US007043173B2

(12) **United States Patent**
Grune et al.

(10) **Patent No.: US 7,043,173 B2**
(45) **Date of Patent: May 9, 2006**

(54) **TONER HOPPER ENGAGEMENT DEVICE, A TONER CONTAINER, AND A TONER REFILL KIT**

(76) Inventors: **Guerry L. Grune**, 784 Villier Ct., Virginia Beach, VA (US) 23452; **Richard Irving Stow, II**, 8102 Roanoke Ave., Hampton, VA (US) 23605 1638

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/787,134**

(22) Filed: **Feb. 27, 2004**

(65) **Prior Publication Data**

US 2005/0191085 A1 Sep. 1, 2005

(51) **Int. Cl.**
G03G 15/08 (2006.01)

(52) **U.S. Cl.** **399/106**; 222/DIG. 1; 399/120; 399/262

(58) **Field of Classification Search** 222/DIG. 1; 399/120, 258, 260, 261, 262, 263, 106
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,942,432	A	7/1990	Mort et al	
5,089,854	A	2/1992	Kaieda et al	
6,209,995	B1	4/2001	Grune et al.	
6,314,262	B1 *	11/2001	Kunihiro et al	399/258
6,421,518	B1 *	7/2002	Floyd et al	399/258

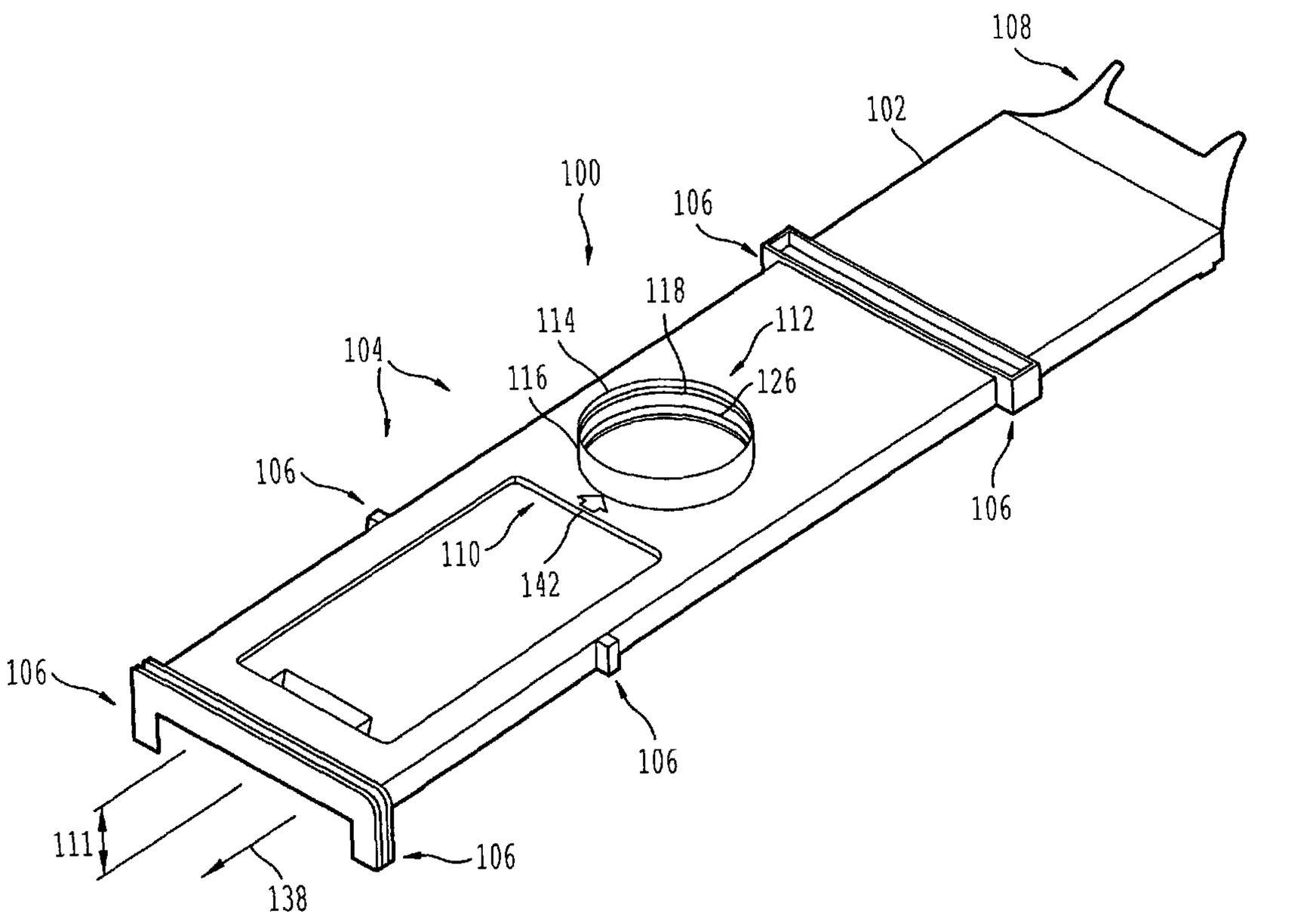
* cited by examiner

Primary Examiner Hoang Ngo
(74) *Attorney, Agent, or Firm*—Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

(57) **ABSTRACT**

A hopper engagement device includes a base member having an orifice releasably engaging with a toner container. The orifice is provides an interference fit with an opening of the container. The engagement device includes a sealing member on the container wherein the sealing member includes an adhesive portion configured to engage an outer surface of a lid. When the lid is opened, the sealing member is peeled off from an opening of the container. A toner refilling kit includes a hopper engagement device having an orifice and a toner hopper container having a removable sealing member having an adhesive portion. The adhesive portion engages an outer surface of a hopper cover when the container engages the hopper engagement device. A toner container includes an opening and a sealing member attached to the opening. A refill kit includes a base member having an orifice and a toner container.

33 Claims, 9 Drawing Sheets



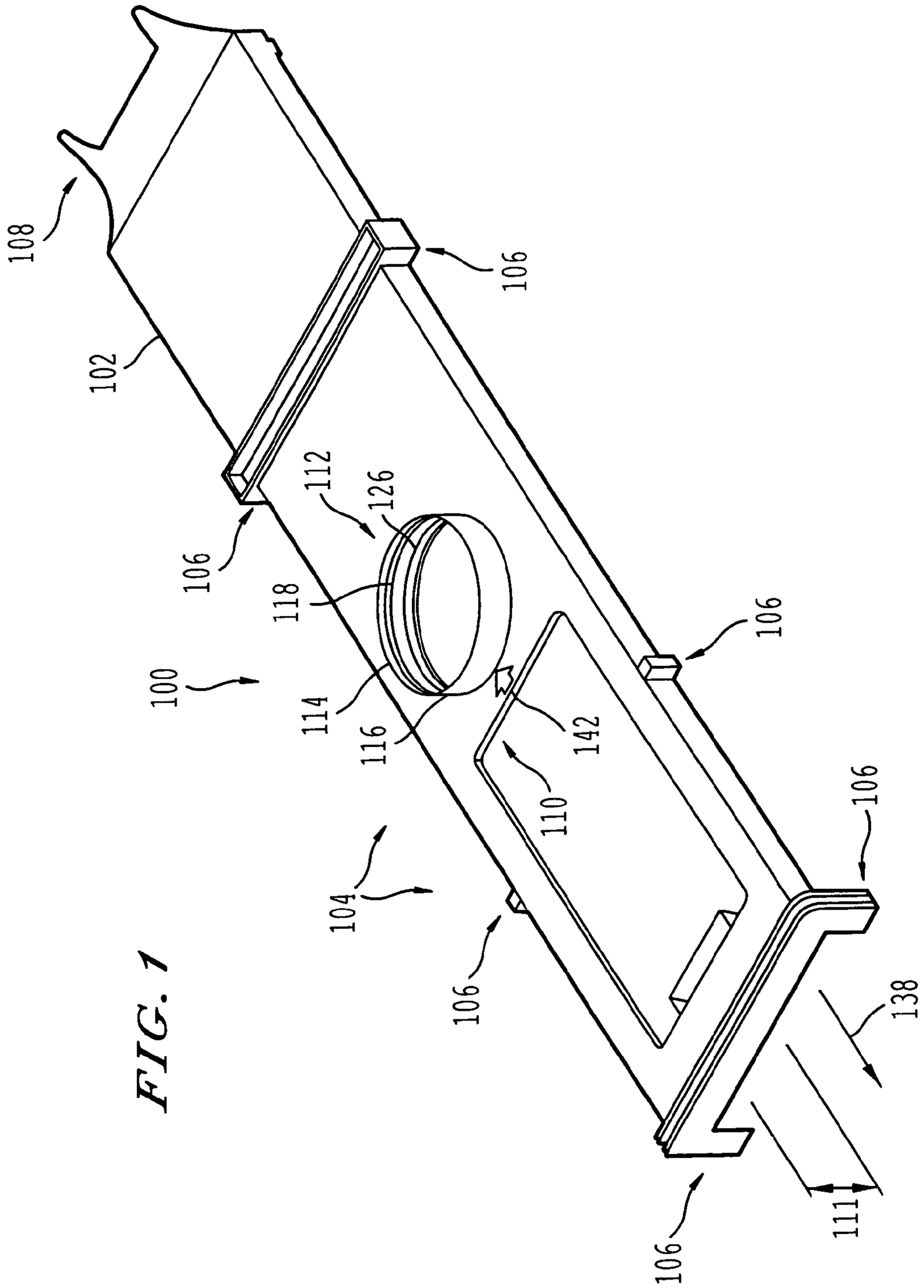

108
102
106
106
112
126
118
100
114
116
142
106
110
106
104
106
138
111
106

FIG. 1

FIG. 2

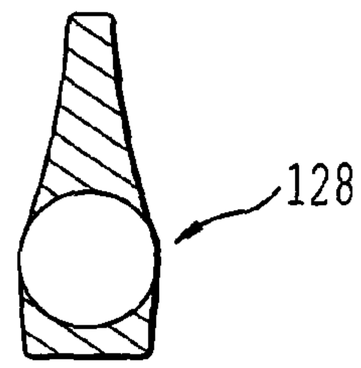


FIG. 3

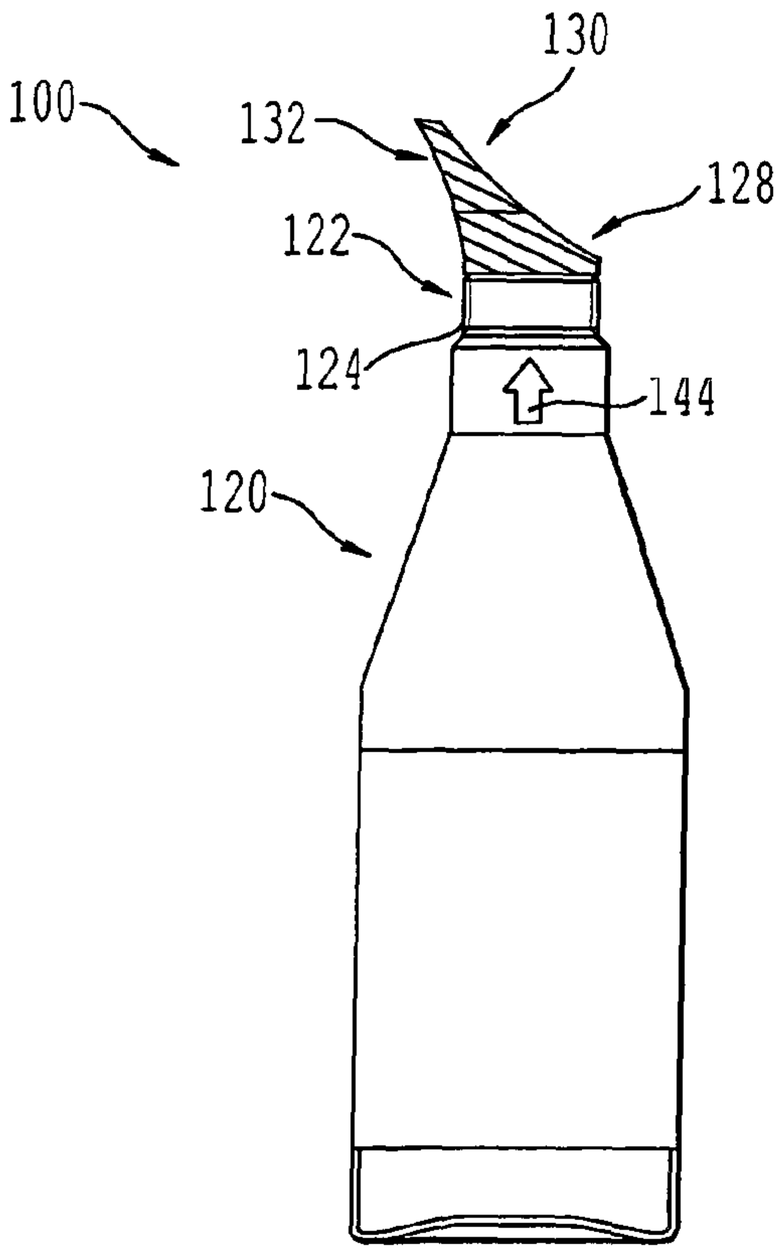


FIG. 4

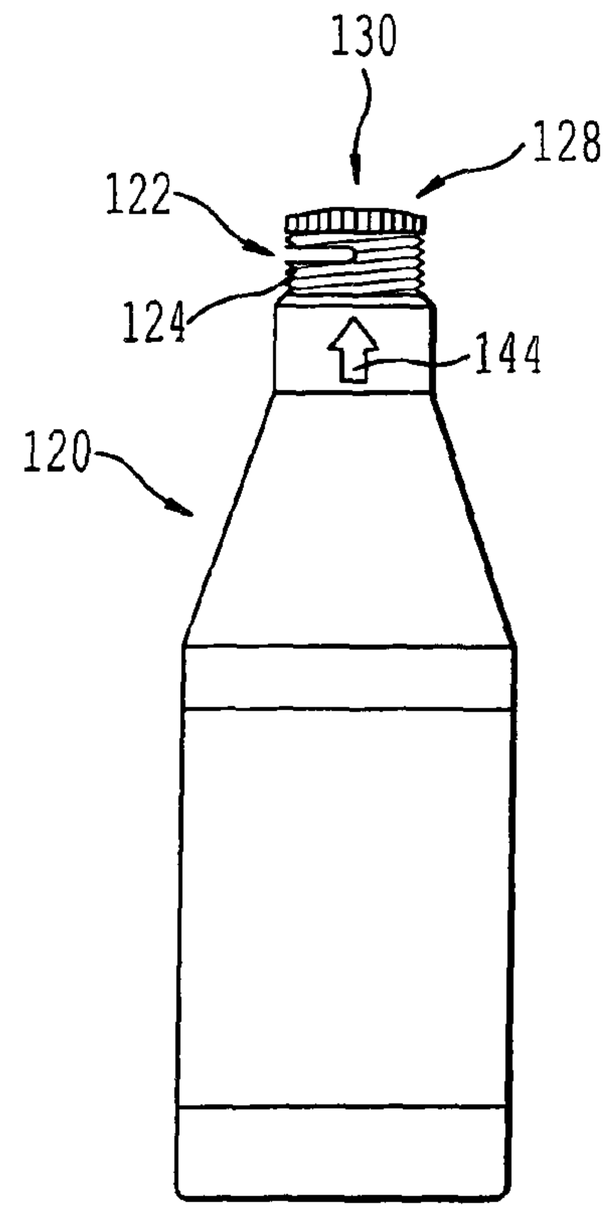


FIG. 5

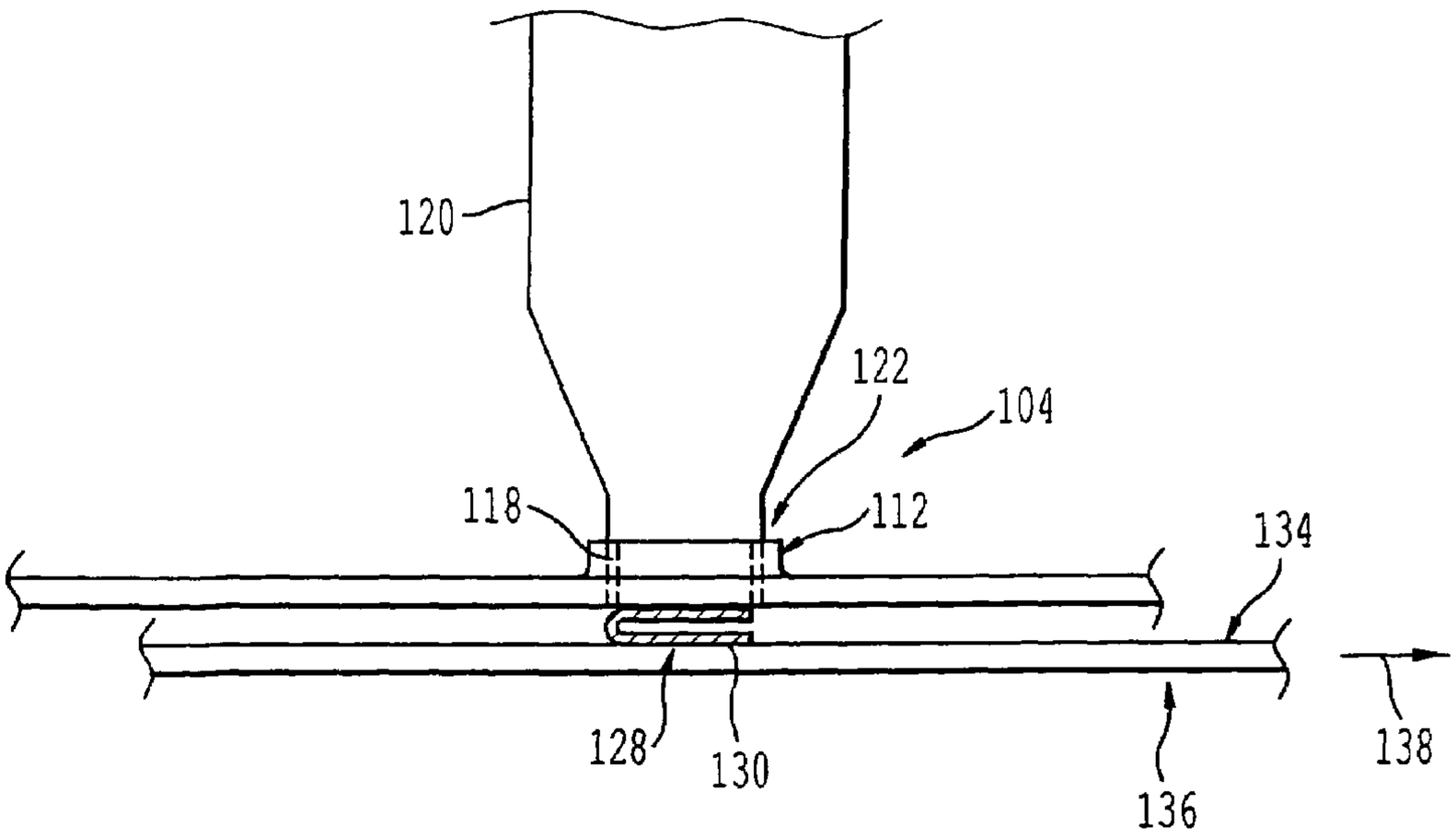

120
122
104
118
112
134
128
130
136
138

FIG. 6

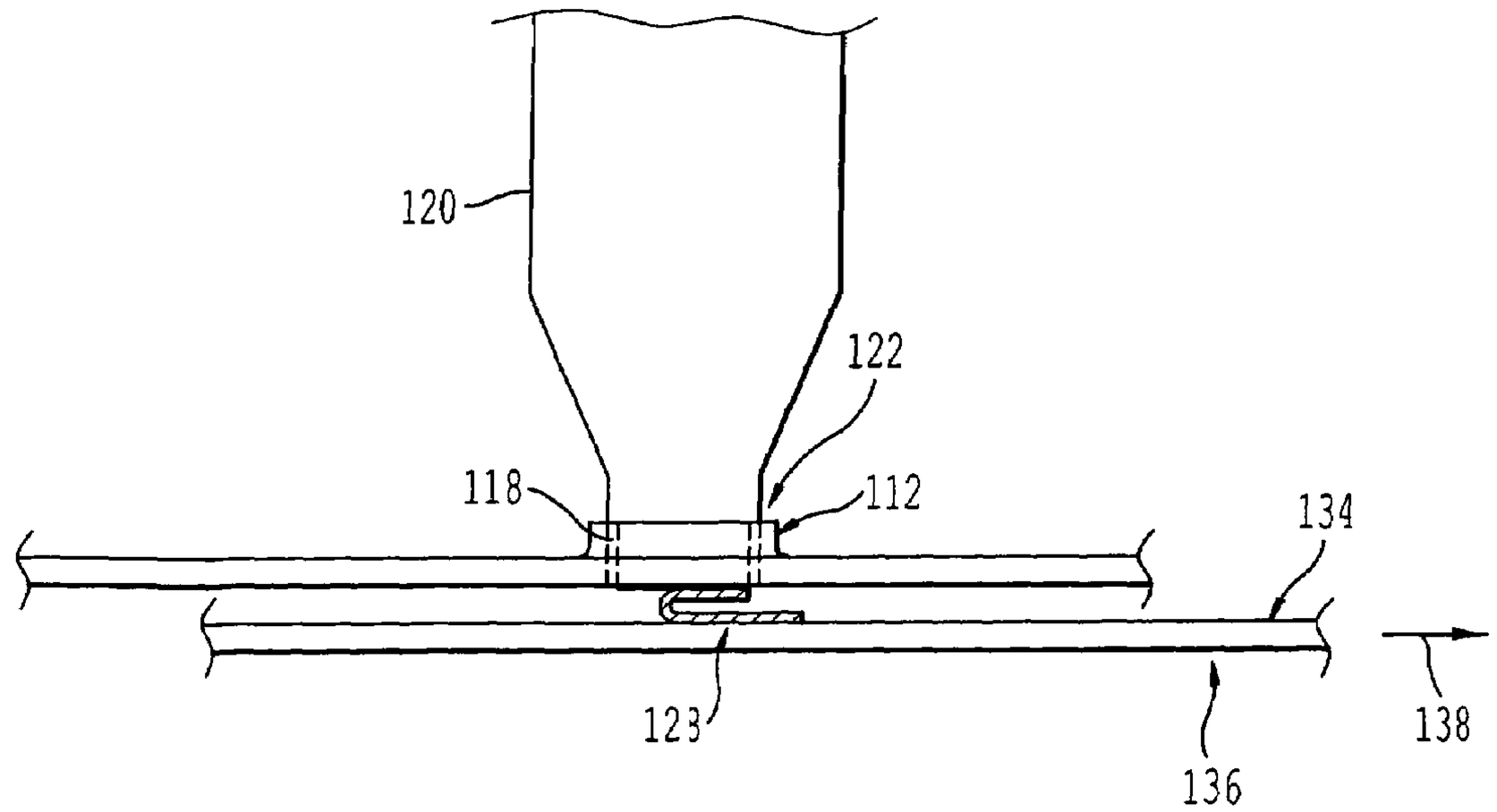

120
122
118
112
134
123
136
138

FIG. 7

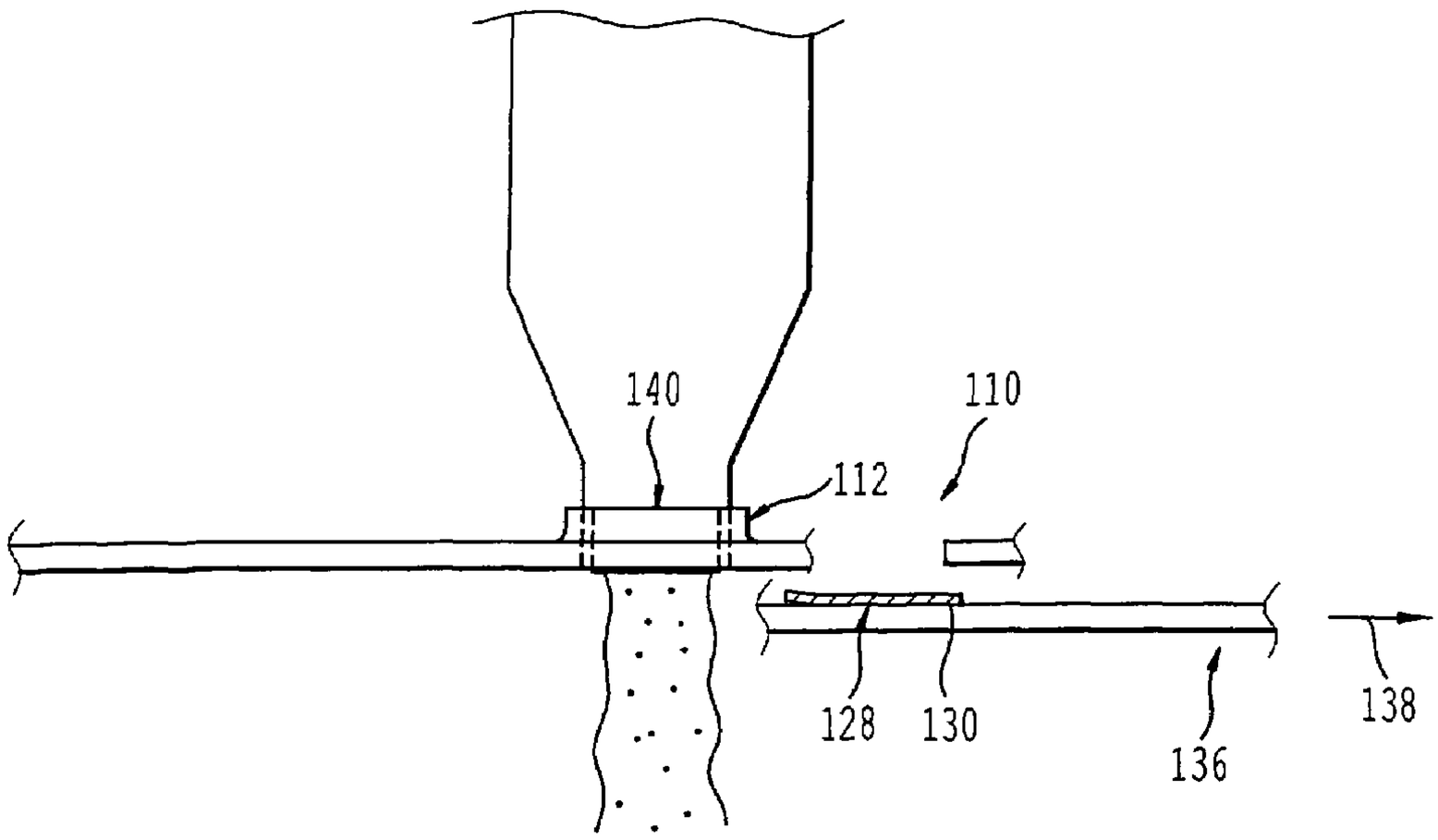


FIG. 8
(BACKGROUND ART)

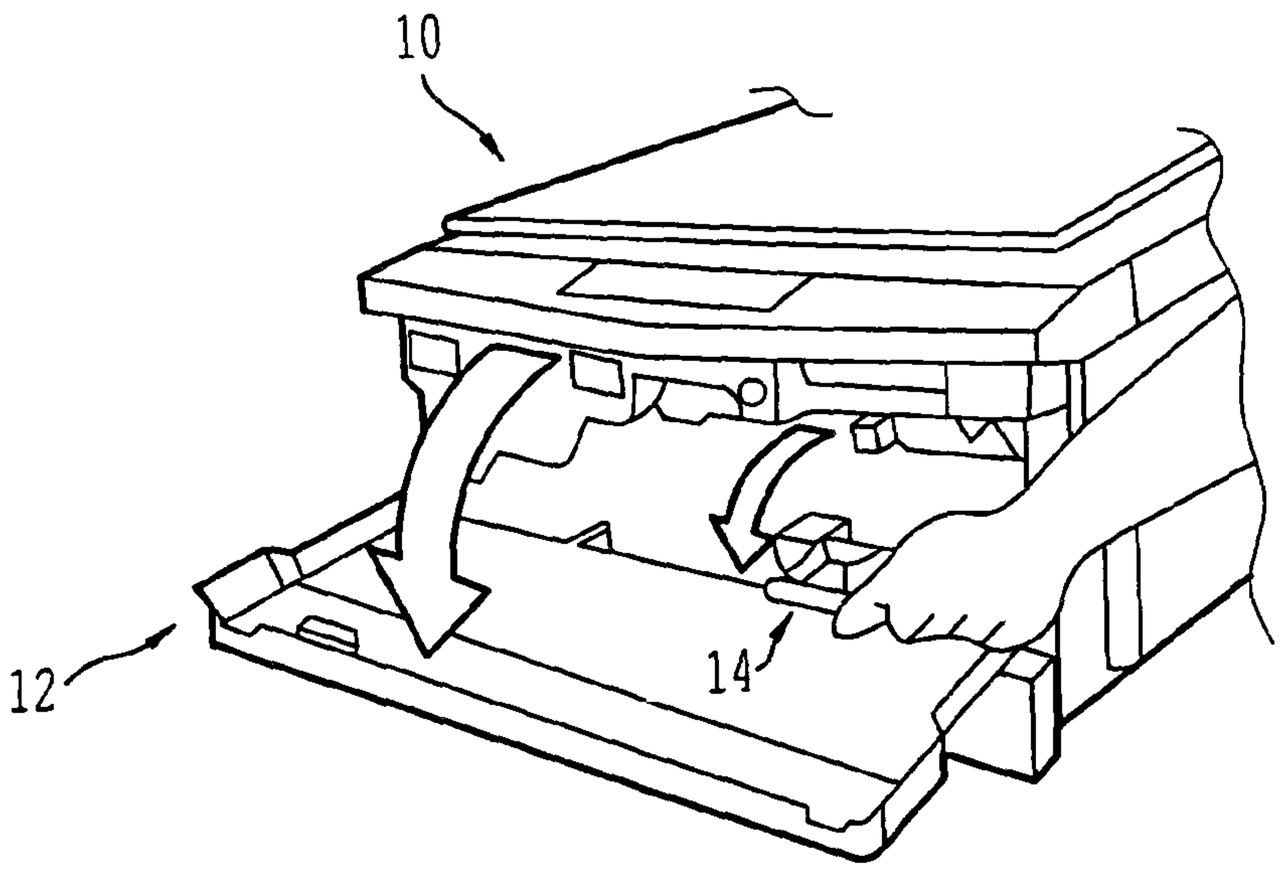


FIG. 9
(BACKGROUND ART)

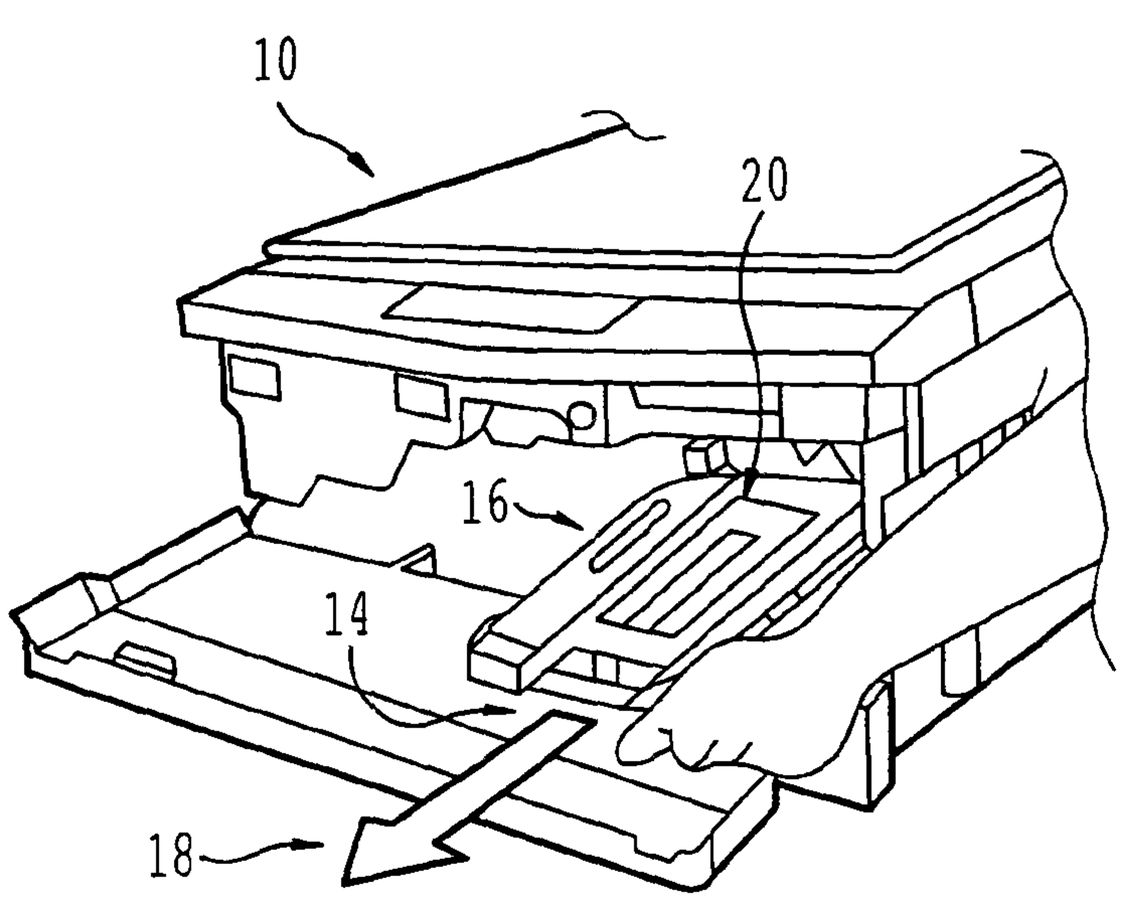


FIG. 10a
(BACKGROUND ART)

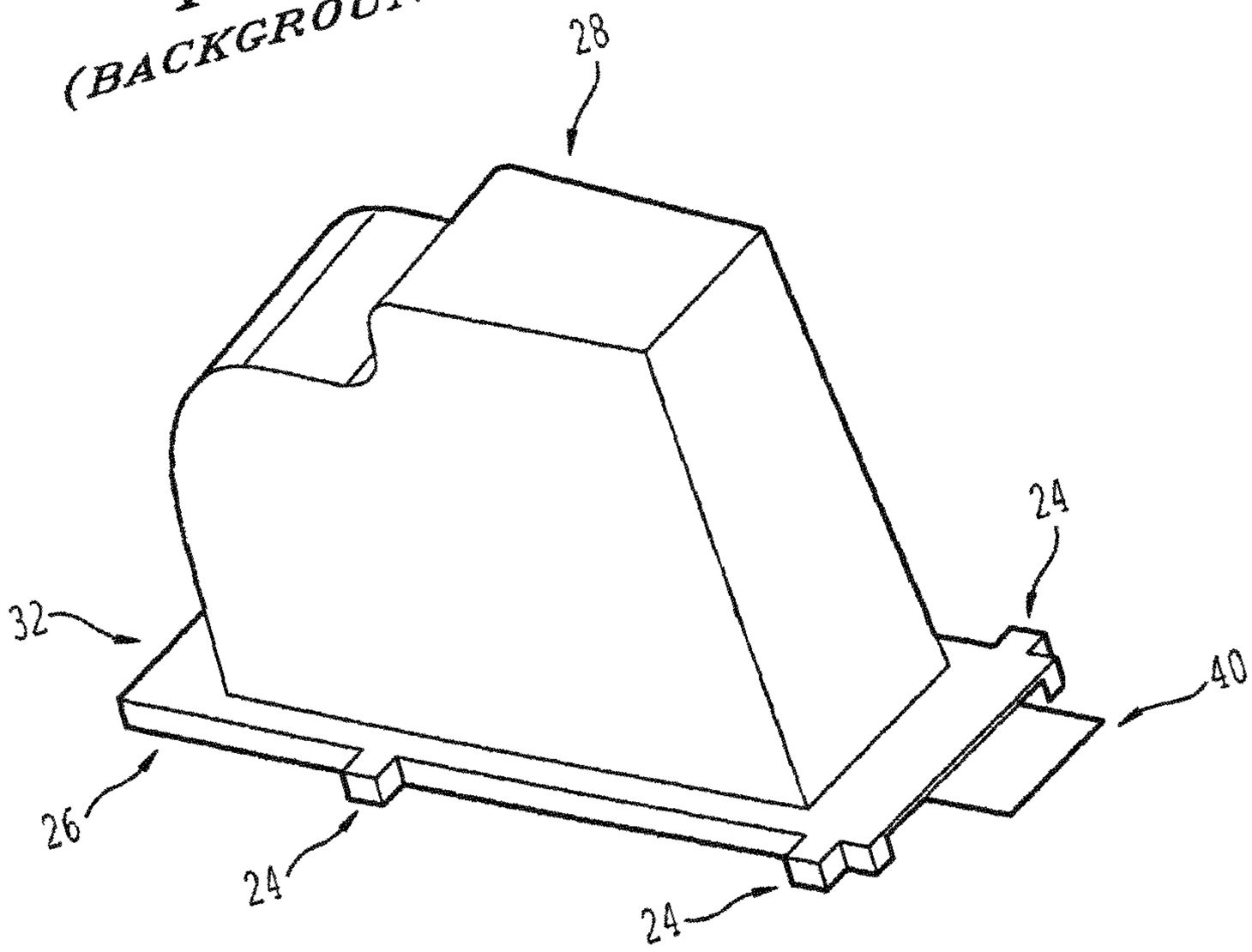
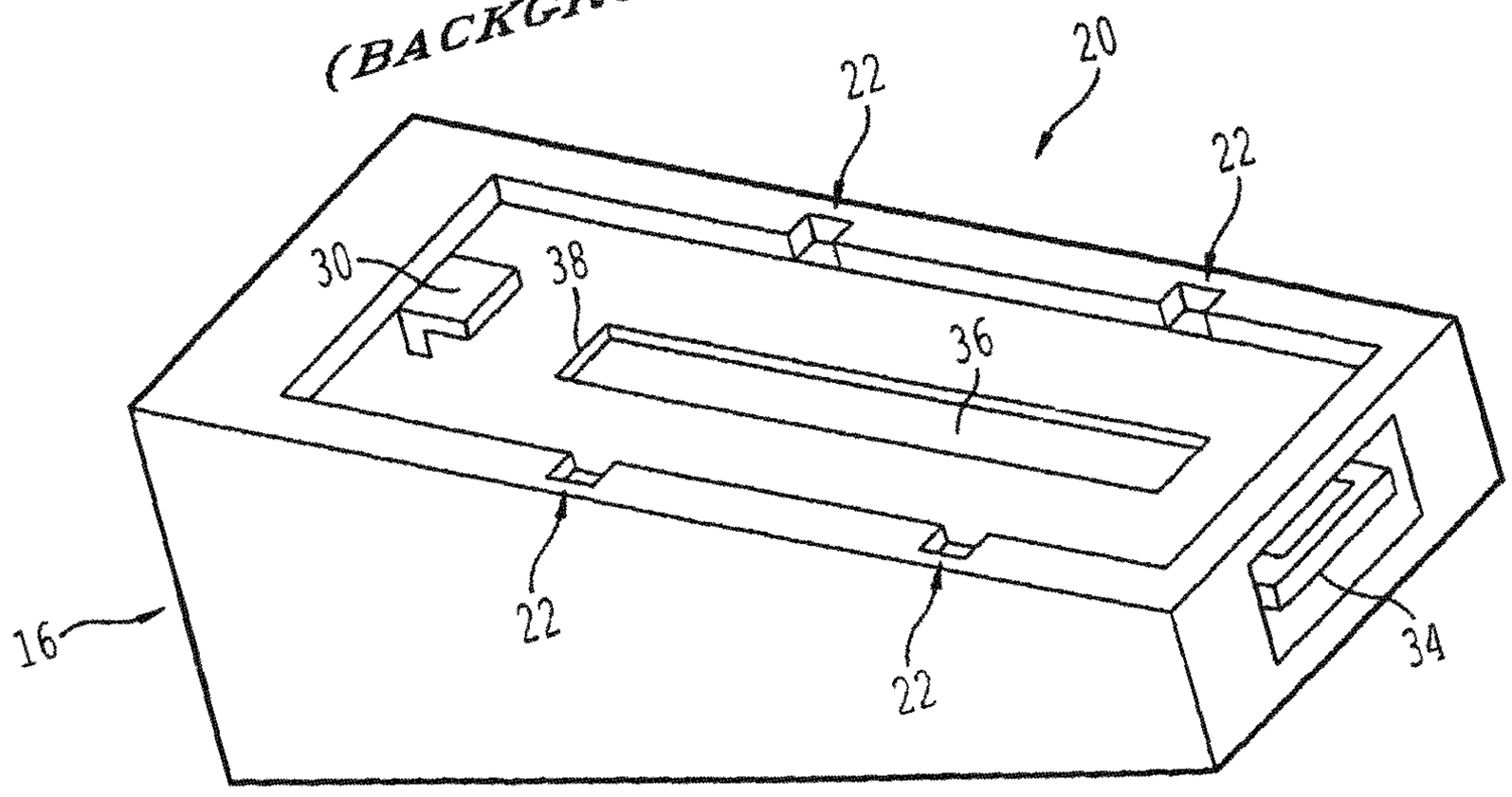


FIG. 10b
(BACKGROUND ART)



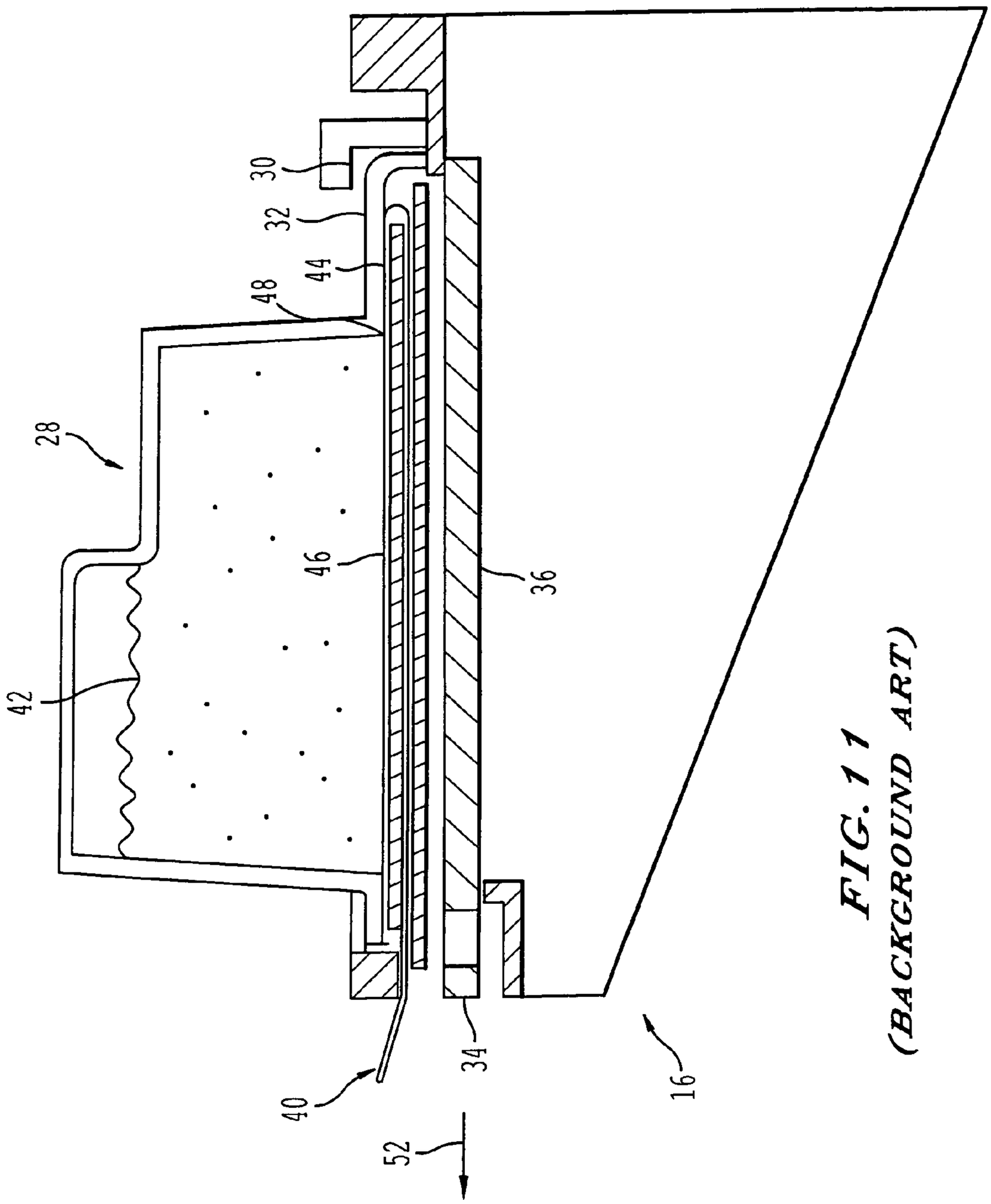


FIG. 11
(BACKGROUND ART)

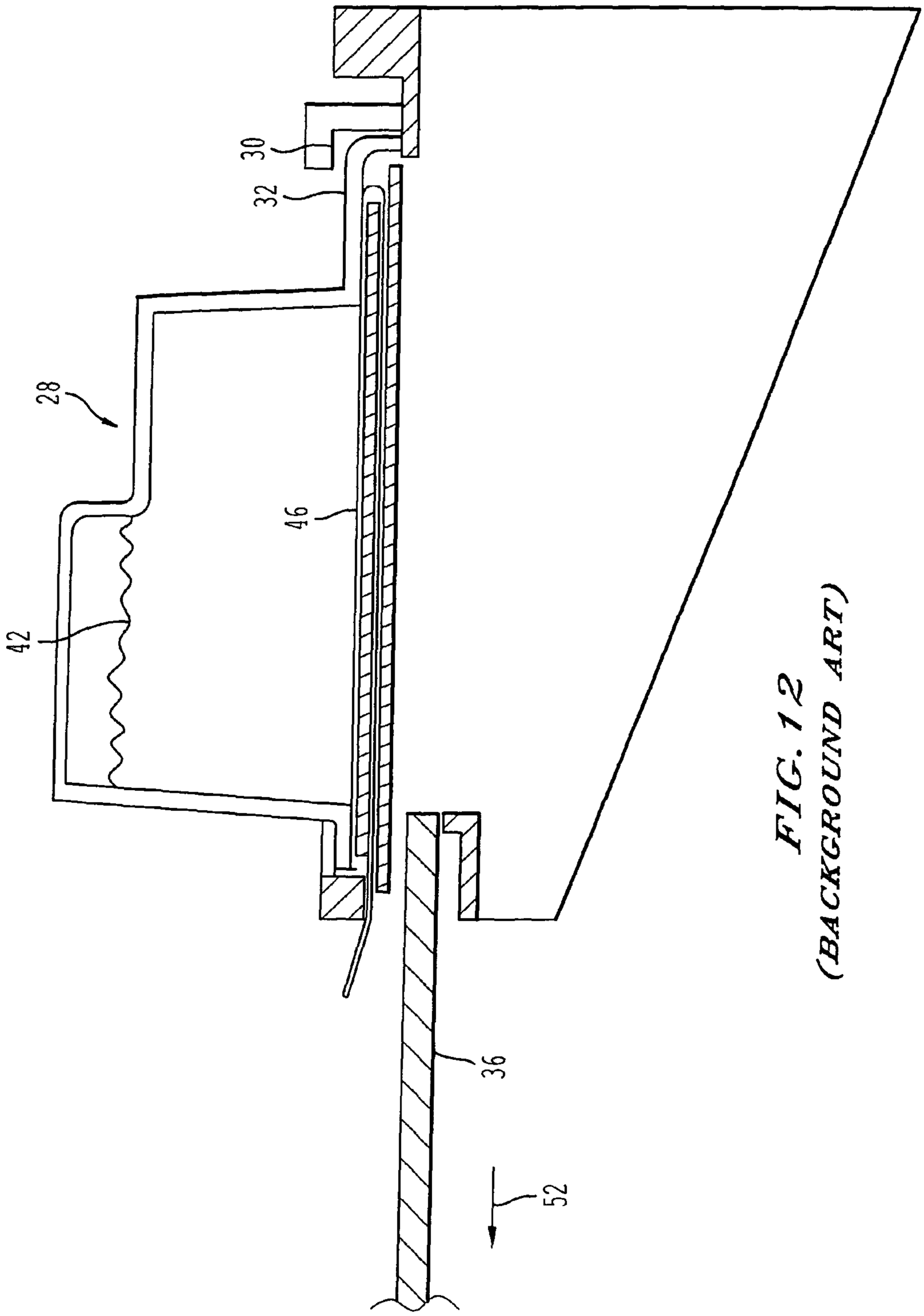


FIG. 12
(BACKGROUND ART)

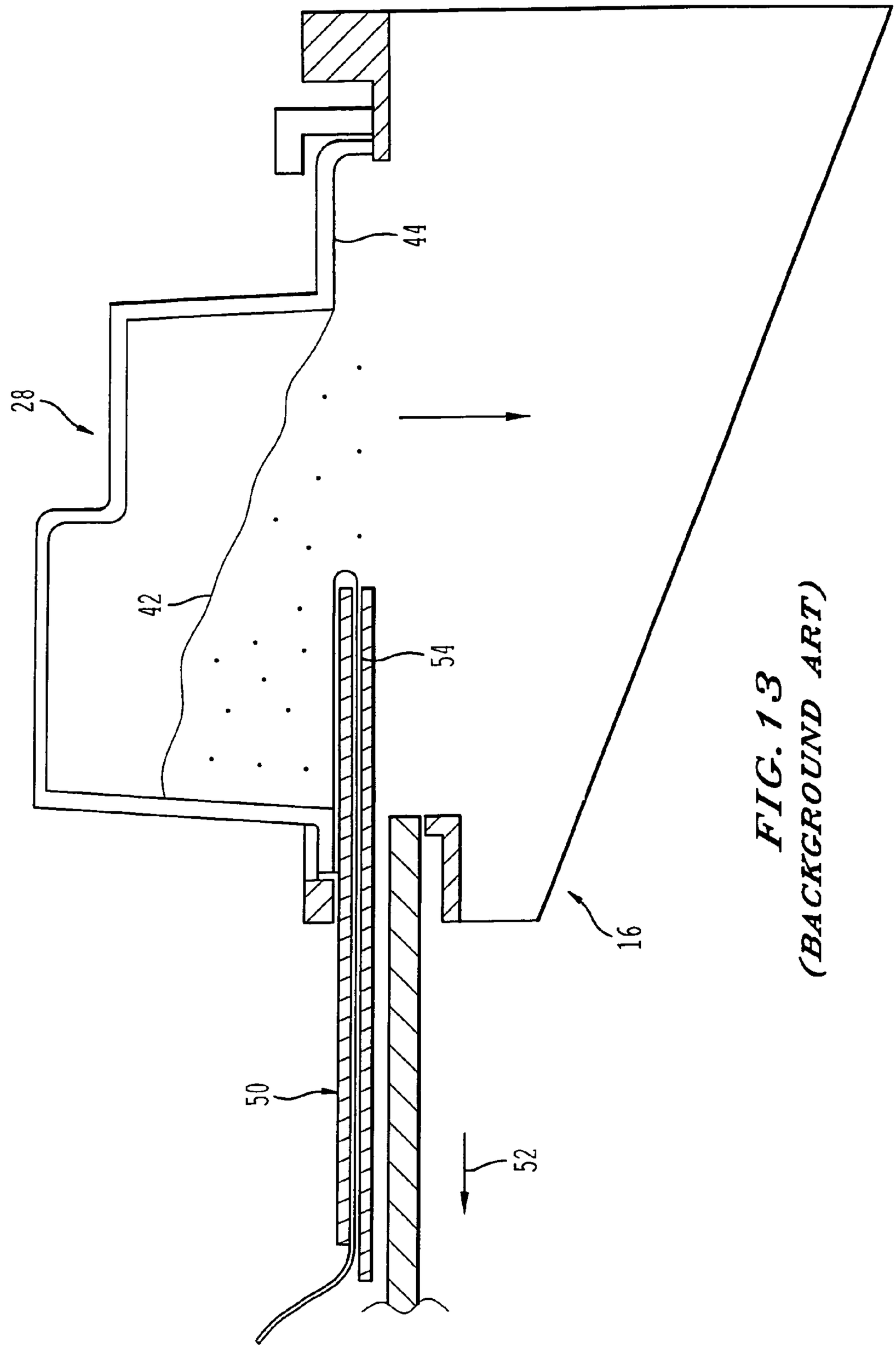


FIG. 13
(BACKGROUND ART)

TONER HOPPER ENGAGEMENT DEVICE, A TONER CONTAINER, AND A TONER REFILL KIT

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to devices for refilling image forming apparatuses with toner, and particularly to a toner hopper engagement device for engagement with a sliding cover type toner hopper so as to allow the refilling of such a toner hopper. The invention also provides a toner container and a toner refill kit which can be utilized to more conveniently refill a sliding cover type toner hopper.

2. Discussion of the Background

Image forming apparatuses, such as printers, photocopiers and facsimiles, typically apply a thermosetting image forming substance such as dry ink or what is commonly referred to as "toner," in order to form images on paper. As image forming processes are performed, the toner is eventually depleted and therefore, must be refilled. Known image forming apparatuses are constructed with an array of devices related to refilling the toner reservoir included in the image forming apparatus. For example, a toner reservoir or "hopper" in an image forming apparatus may have a sliding lid that is opened by hand, thereby allowing toner to be poured into the reservoir, from a specialized toner refilling container. After the hopper is refilled, the specialized container is disengaged and discarded or returned to the manufacturer for refilling.

For example, referring to FIGS. **8** **13**, a refilling operation using a known refill container is shown. As shown in FIGS. **8** and **9**, an access panel **12** of image forming apparatus **10** is rotated downward to expose toner hopper release lever **14** and toner hopper **16**. As shown in FIG. **9**, after hopper release lever **14** is rotated downwardly, as viewed in FIG. **8**, toner hopper **16** can be pulled outwardly, in a direction of arrow **18**, so as to expose engagement surface **20** of toner hopper **16**. Although FIGS. **8** and **9** depict a toner hopper that can be pulled outwardly from an image forming apparatus, hopper **16** may be fixed within image forming apparatus **10** whereby access is enabled through additional access panels.

FIGS. **10** **13** illustrate a refilling operation of toner hopper **16**. As shown in FIG. **10**, toner hopper **16** includes engagement surface **20** which has various receptacles **22** for receiving corresponding protrusions **24** provided on an engagement plate **26** of toner refill cartridge **28**. Engagement surface **20** also includes lip **30** for engaging rear edge **32** of hopper refill cartridge **28**. Toner hopper **16** also includes handle **34** which allows a user to slide toner lid **36** to thereby open orifice **38** so as to allow hopper **16** to be refilled with toner. A free end **40** of film **46** extends beyond an edge of plate **26**, as shown in FIG. **10**.

During a refilling operation, as illustrated in FIGS. **11** **13**, toner hopper **28** is engaged with engagement surface **20** of toner hopper **16**. As shown in FIG. **11**, rear edge **32** of toner hopper **28** is engaged with lip **30** of surface **20**. Furthermore, although not shown in FIG. **11**, protrusions **24** are engaged with receptacles **22**. As shown in FIG. **11**, toner refill cartridge **28** is filled with toner **42** and is sealed along its bottom surface **44** with film **46**. Typically, film **46** is bonded to surface **44** so as to provide a complete seal over the opening **48** of toner refill cartridge **28**. As shown in FIG. **11**, film **46** is approximately twice as long as toner refill cartridge **28**. A first length of film **46** covers opening **48** of cartridge **28**. A second length of film **46** is wrapped around

first slide plate **50**. In order to open refill cartridge **28**, a user pulls handle **34** of hopper **16** in the direction of arrow **52**. As shown in FIG. **12**, by pulling handle **34** in the direction of arrow **52**, hopper lid **36** is moved in the direction of arrow **52**. As shown in FIG. **13**, by pulling on free end **40** generally in the direction of arrow **52**, slide plates **50** and **54** are also moved in the direction of arrow **52** and film **46** is peeled away from surface **44** of cartridge **28**. As plates **50** and **54** are moved in the direction of arrow **52**, toner **42** provided in cartridge **28** is thereby allowed to fall into hopper **16**. After the contents of cartridge **28** are depleted, handle **34** can be returned to its initial position, and cartridge **28** can be removed Thereafter, cartridge **28** can be returned to the manufacturer for refilling. Since the film **46** is peeled away from cartridge **28** only after cartridge **28** has been engaged with surface **20** of hopper **16**, accidental spillage and dispersal of toner **42** during a refilling operation is effectively prevented. A shortcoming of the above described toner refill arrangement is that specialized refill containers are complex and must be manufactured with strict tolerances due to the various couplings required for engaging and interacting with each specific toner hopper. As a result, expensive tooling costs are incurred in making the molds and other equipment used to manufacture the specialized containers, and even after the initial equipment costs, the manufacture and assembly of the specialized containers is costly. Thus, the specialized containers can add significant overhead costs to operating and maintaining image forming apparatuses. In addition, if a business has a number of different types of photocopiers, an inventory of different specialized toner refill containers must be maintained. Therefore, it is desirable to simplify and minimize the costs involved with refilling toner reservoirs of image forming apparatuses.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a device for reducing the complexity and costs associated with refilling toner reservoirs of image forming apparatuses. It is a further object of the invention to provide a toner hopper engagement device which allows a specialized toner hopper to be filled with a generically shaped toner container, while preventing accidental or inadvertent spillage of toner during a refilling operation.

These and other objects of the invention can be provided by the present invention, which provides a toner hopper engagement device. A base member is configured to engage a toner hopper of an image forming apparatus which has a sliding type toner hopper lid. A first orifice is provided on the base member and is configured to allow toner to pass through the base member into the hopper.

The present invention further provides a toner container. A toner storage portion has an opening. A sealing member is attached to the opening. An adhesive portion is provided on the sealing member and has an adhesive on at least a portion of the adhesive portion which does not face an interior of the toner storage portion.

The present invention still further provides a toner refill kit. A base member is configured to engage a toner hopper of an image forming apparatus which has a sliding type toner hopper lid. A toner container has a toner storage portion and an opening. A first orifice is provided on the base member and is configured to allow toner to pass through the base member into the hopper, the first orifice being releasably engagable with the opening.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete appreciation of the present invention, and many of the attendant advantages thereof, will be readily ascertained and/or obtained as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, wherein:

FIG. **1** is a perspective view of a toner hopper engagement device according to the present invention.

FIG. **2** is a top view of a sealing film for a toner refill container.

FIG. **3** is a partial cross sectional view of the sealing film shown in FIG. **2** provided on a toner refill container.

FIG. **4** is a side elevational view of the sealing film and toner refill container shown in FIG. **3**.

FIGS. **5**–**7** are side elevational views illustrating a refilling operation using the toner hopper engagement device shown in FIG. **1**.

FIG. **8** is a perspective view illustrating the movement of an access panel of an image forming apparatus.

FIG. **9** is a perspective view of an image forming apparatus illustrating the movement of a hopper of the image forming apparatus.

FIG. **10** is an exploded perspective view of a hopper and a refill cartridge.

FIGS. **11**–**13** are cross sectional views illustrating a refilling operation using the refill cartridge and hopper shown in FIG. **10**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Examples of preferred embodiments of the present invention will now be described with reference to the drawings, wherein like reference numbers throughout the several views identify like and/or similar elements.

FIG. **1** illustrates a toner hopper engagement device according to the present invention. As shown in the figure, the toner hopper engagement device **100** includes base member **102**, and at least one orifice **104**. According to the invention, base member **102** is configured to engage with an engagement surface of a toner hopper, such as engagement surface **20** of toner hopper **16** shown in FIG. **10**. However, it is to be understood that base member **102** may be configured to engage with any known toner hopper.

In order to engage with a toner hopper, base member **102** may include any combination of protrusions and/or receptacles, such as protrusions **106** which are configured to be received by receptacles provided on a toner hopper. For example, protrusions **106** may be configured to be received by receptacles **22** of toner hopper **16** shown in FIG. **10**. Additionally, base member **102** may include tooth **108** for engaging lip **30** of toner hopper **16**, for example.

Orifice **104** is configured to be releasably engagable with a toner container. Although orifice **104** may have any shape, orifice **104** and base member **102** are preferably configured to prevent inadvertent or accidental spillage or dispersal of toner. For example, orifice **104** may be in the form of a rectangular orifice **110** or an annular orifice **112**. Preferably, if orifice **104** is in the form of rectangular orifice **110**, orifice **110** is configured to allow toner to be poured into the toner hopper while preventing inadvertent or accidental spillage or dispersal of toner. For example, if orifice **110** is too large, toner powder may float out of the toner hopper and through orifice **110**. Therefore, orifice **110** should be constructed small enough so that dispersal of toner through the orifice is substantially prevented, while the remainder of base member **102** substantially forms a seal with a toner hopper, thereby preventing spillage or dispersal of toner during a refilling operation

For example, as shown in FIG. **1**, orifice **110** is located approximately at the end of base member **102** opposite from tooth **108**. However, orifice **100** may be positioned at any position along the length of base member **102**. In an embodiment where only orifice **110** is provided in base member **102**, orifice **110** is configured to be releasably engagable with a toner container, so as to allow toner to be poured through orifice **110**. Therefore, a user may reuse the base member **102** for refilling purposes without being burdened with the need to repurchase a device for mating a toner container with the toner hopper to be refilled, as compared to the toner cartridge **28** shown in FIG. **10**. Preferably, the remainder of base plate **102** is configured to substantially close the toner hopper, so as to prevent inadvertent spillage or dispersal of toner during a refill operation. Generally, it is not necessary for the base member to provide an air tight seal with the toner hopper. Rather, base member **102** may be configured to mate with the engagement surface of the toner hopper to be refilled, such as surface **20** of toner hopper **16** shown in FIG. **10**, for example. By constructing the engagement device **100** as such, users may refill a toner hopper with a generically shaped toner container, without the risk of spilling toner during a refill operation, thereby avoiding the high costs associated with the purchase of specially manufactured refilling cartridges such as cartridge **28** shown in FIG. **10**.

Preferably, orifice **104** is in the form of annular orifice **112**, having an annular wall **114** with an outer surface **116** and an inner surface **118**. Preferably, inner surface **118** is configured to provide an interference fit with an outlet of a toner container. For example, referring to FIG. **3**, toner container **120** includes an opening portion **122**. As shown in FIGS. **3** and **4**, outlet portion **122** is provided with threads **124** for threadably engaging with a cap (not shown). Alternatively, outlet **122** may be provided with a smooth outer surface and/or at least one ridge for snap fitting with a corresponding cap (not shown). In an embodiment where outlet **122** is provided with threads **124**, inner surface **118** of orifice **112** may be provided with threads **126** which correspond to threads **124**. Alternatively, inner surface **118** may be provided with a plurality of contours, such as ridges, which are configured to snap fit with threads **124**. Alternatively, if outlet **122** is provided with at least one ridge, inner surface **118** may also be provided with contours to provide a snap or slip fit with such a ridge. As used herein, "interference fit" is defined as including at least one of (1) threaded engagements such as between a bolt and a nut, (2) a slip fit such as that provided between two contacting surfaces, and (3) snap fitting where corresponding ridges interfere with each other upon insertion and withdrawal.

Preferably, base member **102** is configured such that the overall height **111** of base member **102** is such that base member **102** does not interfere with other internal components in the image forming apparatus which includes the toner hopper to be refilled, such that base member **102** may be left mated to the toner hopper during operation of the image forming apparatus. For example, base member **102** may have a an overall height of approximately one inch, which may prevent base member **102** from interfering with other mechanisms in certain image forming apparatuses so that base member **102** may be left inside an image forming apparatus, engaged with its toner hopper during operation. However, the maximum overall height of base member **100**

will be dictated by the specific characteristics of the image forming apparatus. By constructing base member **102** as such, it is unlikely that base member **102** will be lost between uses.

As shown in FIGS. **2**–**4**, engagement device **100** preferably includes a removable seal **128** provided on a toner container **120**. Sealing member **128** may be in the form of a foil or thin film that is bonded or adhered to opening **122** through partial melting or adhesive. Furthermore, sealing member **128** preferably includes an adhesive portion **130** provided with adhesive on at least one side of adhesive portion **130**. In one embodiment, adhesive portion **130** may be formed on an extension **132** of sealing member **128**. Preferably, adhesive portion **130** is configured to engage with an outer surface of a toner hopper when toner container **120** is engaged with orifice **104** (discussed in detail below). In this embodiment, it is also preferably that orifice **104** be configured to allow removable sealing member **128** to contact a slidable lid of a toner hopper when base member **102** is mated to the toner hopper, and when the toner container is engaged with orifice **104**. By constructing orifice **104** as such, a refilling operation using the engagement device **100** is further enhanced by allowing the toner container to be inserted into orifice **104** with sealing member **128** remaining attached to opening **122** of the toner container, and using the movement of the toner hopper lid to peel sealing member **128** from opening **122**, discussed in detail below.

Referring now to FIGS. **5**–**7**, a refilling operation using the engagement device according to the present invention will be described. As shown in FIG. **5**, toner bottle **120** is engaged with orifice **104**. In this embodiment, orifice **104** is in the form of annular orifice **112**. As shown in FIG. **5**, opening **122** of toner container **120** is inserted into orifice **112** such that adhesive portion **130** of sealing member **128** engages with upper surface **134** of toner hopper lid **136**. In this embodiment, toner hopper lid **136** generally corresponds to a slidable lid such as lid **36** of toner hopper **16** as shown in FIG. **10**. Referring again to FIG. **5**, since the adhesive provided on adhesive portion **130** is on a side of sealing member **128** which faces an exterior of toner container **120** (i.e., at least a portion of the adhesive does not face the interior of toner container **120** where toner is stored) adhesive member **130** can be engaged with upper surface **134** of toner hopper lid **136**. As described above, inner surface **118** of orifice **112** is configured to provide an interference fit with toner container **120** with threads **126** which correspond to threads **124** provided on opening **122**, or through contours configured to provide an interference fit with opening **122**. Once toner container **120** has been inserted into the position shown in FIG. **5**, a user may pull on a handle (not shown) of lid **136** along the direction of arrow **138** so as to cause adhesive member **130** to be pulled in the direction of arrow **138** and thereby peel sealing member **128** away from opening **122**, as shown in FIG. **6**. As shown in FIG. **7**, once lid **136** is pulled clear of orifice **112**, toner **140** can flow through opening **122** and into the toner hopper attached to lid **136**.

In order to ensure that a user may properly align adhesive portion **130** in the proper direction so as to be peeled away from opening **122**, engagement device **100** preferably includes indica **142**, as shown in FIG. **1**. Indica **142** may be in the form of any type of indica, such as an arrow or other mark. Preferably indica **142** is positioned so as to correspond to an indica **144** provided on toner bottle **120**, as shown in FIGS. **3** and **4**, such that indica **142** and **144** are in alignment with each other when toner bottle **120** is properly positioned in orifice **112**, so that sealing member **128** is peeled from opening **122** when adhesive portion **130** is engaged with lid **136** and lid **136** is slid along the direction of arrow **138**.

In one embodiment, base member **102** may include both orifice **112** and orifice **110**. Preferably, orifice **110** is arranged to be on the same side of orifice **112** as the handle of the toner hopper lid. Therefore, when a toner hopper lid is pulled in the direction of arrow **138**, as shown in FIGS. **1** and **7**, and sealing member **128** is completely removed from lid **136**, a user can retrieve sealing member **128** through orifice **110**. Since orifice **100** is provided on a the same side of orifice **112** to which the toner hopper lid **136** is pulled, base member **102** prevents spillage and/or disbursement of toner during the refilling operation because toner hopper lid **136** overlaps orifice **110**, thereby preventing the passage of toner upwards through orifice **110**. A further advantage is achieved in that the since adhesive portion **130** of sealing member **128** is repeatedly aligned with approximately the same portion of toner hopper lid **136**, adhesive portion **130** maintains that portion of toner hopper lid **136** in a clean state, such that in subsequent refilling operations, toner hopper lid is not fouled with debris which may prevent adhesive portion **130** from adhering to toner hopper lid **136**.

By constructing toner hopper engagement device **100** with an orifice that is releasably engagable with a toner container, the present invention avoids the need for an end user to purchase a specially manufactured toner refilling device or container, which has specialized components for coupling with known hopper devices. Rather, an end user may purchase a single engagement device and thereafter purchase generically shaped toner containers to refill the toner hoppers of their image forming devices. Since specialized containers are often complicated and/or expensive to design, manufacture or maintain, an end user can avoid the cost and inconvenience associated with buying a complicated toner refilling device by using the engagement device of the present invention.

Furthermore, by providing the engagement device with a sealing member provided on a toner container where the sealing member has an adhesive portion configured to engage an outer surface of a sliding type toner hopper lid, the present invention allows a refilling operation to be performed while the toner reservoir of the toner hopper is substantially sealed off from the outer atmosphere so that inadvertent spillage or dispersion of toner is substantially prevented.

This is important because the refill toner market perceives that the average office worker who is assigned that task of refilling image forming apparatuses is typically between the ages of late teens and early 30s and wears at least some white clothing. Therefore, it is important that refilling devices for image forming apparatus be easy to use and prevent inadvertent spillage or dispersal of toner.

A toner container according to another aspect of the present invention will now be described.

As discussed above with regard to the toner hopper engagement device **100**, a toner container **120** as shown in FIGS. **2**–**4** is particularly useful for refilling toner hoppers of image forming apparatuses. In particular, where an engagement device such as toner hopper engagement device **100** is used for refilling an image forming apparatus, a toner container having adhesive portion **130** allows the toner hopper, such as toner hopper **16** shown in FIG. **10** for example, to be refilled without the risk of toner being inadvertently spilled or dispersed during refilling.

Preferably, adhesive portion **130** is formed on extension **132** of sealing member **128**. Preferably, extension **132** has a

length approximately equal to a diameter of opening **122**. When constructed as such, adhesive portion **130** can be contained beneath a cap (not shown) used to protect sealing member **128** during transport and/or sale of toner container **120**. Furthermore, with such a length, adhesive portion **130** can be engaged with a substantial portion of a toner hopper lid, such as lid **36** of toner hopper **16** shown in FIG. **10**, during a refilling operation. As illustrated in FIGS. **5** **7**, when toner container **120** is inserted into orifice **112**, adhesive portion **130** engages toner hopper lid **136**. As lid **136** is pulled in the direction of arrow **138**, sealing member **128** is peeled from opening **12** of toner container **120**. Thereafter, as lid **136** is moved clear of opening **122**, toner **140** contained in contained **120** freely flows into the toner hopper (not shown). Therefore, a toner hopper may be refilled without the risk that toner is inadvertently spilled.

A toner refilling kit according to a further aspect of the present invention will be described below.

A toner refill kit, according to the present invention, may include a toner hopper engagement device **100** having at least one orifice, and a toner container **120** having a sealing member **128** removably attached to an opening **122** of toner container **120**. According to the present embodiment, toner hopper engagement device **100** and toner container **120** may be packaged in any known manner. By providing a toner refilling kit with such a toner hopper engagement device and a toner container, the burden on businesses, for example, who own or lease photocopiers, is significantly reduced. In particular, the refilling kit according to the present embodiment allows the user of photocopiers or image forming apparatuses to reduce the number of different specialized toner refill kits needed to refill different types of photocopiers or other image forming apparatuses they may operate. For example, since toner bottle **120** is widely used for many different kinds of photocopiers and image forming apparatuses, the refilling kit according to the present embodiment is relatively simple to manufacture. For example, although toner hopper engagement device **100** is specially designed and manufactured, toner container **120**, excluding adhesive portion **130**, is widely known and readily available. Therefore, the overall cost of design and manufacturing the refilling kit according to the present embodiment, is significantly reduced over that of the refilling cartridge of that shown in FIGS. **10** **13**. Furthermore, once a user has purchased a refilling kit according to the present embodiment, the toner hopper engagement device **100** can be retained and the user may simply choose to purchase additional toner containers **120**, separately from the engagement device **100**, which is not an option for purchasers of the toner cartridges **28** shown in FIGS. **10** **13**.

Numerous additional modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood that within the scope of the appended claims, the present invention may be practiced otherwise than as specifically described herein.

The invention claimed is:

1. A toner hopper engagement device comprising:

a unitary base member configured to engage a toner hopper of an image forming apparatus which has a sliding type toner hopper lid;

a first orifice provided on said unitary base member and configured to allow toner to pass through said unitary base member into the hopper; and

a second orifice provided on the unitary base member and positioned to be on a same side of said first orifice towards which the toner hopper lid is pulled to be opened.

2. The engagement device according to claim **1**, wherein said first orifice comprises a toner container engagement portion configured to be releasably engageable with a toner container.

3. The engagement device according to claim **2**, wherein said toner container engagement portion comprises an annular wall having an inner and outer surface, wherein said inner surface of said annular wall includes contours configured to provide an interference fit with an outlet of a toner container.

4. The engagement device according to claim **3**, wherein said contours comprise threads.

5. The engagement device according to claim **3**, wherein said contours comprise ridges.

6. The engagement device according to claim **2**, further comprising a sealing member provided on an outlet end of a toner container, wherein said toner container engagement portion is configured to be releasably engageable with the outlet of the toner container.

7. The engagement device according to claim **6**, wherein said sealing member includes an adhesive portion on a side facing an exterior of the toner container.

8. The engagement device according to claim **7**, wherein said first orifice is configured to allow said adhesive portion to contact an outer surface of a lid of the hopper when said engagement device is engaged with said hopper and when the toner container is engaged with said orifice.

9. The toner refill kit according to claim **8**, wherein said second orifice is configured to allow a user access to the film contacting the lid of the hopper.

10. The engagement device according to claim **7**, wherein said toner container engagement portion is configured to allow said adhesive portion to contact a surface of a lid of the hopper when said engagement device is engaged with the hopper and when the toner container is engaged with said toner container engagement portion.

11. The engagement device according to claim **2**, further comprising:

a first indicia provided on a toner container adjacent the opening of the toner container; and

a second indicia provided on said unitary base member adjacent said toner container engagement portion, said second indicia positioned to indicate a desired position of said first indicia when the toner container is engaged with said toner container engagement portion.

12. The engagement device according to claim **1**, wherein said unitary base member includes protrusions configured to releasably engage with receptacles formed on the toner hopper.

13. The engagement device according to claim **1**, further comprising a film provided on an outlet of a toner container, wherein said first orifice is configured to be releasably engageable with said outlet.

14. The engagement device according to claim **1**, further comprising:

a first indicia provided on a toner container adjacent the opening of the toner container; and

a second indicia provided on said unitary base member adjacent said first orifice, said second indicia positioned to indicate a desired position of said first indicia when the toner container is engaged with said orifice.

15. The toner refill kit according to claim **1**, wherein said second orifice is configured to allow toner to pass through said unitary base member into the hopper.

16. A toner container comprising:

a toner storage portion having an opening;

a sealing member attached to said opening;

an adhesive portion provided on said sealing member having adhesive on at least a portion of said adhesive portion which does not face an interior of said toner storage portion; and

an indicia adjacent said opening, said indicia positioned so as to indicate a proper position of said toner container when said toner container is engaged with a toner hopper engagement device provided on a toner hopper of an image forming apparatus having a sliding type lid, so that said adhesive portion may be peeled off by a movement of the lid of the toner hopper.

17. The toner container according to claim **16**, wherein said adhesive portion has a length approximately equal to a diameter of said opening.

18. A toner refill kit comprising:

a unitary base member configured to engage a toner hopper of an image forming apparatus which has a sliding type toner hopper lid;

a toner container having a toner storage portion and an opening;

a first orifice provided on said unitary base member and configured to allow toner to pass through said unitary base member into the hopper, said first orifice being releasably engageable with said opening; and

a second orifice provided on the unitary base member and positioned to be on a same side of said first orifice towards which the toner hopper lid is pulled to be opened.

19. The toner refill kit according to claim **18**, wherein said first orifice comprises a toner container engagement portion configured to be releasably engageable with said toner container.

20. The toner refill kit according to claim **19**, wherein said toner container engagement portion comprises an annular wall having an inner and outer surface, wherein said inner surface of said annular wall includes contours configured to provide an interference fit with said opening of said toner container.

21. The toner refill kit according to claim **20**, wherein said contours comprise threads.

22. The toner refill kit according to claim **20**, wherein said contours comprise ridges.

23. The toner refill kit according to claim **19**, further comprising a sealing member provided on said opening of said toner container, wherein said toner container engagement portion is configured to be releasably engageable with said opening outlet of said toner container.

24. The toner refill kit according to claim **23**, wherein said sealing member includes an adhesive portion on a side facing an exterior of said toner container.

25. The toner refill kit according to claim **24**, wherein said first orifice is configured to allow said adhesive portion to contact an outer surface of a lid of the hopper when said unitary base member is engaged with said hopper and when said opening is engaged with said first orifice.

26. The toner refill kit according to claim **25**, wherein said second orifice is configured to allow a user access to the film contacting the lid of the hopper.

27. The toner refill kit according to claim **24**, wherein said toner container engagement portion is configured to allow said adhesive portion to contact a surface of a lid of the hopper when said unitary base member is engaged with the hopper and when said opening is engaged with said toner container engagement portion.

28. The toner refill kit according to claim **19**, further comprising:

a first indicia provided on a toner container adjacent said opening of said toner container; and

a second indicia provided on said unitary base member adjacent said toner container engagement portion, said second indicia positioned to indicate a desired position of said first indicia when said opening is engaged with said toner container engagement portion.

29. The toner refill kit according to claim **28**, wherein said adhesive portion has a length approximately equal to a diameter of said opening.

30. The toner refill kit according to claim **18**, wherein said unitary base member includes protrusions configured to releasably engage with receptacles formed on the toner hopper.

31. The toner refill kit according to claim **18**, further comprising a sealing member provided on said opening of said toner container, wherein said first orifice is configured to be releasably engageable with said opening.

32. The toner refill kit according to claim **18**, further comprising:

a first indicia provided on said toner container adjacent said opening of said toner container; and

a second indicia provided on said unitary base member adjacent said first orifice, said second indicia positioned to indicate a desired position of said first indicia when said toner container is engaged with said first orifice.

33. The toner refill kit according to claim **18**, wherein said second orifice is configured to allow toner to pass through said unitary base member into the hopper.

* * * * *