. 703-305-3230

Authorized officer

Elnora Rivera

Telephone No. 703-305-3678

PCT

3

To:

BRIAN D. KAUL
WESTMAN, CHAMPLIN & KELLY, PA
SUITE 1600- INTERNATIONAL CENTER
900 SECOND AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55402-3319

COMMUNICATION IN CASES FOR WHICH
NO OTHER FORM IS APPLICABLE

		Date of mailing (day/month/year)	07 Jun 2004
Applicant's or agent's file reference F12.13-0116		REPLY DUE	See paragraph 1 below
International application No. PCT/US2004/010216		International filing date (day/month/year)	02 Apr 2004
Applicant FARGO ELECTRONICS, INC.			

1. ☐ REPLY DUE within _____ months/days from the above date of mailing☒ NO REPLY DUE, however, see below _____☒ IMPORTANT COMMUNICATION☐ INFORMATION ONLY

2. COMMUNICATION:

The applicant's attention is drawn to the fact that according to the national law of the United States of America, only the inventor is entitled to file a national application (Article 27(3)). The United States of America is designated in the international application, however, (i) The named inventor(s) is (are) not also indicated as applicant(s) for the purposes of the designation of the United States of America, and is (are) not indicated as being deceased; or (ii) no inventor is indicated. If no inventor is indicated as applicant for the purposes of the designation of the United States of America, the application may be rejected by the United States Patent and Trademark Office as a designated Office.

Name and mailing address of the receiving Office Mail Stop PCT, Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 703-305-3230	Authorized officer Elnora Rivera Telephone No. 703-305-3678
---	---

8

PCTNOTIFICATION OF RECEIPT
OF SEARCH COPY

(PCT Rule 25.1)

To:

BRIAN D. KAUL
WESTMAN, CHAMPLIN & KELLY, PA
SUITE 1600- INTERNATIONAL CENTER
900 SECOND AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55402-3319Date of mailing
(day/month/year)

07 Jun 2004

Applicant's or agent's file reference
F12.13-0116**IMPORTANT NOTIFICATION**International application No.
PCT/US2004/010216International filing date (day/month/year)
02 Apr 2004Priority date (day/month/year)
02 Apr 2003

Applicant

FARGO ELECTRONICS, INC.

1. Where the International Searching Authority and the receiving Office are not the same Office:

The applicant is hereby notified that the search copy of the international application was received by this International Searching Authority on the date indicated below.

Where the International Searching Authority and the receiving Office are the same Office:

The applicant is hereby notified that the search copy of the international application was received on the date indicated below.

07 Jun 2004

(date of receipt).

2. ☐ The search copy was accompanied by a nucleotide and/or amino acid sequence listing or tables related thereto in computer readable form.

3. Time limit for establishment of international search report and written opinion of the International Searching Authority

The applicant is informed that the time limit for establishing the international search report and the written opinion of the International Searching Authority is three months from the date of receipt indicated above or nine months from the priority date, whichever time limit expires later (Rules 42.1 and 43bis.1(a)).

4. A copy of this notification has been sent to the International Bureau and, where the first sentence of paragraph 1 applies, to the receiving Office.

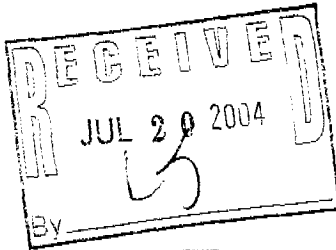
Name and mailing address of the ISA/
Mail Stop PCT, Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450
Facsimile No. 703-305-3230Authorized officer
Elnora Rivera
Telephone No. 703-305-3678

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF RECEIPT OF
RECORD COPY

(PCT Rule 24.2(a))



To:

KAUL, Brian, D.
Westman, Champlin & Kelly, P.A.
Suite 1600 - International Centre
900 Second Avenue South
Minneapolis, MN 55402-3319
United States of America

Date of mailing (day/month/year)
14 July 2004 (14.07.2004)

IMPORTANT NOTIFICATION

Applicant's or agent's file reference
F12.13-0116

International application No.
PCT/US2004/010216

The applicant is hereby **notified** that the International Bureau has received the record copy of the international application as detailed below.

Name(s) of the applicant(s) and State(s) for which they are applicants:

FARGO ELECTRONICS, INC. (for all designated States except US)

International filing date : 02 April 2004 (02.04.2004)
Priority date(s) claimed : 02 April 2003 (02.04.2003)
25 August 2003 (25.08.2003)

Date of receipt of the record copy
by the international Bureau : 09 June 2004 (09.06.2004)

List of designated Offices :

AP : BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW
EA : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
EP : AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR
OA : BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
National : AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

Seen

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer:

CHAHINE Leila

Facsimile No. (41-22) 338.89.95

Telephone No. (41-22) 338 9399

NOTIFICATION OF RECEIPT OF RECORD COPY

Date of mailing (day/month/year) 14 July 2004 (14.07.2004)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference F12.13-0116	International application No. PCT/US2004/010216

ATTENTION

The applicant should carefully check the data appearing in this Notification. In case of any discrepancy between these data and the indications in the international application, the applicant should immediately inform the International Bureau.

In addition, the applicant's attention is drawn to the information contained in the Annex, relating to:

- ☒ time limits for entry into the national phase - **see updated important information (as of April 2002)**
- ☐ requirements regarding priority documents (if applicable)

A copy of this Notification is being sent to the receiving Office and to the International Searching Authority.

INFORMATION ON TIME LIMITS FOR ENTERING THE NATIONAL PHASE

The applicant is reminded that the **"national phase" must be entered** before each of the designated Offices indicated on the cover sheet of this Notification by paying national fees and furnishing translations, as prescribed by Articles 22 and 39 and the applicable national laws. In addition, the applicant may also have to comply **with other special requirements** applicable in certain Offices. It is the **applicant's responsibility** to ensure the necessary steps to enter the national phase are taken in a timely fashion. Most Offices do not issue reminders to applicants in connection with the entry into the national phase.

The **applicable time limit** for entering the national phase will, **subject to what is said in the following paragraph**, be **30 MONTHS** from the priority date, not only in respect of any elected Office if a demand for international preliminary examination is filed before the expiration of 19 months from the priority date (see Article 39(1)), but also in respect of any designated Office, in the absence of filing of such demand, where Article 22(1) as modified with effect from 1 April 2002 applies in respect of that designated Office. For further details, see PCT Gazette No. 44/2001 of 1 November 2001, pages 19926, 19932 and 19934, as well as the PCT Newsletter, October and November 2001 and February 2002 issues.

In practice, **time limits other than the 30-month time limit will continue to apply, for various periods of time**, in respect of certain designated or elected Offices. For **regular updates on the applicable time limits (20, 21, 30 or 31 months, or other time limit)**, Office by Office, refer to the PCT Gazette ("Section IV" part published on a weekly basis), to the PCT Newsletter (on a monthly basis) and to the relevant National Chapters in Volume II of the PCT Applicant's Guide (the paper version of which is updated usually twice a year and the Internet version of which is updated usually on a weekly basis). Finally, a cumulative table of all applicable time limits for entering the national phase is available from WIPO's Internet site, via links from various pages the site including those of the Gazette, Newsletter and Guide, at <http://www.wipo.int/pct/en/index.html>.

Information about the requirements for **filing a demand for international preliminary examination** is set out in the PCT Applicant's Guide, Volume I/A, Chapter IX. Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination (at present, all PCT Contracting States are bound by Chapter II).

REQUIREMENTS REGARDING PRIORITY DOCUMENTS

For applicants who have not yet complied with the requirements regarding priority documents, the following is recalled.

Where the priority of an earlier national, regional or international application is claimed, the applicant must submit a copy of the said earlier application, certified by the authority with which it was filed ("the priority document") to the receiving Office (which will transmit it to the International Bureau) or directly to the International Bureau, before the expiration of 16 months from the priority date, provided that any such priority document may still be submitted to the International Bureau before that date of international publication of the international application, in which case that document will be considered to have been received by the International Bureau on the last day of the 16-month time limit (Rule 17.1(a)).

Where the priority document is issued by the receiving Office, the applicant may, instead of submitting the priority document, request the receiving Office to prepare and transmit the priority document to the International Bureau. Such request must be made before the expiration of the 16-month time limit and may be subjected by the receiving Office to the payment of a fee (Rule 17.1(b)).

If the priority document concerned is not submitted to the International Bureau or if the request to the receiving Office to prepare and transmit the priority document has not been made (and the corresponding fee, if any, paid) within the applicable time limit indicated under the preceding paragraphs, any designated State may disregard the priority claim, provided that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within the time limit which is reasonable under the circumstances (Rule 17.1(c)).

Where several priorities are claimed, the priority date to be considered for the purposes of computing the 16-month time limit (and all other PCT time limits) is the filing date of the earliest application whose priority is claimed (Article 2(xi)(b)).

PCT

**NOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT**

(PCT Administrative Instructions, Section 411)

From the INTERNATIONAL BUREAU

To:

KAUL, Brian, D.
Westman, Champlin & Kelly, P.A.
Suite 1600 - International Centre
900 Second Avenue South
Minneapolis, MN 55402-3319
United States of America

Date of mailing (day/month/year) 14 July 2004 (14.07.2004)	
Applicant's or agent's file reference F12.13-0116	IMPORTANT NOTIFICATION
International application No. PCT/US2004/010216	International filing date (day/month/year) 02 April 2004 (02.04.2004)
International publication date (day/month/year) Not yet published	Priority date (day/month/year) 02 April 2003 (02.04.2003)
Applicant FARGO ELECTRONICS, INC.	

- By means of this Form, which replaces any previously issued notification concerning submission or transmittal of priority documents, the applicant is hereby notified of the date of receipt by the International Bureau of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to a date of receipt, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- (If applicable) The letters "NR" appearing in the right-hand column denote a **priority document which, on the date of mailing of this Form, had not yet been received by the International Bureau** under Rule 17.1(a) or (b). Where, under Rule 17.1(a), the priority document must be submitted by the applicant to the receiving Office or the International Bureau, but the applicant fails to submit the priority document within the applicable time limit under that Rule, **the attention of the applicant is directed** to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- (If applicable) An asterisk(*) appearing next to a date of receipt, in the right-hand column, denotes a **priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b)** (the priority document was received after the time limit prescribed in Rule 17.1(a) or the request to prepare and transmit the priority document was submitted to the receiving Office after the applicable time limit under Rule 17.1(b)). Even though the priority document was not furnished in compliance with Rule 17.1(a) or (b), the International Bureau will nevertheless transmit a copy of the document to the designated Offices, for their consideration. In case such a copy is not accepted by the designated Office as priority document, Rule 17.1(c) provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
02 April 2003 (02.04.2003)	60/459,712	US	09 June 2004 (09.06.2004)
25 August 2003 (25.08.2003)	10/647,798	US	09 June 2004 (09.06.2004)

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer CHAHINE Leila
Facsimile No. (41-22) 338.89.95	Telephone No. (41-22) 338 9999

FORM PTO-1449	Atty. Docket No.: F12.12-0137	Appl. No.: 10/647,798
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	First Named Inventor:	
	James R. Meier et al.	
	Filing Date	Group Art:
	August 25, 2003	

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
AA	4,471,885	9/18/84	Mucciarone	221	155	
AB	5,318,369	6/7/94	Ishii	400	249	
AC	5,326,179	7/5/94	Fukai et al.	400	120	
AD	5,558,449	9/24/96	Morgavi	400	188	
AE	5,709,485	1/20/98	Kohno	400	208	
AF	5,790,162	8/4/98	Adams et al.	347	222	
AG	6,380,965	4/30/02	Sims et al.	347	218	
AH	6,412,991	7/2/02	Klinefelter et al.	400	240	
AI	US 2002/ 0118243	8/29/02	Forman	347	19	
AJ	US 2002/ 0180993	12/5/02	Klinefelter et al.	358	1.1	
AK	US 2003/ 0028766	2/6/03	Gass et al.	713	164	

FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	Class	Sub Class	Translation Yes No
AL						
AM						
AN						

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

AO	Office Communication for Application No. 10/647,666, filed August 25, 2003, date of mailing: September 15, 2004
AP	
AQ	

EXAMINER:

DATE CONSIDERED:

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



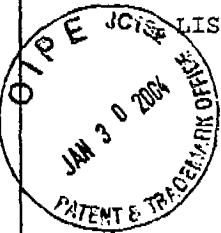
FORM PTO-1449	Atty. Docket No.: F12.12-0137	Appl. No.: 10/647,798
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	First Named Inventor:	
	James R. Meier et al.	
	Filing Date August 25, 2003	Group Art: 2854

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
EH	AA	6,644,771	11/11/03	Silverbrook	347	19
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	AC					
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	AG					
	AH					
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	AR					
	AS					
	AT					
	AU					

EXAMINER: EUGENE H. EICKHOLT PRIMARY EXAMINER	DATE CONSIDERED: 10-19-04
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EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449	Atty. Docket No.: F12.12-0137	Appl. No.: 10/647,798
 LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	First Named Inventor:	
	James R. Meier et al.	
	Filing Date August 25, 2003	Group Art: 2854

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
242	AA 6,650,351	11/18/03	Yamamoto et al.	347	214	
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	AC					
	AD					
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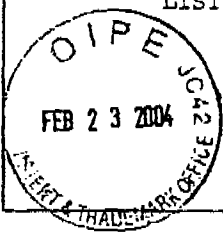
FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	Class	Sub Class	Translation Yes No
242	AK EP 1 095 783 B1	12/17/03	EPO			x
	AL					
	AM					

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

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EXAMINER: EUGENE H. EICKHOLT PRIMARY EXAMINER	DATE CONSIDERED: 10-19-07

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449	Atty. Docket No.: F12.12-0137	Appl. No.: 10/647,798
 LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	First Named Inventor:	
	James R. Meier et al.	
	Filing Date	Group Art: 2854
	August 25, 2003	

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
<i>EH</i>	AA US2004/002 2572 A1	2/5/04	Bungert et al.	400	248	
	AB					
	AC					
	AD					
	AE					
	AF					
	AG					
	AH					
	AI					
	AJ					
	AK					

FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	Class	Sub Class	Translation Yes No
<i>EH</i>	AL WO 2004/011268 A1	2/5/04	WIPO	—	—	x
	AM					
	AN					

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

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EXAMINER: EUGENE H. EICKHOLT PRIMARY EXAMINER <i>EH</i>	DATE CONSIDERED: 10-19-04
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Sheet 1 of 1

FORM PTO-1449	Atty. Docket No.: F12.12-0137	Appl. No.: 10/647,798
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	First Named Inventor:	
	James R. Meier et al.	
	Filing Date	Group Art. 2804
	August 25, 2003	

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
ZHE	AA 6,631,967 B1	10/14/03	Saruta	347	19	
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FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	Class	Sub Class	Translation Yes No
	AL					
	AM					
	AN					

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

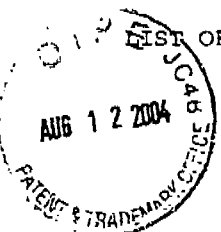
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EXAMINER: EUGENE H. EICKHOLT

DATE CONSIDERED: 10-19-04

PRIMARY EXAMINER

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449	Atty. Docket No.: P12.12-0133	Appl. No.: 10/647,666
 OFFICE OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	First Named Inventor:	
	James R. Meier et al.	
	Filing Date	Group Art:
	August 25, 2003	2854

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
EH	AA	6,762,780	7/13/04	Tsuruta et al.	347	171
	AB					
	AC					
	AD					
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FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	Class	Sub Class	Translation Yes No
	AL					
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	AN					

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

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 EXAMINER: EUGENE H. EICKHOLT
 PRIMARY EXAMINER

DATE CONSIDERED: 10-19-04

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Notice of References Cited

Application/Control No.

10/647,798

Applicant(s)/Patent Under
Reexamination
MEIER ET AL.

Examiner

Eugene H Eickholt

Art Unit

2854

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-4,676,678	06-1987	Watanabe, Junji	400/208
	B	US-5,558,449	09-1996	Morgavi, Paul	400/188
	C	US-5,984,546	11-1999	Kameyama, Yoshikatsu	400/208
	D	US-5,128,763	07-1992	Sakuragi, Kenkichi	358/296
	E	US-4,673,304	06-1987	Liu et al.	400/208
	F	US-4,848,941	07-1989	Imaseki, Chiharu	406/120
	G	US-4,733,980	03-1988	Tosa, Takashi	400/207
	H	US-4,350,453	09-1982	Field et al.	400/208
	I	US-4,350,454	09-1982	Schoenlein, William J.	400/234
	J	US-4,687,358	08-1987	Saitou, Masao	400/208
	K	US-6,798,434	09-2004	Shibata et al.	347/214
	L	US-3,889,795	06-1975	Garberi et al.	400/208
	M	US-3,899,065	08-1975	Brignole, Frederick A.	400/208

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N	JP02002120446A	04-2002	Japan	Maruyama	
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

FORM PTO-1449	Atty. Docket No.: F12.12-0137	Appl. No.: 10/647,798
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	Filing Date	Group Art:
	August 25, 2003	

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
AA	6,816,968	11/9/04	Walmsley	713	168	
AB						
AC						
AD						
AE						
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AG						
AH						
AI						
AJ						
AK						

FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	Class	Sub Class	Translation Yes No
AL	WO 03/060811	12/18/02	PCT			X
AM						
AN						

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

AO	
AP	
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		Filing Date	Group Art:
		August 25, 2003	2854

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
GA	3,755,653	8/28/73	Venker	235	61.11	
GB	4,782,363	11/1/88	Britt et al.	355	14	
GC	5,019,839	5/28/91	Watanabe et al.	346	134	
GD	5,077,467	12/31/91	Barron, Jr. et al.	250	221	
GE	5,530,468	6/25/96	Yoshimi et al.	347	262	
GF	5,642,877	7/1/97	Green	271	35	
GG	5,772,199	6/30/98	Green	271	10.06	
GH	5,820,281	10/13/98	Hill et al.	400	621	
GI	5,882,127	3/16/99	Amano	400	521	
GJ	5,978,621	11/2/99	Glemser et al.	399	90	
GK	6,076,913	6/20/00	Garcia et al.	347	19	
GL	6,179,401	1/30/01	Stephens, Jr. et al.	347	19	
GM	6,253,329	6/26/01	Kang	713	300	
GN	6,341,839	1/29/02	Burikov et al.	347	37	
GO	6,405,055	6/11/02	Silverbrook et al.	455	556	
GP	6,464,317	10/15/02	Miyazawa	347	14	

FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	Class	Sub Class	Translation Yes No
GQ	JP411105359A	4/20/99	Japan			X

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

GR	Streamfeeder - ST 1250 Universal Friction Feeder; last modified February 27, 2000; 1 page with heading of "Streamfeeder - Product Index"; and 3 pages with heading of "Streamfeeder - ST 1250 Universal Friction Feeder"
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	Filing Date	Group Art:
	August 25, 2003	2854

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
FA	3,598,396	8/10/71	Andrews et al.	271	9	
FB	4,015,839	4/5/77	McKee	271	37	
FC	4,017,068	4/12/77	McKee	271	275	
FD	4,102,267	7/25/78	Ritzerfeld	101	132.5	
FE	4,161,312	7/17/79	Eckhardt et al.	271	3	
FF	5,111,239	5/5/92	Kamimura et al.	355	45	
FG	5,239,926	8/31/93	Nubson et al.	101	487	
FH						
FI						
FJ						
FK						

FOREIGN PATENT DOCUMENTS

	Document No.	Date	Country	Class	Sub Class	Translation Yes No
FL						
FM						
FN						

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

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	James R. Meier et al.	
	Filing Date	Group Art:
	August 25, 2003	2854

FOREIGN PATENT DOCUMENTS

		Document No.	Date	Country	Class	Sub Class	Translation Yes No
	EA	0 562 979	9/29/93	EPO			X
	EB	0 887 197	12/30/98	EPO			X
	EC	0 979 736	2/16/00	EPO			X
	ED	99/49379	9/30/99	WIPO			X
	EE	GB 2 120 821 A	12/7/83	Great Britain			X
	EF	DT 25 35 699 A1	3/17/77	Germany			X
	EG	WO 95/09084	4/6/95	WIPO			X
	EH	WO 99/21713	5/6/99	World Intellectual Property Org.			X
	EI	JP 11 265463	9/28/99	Japan			X (abstract only)
	EJ	WO 99/04368	1/28/99	WO			X

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

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	August 25, 2003	2854

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
DA	6,271,928	8/7/01	Bullock et al.	358	1.16	
DB	6,302,527	10/16/01	Walker	347	50	
DC	6,305,795	10/23/01	Childers et al.	347	86	
DD	6,312,083	11/6/01	Moore	347	19	
DE	6,312,106	11/6/01	Walker	347	50	
DF	6,325,495	12/4/01	Foth	347	84	
DG	6,371,586	4/16/02	Saruta	347	7	

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

DH	"Standard Read/Write Identification IC", by TEMIC Semiconductor GmbH, Heilbronn, Germany, (April 1999).
DI	"Introducing the New SmartGuard™ and SmartShield™ Advanced Security Options", pamphlet by Fargo Electronics, Inc., Eden Prairie, Minnesota (1998).
DJ	"RFID Tagging IC is First to Accept Input from Sensors", by Microchip Technology Inc., (undated).
DK	Two page web site advertisement from SEIKO Precision, entitled "The latest design for your CD-R", re: CD Printer 2000.
DL	Two page web site advertisement from SEIKO Precision, entitled "CD Printer 2000".
DM	Two page web site advertisement from SEIKO Precision, entitled "CD Printer 4000".
DN	Partial International Search for International Application No. PCT/US 01/17146, filed May 25, 2001 (with Invitation to Pay Fees)
DO	International Search Report for International Application No. PCT/US 00/01697, filing date January 21, 2000, dated October 18, 2000

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U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
CA	6,011,741	01/00	Wallace et al.	365	221	
CB	6,037,879	3/00	Tuttle	340	825.54	
CC	6,039,430	3/00	Helterline et al.	347	19	
CD	6,071,024	6/00	Chi-Ming et al.	347	177	
CE	6,072,402	6/00	Kniffin et al.	340	825	
CF	6,099,101	8/8/00	Maurelli et al.	347	7	
CG	6,099,178	8/00	Spurr et al.	400	207	
CH	6,113,208	9/5/00	Benjamin et al.	347	7	
CI	6,163,658	12/19/00	Suzuki	399	12	
CJ	6,213,392	4/01	Zuppich	235	380	
CK	6,252,791	6/01	Wallace et al.	365	221	
CL	6,263,170	7/17/01	Bortnem	399	13	
CM	6,264,296	7/24/01	Klinefelter et al.	347	4	
CN	6,264,301	7/24/01	Helterline et al.	347	19	
CO	6,267,463	7/31/01	Paulsen	347	19	

EXAMINER:	DATE CONSIDERED:
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FORM PTO-1449		Atty. Docket No.: F12.12-0137	Appl. No.: 10/647,798
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		Filing Date August 25, 2003	Group Art: 2854

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
BA	5,267,800	12/93	Petterutl et al.	400	88	
BB	5,277,501	1/11/94	Tanaka et al.	400	120	
BC	5,318,370	6/94	Nehowig	400	207	
BD	5,327,201	7/5/94	Coleman et al.	355	278	
BE	5,368,677	11/29/94	Ueda et al.	156	362	
BF	5,455,617	10/95	Stephenson et al.	400	207	
BG	5,466,319	11/14/95	Zager et al.	156	220	
BH	5,502,464	3/26/96	Takahashi et al.	346	25	
BI	5,516,218	5/14/96	Amano et al.	400	535	
BJ	5,646,388	7/8/97	D'Entremont et al.	235	380	
BK	5,695,589	12/9/97	German et al.	156	250	
BL	5,703,347	12/30/97	Reddersen et al.	235	472	
BM	5,707,162	1/98	Kasal et al.	400	692	
BN	5,709,484	1/20/98	Dorner	400	188	
BO	5,755,519	5/26/98	Klinefelter	400	249	
BP	5,837,991	11/17/98	LaManna et al.	235	475	
BQ	5,936,008	8/10/99	Jones et al.	523	161	
BR	5,980,011	11/9/99	Cummins et al.	347	4	
BS	5,995,774	11/30/99	Applegate et al.	399	27	

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77

FORM PTO-1449		Atty. Docket No.: F12.12-0137	Appl. No.: 10/647,798
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U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
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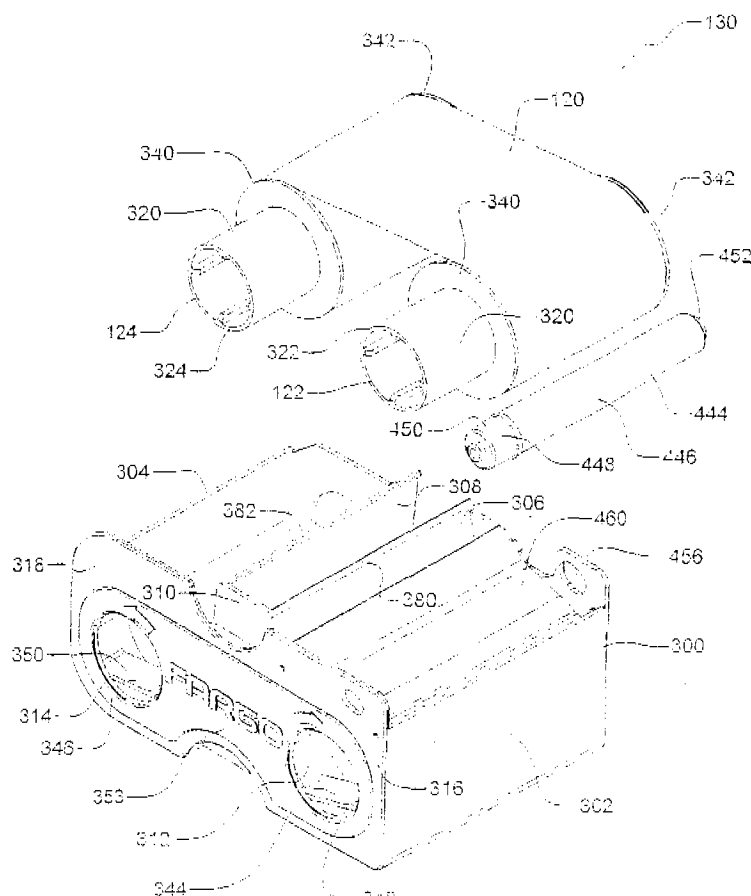
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(54) Title: IDENTIFICATION CARD PRINTER RIBBON CARTRIDGE



(57) Abstract: A ribbon cartridge (130) includes a cartridge housing (300), a supply spool (122), a take-up spool (124), and a supply of ribbon. The cartridge housing includes a supply spool enclosure (302), a take-up spool enclosure (304), a pair of ribbon guides (340) and (342), and a gap (126) between the ribbon guides and the supply and take-up spool enclosures. The supply spool is contained in the supply spool enclosure, and the take-up spool is contained in the take-up spool enclosure. The ribbon (120) extends from the supply spool, over the ribbon guides and the gap, and to the take-up spool. Another aspect of the ribbon cartridge includes a cartridge housing (300) and a cleaner roller (444). The cartridge housing includes front and rear walls (316) and (330). The cleaner roller is rotatably supported between the front and rear walls.



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IDENTIFICATION CARD PRINTER RIBBON CARTRIDGE

BACKGROUND OF THE INVENTION

Identification cards are widely used to carry
5 information typically relating to the card holder.
Identification card printing systems are used to form
identification cards by printing an image, which can
contain textual and graphical information, on a card
substrate, such as a plastic card.

10 Many identification card printing systems, such
as those produced by Fargo Electronics, Inc. of Eden
Prairie, Minnesota, are thermal based printing
systems. Such systems print images on card substrates
using a thermal printhead and a thermal print ribbon
15 that is held taut between the printhead and the card
substrate. The thermal print ribbon or dye
sublimation ribbon is typically divided up into
different color frames or panels along its length.
The frames or panels repeat in a sequence or group
20 consisting of a yellow panel, followed by a magenta
panel, which is followed by a cyan panel. In
addition, a black resin frame or panel can be
provided in the sequence of the color panels, if
desired. The thermal printhead includes a plurality
25 of resistive heating elements that are selectively
energized to individually heat the panels of the
thermal print ribbon and cause print material from
the selected panels to transfer to the card substrate
and form the desired image.

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The thermal print ribbon can be supported in a ribbon cartridge to simplify the loading of the ribbon in the printer. The ribbon cartridge generally includes a supply spool on which a first end of the ribbon is wound and a take-up spool on which a second end of the ribbon is wound. A middle portion of the ribbon extends between the supply and take-up spools. The printer controls the feeding of the ribbon over the printhead from the supply spool to the take-up spool.

There is a never-ending demand for improvements to ribbon cartridges for use in identification card printers, including forming the ribbon cartridge such that it allows the card printer to be formed more compactly, providing roller cleaning features, and other desirable features.

SUMMARY OF THE INVENTION

The present invention is generally directed to a ribbon cartridge for use in an identification card printer. Aspects of the present invention allow the printer that utilizes the ribbon cartridge of the present invention to be formed more compactly and provide roller cleaning features. The ribbon cartridge generally includes a cartridge housing, a supply spool, a take-up spool, and a supply of ribbon. The cartridge housing includes a supply spool enclosure, a take-up spool enclosure, a pair of ribbon guides, and a gap between the ribbon guides and the supply and take-up spool enclosures. The

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supply spool is contained in the supply spool enclosure, and the take-up spool is contained in the take-up spool enclosure. The ribbon extends from the supply spool, over the ribbon guides and the gap, and
5 to the take-up spool.

Another aspect of the ribbon cartridge of the present invention includes a cartridge housing and a cleaner roller. The cartridge housing includes front and rear walls. The cleaner roller is rotatably
10 supported between the front and rear walls.

These and other features will become apparent with a careful review of the drawings and the corresponding detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

15 FIG. 1 is a perspective view of an identification card printer in accordance with various embodiments of the invention.

FIG. 2 is a schematic diagram of a printer in accordance with various embodiments of the invention.

20 FIG. 3 is a schematic diagram of an identification card printer in accordance with various embodiments of the invention with selected components illustrated in cross-section.

FIG. 4 is a perspective exploded view of an
25 identification card printer and a ribbon cartridge, in accordance with various embodiments of the invention.

FIG. 5 is a cross-sectional view of the printer of claim 4 taken generally along line 5-5.

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FIGS. 6 and 7 are exploded and assembled views of a bushing and a side wall of an identification card printer, in accordance with various embodiments of the invention.

5 FIGS. 8 and 9 are top and side schematic views, respectively, of a printhead, a thermal print ribbon and ribbon sensors, in accordance with various embodiments of the invention.

10 FIG. 10 is a front plan view of an identification card printer with an open front cover, in accordance with various embodiments of the invention.

15 FIGS. 11 and 12 are schematic diagrams respectively illustrating misalignment and alignment between active print elements of a printhead and a card.

FIG. 13 is an exploded perspective view of a ribbon cartridge in accordance with various embodiments of the invention.

20 FIG. 14 is a perspective view of a cartridge housing in accordance with various embodiments of the invention.

25 FIG. 15 is a cross-sectional view of the cartridge housing of FIG. 14 taken generally along line 15-15.

FIG. 16 is a rear perspective view of a ribbon cartridge with a cleaner roller exploded therefrom, in accordance with embodiments of the invention.

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FIG. 17 is a rear perspective view of a ribbon cartridge and an actuating member in accordance with various embodiments of the invention.

FIGS. 18 and 19 are exploded and assembled views of a ribbon spool and supply circuit, respectively, in accordance with various embodiments of the invention.

FIG. 20 is a flowchart illustrating a method of operating an identification card manufacturing device with a ribbon supply in accordance with various embodiments of the invention.

FIG. 21 is schematic diagram of an identification card printer in accordance with the prior art.

15 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

An identification card printer 100, with which the ribbon cartridge of the present invention can be used, is shown in FIG. 1. As will be discussed in greater detail below, the ribbon cartridge can operate with an inverted printhead of printer 100 whose resistive heating elements or print elements face upward. This configuration allows printer 100 to be formed more compactly than conventional identification card printers that utilise printheads that are vertically oriented with the print elements facing downward, as illustrated in FIG. 21. In such a conventional card printer 600, cards 602 are fed along a print path 604 below the print elements 606 of the printhead 608. Thermal print 611 ribbon is fed

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between the print elements 606 and a top surface 612 of card 602, on which an image is to be printed by the printhead 608. A card supply 614 can be provided at a card input 616 where a bottom card 618 from a
5 stack of cards 620 is fed along print path 604. A card hopper 622 can be positioned opposite the card input 616 to collect processed cards 602. Due to the relatively flat print path 604, a base 624 of card hopper 622 must be positioned well below print path
10 604 in order to collect stack of cards 620. Due to the orientation of printhead 608 above print path 604 and the location of card hopper 622 below print path 604, such conventional identification card printers 600 must be formed relatively tall compared to
15 printer 100 of the present invention.

A general description of identification card printer 100 in accordance with embodiments of the present invention will be initially provided with reference to FIGS. 2 and 3. FIG. 2 is a schematic
20 diagram of printer 100 and FIG. 3 is a simplified front view of printer 100 with selected components depicted in cross-section. In general, printer 100 includes a card input 102, a card transport 104, a printhead 106, and a card output 108. Cards 110 are
25 received by card transport 104 at card input 102. Card transport 104 feeds cards 110 individually along a print path 112. Print path 112 is preferably substantially flat between card input 102 and card output 108 to avoid substantially bending the rigid

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for execution by controller 140. The print job typically includes card processing instructions, such as print instructions, data writing instructions, data reading instructions, and other card processing instructions in accordance with normal methods.

Additional instructions and input signals can be provided to controller 140 from input 150 (FIG. 2), which can be input controls 152 in the form of buttons 154 or 156 (FIG. 1) or other input device. Controller 140 can also provide information to a user on a display 158 of control panel 156.

Firmware 160 for printer 100 is preferably stored in memory 148 of printer 100, such as flash memory, and is executed by controller 140 to operate printer 100. Firmware 160 can be upgraded periodically with revised versions. In accordance with one embodiment of the invention, encrypted firmware upgrades are downloaded into memory 148 of printer 100 through, for example, computer 146. A loader program 162 stored in memory 148 of printer 100, such as flash memory, is configured to decrypt the encrypted firmware upgrade and load the decrypted firmware upgrade into memory 148 of printer 100 to complete the upgrade of firmware 160.

Individual cards 110 can be provided to card input 102 in a stack 164 of cards 110 that is contained in a card hopper 166, embodiments of which are depicted in FIGS. 3-5. FIG. 4 is a perspective view of printer 100 including hopper 166, and FIG. 5

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is a cross-sectional view of hopper 166 generally taken along line 5-5 of FIG. 4, but with the addition of card stack 164. Cards 110 of card stack 164 are oriented with surface 134, on which an image is to be
5 printed, facing downward. Unlike conventional printers that stack cards with the print surface facing upward, the orientation of cards 110 of card stack 164 of the present invention assists in preventing dust from accumulating on print surface
10 134 over time. This results in a cleaner print surface 134, which enhances the quality of the image that can be printed thereon. Additional dust protection for card stack 164 can be provided by a cover 168, shown open in FIG. 4.

15 Stack of cards 164 is supported by a base member 170 of hopper 166 that connects to a rod 172 through an arm 174. Arm 174 includes a cylindrical portion 176 through which rod 172 extends. Cylindrical portion 176 is configured to slide along rod 172 to
20 allow base member 170 to move up and down relative to card input 102.

A biasing mechanism 178, depicted as a coil spring, applies an upwardly directed force to the base member, which in turn applies the force to card
25 stack 164. Biasing mechanism 178 directs a top card 180 of card stack 164 against a card feed roller 182 of card transport 104 at card input 102, as shown in FIG. 3. Top card 180 can then be fed by card

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transport 104 from card input 102 and along print path 112.

Additional biasing mechanism can be provided to ensure proper contact with card feed roller 182 of card transport 104. For example, base member 170 can include a leaf spring 184, or other suitable spring or biasing mechanism, that is configured to apply an additional force to a front portion 186 of card stack 164. This causes front portion 186 of card stack 164 to lift slightly from base member 170, which assists in the feeding of top card 180 through card input 102 by card transport 104.

In accordance with one embodiment of the invention, base member 170 can be temporarily latched in a loading position by pushing down on lever 187 (FIG. 4), which is connected to base member 170 and arm 174, to lower base member against the bottom 188 (FIG. 5) of hopper 166. A suitable latching mechanism temporarily holds base 170 in the loading position. The latching mechanism preferably automatically releases base member 170 from the loading position when cover 186 (FIG. 4) is closed due to actuation of the latching mechanism by, for example, latch 189 of cover 186. Biasing mechanism 178 then moves base member to the card feeding position shown in FIG. 5.

As mentioned above, card transport 104 preferably includes a plurality of feed or drive rollers 114 that are configured to transport top card 180 along print path 112. Feed rollers 114 generally

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include a shaft 190 that extends through a larger diameter card gripping member 192 and is supported by side walls of printer 100, as shown in FIG. 5. In accordance with one embodiment of the invention, card feed rollers 114 are mounted to a side wall 194 of printer 100 by a twist-lock bushing 196, as shown in FIGS. 3 and 5. A perspective exploded view of bushing 196 displaced from side wall 194 is provided in FIG. 6 and a perspective view of bushing 196 attached to side wall 194 is provided in FIG. 7. Side wall 194 includes a large opening 198 through which shafts 190 of feed rollers 114 of card transport 104 can extend. In accordance with one embodiment of the invention, card gripping member 192 is capable of extending through opening 198 of side wall 194. This feature simplifies assembly of printer 100 by allowing card feed rollers 114 to be installed through a single side wall 194 rather than having to extend each end of shaft 190 through the side walls of the printer from within the interior of the printer.

Once feed roller 114 is in position with shaft 190 extending through opening 198 of side wall 194, an end 200 of shaft 190 is received by central bore 202 of bushing 196. Bushing 196 is then secured to side wall 194 to complete the mounting of end 200 of feed roller 114 to side wall 194.

In accordance with one embodiment of the invention, bushing 196 includes tab members 204 that extend from cylindrical portion 206. Two of the

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preferably at least three tab members 204 are configured to be received in slots 208 and 210 adjacent opening 198 in side wall 194, while the third tab member 204 is allowed to fall within opening 198 in side wall 194. In accordance with one embodiment of the invention, tab members 204 have different sizes and/or shapes such that each can only be inserted into one of the corresponding slots 208 and 210 to ensure proper orientation of bushing 196 during installation. Once tab members 204 are inserted in slots 208 and 210, a shoulder 212 of bushing 196 engages outside surface 214 of side wall 194 and prevents further insertion of cylindrical portion 206 through side wall 194. Bushing 196 can be locked into place on side wall 194 by twisting or rotating bushing 196 about an axis that is concentric to central bore 202, which causes side wall 194 to be pinched between shoulder 212 and tab members 204.

Bushing 196 can also include an arm 216 that includes a protrusion 218 that is received by an aperture 220 in side wall 194 when bushing 196 is properly oriented to side wall 194. In addition to providing an alignment feature, arm 216 and protrusion 218 also operate to further lock bushing 196 in the desired position relative to side wall 194.

As mentioned above, thermal print ribbons 120 are typically divided up into different color frames or panels along its length. The frames or panels

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repeat in a sequence or group consisting of a yellow panel, followed by a magenta panel, which is followed by a cyan panel. In addition, a black resin frame or panel can be provided in sequence of the color
5 panels, if desired. Printhead 106 selectively prints image lines to surface 134 of card 110 from the panels of ribbon 120 to form color images on card 110 in a conventional manner under control of controller 140.

10 One embodiment of printer 100 includes a ribbon sensor 222, shown in FIGS. 2 and 3, that is positioned adjacent print ribbon 120 and is configured to detect the ribbon panels. Ribbon sensor 222 is preferably positioned adjacent printhead 106
15 within gap 126 and includes an emitter 224 and a receiver 226 that are positioned on opposite sides of print ribbon 120, as shown in FIG. 3 and in the top and side schematic views of FIGS. 8 and 9, respectively. In accordance with one embodiment of
20 the invention, a component of ribbon sensor 222, such as emitter 224, is mounted to printhead 106, as shown in FIG. 3. Alternatively, receiver 226 can be mounted to printhead 106. This positioning of ribbon sensor 222 in close proximity to printhead 106 assists in
25 providing accurate positioning of individual panels of ribbon 120 relative to printhead 106, which allows for efficient use of the ribbon 120.

Emitter 224 preferably includes a light emitting diode (LED). Light produced by the LED passing

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through print ribbon 120 is detected by receiver 126. A signal from receiver 126 in response to the detected light, indicates the color of the panel through which the light has passed. The signal is provided to controller 140, as indicated by line 228 of FIG. 2. Controller 140 controls the feeding of print ribbon 120 through control of bi-directional motor 142 in response to the signal 228 to align the desired panel with printhead 106. In accordance with one embodiment of the invention, the LED of emitter 224 emits blue light having a wavelength of approximately 470 nanometers (nm), which has proved to provide the widest dispersion of the resultant signal from receiver 226 between the different panels of ribbon 120 for accurate panel detection.

In accordance with another embodiment of the invention, printer 100 includes a plurality of ribbon sensors 222, such as sensors 222A and 222B illustrated in FIGS. 8 and 9. Sensor 222A can include an emitter 224A and a receiver 226A, and sensor 222B can include an emitter 224B and a receiver 226B, which operate as described above. Alternatively, sensor 222B can include only a receiver 226B (i.e. without emitter 224B shown in phantom lines) that is positioned in close proximity to emitter 224A, such that it can utilize the light emitting from emitter 222A to provide the desired panel detection.

Sensors 222A and 222B are preferably positioned to allow for detection of a location of a transition

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230 between separate panels 232 and 234 of ribbon 120. For example, sensors 222A and 222B are preferably positioned such that when sensor 222A detects panel 232 of one color and sensor 222B
5 detects panel 234 of another color, it is known that transition 230 is positioned immediately between sensors 222A and 222B. If necessary, controller 140 can feed ribbon 120 in either a forward or backward direction to detect the location of transition 230
10 using sensors 222A and 222B. Once the position of transition 230 is determined, controller 140 can align printhead 106 as desired relative to a particular panel of ribbon 120. This allows printer 100 to utilize the entire ribbon panel, which reduces
15 waste and extends the life of ribbon 120. This is particularly useful when printer 100 is powered on, which allows printer 100 to locate the transition 230 and position the panels of ribbon 120 relative to printhead 106 as desired.

20 Printer 100 can also include a card sensor 240 that is positioned adjacent print path 112, as shown in FIG. 2. Card sensor 240 is configured to detect the feeding of a card 110 by card transport 104 along print path 112. Card sensor 240 includes an output
25 signal represented by arrow 242, which is provided to controller 140. Controller 140 uses signal 242 to position card 110 as desired using card transport 104 relative to printhead 106 and other components of printer 100.

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Printer 100 can also include internal and/or external expansion modules 244 and 246, respectively, as illustrated schematically in FIG. 3. Internal expansion module 244 is positioned in line with print
5 path 112 between printhead 106 and card output 108 or between printhead 106 and card input 102. Internal expansion module 244 can be received in an expansion module bay 248 of a housing 250 of printer 100, shown in the front plan view of FIG. 10.

10 External expansion module 246 preferably attaches to an end 252 of printer 100 adjacent card output 108. External expansion module 246 includes a card receiver 254 in card hand-off alignment with card output 108.

15 Each expansion module - 244 and 246 generally includes a card processing component 256, as illustrated in external expansion module 246 of FIG. 3. Card processing component 256 provides additional card processing functions for printer 100. Card
20 processing component 256 can be, for example, a data encoder configured to write data to a memory chip embedded in card 110, a magnetic stripe reader configured to read data on a magnetic stripe of card 110, a magnetic stripe writer configured to write
25 data to a magnetic stripe of card 110, a card flipper configured to flip card 110 to allow for processing of both sides of card 110, a card laminator configured to apply an overlamine material to the surface of card 110, or other card processing

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component. Card processing component 256 can be controlled by controller 140 or by a separate controller of the expansion module.

Printer 100 can also include an output hopper 260 at end 252, as shown in FIG. 3. A removable cover 261 can substantially enclose output hopper 260 as shown in FIG. 10. Output hopper 260 is generally positioned below card output 108 and is configured to collect cards 110 discharged therethrough. One advantage of the present invention is that the collection of cards 110 in output hopper 260 is in the form of first-in-first-out order. In other words, each card 110 is preferably collected in output hopper 260 with the print surface 134 on which an image was printed by printhead 106 facing downward. As a result, bottom card 264 in the stack 262 of cards 110, which was the first card 110 processed by printer 100, will be the top card in the stack 262 having its print surface 134 facing upward when the stack 262 is removed from output hopper 260 and turned over. As a result, the cards 110 in the stack 262 are presented to the user in first-in-first-out order. This is preferred over the last-in-last-out order of conventional card printers, such as printer 600 shown in FIG. 21, where the printed surface 612 of the first card processed by printer 600 is located at the bottom of stack of cards 626 collected in hopper 622 with the printed surface 612 facing upward. As a result, the last-in-last-out card stack

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626 must be reorganized to place the cards 602 in first-in-first-out order with the print surface 612 of the first processed card 602 in view or facing upward.

5 The print job provided by application 144 generally includes print image data that provides instructions for controlling printhead 106 through controller 140 to print the image on surface 134 of card 110. The instructions determine which print
10 elements 118 of printhead 106 are active during the printing process. For proper printing of the image on surface 134 of card 110, the active print elements 118 of printhead 106 that are to be energized to print the image must extend across a width of the
15 card 110. If they do not, the printed image will generally not be properly aligned with surface 134 of card 110. Additionally, it will not be possible to provide full edge-to-edge printing of the image over surface 134 of card 110.

20 Typically, each printer 100 must be factory tested to ensure that print elements 118 and card 110 are properly aligned during printing operations. If they are misaligned, a mechanical adjustment to the position of printhead 106 relative to card 110 is
25 typically required. This may involve moving the position of printhead 106, or adjusting card transport 104 to change the position of card 110 at printhead 106.

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The present invention provides a method of aligning print elements 118 of printhead 106 with card 110 without mechanical adjustment to printer 100, as shown in FIG. 2. Instead, an offset value 270 is determined and stored in memory 148 (e.g., flash memory) of printer 100, shown in FIG. 2. Offset value 270 provides an adjustment to print elements 118 of printhead 106 that will be set as active and thus, be energized during print operations to print the image to surface 134 of card 110. FIG. 11 is a simplified top view of print elements 118 of printhead 106 relative to a card 110 (shown in phantom). The initially active print elements 118 are represented by shaded boxes 272, whereas the non-shaded boxes 274 represent non-active print elements 118. Accordingly, FIG. 11 illustrates a misalignment between active print elements 272 and card 110 of approximately four print elements 118. Accordingly, an offset value 270 of minus four would be set for the example of FIG. 11 to shift the active print elements 272 to the left by four print elements 118 resulting in the alignment of active print elements 272 with card 110, as illustrated in FIG. 12. Accordingly, offset value 270 adjusts the print elements 118 that are used by printhead 106 to process a print job such that the active print elements 118 are properly aligned with card 110 to ensure full edge-to-edge printing capability and proper alignment of the printed image and card 110.

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During a print operation, the print job is received from the card processing application 144, from which print image data is generated that designates the active print elements 272. Next, 5 offset value 270 is received from printer 100. Offset value 270 is then used to designate a modified set of active print elements 118, such as elements 272 shown in FIG. 12. Finally, the modified set of active print elements 118 are used to process the print job 10 resulting in printing of the image represented by the print job in proper alignment with surface 134 of card 110 due to the proper alignment between active print elements 118 of printhead 106 and card 110.

In accordance with another embodiment of the 15 invention, the original active print elements 118 designated by the print image data generated from the print job, such as elements 272 shown in FIG. 11, are initially left unmodified. Next, offset valued 270 is received from printer 100 immediately prior to 20 processing the print job from application 144 with printer 100. Finally, the print image data is re-generated to designate the modified set of active print elements 118 (elements 270 of FIG. 12) of printhead 106 that are offset from the original set 25 of active print elements by the offset value 270.

As mentioned above, print ribbon 120 can be contained in a removable ribbon cartridge 130 (FIG. 4) that contains the supply and take-up spools 122 and 124. Ribbon cartridge 130 is received in a 4)

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cartridge receiver 280 of printer housing 250, as shown in FIGS. 4 and 10. Cartridge receiver 280 is preferably accessed through a front face 282 of housing 250 to provide front-loading of cartridge 130 in printer 100. A front cover 284 of housing 250 can cover cartridge receiver 280, as shown in FIGS. 1 and 4.

FIGS. 13-17 provide various views of ribbon cartridge 130. Ribbon cartridge 130 includes a cartridge housing 300 that is preferably formed of a single piece of semi-flexible plastic. Housing 300 generally includes a supply spool enclosure 302 containing supply spool 122 and a take-up spool enclosure 304 containing take-up spool 124. Supply and take-up spool enclosures 302 and 304 each include an interior side wall 306 and 308, respectively, that are joined together by a front plate 310, as shown in FIG. 14. Openings 312 and 314 in front walls 316 and 318 of the supply and take-up spool enclosures 302 and 304, shown in FIG. 14, respectively receive front portions 320 of spool cores 322 and 324 of supply and take-up spools 122 and 124, as shown in FIGS. 13 and 17. Similarly, openings 326 and 328 and rear walls 330 and 332 of supply and take-up spool enclosures 302 and 304, respectively receive rear portions 334 of cores 322 and 324 of supply and take-up spools 122 and 124, as shown in FIGS. 16 and 17.

Front core support walls 336 and 338 are provided in supply and take-up spool enclosures 302

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and 304 to provide support of the front portion 320 of cores 322 and 324 of supply and take-up spools 122 and 124, respectively, as shown in FIGS. 14 and 15. Print ribbon 120 is wound on cores 322 and 324 of supply and take-up spools 122 and 124 between front and rear ribbon guides 340 and 342. Ribbon guides 340 and 342 also limit axial movement of supply and take-up spools 122 and 124 between rear walls 330 and 332 and front core support walls 336 and 338 of cartridge housing 300.

One problem encountered with ribbon cartridges of the prior art is that they require delicate handling to avoid unintentional unwinding of the print ribbon. Ribbon cartridge 130 of the present invention avoids this problem by providing spool rotation inhibitors 344 and 346, shown in FIGS. 14 and 15, that provide at least some resistance to the rotation of supply and take-up spools 122 and 124, respectively, while ribbon cartridge 130 is not installed in cartridge receiver 280 of printer 100.

In accordance with one embodiment of the invention, spool rotation inhibitors 344 and 346 are formed by tab members 348 and 350 that respectively extend from between front core support walls 336 and 338 and front walls 316 and 318 of supply and take-up spools enclosures 302 and 304 of cartridge housing 300. Tab members 348 and 350 are positioned to engage front portions 220 of spool cores 322 and 324 and provide frictional resistance to the rotation of

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supply and take-up spools 122 and 124. Ridges 352 can be formed on tab members 348 and 350 to provide the desired rotational resistance. The rotational resistance to supply and take-up spools 122 and 124
5 provided by rotation inhibitors 344 and 346 is overcome by motor 142 that drives the rotation of supply and take-up spools 122 and 124 when ribbon cartridge 130 is installed in cartridge receiver 280. Additionally, housing 300 includes a finger hold 353
10 to allow for the installation of ribbon cartridge 130 in cartridge receiver without touching ribbon 120.

Supply and take-up spool enclosures 302 and 304 of cartridge housing 300 are preferably shaped such that ribbon cartridge 130 can only be received by
15 cartridge receiver 280 in the proper orientation. Thus, cartridge receiver 280 preferably includes a first chamber 354 that is configured to receive supply spool enclosure 302, and a second chamber 356 that is configured to receive take-up spool enclosure
20 304. First and second chambers 354 and 356 also preferably substantially conform to the exterior shape of supply and take-up spool enclosures 302 and 304, which are shown in the cross-sectional view of ribbon cartridge 130 of FIG. 3.

25 During installation of ribbon cartridge 130 and cartridge receiver 280, first and second drive shafts 360 and 362 (FIGS. 3 and 4) are respectively received within rear openings 364 and 366 of supply and take-up spools 122 and 124, shown in FIG. 16. Once ribbon

-25-

cartridge 130 is installed in cartridge receiver 280, drive shafts 360 and 362 provide support for supply and take-up spools 122 and 124 and align them in the desired position.

5 Drive shafts 360 and 362 are driven by motor 142 under control of controller 140 to rotate supply and take-up spools 122 and 124 as desired to control the position of ribbon 120 and its panels relative to printhead 106, as well as to provide tension in
10 ribbon 120. Drive shafts 360 and 362 each preferably includes longitudinal ridges 369 (FIG. 4) that are received between corresponding longitudinal ridges 367 of supply and take-up spool cores 322 and 324, shown in FIG. 16. Ridges 369 intermesh with ridges
15 367 to prevent slippage between shafts 360 and 362 and supply and take-up spools 122 and 124.

Cartridge receiver 280 can also include at least one cartridge receiving guide 368 that is configured to receive a corresponding cartridge loading guide
20 370 of ribbon cartridge 130 to provide vertical support of a front portion 372 of ribbon cartridge 130, as shown in FIG. 10. In accordance with one embodiment of the invention, cartridge receiving guide 368 includes a channel 373 and cartridge
25 loading guide 370 includes a protrusion 374 (FIG. 3) extending from supply spool enclosure 302 of cartridge housing 300. During loading of ribbon cartridge 130 in cartridge receiver 280, protrusion 374 slides in channel 373 and provides vertical

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support to front portion 372 of ribbon cartridge 130. Other types of cartridge receiving guides 368 and cartridge loading guides 370 can also be used.

Gap 126 (FIG. 3) is defined by interior side
5 walls 306 and 308 and ribbon guides 380 and 382 (FIGS. 13 and 16) that are positioned between and above supply and take-up spools 122 and 124. The distance between ribbon guides 380 and 382 is preferably less than approximately 0.75 inches, but
10 at least wide enough to accommodate printhead 106. Printhead 106, is covered by front cover plate 384 (FIG. 4) and is received within gap 126 (FIG. 3) as ribbon cartridge 130 is installed in cartridge receiver 280.

15 In order to facilitate easy installation and removal of ribbon cartridge 130 in cartridge receiver 280, printhead 106 is preferably movable in a vertical direction, as illustrated in FIG. 3. This vertical movement of printhead 106 is provided in
20 part by slidably mounting printhead within printer 100. Preferably, printhead 106 includes a full-down position represented by dashed outline 400, in which printhead 106 is positioned during loading of ribbon cartridge 130 and cartridge receiver 280. In full-
25 down position 400, printhead 106 is lowered below ribbon guides 380 and 382 to prevent interference between printhead 106 and print ribbon 120, which extends over ribbon guides 380 and 382 during installation of ribbon cartridge 130 and cartridge

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receiver 280. Once ribbon cartridge 130 is installed in cartridge receiver 280 (FIGS. 3 and 10), printhead 106 can be raised from full-down position 400 to an idle position represented by dashed outline 402, shown in FIG. 3. Prior to printing to surface 134 of card 110, printhead 106 is moved to a print position 404, which is illustrated in the solid lines of FIG. 3. When in print position 404, printhead 106 is raised relative to idle position 402 such that print elements 118 and print ribbon 120 overlaying print elements 118, are raised to a position that is adjacent print path 112 to allow for printing to surface 134 of card 110.

The raising and lowering of printhead 106 between the full-down position 400 and print position 404 is provided by cam mechanism 410, shown schematically in FIG. 2. Cam mechanism 410 is driven by motor 412 under control of controller 140. Cam mechanism 410 can take on many configurations. In accordance with one embodiment of the invention, cam mechanism 410 includes first and second cam members 414 and 416, shown in FIG. 3. First cam member 414 is rotatably driven by motor 412 (FIG. 2). Second cam member 416 is attached to printhead 106 at end 418 and engages first cam member 414 at end 420. The rotation of first cam member 414 by motor 412 causes second cam member 416 to pivot about axis 422, which in turn raises or lowers printhead 106 depending upon the direction of rotation of first cam member 414.

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A printhead position sensor 424, shown schematically in FIGS. 2 and 3, can detect the position of printhead 106 and provide position information to controller 140. Controller 140 uses
5 the position information to position printhead 106 as desired through control of motor 412 driving first cam member 414.

A printhead biasing mechanism 426, depicted as a spring, can be provided to resist raising of
10 printhead 106 from full-down position 400. Additionally, base 428 of printer housing 250, shown in FIG. 3, includes an opening 430, through which adjustments to cam mechanism 410 can be made and printhead 106 can be removed.

15 One embodiment of printer 100 includes a card cleaner roller 440 that is positioned immediately below print path 112 between printhead 106 and card input 102, as shown in FIG. 3. Printer card cleaner roller 440 preferably operates as a feed roller 114
20 of card transport 104 and includes a debris-collecting surface 442. Debris-collecting surface 442 engages print surface 134 of card 110 as it is fed along print path 112 and removes dust and other debris from surface 134 prior to printing thereon by
25 printhead 106. Printer card cleaner roller 440 can be cleaned periodically by a user of the printer 100.

One embodiment of card cartridge 130 includes a cleaner roller 444, shown in FIGS. 3, 13, 16 and 17, which operates to clean card cleaner roller 440 by

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removing debris from debris-collecting surface 442, which eliminates the need to clean, remove, or replace card cleaner roller 440. Cleaner roller 444 of ribbon cartridge 130 includes a debris-collecting surface 446 that is preferably more tacky than debris-collecting surface 442 of card cleaner roller 440. In accordance with one embodiment of the invention, debris-collecting surface 446 of cleaner roller 444 can include double-sided tape or an adhesive applied to a removable sleeve that is mounted to a core 448. Debris-collecting surface 446 can be renewed periodically, or cleaner roller 444 of ribbon cartridge 130 can be periodically replaced with another card cleaner roller 444 as needed.

Cleaner roller 444 includes front and rear ends 450 and 452 that respectively extend through apertures 454 and 456 in front and rear walls 316 and 330 of supply spool enclosure 302 of cartridge housing 300. Cleaner roller can be easily inserted and removed from cartridge housing 300 by simply bending cartridge housing slightly.

In accordance with one embodiment of the invention, cartridge housing 300 includes a removable cover 460 that covers a top portion of supply spool enclosure 302 and protects ribbon 320 from contact with debris-collecting surface 446 of cleaner roller 444, as shown in FIGS. 4, 15 and 16. Cover 460 preferably includes tab members 462 each having a protrusion 464 that is configured to be received

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within a corresponding aperture 466 of front and rear walls 316 and 330 of supply spool enclosure 302, as shown in FIGS. 14, 16 and 17.

Cleaner roller 444 is preferably actuated for
5 contact with card cleaner roller 440 following installation of ribbon cartridge 130 and cartridge receiver 280. In accordance with one embodiment of the invention, rear end 452 of cleaner roller 444 includes an opening 470 that is configured to receive
10 a rod 472 of an actuating member 474, shown in FIG. 17. Actuating member 474 generally operates to maintain cleaner roller 444 in contact with card cleaner roller 440 during operation of printer 100 when ribbon cartridge 130 is installed in cartridge
15 receiver 280, as illustrated in FIG. 3. The phantom representations of rod 272 of actuating member 474 and cleaner roller 444, shown in FIG. 3, illustrate a receiving position for actuating member 474, in which rod 472 is positioned to extend through opening 470
20 of cleaner roller 444 as ribbon cartridge 130 is received in cartridge receiver 280.

One embodiment of actuating member 474 includes a ring member 476 that is rotatably mounted around a rear side of drive shaft 360. Actuating member 474
25 rotates about drive shaft 360 from the receiving position to a card cleaning position, where debris collecting surface 446 of cleaner roller 444 engages debris-collecting surface 442 of card cleaner roller 440, as shown in FIG. 3.

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Movement of actuating member 474 between the receiving and card cleaning positions is preferably triggered by the closing of front cover 284 of printer housing 250. In accordance with an embodiment
5 of the invention, this is accomplished by protrusion 478 that is mounted to an inside surface 480 of front cover 284, as shown in FIG. 4. Preferably, actuating member 474 is biased toward the receiving position. When front cover 284 is fully closed, protrusion 478
10 extends through opening 482 of housing 250 and engages a suitable linkage that moves actuating member 474 from the receiving position to the full card cleaning position thereby causing debris-collecting surface 446 of roller cleaner roller 444
15 to engage debris-collecting surface 442 of card cleaner roller 440 and rotate therewith during printing operations.

In accordance with another embodiment of the invention, a supply circuit 500 having a memory 502
20 is mounted to ribbon cartridge 130, as illustrated schematically in FIG. 2. One suitable supply circuit is the I-CODE1 produced by Philips. Memory 502 of supply circuit 500 contains information relating to print ribbon 120, such as a lot code identifying a
25 lot of the ribbon 120, a supplier code identifying a supplier of ribbon 120 or ribbon cartridge 130, a ribbon type identifying parameters of print ribbon 120, a security code that can be used to prevent unauthorized use of ribbon cartridge 130, a printer

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configuration setting used to optimize printer settings such as printhead settings including those affecting image color and intensity, a number of prints completed by print ribbon 120, and/or a number of prints remaining or that can be printed by print ribbon 120.

In accordance with one embodiment of the invention, supply circuit 500 can be mounted to either supply spool 122 or take-up spool 124, as illustrated in FIGS. 18 and 19. FIG. 18 is an exploded perspective view of supply circuit 500 mounted to supply spool 122, and FIG. 19 is an assembled view of supply circuit 500 mounted to supply spool 122. In accordance with one embodiment of the invention, supply circuit 500 is formed as a ring member 504 that is mounted to a rear-facing surface 506 of rear ribbon guide 342.

Printer 100 includes a supply circuit reader 510, shown schematically in FIG. 2. Controller 140 is configured to access or read the supply information contained in memory 502 of supply circuit 500 using supply circuit reader 510. The supply information is preferably accessed prior to feeding card 110 by card transport 104. Additionally, controller 140 can write data to memory 502 of supply circuit 500 through supply circuit reader 510. Supply circuit reader 510 communicates with memory 502 using conventional techniques including radio frequency (RF) communication methods.

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Communications between controller 140 and supply circuit 500 through supply circuit reader 510 are preferably securely made using various encryption methods to protect the supply information. In accordance with one embodiment of the invention, the supply information contained in memory 502 of supply circuit 500 is encrypted in accordance with a first encryption method. In accordance with one embodiment of the invention, the supply information contained in memory 502 of supply circuit 500 is encrypted in a form that can be decrypted by controller 140. In accordance with another embodiment of the invention, supply circuit reader 510 includes a processor that is configured to decrypt the encrypted supply information and re-encrypt the supply information in accordance with a second encryption method. The first encryption method is preferably different from the second encryption method. Finally, the re-encrypted supply information is communicated to controller 140, which is configured to decrypt the re-encrypted supply information.

Another embodiment of the invention is directed to a method of operating printer 100, which is illustrated in the flowchart of FIG. 20. At step 520 of the method, a value is stored in memory 502 of supply circuit 500. Preferably, the value is representative of a number of prints remaining or that can be printed by print ribbon 120. Accordingly, the value can correspond to a length of print ribbon

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120 that remains and is still useful for printing, for example. Next, at step 522, the value contained in memory 502 is decremented in response to use of print ribbon 120 with printer 100. Thus, as print
5 ribbon 120 is used to print images on cards 110, the value is decremented accordingly to represent the depletion of the usable print ribbon 120 such that the value continues to represent the amount of usable print ribbon 120 that remains. This decrementing of
10 the value is typically performed by controller 140 through supply circuit reader 510. Memory 502 is preferably disabled when the value reaches a predetermined end value, as indicated at step 524. Typically, the end value would be set such that it is
15 likely that the print ribbon 120 is no longer usable by printer 100. The disablement of memory 502 can be performed by controller 140 and prevents further writing to memory 502. Finally, at step 526, controller 140 prevents use of print ribbon 120 with
20 printer 100 when it is determined that memory 502 has been disabled. Preferably, a check is made by controller 140 to determine whether memory 502 has been disabled prior to processing a card 110 with printer 100. In this manner, ribbon cartridge 130 is
25 given a limited life span over which it can be used with printer 100.

In accordance with one embodiment of the above-described method, memory 502 of supply circuit 500 is divided into a plurality of memory banks. Each bank

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is provided with a value representing a portion of the prints remaining in ribbon 120. During use of print ribbon 120, the value stored in the banks are selectively decremented to represent the use of the

5 print ribbon 120 as the value in each bank reaches a predetermined end value, controller 140 disables the bank of memory 502 rendering the bank unusable. Once the values in all of the banks of memory 502 reach the predetermined end value, the controller 140 can

10 prevent further use of the print ribbon 120 with printer 100.

Although the present invention has been described with reference to preferred embodiments, workers skilled in the art will recognize that

15 changes may be made in form and detail without departing from the spirit and scope of the invention.

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WHAT IS CLAIMED IS:

1. A ribbon cartridge for use in a card printer comprising:

- a cartridge housing including a supply spool enclosure, a take-up spool enclosure, a pair of ribbon guides, and a gap between the ribbon guides and the supply and take-up spool enclosures;
- a supply spool contained in the supply spool enclosure;
- a take-up spool contained in the take-up spool enclosure; and
- a supply of ribbon that extends from the supply spool, over the ribbon guides and the gap, and to the take-up spool.

2. The ribbon cartridge of claim 1, wherein the gap is defined by interior side walls of the spool and take-up enclosures, wherein the ribbon guides are formed by exposed top surfaces of the interior side walls.

3. The ribbon cartridge of claim 1, wherein the gap is defined by interior side walls of the spool and take-up enclosures and is accessible from bottom and rear sides of the housing.

4. The ribbon cartridge of claim 1 including a card cleaner roller rotatably supported by the housing adjacent a top surface of the housing.

5. The ribbon cartridge of claim 4, wherein the card cleaner roller is supported at a rear end

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adjacent a rear wall of the housing and at a front end adjacent a front wall of the housing.

6. The ribbon cartridge of claim 4, wherein the card cleaner roller includes a debris-collecting exterior surface.

7. The ribbon cartridge of claim 1, including a rotation inhibitor engaging the supply spool and providing resistance to rotation of the supply spool.

8. The ribbon cartridge of claim 7, wherein the rotation inhibitor includes a tab member extending from the housing.

9. The ribbon cartridge of claim 1 including a rotation inhibitor engaging the take-up spool and providing resistance to rotation of the take-up spool.

10. The ribbon cartridge of claim 9, wherein the rotation inhibitor includes a tab member extending from the housing.

11. The ribbon cartridge of claim 1, wherein the supply and take-up spool enclosures have different exterior shapes.

12. The ribbon cartridge of claim 1 including a supply circuit having a memory containing supply information relating to the ribbon cartridge.

13. The ribbon cartridge of claim 12, wherein the supply circuit is mounted to the supply spool or the take-up spool.

14. The ribbon cartridge of claim 12, wherein the supply information includes a lot code, a supplier

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code, a ribbon type, a security code, a printer configuration setting, a number of prints completed, or a number of prints remaining.

15. The ribbon cartridge of claim 12, wherein the memory of the supply circuit includes a memory bank, the memory bank having a limit as to a number of times data can be written thereto.

16. The ribbon cartridge of claim 12, wherein:

one of the supply and take-up spools includes a core and a ribbon guide that extends substantially perpendicularly from the core; and

the supply circuit is mounted to the ribbon guide and includes an opening through which the core extends.

17. A ribbon cartridge for use in a card printer comprising:

a cartridge housing including front and rear walls; and

a cleaner roller rotatably supported between the front and rear walls.

18. The ribbon cartridge of claim 17, wherein the cleaner roller includes a debris-collecting surface.

19. The ribbon cartridge of claim 17, wherein the cleaner roller is mounted adjacent a top side of the housing.

20. The ribbon cartridge of claim 17, wherein the cleaner roller includes front and rear ends that are

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each received in an aperture of the respective front and rear wall of the housing.

21. The ribbon cartridge of claim 20, wherein the apertures are shaped to allow the cleaner roller to move between a receiving position and a cleaning position.

22. The ribbon cartridge of claim 17, wherein:

the housing includes supply and take-up spool enclosures each having an interior side wall separated from each other by a gap, and a plate connecting the interior side walls;

a supply spool contained in the supply enclosure;

a take-up spool contained in the take-up spool enclosure; and

print ribbon having a first end wound on supply spool, a second end wound on the take-up spool, and a middle portion extending between the supply and take-up spools and over the interior side walls.

23. A ribbon cartridge for use in a card printer comprising:

a housing including a spool enclosure having an interior side wall, a bottom, an exterior side wall, and front and rear walls, the front and rear walls each including an opening; and

a spool including a core having a front portion extending through the opening in the front wall of the spool enclosure and a rear

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portion extending through the opening in the rear wall.

24. The ribbon cartridge of claim 23, wherein the spool enclosure includes a core support wall extending from the bottom of the spool enclosure, the core support wall positioned between the front and rear walls.

25. The ribbon cartridge of claim 23 including a rotation inhibitor engaging the core of the spool, the rotation inhibitor providing resistance to rotation of the spool.

26. The ribbon cartridge of claim 25, wherein the rotation inhibitor includes a tab member extending from the spool enclosure.

27. The ribbon cartridge of claim 23 including a cleaner roller rotatably supported between the front and rear walls.

28. The ribbon cartridge of claim 27, wherein the cleaner roller is mounted adjacent a top side of the housing.

29. The ribbon cartridge of claim 27, wherein the cleaner roller includes front and rear ends that are each received in an aperture of the respective front and rear wall of the housing.

30. The ribbon cartridge of claim 29, wherein the apertures are shaped to allow the cleaner roller to move between a receiving position and a cleaning position.

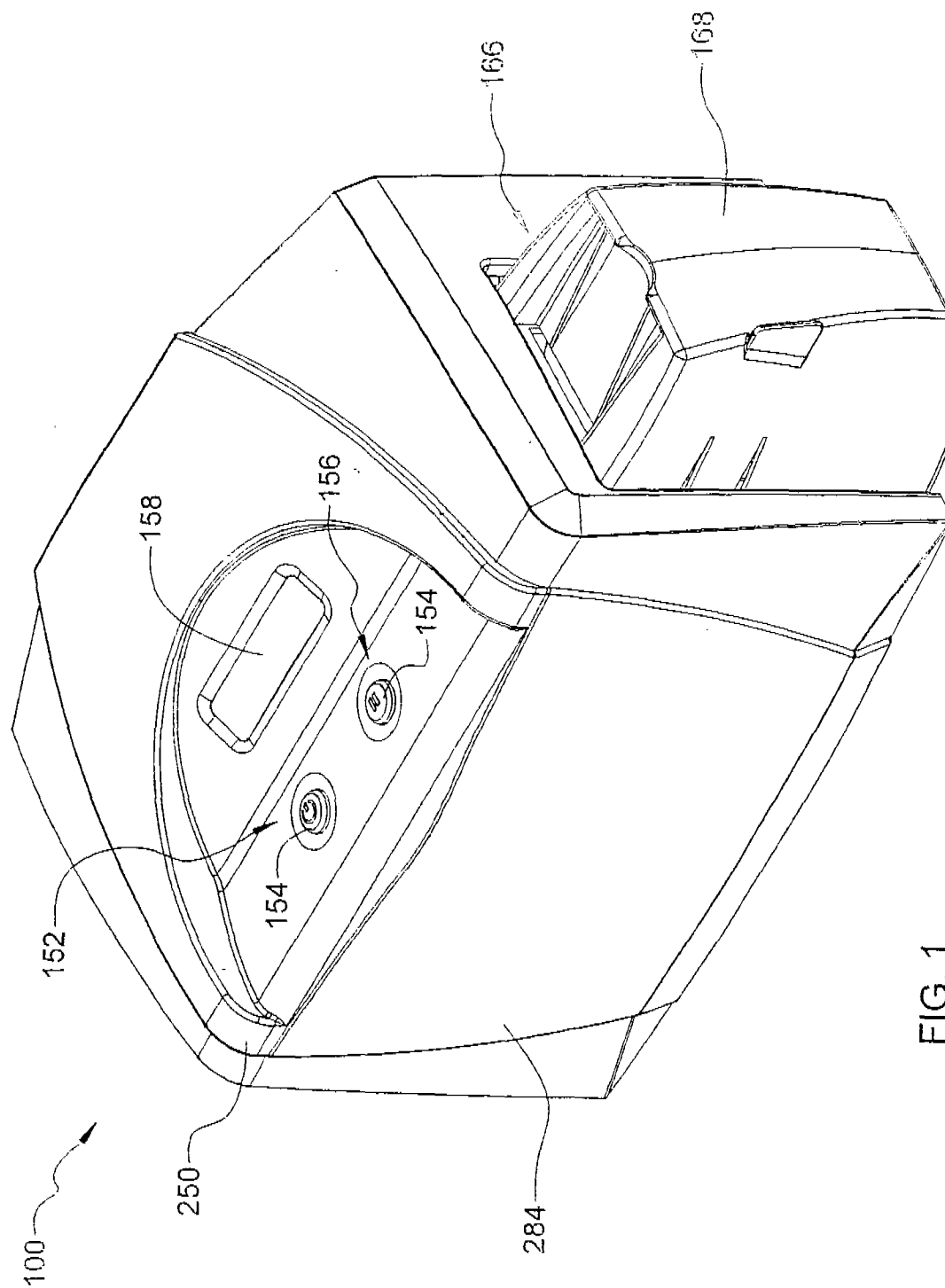


FIG. 1

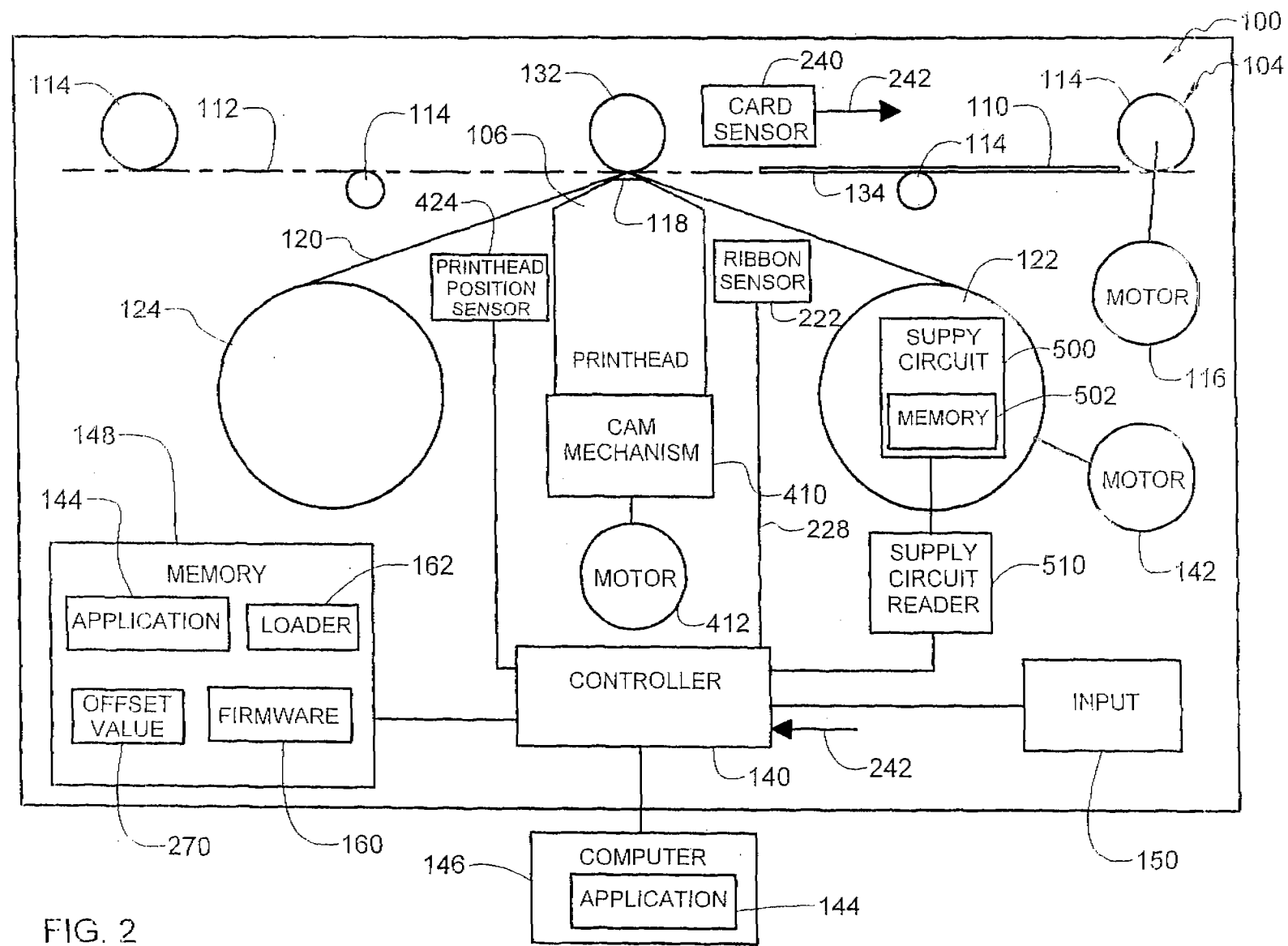


FIG. 2

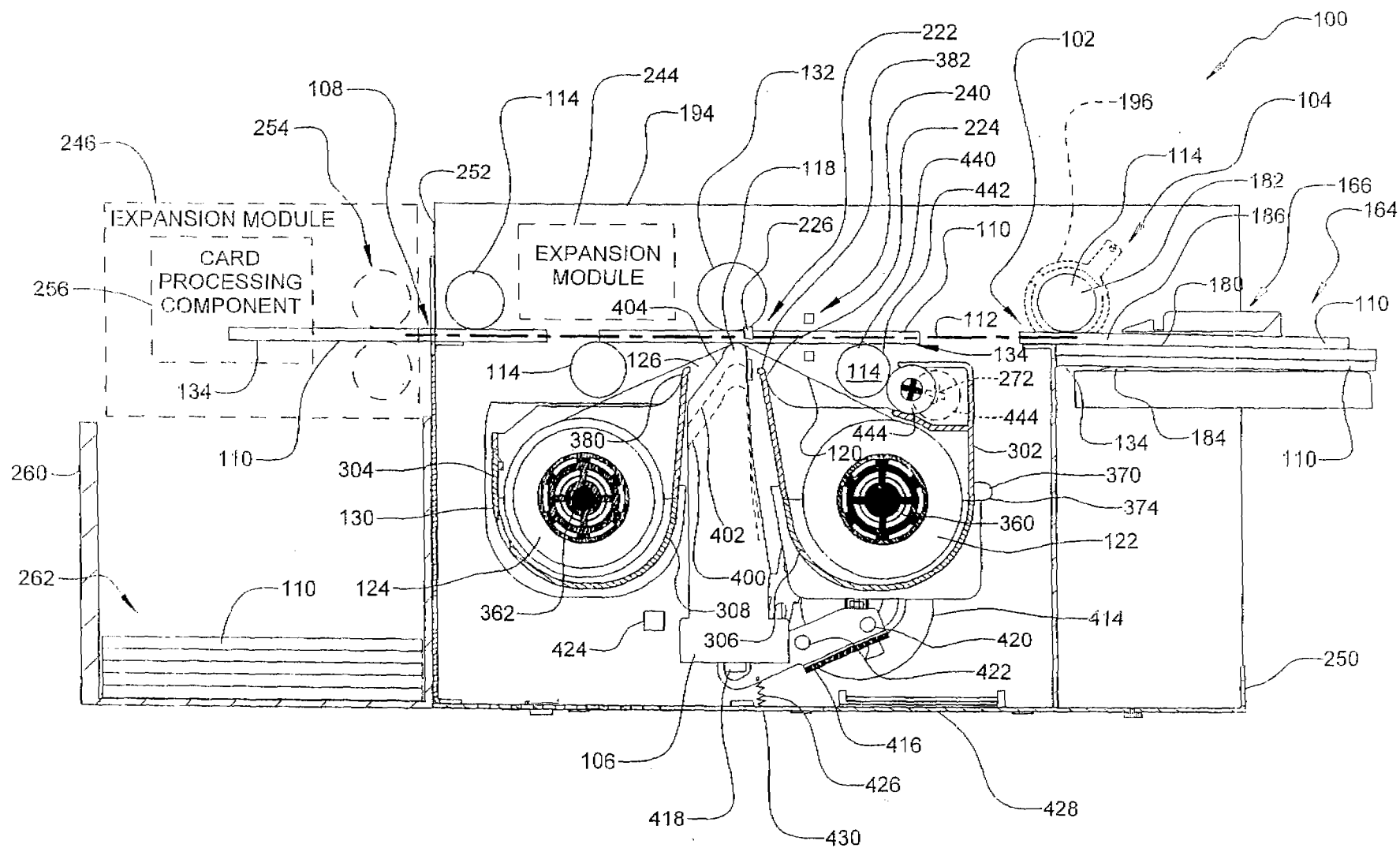


FIG. 3

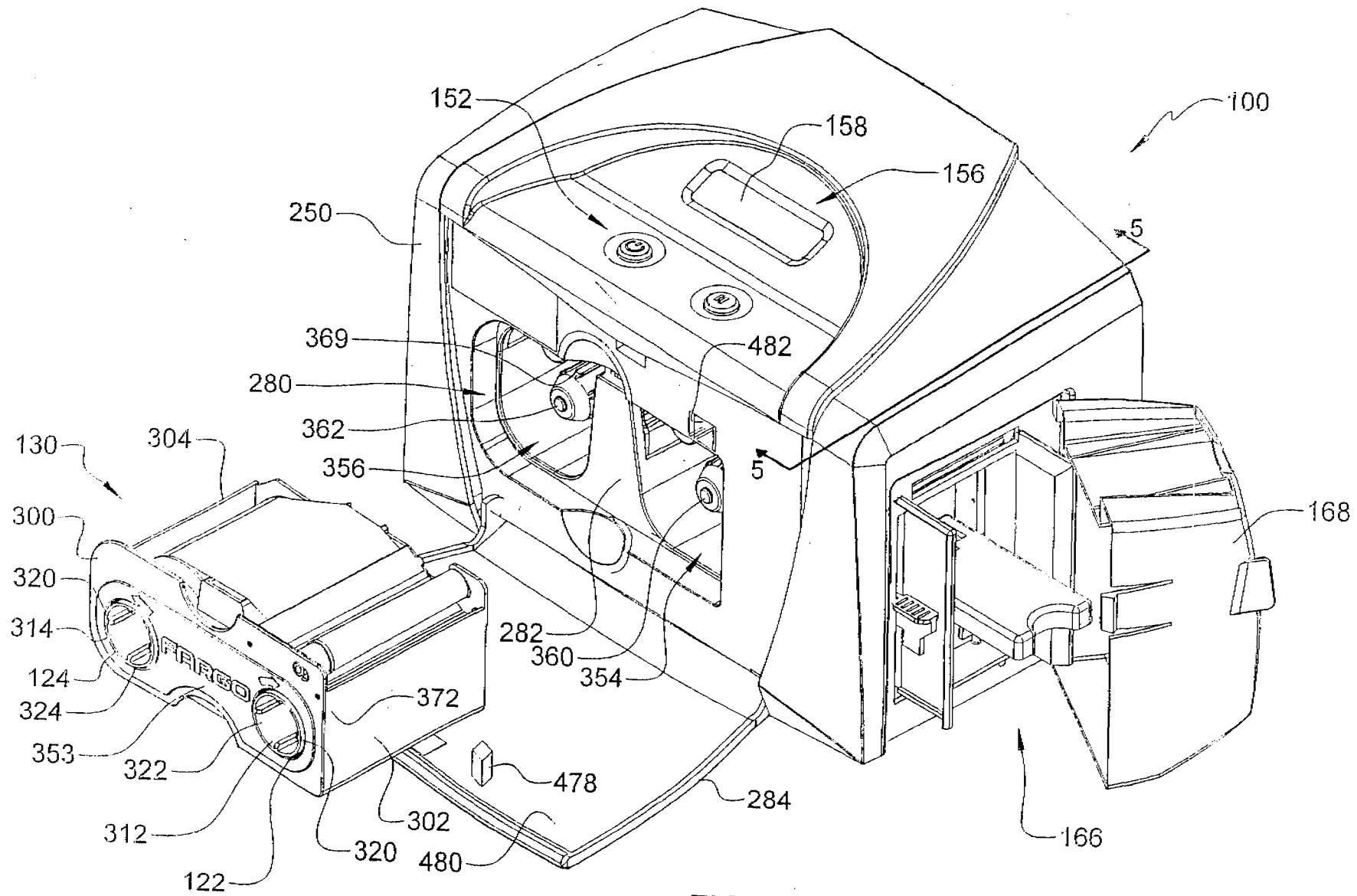


FIG. 4

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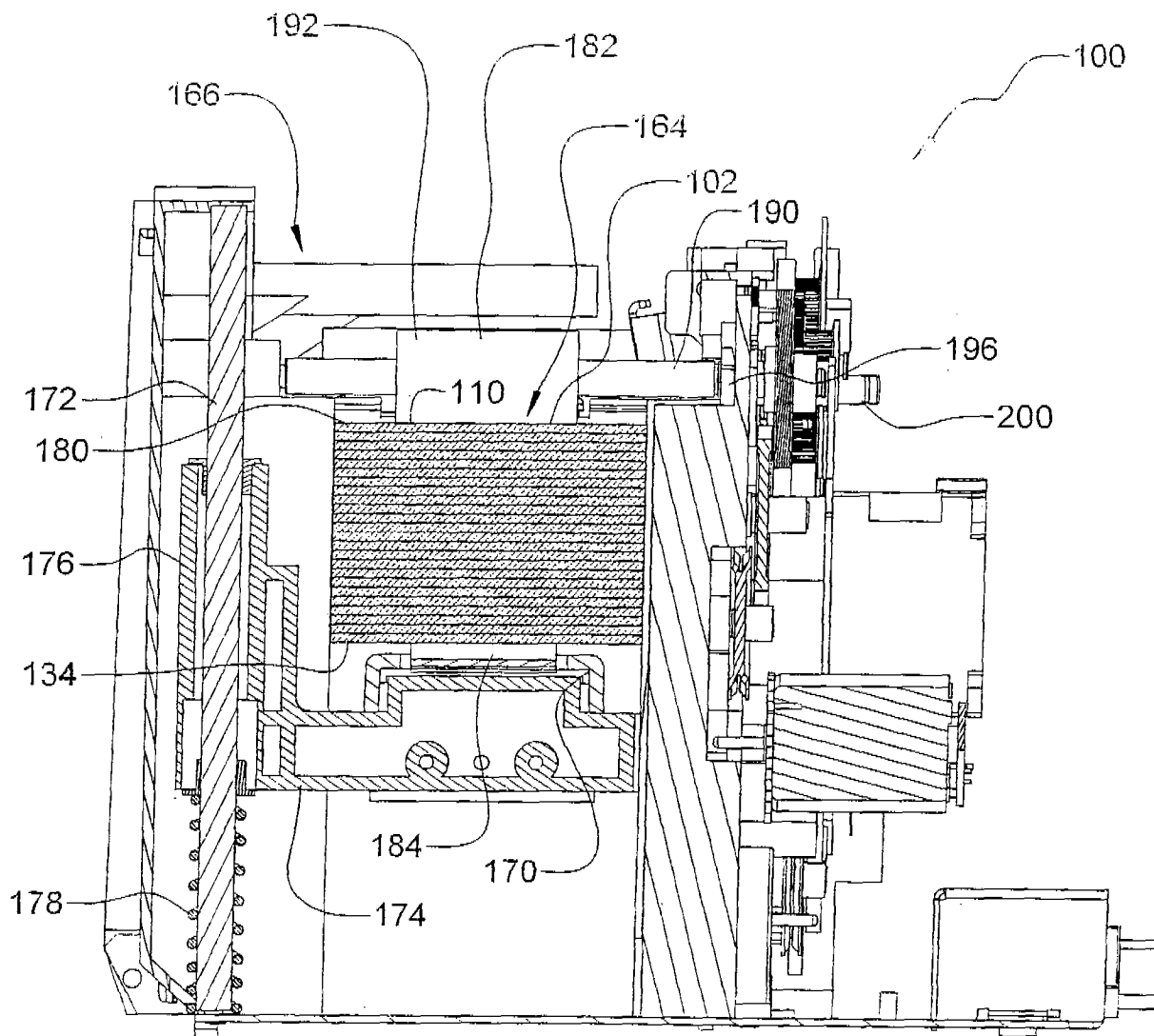
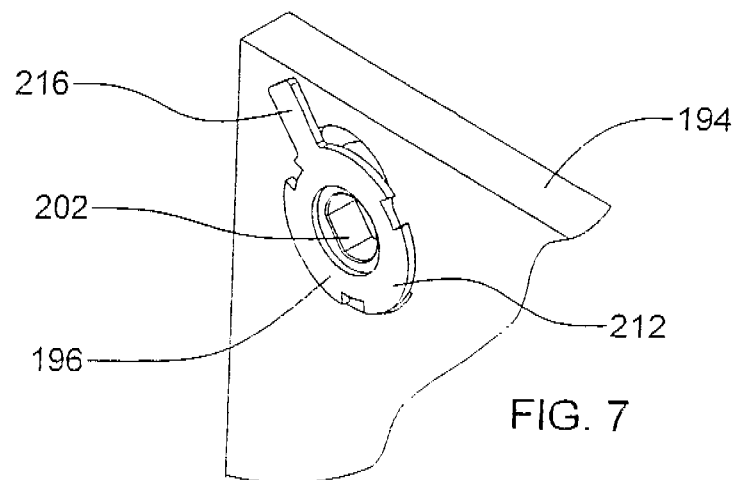
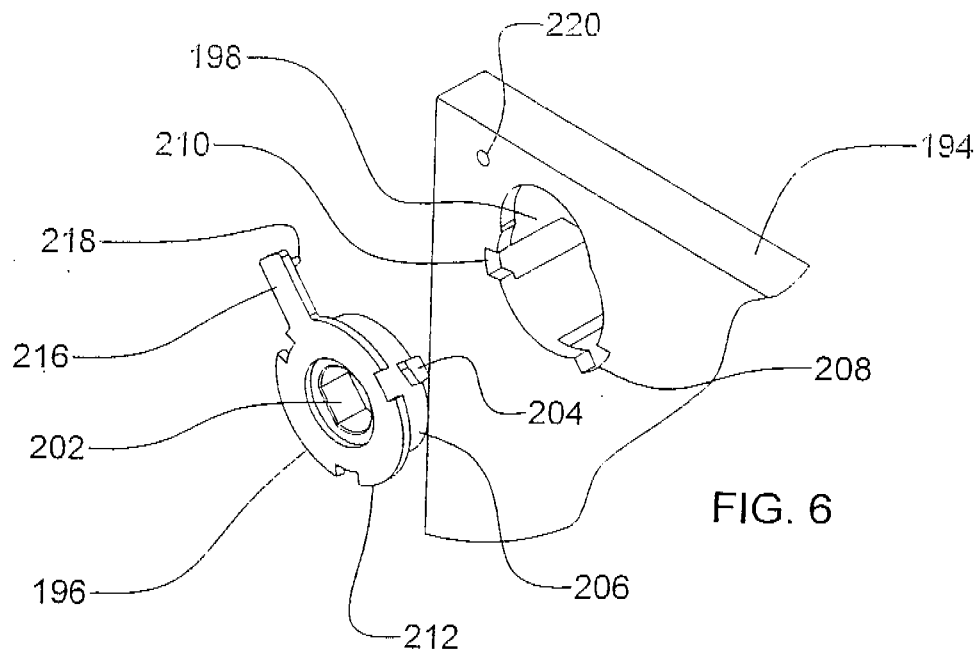


FIG. 5

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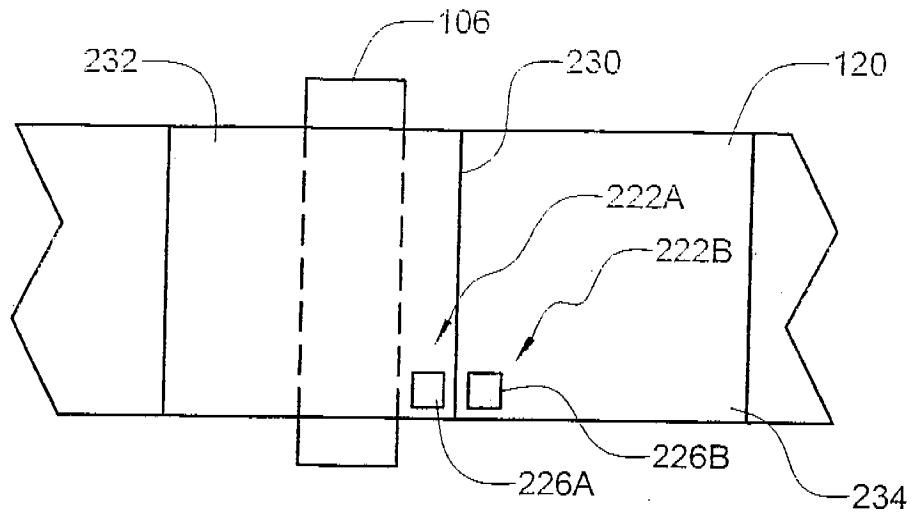


FIG. 8

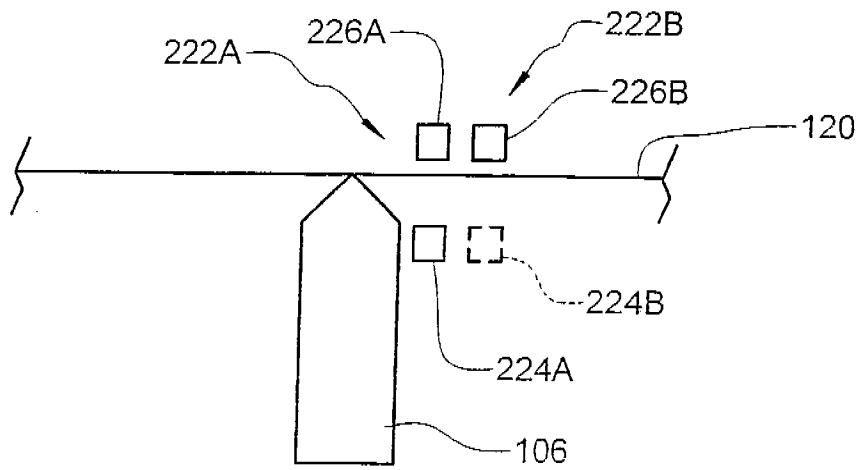


FIG. 9

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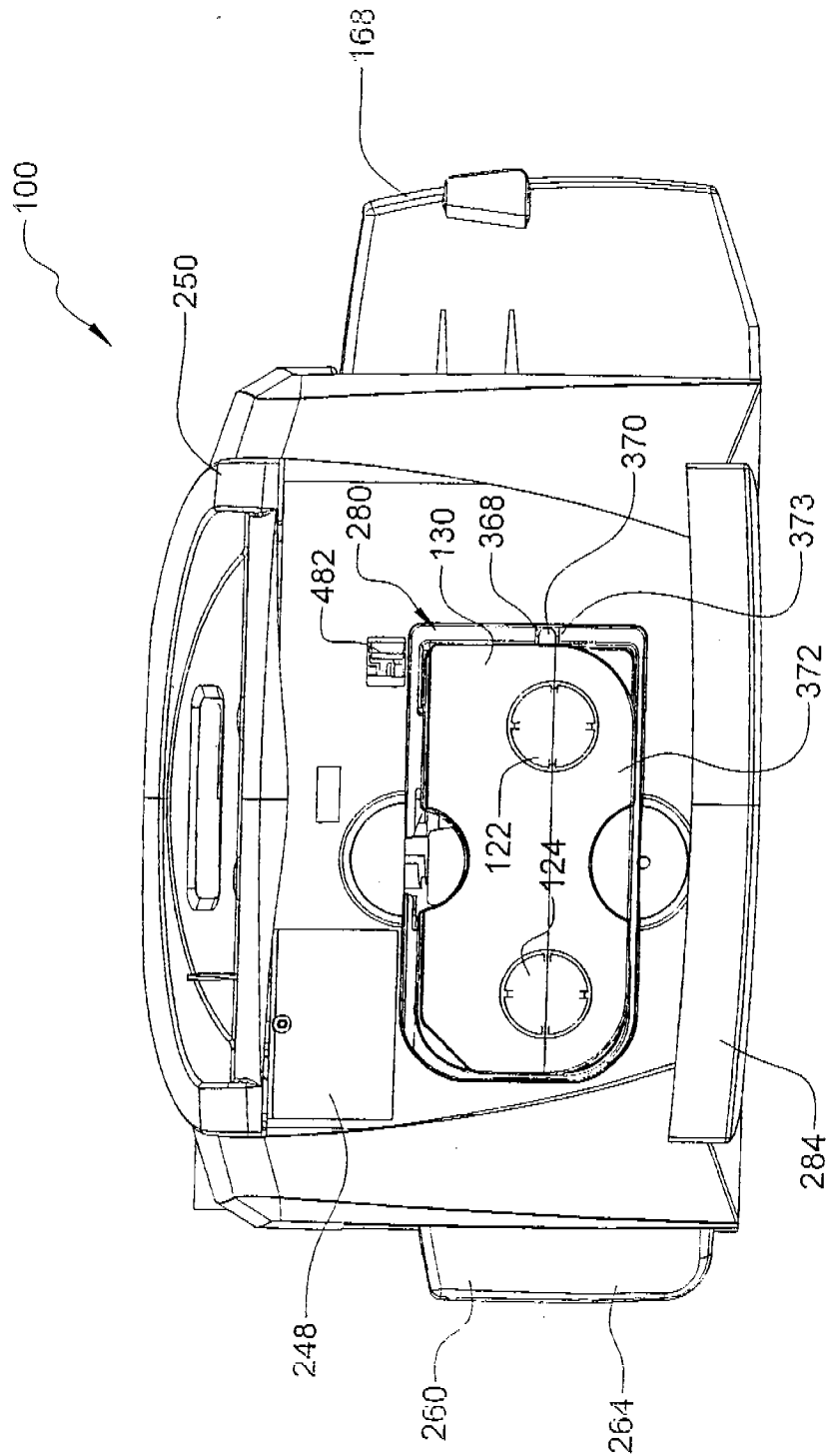


FIG. 10

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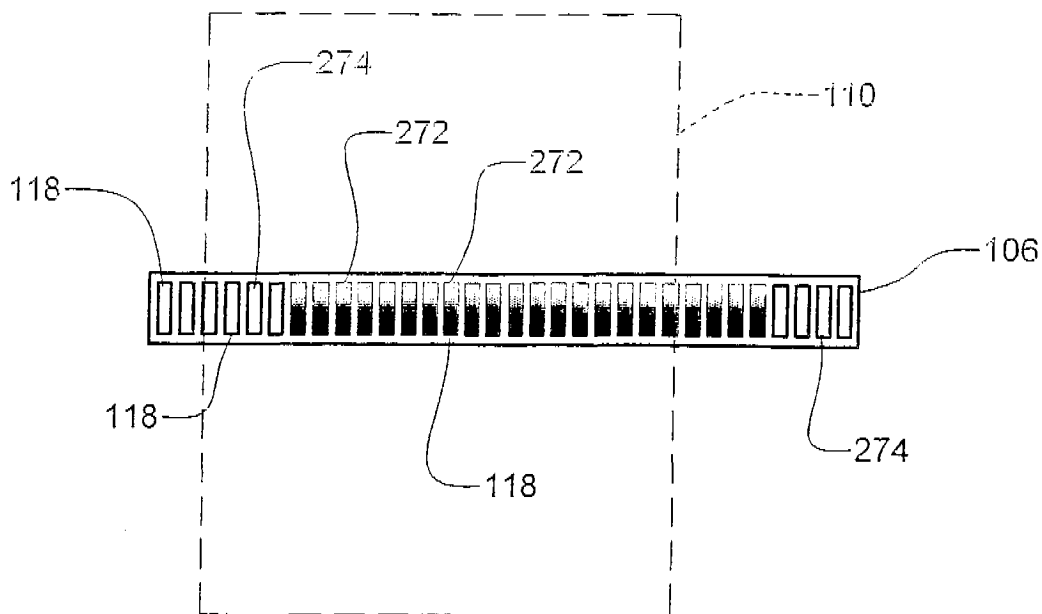


FIG. 11

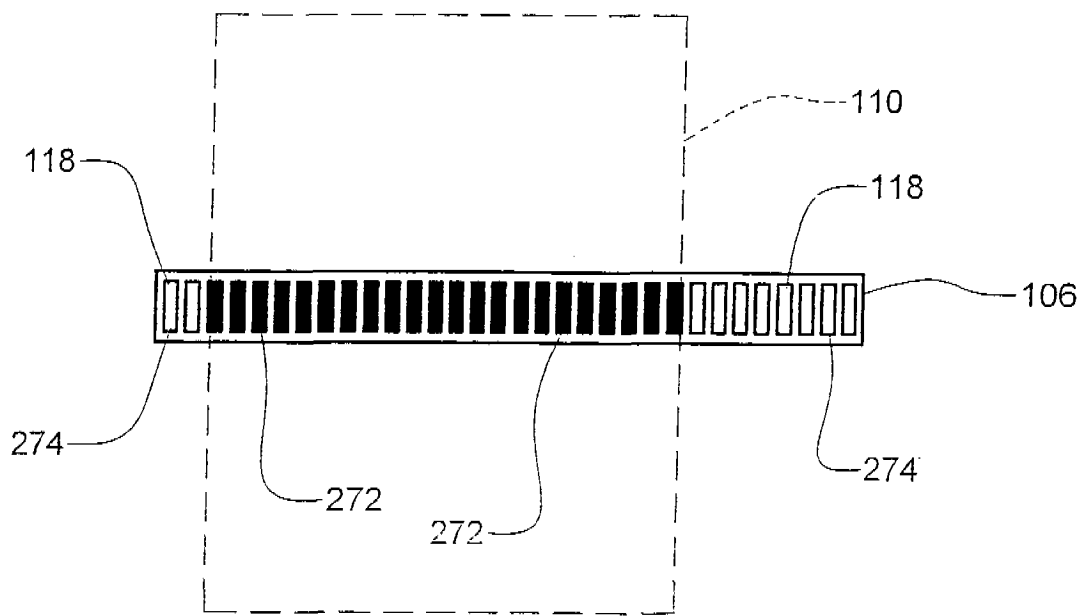


FIG. 12

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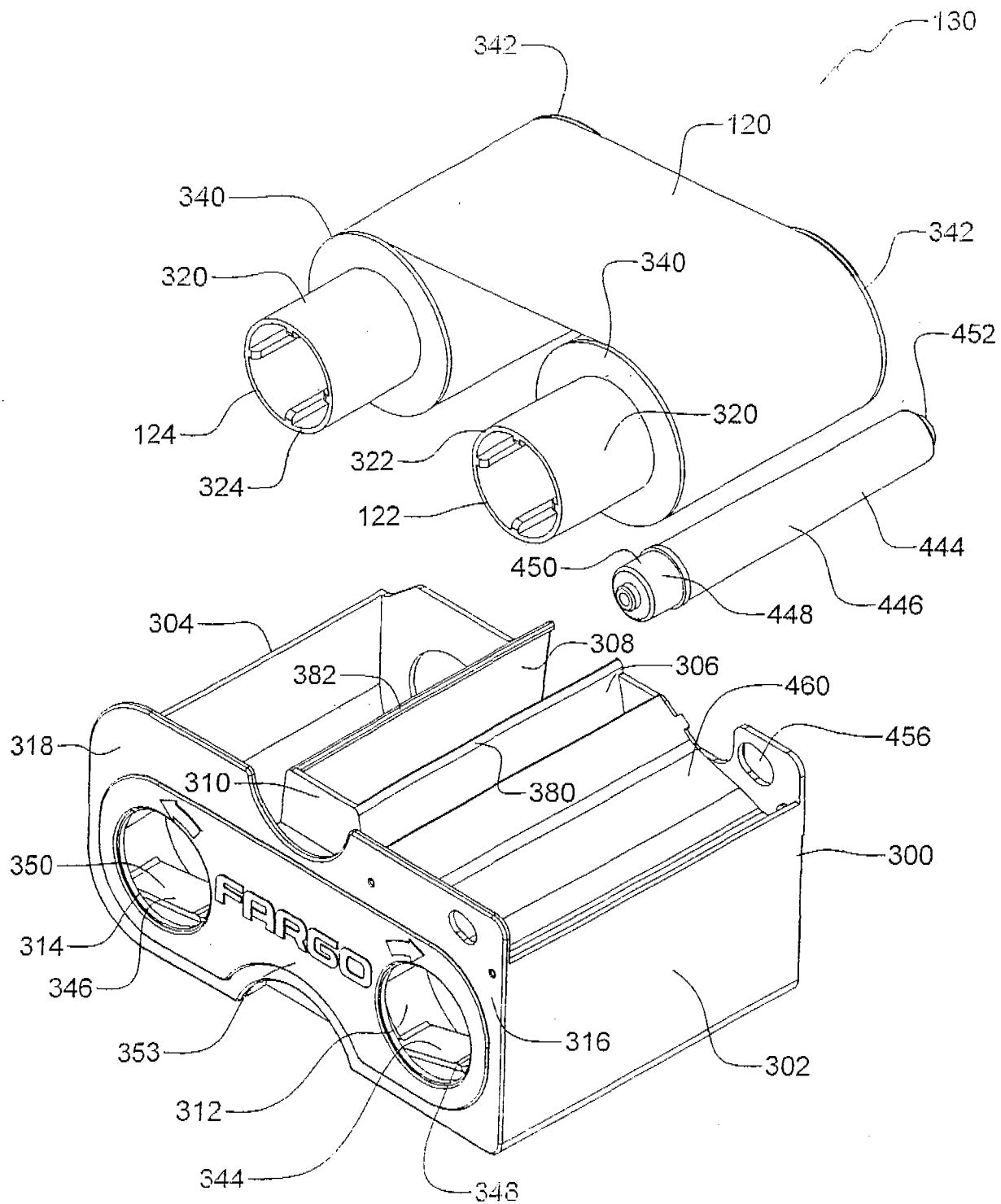
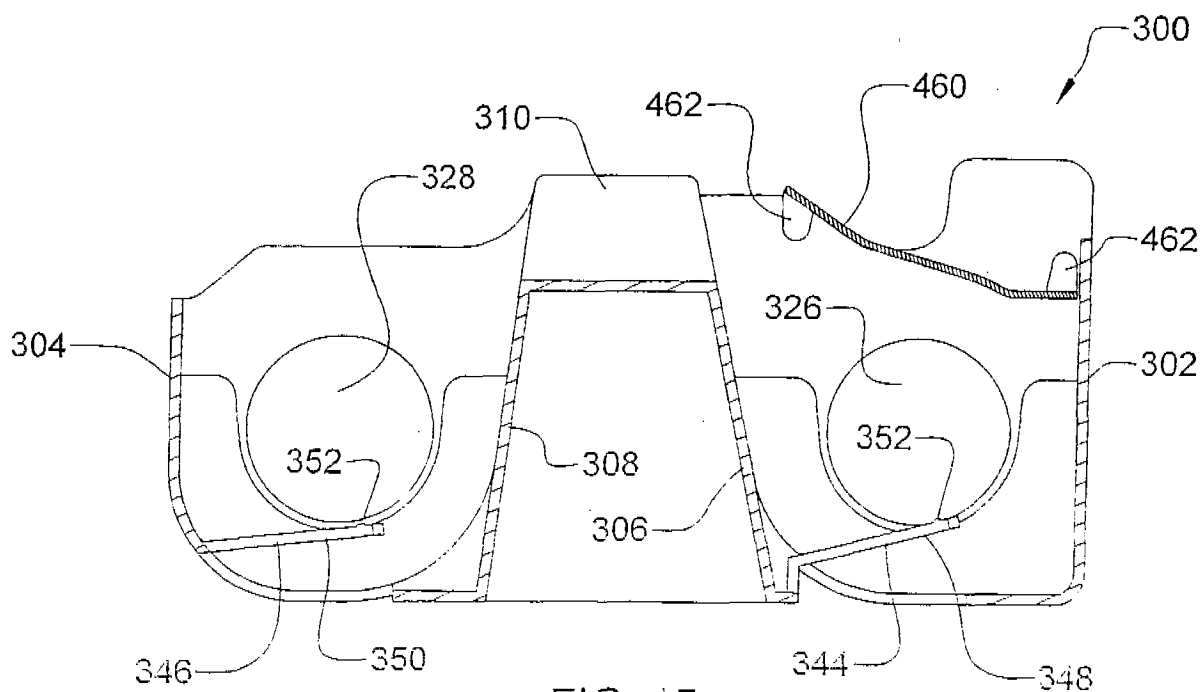
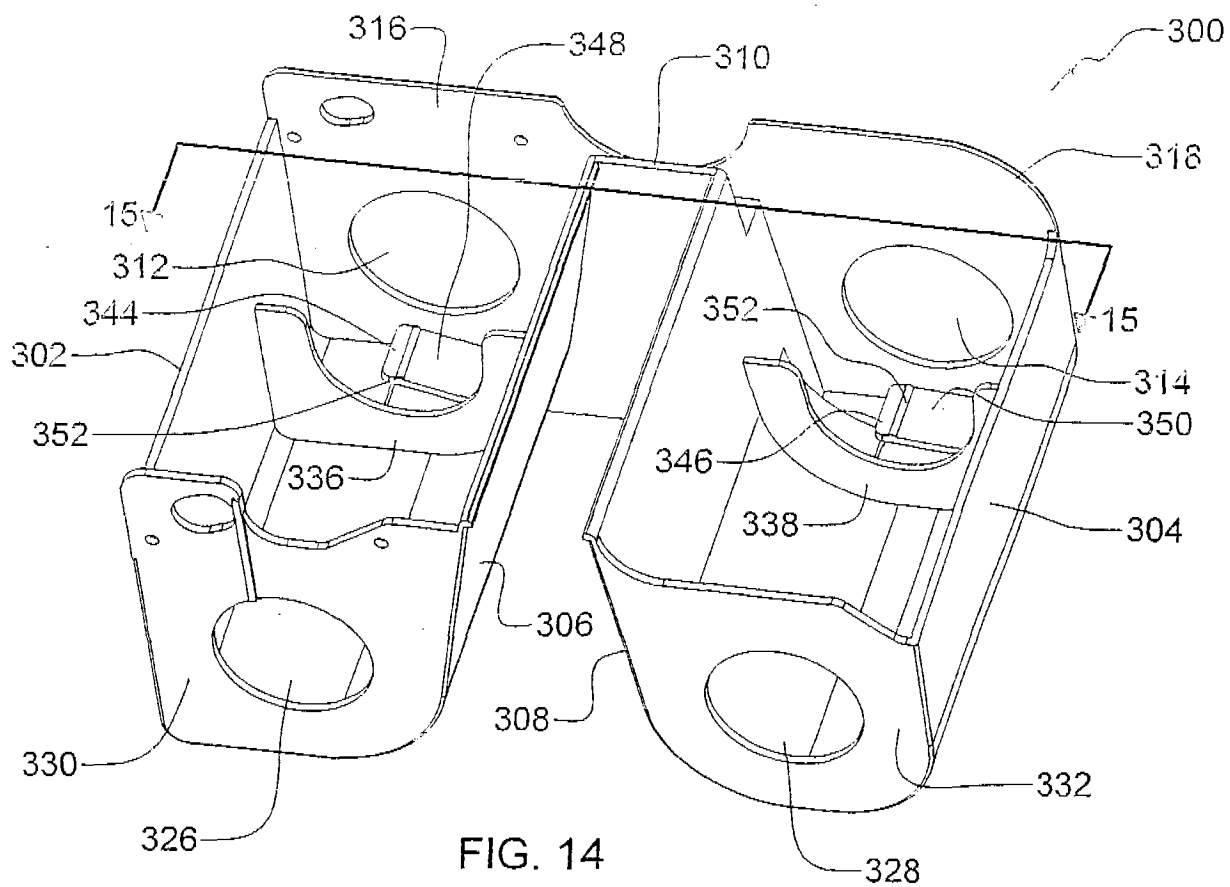
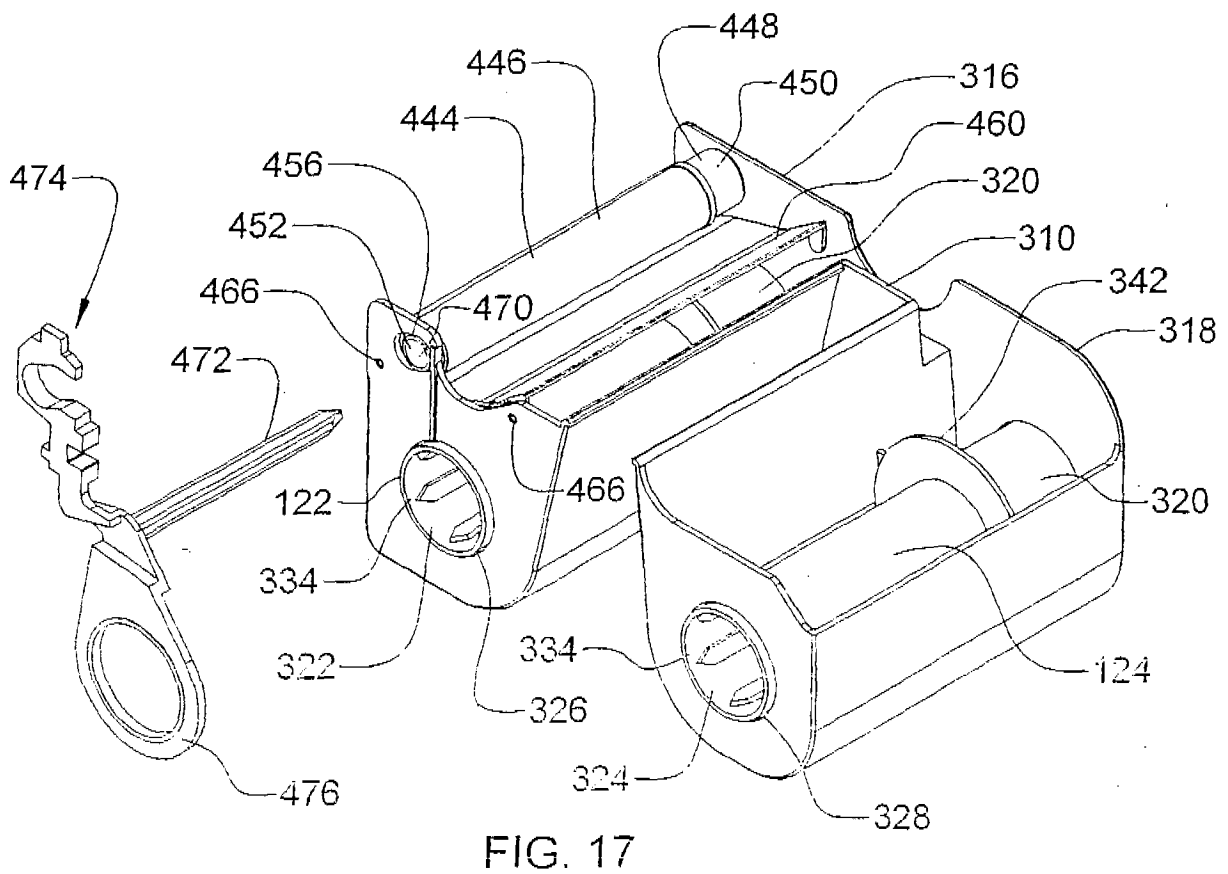
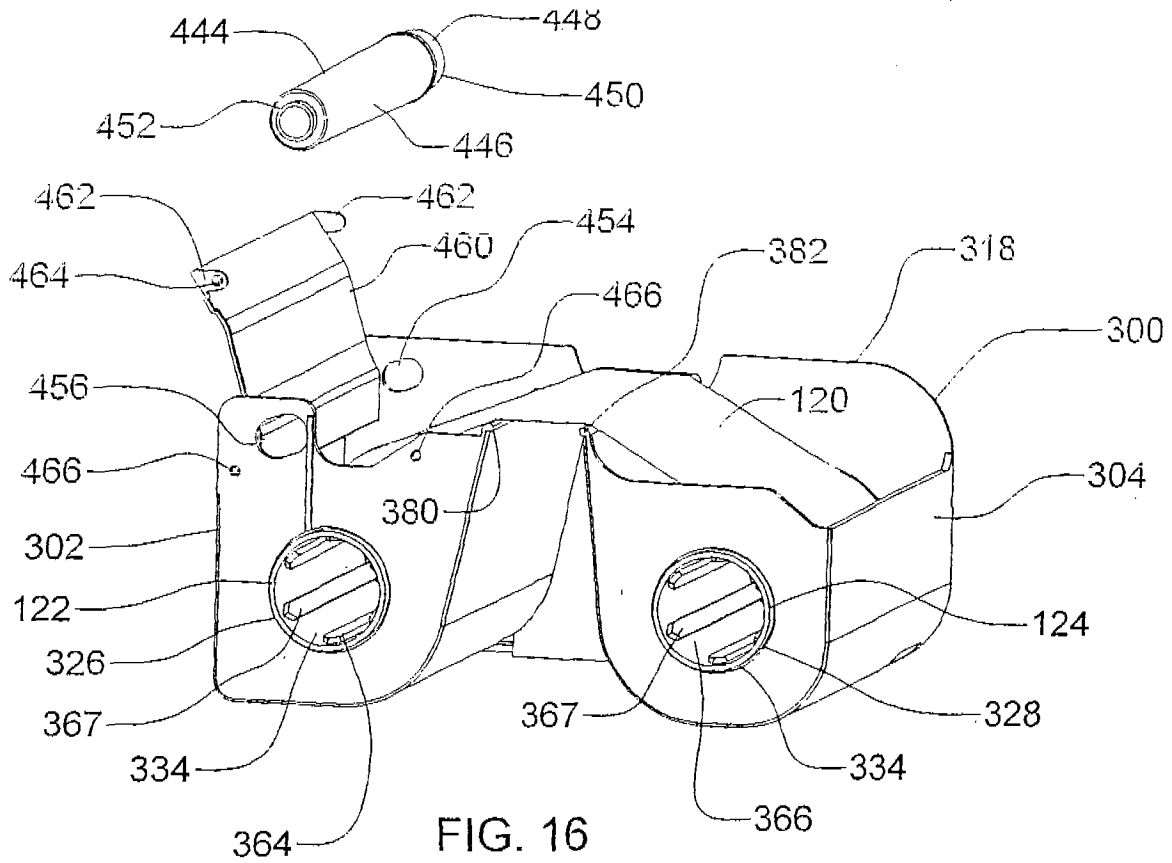


FIG. 13

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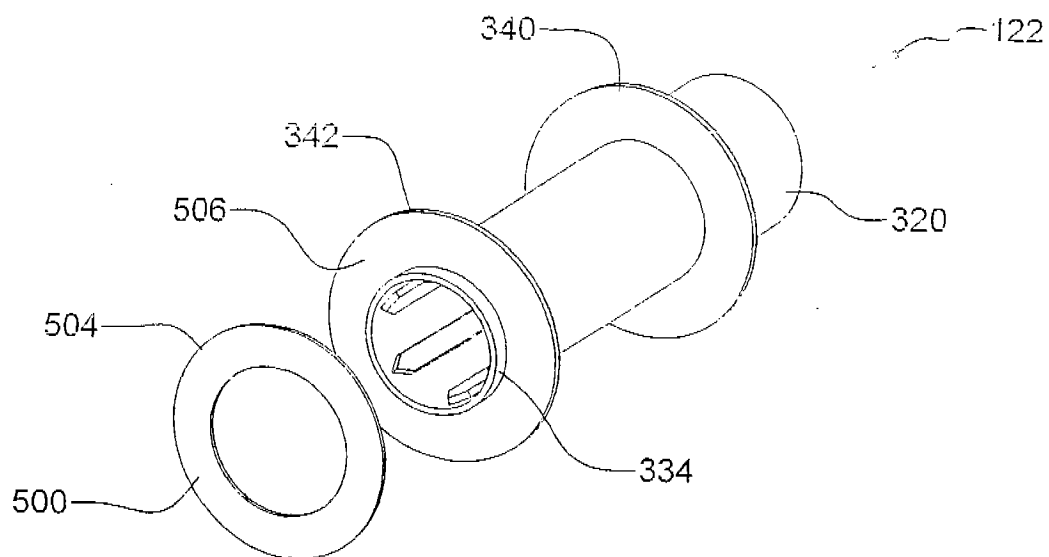


FIG. 18

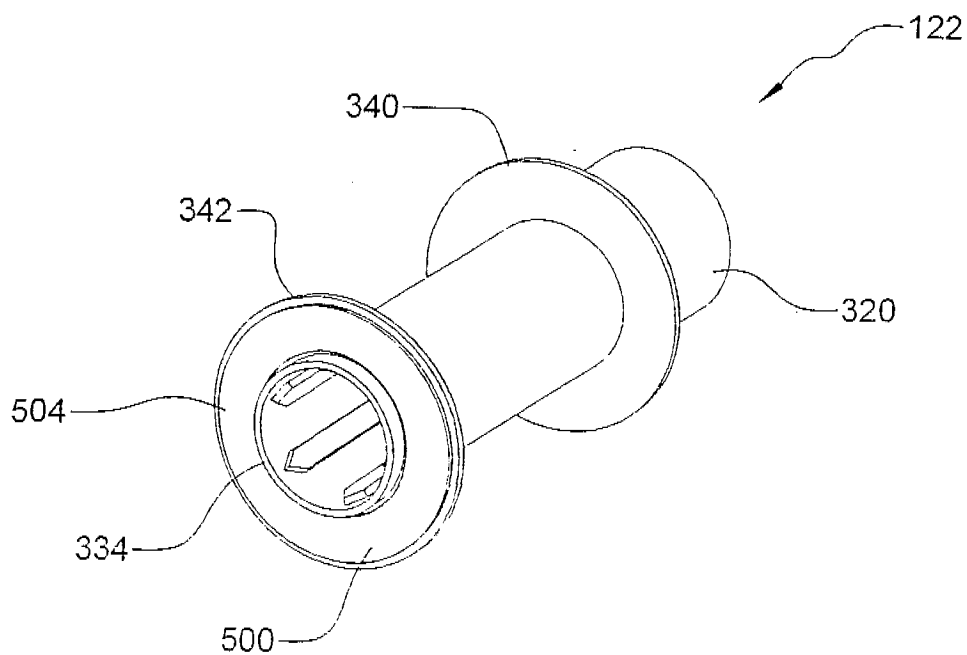


FIG. 19

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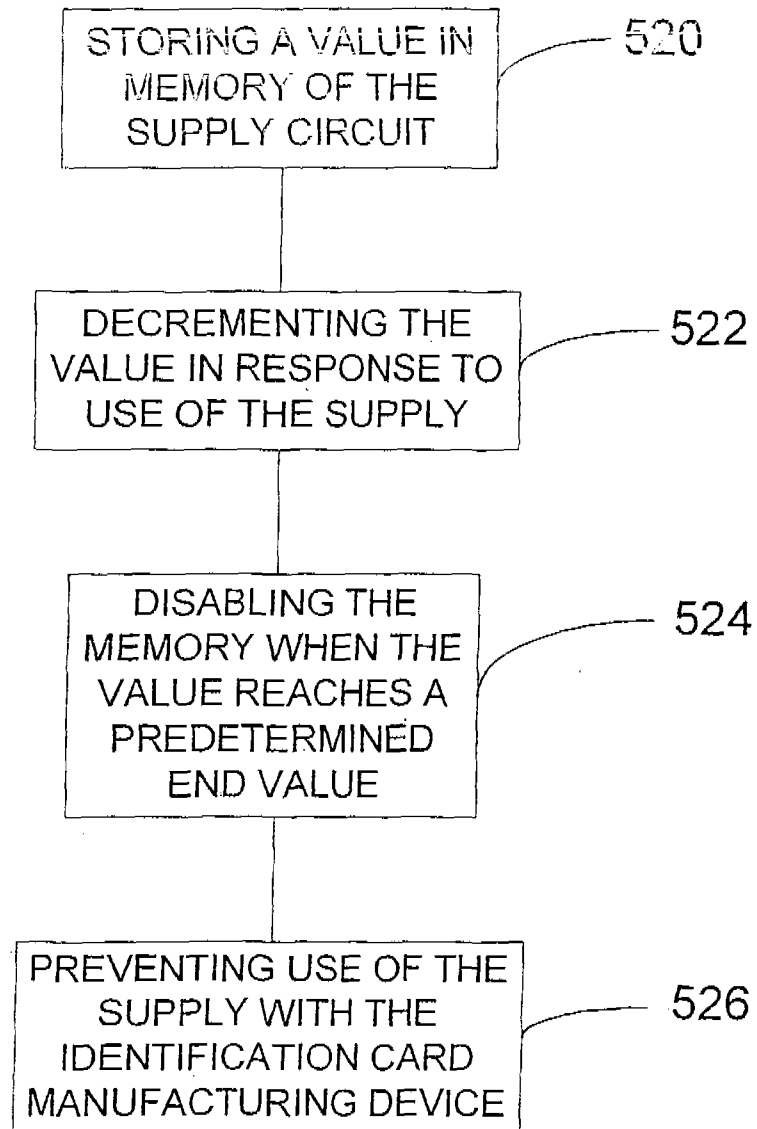


FIG. 20

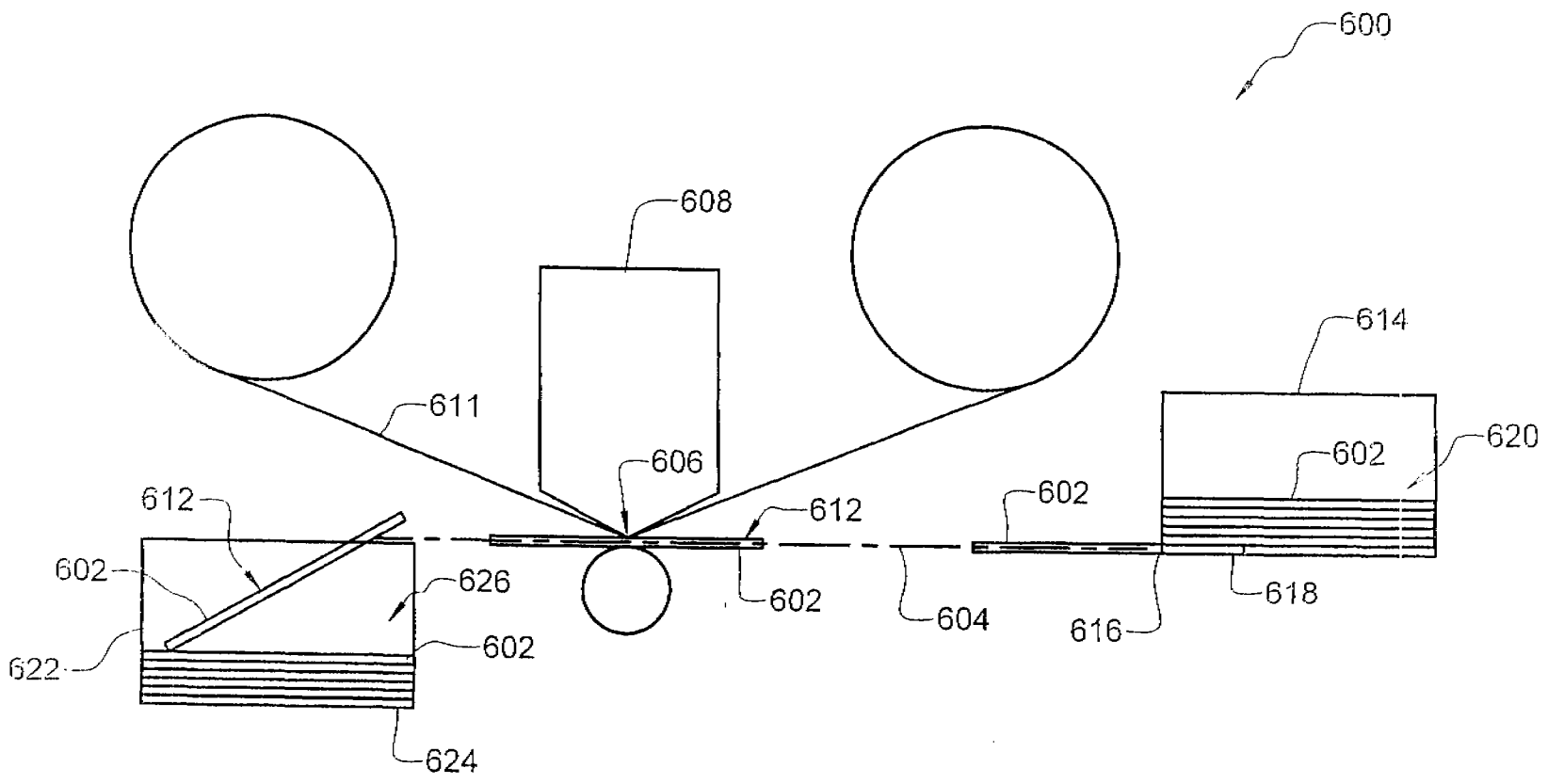


FIG. 21
(PRIOR ART)

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TRATADO DE COOPERACIÓN DE PATENTES

De la OFICINA RECEPTORA

Para:
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MINNEAPOLIS, MINNESOTA 55402-3319

PCT

NOTIFICACIÓN CONCERNIENTE AL PAGO DE LAS CUOTAS PRESCRITAS

(Regla PCT 14,15 Y 16 e instrucciones administrativas, Sección
102bis(c), 304,323(b)707(b),803)

Fecha de envío
(día/mes/año) 07 de Junio de 2004

Archivo de referencia del solicitante F12.13-0116		Fecha de pago Ver ítem 3 para limite de tiempo	
No. de solicitud internacional PCT/US2004/010216	Fecha de solicitud internacional (día/mes/año) ABRIL 2 2004	Fecha prioritaria(día/mes/año) Abril 2 2003	
Solicitante FARGO ELECTRONICS INC.			

- por medio de la presente se notifica al solicitante que la Oficina Receptora ha recibido:
☒ el pago de todas las cuotas, y un sobrepago que será reembolsado a su debido tiempo
☐ Pago insuficiente o no pago de la cuota prescrita y se invita al solicitante a cancelar el saldo, como se indica en el ítem 2. dentro del tiempo limite que se indica en el ítem 3.
- Calculo de pagos y cuotas
2,170.00

Total cuotas a pagar	Cantidad pagada	Saldo
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☐ Se anexan los detalles del calculo
- Limite(s) de tiempo y cantidad a pagar (Regla 14.1, 15.4). y 16.1 (f)):
☐ Dentro del mes siguiente a la fecha de recepción de la solicitud Internacional (para el costo de tramite(si es necesario), el costo de la búsqueda y del archivo internacional). La cantidad a pagar por cada cuota es la cantidad aplicable en la fecha en que se recibe la solicitud internacional.
☐ Dentro de los 16 meses siguientes a la fecha de prioridad (sólo para documentos de prioridad). Se le notifica al solicitante que la solicitud hecha bajo la Regla 17.1(b) no será procesada si el pago no se hace dentro del limite de tiempo especificado.
- Observaciones adicionales (si son necesarias)
☐ La copia de búsqueda no se le entregara a la autoridad de búsqueda internacional hasta que el pago correspondiente a la búsqueda se cancele(en consecuencia) la búsqueda internacional se retrasa. Regla 23.1(a) y (b).

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TRATADO DE COOPERACION DE PATENTES

PCT

PRIMER AVISO INFORMANDO AL SOLICITANTE DE LA COMUNICACIÓN DE LA SOLICITUD INTERNACIONAL (PARA OFICINAS DESIGNADAS QUE NO APLICAN EL LIMITE DE TIEMPO DE LOS 30 MESES BAJO EL ARTICULO 22(1))

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(REGLA PCT 47.1(c))

Fecha de envío (día/mes/año) Noviembre 4 2004(4.11.2004)	
Archivo de Referencia del Agente o Solicitante F12.13-0116	NOTIFICACIÓN IMPORTANTE
No.de solicitud Internacional PCT/US2004/010216	Fecha de solicitud internacional (día/mes/año) 2 de abril de 2004 (02.04.2004)
	Fecha de prioridad 2 de abril de 2003 (2.04.2003)
Solicitante FARGO ELECTRONICS, INC.	

1. ATENCION: Para cualquier oficina designada(s), para la cual el tiempo limite bajo el artículo 22(1), vigente desde abril 1 de 2002 (30 meses desde la fecha de prioridad) aplica, por favor lea la forma PCT/IB/308 (segundo aviso y suplementario) (para ser emitido rápidamente luego de la expiración de 28 meses desde la fecha de prioridad).
2. El Aviso dado por medio de la presente por el las oficina(s) designada(s) a continuación, para las cuales el tiempo limite bajo el artículo 22(1), vigente desde 1 de abril de 2002, no aplica, tuvo o tiene solicitud de la comunicación de la solicitud internacional como está provista en el artículo 20, tendrá efectos bajo la *regla 93Bis1*. La Agencia Internacional ha efectuado esa comunicación en la fecha indicada abajo:

21 de Octubre de 2004 (21.10.2004)

i. CH

De acuerdo con la regla 47.1 (c-bis) (i), aquellas oficinas que aceptaran el presente aviso como evidencia concluyente que la comunicación de la solicitud internacional ha tomado debidamente lugar en la fecha de envío indicada arriba y no requiere copia de la solicitud internacional para ser provista por el solicitante a la(s) oficina(s) designada(s).

3. Las siguientes oficinas designadas para las cuales el tiempo limite bajo el artículo 22(1), vigente desde 1 de abril de 2002, no aplica, no ha solicitado, al tiempo del envío por correo de la presente notificación, que la comunicación de la solicitud internacional pueda ser efectuada bajo Regla 93bis 1.

FI, LU, SE, TZ, UG, ZM

De acuerdo con la Regla 47.1 (c.bis) (ii), aquellas Oficinas aceptan la presente notificación como evidencia contundente que el Estado Contratante, para el cual la Oficina actúa como Oficina designada no requiere que se le proporcione, bajo el Artículo 22, por el solicitante de una copia de la solicitud internacional.

4. LIMITES DE TIEMPO para la entrada en la fase nacional.

Para la(s) Oficina(s) designadas, listadas arriba y a menos que una solicitud para examinación preliminar internacional, haya sido presentada antes del vencimiento de los 19 meses contados desde la fecha de la prioridad (ver Artículo 39(1)), el termino aplicable para entrar a la fase nacional será, sujeto a lo que sea establecido en el siguiente párrafo, de 20 MESES desde la fecha de prioridad.

En la práctica, los límites de tiempo distintos al término de los 20 meses, continuará aplicándose por varios periodos de tiempo, en relación con algunas de las Oficinas designadas, listadas arriba. Para actualizaciones normales respecto de los límites aplicables (20 o 21 meses, u otro limite de tiempo), Oficina por Oficina, se refieren a la *Gaceta PCT*, el *Boletín PCT* y la *Guía de Solicitante PCT*, Volumen II, Capítulos Nacionales, todos disponibles en el sitio de Internet de la OMPI, <http://www.wipo.int/pct/en/index.html>.

Es responsabilidad exclusiva del solicitante monitorear estos limites de tiempo.

La Agencia Internacional WIPO 34, chemin des Colombettes 1211 Ginebra 20, Suiza	Oficial Autorizado ATHINA NICKITAS-ETIENNE
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or semi-rigid card substrates 110 that could damage cards 110.

Card transport 104 includes card feed rollers 114 that are driven by a motor 116 through gear and pulley arrangements. It should be understood that separate motors can be used in different stages of card delivery through printer 100. For example, one motor 116 can be used to drive the feeding of card 110 through input 102, and another motor 116 can be used to drive the feeding of card 110 thereafter through printer 100. Card feed rollers 114 drive card 110 along print path 112. Card support plates or rails (not shown) can also be used to provide support to card 110 during transport along print path 112 by card transport 104.

Printhead 106 is positioned below print path 112 and includes upwardly facing print elements 118. A supply of thermal print ribbon 120 extends between a supply spool 122 and a take-up spool 124, across a gap 126, in which printhead 106 is positioned, and over print elements 118. Supply and take-up spools 122 and 124 are preferably positioned adjacent opposite sides of printhead 106 and below print path 112. As will be discussed in greater detail below, print ribbon 120 can be contained in a removable ribbon cartridge 130 illustrated in partial cross-section in FIG. 3.

During a printing operation, card 110 is fed by card transport 104 between print ribbon 120 and a

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platen 132. Pressure is applied to print ribbon 120 and a bottom-facing print surface 134 of card 110 by platen 132 and printhead 106. Print elements 118 are selectively energized to heat portions of print
5 ribbon 120 in contact therewith to cause print material or dye from print ribbon 120 to transfer to surface 134 of card 110 to form the desired image thereon. The printed card 110 can then be discharged through card output 108.

10 Printer 100 includes a controller 140 that is configured to control the operations of printer 100 including one or more motors 116 driving card feed rollers 114 of card transport 104, one or more motors 142 controlling feeding of print ribbon 120 between
15 supply and take-up spools 122 and 124, the selective energization of print elements 118 of printhead 106, and other components of printer 100, in response to a print job provided by a card producing application 144. It should be understood that motors 116 and 142
20 of FIG. 2 provide a simplified illustration of the means by which card transport 104 and supply and take-up rolls 122 and 124 are driven. Fewer or additional motors can be used as desired. Additionally, motors 116 and 142 can operate to drive
25 different components than those depicted in FIG. 2. For example, motor 142 can be configured to drive take-up roll 124 rather than supply roll 122.

Card producing application 144 can run on a computer 146, or be contained in printer memory 148

No. de solicitud internacional
PCT/US2004/010216

(T) Tasa de tramite

Cantidad prescrita.....300.00^T

Cantidad cancelada.....300.00

Saldo.....0.00

☒ Cantidad correcta☐ Sobre pago☐ Saldo

(S) Tasa de Búsqueda

Cantidad prescrita.....300.00^S

Cantidad cancelada.....1.000.00

Saldo.....700.00

(I) Tasa de archivo Internacional

Cuota fija para las primeras 30 hojas.....1.134.00ⁱ¹33 x 12.00 = 396.00ⁱ²

Numero de hojas Tarifa por hoja

En exceso de 30

Componentes adicionales 400 X 0.00=..... 0.00ⁱ³Reducciones donde la solicitud Internacional se
archivo.(Ver la Guía del Solicitante, Volumen I, Parte General
para los detalles sobre esta reducción):

uso del software PCT-

EASY.....0.00^r

o

formato electrónico donde el texto de la
descripción, reivindicaciones,
o resumen no están en formato
de código de caracteres..........0.00^r

o

formato electrónico donde el texto de la descripción
reivindicaciones o resumen esta en
formato de código decaracteres.....0.00^r

sub-

total.....1,530.00^{i1+i2+i3-r}☐ Cantidad correcta☒ Sobre pago☐ Saldo☒ Cantidad correcta☐ Sobre pago☐ SaldoCantidad total prescrita (La cantidad en I es el sub-total
en (i1+i2+i3-r), a excepción de donde las solicitudes
tienen derecho a una reducción del 75%, en tal caso la
cantidad en I es 25% del sub-total (i1+i2+i3-r).Algunas solicitantes de algunos Estados tienen derecho
a una reducción del 75% de la Tasa de archivoInternacional; ver las notas en la hoja de calculo
anexada al Formato de Solicitud PCT/RO/101 para
detalles. 1,530.00^r

Cantidad

pagada.....1,530.00

Saldo.....0.00

☒ Cantidad correcta☐ Sobre pago☐ Saldo^P Tasa para el Documento de PrioridadCantidad prescrita.....40.00^P

Cantidad cancelada.....40.00

Saldo.....0.00