June 3, 1930. J. F. ORTNER 1,760,959

CARTON FILLING DEVICE

Filed Oct. 3, 1928 2 Sheets-Sheet 1

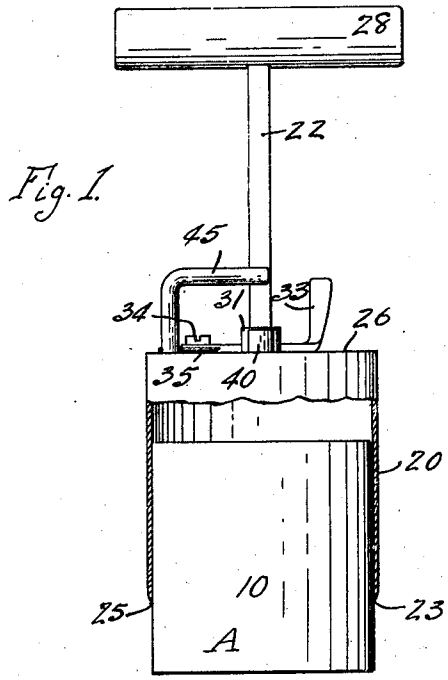


Fig. 1.

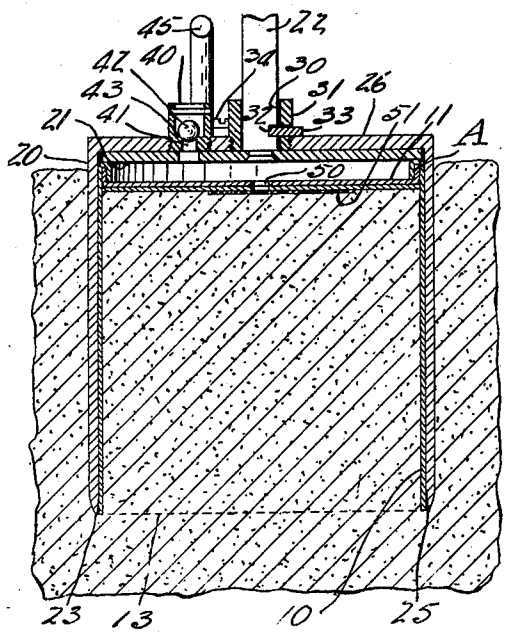


Fig. 3.

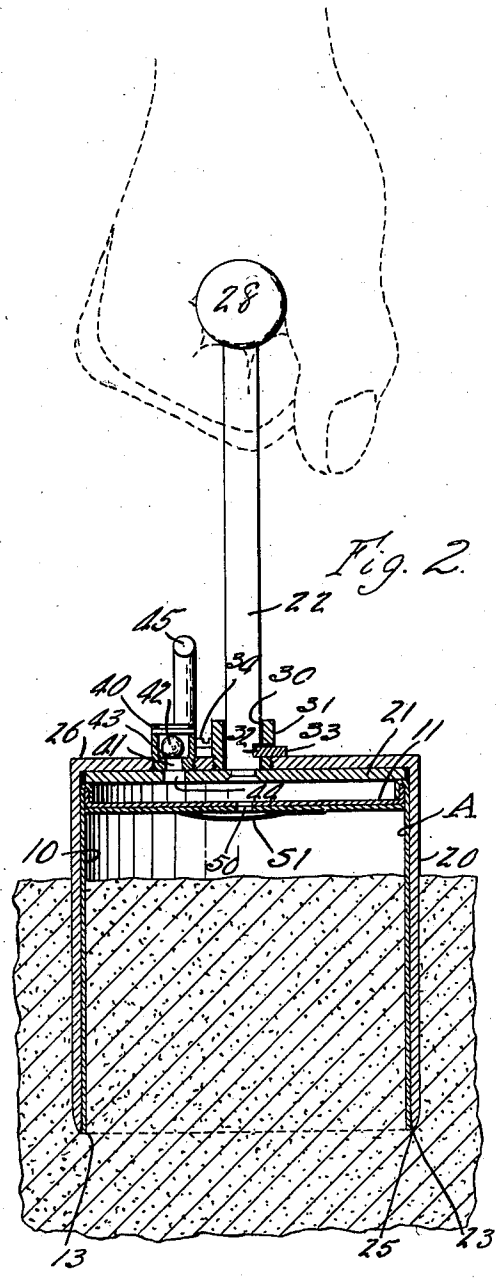


Fig. 2.

INVENTOR.
John F. Ortner
by Parker & Prochnow.
ATTORNEYS.

June 3, 1930. J. F. ORTNER 1,760,959

CARTON FILLING DEVICE

Filed Oct. 3, 1928 2 Sheets-Sheet 2

Fig. 5.

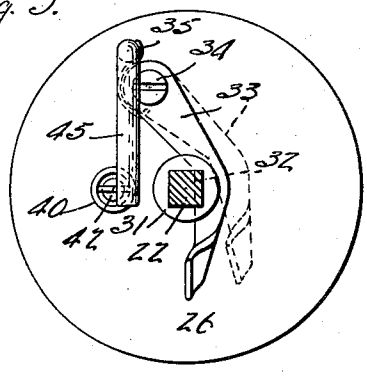
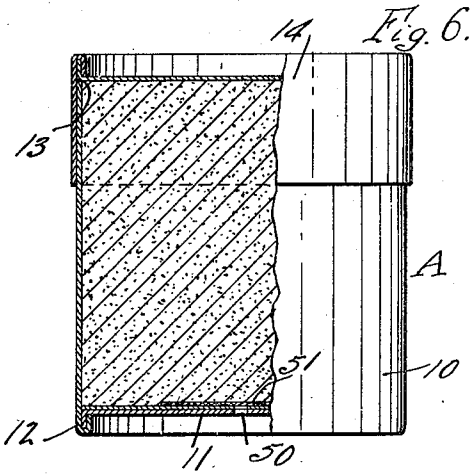


Fig. 6.



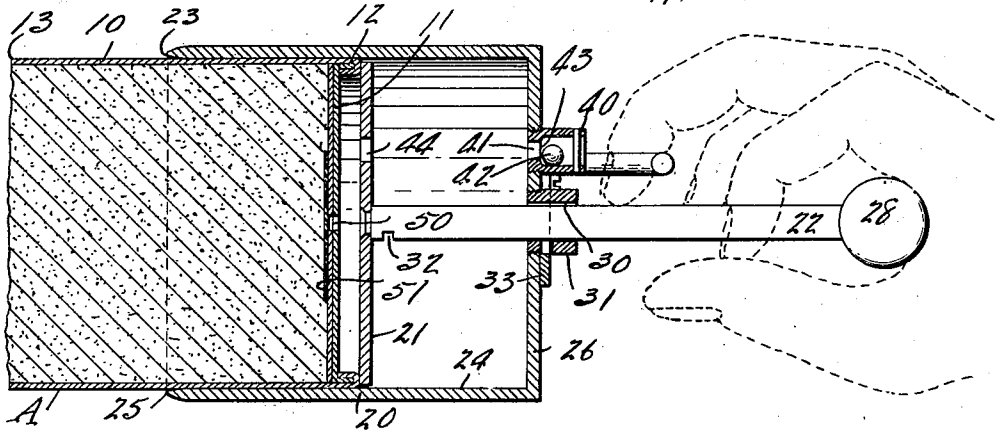


Fig. 4.

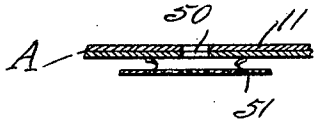


Fig. 8.

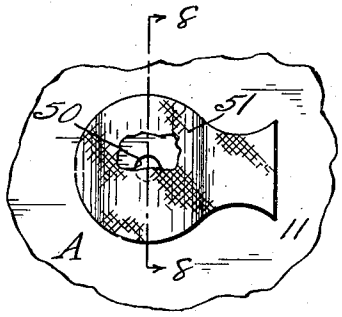


Fig. 7.

INVENTOR.
John F. Ortner
by Parker & Prochnow
ATTORNEYS.

Patented June 3, 1930 1,760,959

UNITED STATES PATENT OFFICE

JOHN F. ORTNER, OF BUFFALO, NEW YORK

CARTON-FILLING DEVICE

Application filed October 3, 1928. Serial No. 309,987.

This invention relates to improvements in carton fillers or devices for dispensing plastic substances.

The invention is directed especially to devices for dispensing ice cream, lard, and analogous substances, or for filling cartons with such substances in measured quantities wherein the device is provided with an open ended holder or shell in which an open ended carton is received, and the device with the carton therein is forced into a body of the substance to cause a portion of the substance to enter and fill the carton through the adjacent open ends of the shell and carton.

In such devices, as heretofore constructed, however, the other or back end of the shell is usually closed by an end wall or part which is detachable to permit the insertion and removal of the carton at that end. This is for the reason that these shells usually have a cutting wire or bar which extends across the open end of the shell to permit the substance which has been forced into the carton to be severed from the remaining substance, or they are otherwise constructed so that the carton cannot be inserted into the shell through the open end of the latter. It is obvious that in addition to the expensiveness or complication of such constructions, much loss of time results in placing the empty carton in and removing the filled carton from the device.

The principal objects of my invention are to improve and simplify such devices and to provide a carton filling device having a shell or holder constructed with an open end into which the carton can be inserted, through which the latter is filled, and out of which the filled carton is ejected from the device; also to provide a carton filling device having its opposite end closed, and a plunger movable within said shell for ejecting the carton therefrom; and also to provide means for venting the air from between the bottom of the carton and said closed end when inserting the carton, and for holding said carton within said shell by suction when withdrawing said device with the filled carton from a supply of material.

Other objects of the invention are to provide an improved measuring element or carton for use with carton filling devices, whereby definite measured quantities of a substance can be dispensed; also to provide an element of this sort with novel means for venting the air from the carton when the latter is being filled; and also to improve the construction of dispensing or carton filling devices in other respects hereinafter set forth and claimed.

In the drawings:—

Fig. 1 is a side elevation partly in section, of my improved carton filling and dispensing device, showing a measuring element or carton being inserted through the open end of the shell of the device.

Fig. 2 is a vertical, central section, on an enlarged scale, showing the shell of the device, with a carton therein, being inserted into a mass of material to fill the carton.

Fig. 3 is a similar section thereof, showing the device, with the filled carton ready to be withdrawn from the material.

Fig. 4 is a similar view showing the filled carton being ejected from the filling device.

Fig. 5 is a plan view of the device, with the stem of the carton ejecting plunger in section.

Fig. 6 is a view, partly in section of the filled carton or measuring element with its cover or closure member in place thereon.

Fig. 7 is a fragmentary plan view, partly broken away, of the inside face of the bottom of the carton, showing the valve which permits air to be vented from the carton when the latter is being filled, and which acts to seal the vent when the carton is full.

Fig. 8 is a sectional view thereof, on line 8—8, Fig. 7.

The carton filler or dispensing device of the present invention is adapted for filling cartons of the type which have a separate cover, which is applied after the carton is filled. These cartons when filled to capacity usually hold a definite or standard quantity such as a pint, quart, pound or other unit of measure, and such cartons, except as hereafter described, can be of any suitable construction.

The carton or measuring element A shown comprises a cylindrical or tubular body 10, one end of which is closed by an end wall

11. The opposite open end 13 of the carton is closed by a detachable cover 14 (Fig. 6) of appropriate construction.

The carton filler or dispensing device comprises a hollow shell or holder 20 open at one end for the reception of the carton A, and closed at the opposite end, and a plunger 21 disposed in the shell and movable lengthwise thereof for ejecting the filled carton by means of an operating rod or stem 22 which extends through said closed end of the shell. Preferably the shell 20 is cylindrical or tubular and its open end 23 is formed with an annular cutting edge 25. The other end of the shell is closed by a transverse end wall 26, which, if desired, can be integral with the side wall 24.

The plunger 21 is preferably in the form of a flat disk of suitable size, which extends transversely within said shell 20, and is adapted, when retracted, to engage the end wall 26 of said shell, see Figs. 2 and 3. When the plunger is in this position, a space substantially the size of the carton is left within the shell into which the carton A may be inserted endwise through the open end 23. The carton fits or closely engages the side wall of the shell with its closed end contacting with the plunger 21, and its open end substantially flush, or just within the open end of the shell, as shown in Figs. 1–3.

A transverse handle 28 is rigidly connected to the outer end of the plunger stem 22, the disk of the plunger being in turn rigidly secured to the opposite end of said stem. This stem extends through the end wall 26 of the shell 20 and slides and is guided in a hole 30 preferably in an outwardly extending boss 31 on said wall 26. The stem 22 and the hole 30 are preferably made square or of other suitable cross sectional shape, so as to prevent rotation of the operating handle relatively to the shell 20.

Near the plunger disk 21, the stem 22 is provided with a notch 32 or other means for engagement by a latch 33 or other holding or locking member when the plunger is retracted, to hold the latter in this position. The latch 33 shown is pivoted at 34 on the end wall 26, and is moved towards and held yieldingly against the stem by a spring 35. The boss 31 is suitably slotted to allow the latch 33 to engage the stem 22.

By moving the plunger 21 to its retracted position in which it will be automatically locked by the spring pressed latch 33, and then inserting a measuring element or carton A into the shell 20 with its bottom end engaging the plunger and its open end adjacent the open end of said shell, the latter with the carton, can be pushed into a mass of material, such as ice cream in a large container, by gripping the handle 28 and forcing the entire device into the material. It will be noted that there will be no relative movement between any parts of the device, as thus described, as long as the latch remains in locking position.

When the carton A has been filled, the latter can be withdrawn from the mass of material by first rotating the device to sever the material in the carton from the main mass, and then pulling the device out of the mass by means of the handle. When thus turning the device, the carton will turn with the shell and break the plug of material within the carton from the main mass substantially in the transverse plane of the open end of the carton.

The carton is retained in the holder or shell 20 by suction, and to expel the carton, the latch 33 is disengaged from the stem, and the plunger moved toward the open end of the shell 20, thus forcing the carton out of the latter, see Fig. 4. The cover 14 is then placed on the open end of the carton.

In order to avoid resistance due to air compression between the end of a carton and the end of the shell 20 when the closely fitting carton A is inserted into said shell, and to prevent the entrance of air and breaking the suction when pulling the device out of the mass of material, a suitable valve hole 41 is provided in the end wall 26. The valve shown includes a ball 42 engageable with a seat 43 registering with said hole 41.

When the carton or measuring element A is inserted, the ball 42 will be moved off its seat by air pressure within the holder to vent this air. Preferably a hole 44, registering with the hole 41 is formed in the disk of the plunger 21 to permit the air to escape past said plunger.

When using a device of this kind, it is usually held in a substantially upright position while being forced into the substance. Thus the ball valve 42, in the present construction, will be resting on its seat by gravity, Figs. 2 and 3. Consequently when the filler is pulled upwardly out of the material, the carton will be retained in the shell by suction, which will act to hold the ball firmly on its seat, thereby preventing the entrance of air through the valve 40 into the shell back of the end of the carton.

However, when expelling the carton from the shell 20, the device is naturally held in a substantially horizontal or non-vertical position, as in Fig. 4, with the result that the ball 42 will roll away from its seat and permit air to enter the shell and relieve suction therein, thus allowing the carton to slide freely in the shell 20 when the plunger is actuated.

In order to facilitate this latter operation, a hook or finger piece 45 is fixed on the inner end of the shell or holder so that the user can engage a finger under the hook 45 as shown in Fig. 4, and then by gripping the handle 28 with the same hand, releasing the latch 33 by one finger, and closing the hand,

the plunger 21 and carton A can be easily forced lengthwise relative to the shell 20 to expell the carton.

In order to avoid air from being trapped in the cartons in the operation of filling the latter, which prevents the full capacity of the carton from being utilized, some of the filling devices heretofore proposed have been provided with a small pointed tube or member for puncturing the bottom wall of the carton to permit the escape of air as the material is forced into the carton. Such means are often ineffective, because small particles of the cardboard or other material of which the carton is formed, plug up or obstruct such members and prevent the air from escaping. Also the resultant hole made by such means often permits the escape or leakage of part of the contents of the carton.

The improved carton A of the present invention is designed to overcome these objections, and is particularly adapted for use with a carton filler or dispensing device, such as that hereindescribed, as the air between the bottom of said carton and the material with which the latter is being filled is also allowed to escape through the valve 40, while nevertheless no loss or leakage of the substance from the filled carton occurs, and a predetermined or measured quantity of the material is dispensed each time a carton is filled and ejected from the device.

For this purpose, the bottom wall 11 of the measuring element or carton A is formed with a hole or aperture 50, and is provided with suitable means which, while permitting the hole 50 to remain normally uncovered and thus allow the air in the carton to escape through said hole 50 during the filling operation until the substance reaches said bottom wall, will, upon the engagement of the substance with said means, cause the latter to obstruct or seal said aperture 50.

Said aperture closing or sealing means, in the construction illustrated, comprises a flap valve 51 which is preferably formed of a piece of flexible material secured at one end to the inner face of the wall 11 at one side of said aperture 50 and extending across the latter. The free portion of the flap 51 over the aperture is bent or curved so as to leave the hole 50 unobstructed, see Fig. 2.

As the substance enters the carton or element A and approaches the bottom 11 thereof, the air in said carton will pass around the flap valve 51 and out of the hole 50, through the hole 44 in the plunger 21, and out through the valve 40. The flap valve 51 is sufficiently stiff to prevent it from flattening due to the air pressure, but as soon as the substance in the carton comes into contact therewith in the act of forcing the filling device and carton into the substance, the flap valve will be flattened against and seal the aperture 50, see Figs. 3, 4 and 6, so that when the carton is removed from the filler, it will contain a full or measured quantity of material.

By then applying the cover, the contents will be completely enclosed and no leakage thereof will occur.

If desired, the flap valve 51 can be coated on its inner face with adhesive, so that when the carton is filled with a moist substance such as ice cream, the adhesive will be moistened, causing the valve 51 to adhere to the bottom wall of the carton and still more effectively seal the aperture 50.

The filler or dispensing device described is relatively simple and is inexpensive to produce and will not readily get out of order.

The carton can be quickly filled by its use, and measured quantities of material dispensed, as it is only necessary to insert a carton into the open end of the filler, shove the filler into the substance a sufficient distance to fill the carton, give the entire unit a twist by means of the non-rotatable handle to separate the substance in the carton from the remainder, and withdraw the filler (with the carton retained therein by suction) from the mass of material. The latch is then actuated to release the plunger which can then be operated to eject and dispense the filled carton from the open end of the shell.

The foregoing filling and ejecting operations can be performed by the use of one hand, leaving the other free to receive the ejected carton.

The carton, or measuring element, by reason of the flap valve contained therein, will be filled to capacity as no air will be trapped between the substance in said carton and the bottom wall of the latter.

Claims:

1. A carton filling and dispensing device comprising a tubular holder having one end closed by an end wall and the other end open and unobstructed to receive and support a tubular carton to be filled and which slidably fits within said holder and has one end closed and also has an open end disposed substantially at the open end of said holder, a plunger in said holder between the closed end of said carton and said end wall of the holder and having an operating member passing through and sliding endwise in said end wall of said holder for ejecting the carton from said open end of said holder, an air vent valve at said closed end of said holder, and which opens during the insertion of said carton into said holder to permit air between the closed ends of said holder and carton to be vented, and which is closable to prevent the entrance of air into the holder so as to hold said carton in said holder by suction until ejected by said plunger.

2. A carton filling and dispensing device comprising a tubular holder having one end closed by an end wall and the other end open

and unobstructed to receive and support a tubular carton to be filled and which slidably fits within said holder and has one end closed and also has an open end disposed substantially at the open end of said holder, a plunger in said holder between the closed end of said carton and said end wall of the holder and having an operating member passing through and sliding endwise in said end wall of said holder for ejecting the carton from said open end of said holder, an air vent at said closed end of said holder and an air valve at said vent which, when said device is held in one position, acts to close said vent to create suction in said shell behind said carton to hold the latter in said holder, and when said device is held in another position, uncovers said vent to permit air to enter said holder back of said carton to relieve the suction and allow free discharge of said carton by said plunger out of said open end of said holder.

3. A carton filling and dispensing device comprising a tubular holder having one end open and unobstructed to receive and support a tubular carton to be filled and which is inserted through said open end of said holder and slidably fits within said holder and has one end closed and also has an open end disposed substantially at the open end of said holder, a plunger in said holder back of the closed end of said carton, and an operating member movable lengthwise of said holder for reciprocating said plunger, means on said holder engaging said operating member for preventing relative turning movements between said operating member and said holder whereby said carton can be filled by grasping said operating member, forcing said holder open end foremost into a mass of material, turning said member to cause a corresponding action of said holder and carton to separate the substance in said carton from the remaining material, withdrawing said device with the filled carton from said mass, and ejecting said carton endwise through said open end of said holder by actuating said plunger by an endwise movement of said operating member.

4. A carton filling and dispensing device comprising a tubular holder having one end closed and the other end open and unobstructed to receive and support a tubular carton to be filled and which slidably fits within said holder and has an open end disposed substantially at the open end of said holder, a plunger in said holder between the closed ends of said carton and said holder and having an operating member passing through and sliding endwise in said closed end of said holder for ejecting the carton from said open end of said holder, an air vent valve at said closed end of said holder, said valve including a seat, a ball, which when said device is held in one position, rests on said seat and closes said vent to cause said carton to be held in said holder by suction, and said ball being movable away from said seat when said device is held in another position to allow air to enter said holder through said vent to relieve suction and permit free discharge of said carton through said open end of said holder by said plunger.

5. A carton filling and dispensing device comprising a tubular holder having one end closed and the other end open and unobstructed to receive and support a tubular carton to be fillled and which slidably fits within said holder and has an open end disposed substantially at the open end of said holder, a plunger in said holder between the closed ends of said carton and said holder and having an operating member passing through and sliding endwise in said closed end of said holder which can be grasped in the hand when using the device to fill said carton, means on said holder engaging said operating member to prevent relative rotation therebetween and a fixed finger piece on said holder with which a finger of the same hand can be engaged to assist in effecting relative endwise movement between said holder and said plunger to move said carton lengthwise of said holder for ejecting said carton from said open end of said holder.

6. In a carton filling and dispensing device, the combination of a tubular holder having one end closed and the other end open, and a tubular carton of predetermined capacity also having one end closed and the other end open and which can be inserted into said holder through said open end thereof and slidably fits within said holder with its open end at the open end of the latter, a valve on said holder which permits the escape of air from between the closed ends of said holder and said carton during the insertion of said carton, and said carton having a vent to permit air to escape from between the substance which enters said carton and the closed end thereof to enable said carton to be filled to capacity, and means for closing said vent when the substance engages said closed end of said carton.

7. In a carton filling and dispensing device, the combination of a tubular holder having one end closed and the other end open, and a tubular carton of predetermined capacity, also having one end closed and the other end open and which can be inserted into said holder through said open end thereof and slidably fits within said holder with its open end at the open end of the latter, a valve on said holder which permits the escape of air from between the closed ends of said holder and said carton during the insertion of said carton, and said carton having a vent in said end wall thereof, a flap valve disposed within said carton over said vent and which normally extends yieldingly in spaced relation thereto to permit air to

escape from between the substance with which said carton is being filled and said end wall thereof and enable said carton to be filled to capacity, and said valve being adapted to yield upon contact of said substance therewith so that it is pressed against said end wall to seal said vent.

8. A carton filling device comprising a tubular holder having a closed inner end and an open and unobstructed outer end through which a tubular carton to be filled can be slid into said holder so as to occupy the latter with an open end of said carton disposed substantially at the open end of said holder, a plunger in said holder between the inner end of said carton and the inner end of said holder and having an operating member passing and movable through said inner end of said holder for ejecting the carton from the holder, said holder with the carton therein being insertable open end foremost into a body of material to fill said carton, said inner end of said holder having an air vent through which air can escape from the holder as the material enters the carton, and means cooperating with said air vent to close the same and prevent air from passing therethrough into said holder, whereby, when the holder is withdrawn from the body of material the carton and material therein will be retained in the holder by external air pressure.

JOHN F. ORTNER.