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COUPON EJECTOR

Filed July 27, 1962

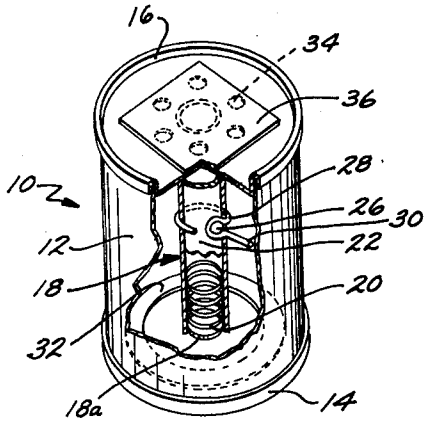


FIG. 1.

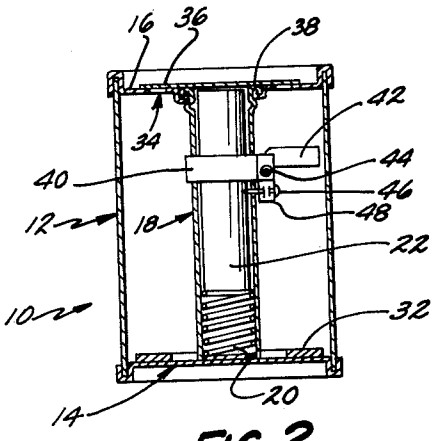


FIG. 2.

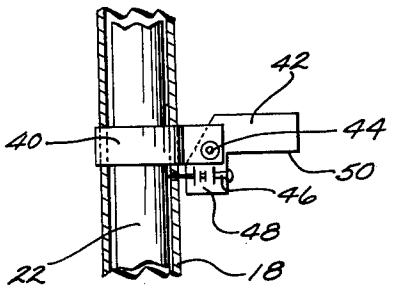


FIG. 3.

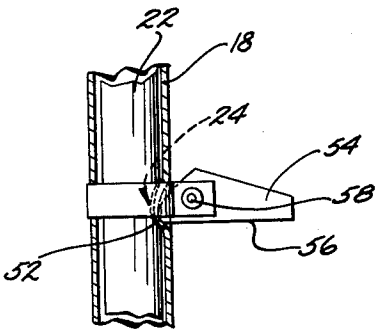


FIG. 4.

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COUPON EJECTOR

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This invention concerns dispensing containers, and more particularly a dispensing container provided with means by which a coupon or premium may be ejected from the container when and only when a predetermined portion of the contents of the container have been emptied therefrom.

In merchandising granular materials which for one reason or another cannot be packed in transparent containers, it is desirable to provide an indication to the user when his supply of material in the container is substantially exhausted. The present invention is intended to achieve this result in a manner which commands the attention of the user by ejecting from the container a small capsule containing a premium or coupon when a certain minimum level of material in the container has been reached.

The present invention accomplishes this result by providing at the bottom of the container a weight member or ring which rests on the surface of the granular material when the container is inverted for dispensing purposes. As the material is gradually discharged from the container, the weight member falls farther and farther toward the discharge end of the container with each inversion, until it finally falls far enough to actuate a release mechanism located near the discharge end of the container which causes the premium bearing capsule to be ejected.

It is therefore the object of this invention to provide an ejection device for ejecting a cartridge from a container of granular material when the level of said granular material falls below a predetermined point.

It is a further object of this invention to accomplish the aforesaid result by the gravitational action on a release mechanism of a weight member resting on the surface of the granular material contained in the container when the container is inverted.

These and other objects of this invention will become apparent from the following specification, taken in connection with the accompanying drawings in which:

FIG. 1 is a perspective, partially cut-away drawing of one embodiment of this invention;

FIG. 2 is a vertical section of another embodiment of this invention;

FIG. 3 is a detail view of the lock and trip mechanisms of the device of FIG. 2; and

FIG. 4 is a detail view of another type of trip and lock mechanism.

Basically, the invention consists of providing the container with a spring loaded coupon cartridge slideably mounted in a tube inside the container and held in that tube against the bias of the ejecting spring by a locking mechanism which can be released by the action of a weight ring falling onto a trip mechanism arranged to disable the locking mechanism.

Referring now to FIG. 1, the container **10** of this invention is shown consisting of a cylindrical side wall **12**, a lower end wall **14** and an upper end wall **16**. A cartridge tube **18** is held coaxially with the container **10** between the ends **14** and **16** and contains a spring **20** and a cartridge **22**. One end of the cartridge tube opens through the upper end wall **16**. It is surrounded by a number of discharge openings **34**, through which the granular material may pass. The cartridge **22** has an indentation in its side into which a ball **26** is pressed by an annular spring **28**. This spring has an extension in the form of an arm **30** which extends radially of the container. At a point near the extending arm **30** the annular spring **28** is formed into a generally rounded loop, or eyelet, having a diameter somewhat smaller than that of the ball **26**. The spring **28** thus cradles the ball **26** by partially engirdling the same, thereby trapping it against the indentation in the side of the cartridge **22** and preventing its escape from this position until the spring is deflected sufficiently to relieve part of the spring pressure holding the ball in place, thereby allowing it to be released. A weight ring **32** is placed in the bottom of the container, and when the container is inverted, this weight ring rests on the top surface of the granular material which the container is designed to contain. The discharge openings **34** may be covered during shipment of the container by a removable tab **36**.

A modification of the locking mechanism is illustrated in FIG. 2, which also shows more clearly the preferred method of assembling the device. Cartridge tube **18**, closed at bottom by the end piece **18***a*, is attached to top **16** at the open end of the said tube. Spring **20** is inserted into open end of cartridge tube **18**. Cartridge **22**, having been previously loaded with coupon, is then pushed down onto spring **20** until cartridge **22** is flush with top surface **16**. This effects compression of the spring **20**. The locking mechanism is then attached to cartridge tube **18** by means of a band **40**. Cartridge **22** is locked in place by arm **42** pivoting on pivot **44** until pin **46** in tab **48** penetrates cartridge **22** and holds it in place. The top **16** is now attached to the side wall **12** by crimping or gluing and tab **36** is pasted over the pouring openings **34** and the opening in the top **16** communicating with the open end of cartridge tube **18**. It should be noted that the top **16** and the cartridge tube **18** may be fabricated as a single element as by molding. The container is now inverted for filling with granular material. The weight member **32** is placed on top of granular material and the bottom **14** is joined to the side wall **12** by crimping or gluing to close the container. The container is now ready for operation.

FIGS. 3 and 4 show two alternative illustrative ways of locking the cartridge **22** in the cartridge tube **18**. FIG. 3 is an enlargement of the mechanism of FIG. 2. It will be seen that in the operation of the container, if the container is inverted and sufficient material has been discharged to allow the weight ring **32** (FIG. 2) to contact the surface **50** of arm **42**, arm **42** will pivot counterclockwise about pivot **44**, thus pulling pin **46** out of the cartridge **22** and allowing the cartridge **22** to be ejected under the action of spring **20**.

In the embodiment of FIG. 4, the wedge **52** on the left side of the arm **54** compresses the outer wall of the tube to pinch it against the cartridge locking the cartridge in place. In this embodiment also, when weight ring **32** (FIG. 2) contacts surface **56** of arm **54** while the container is inverted, it will cause arm **54** to rotate in a counterclockwise direction about pivot **58**, releasing the pinching action. This allows the cartridge **22** to be ejected under the action of spring **20**.

Operation

In each of the embodiments shown, the operation of the device is alike and consists of first removing the tab **36** to free the discharge openings **34**. The container is then used in a conventional manner to discharge the granular material contained therein through the openings **34**. As the amount of material in the container **10** diminishes, the weight ring **32** will be able to fall closer and closer to the discharge end each time the container is inverted, since it rests on the surface of the material in the container. Eventually, enough material will have been discharged from the container that on the next in-

version, the weight ring 32 will strike the arm 30, 42, or 54 of the tripping device, and the locking mechanism will thereby be released in the manner previously described, thereby permitting the ejection of the cartridge 22 from the tube 18 and the opening in the top 16 communicating therewith, under the action of spring 20.

It will be seen that the present invention provides a foolproof, attention getting warning device to show that the material in the container is almost exhausted, while at the same time providing the customer, for example, with a coupon which may be applied toward the purchase of another container of the same goods, at a time when such a coupon is useful and not before. Obviously, the concepts of this invention can be carried out in many different ways, of which the embodiments shown are merely illustrative. Consequently, I do not desire to be limited by the embodiments shown in the drawing or described in the specification, but only by the scope of the following claims.

I claim:

1. A coupon-ejecting and granular material dispensing package, comprising: a container having an aperture at one end through which the material is discharged when the container is inverted; a cartridge within said container; biasing means for biasing said cartridge outwardly of said container; releasable lock means for preventing outward movement of said cartridge; weight means resting on the material contained in said container when said container is in a position to discharge said material therefrom; and means associated with said lock means for engaging said weight means and releasing said lock means when said weight means reaches a predetermined position in said container.

2. A coupon-ejecting and granular material dispensing package, comprising: a container for the granular material having an aperture at one end through which the material is discharged when the container is inverted; a cartridge chamber within said container; an ejectable cartridge within said cartridge chamber; spring means for biasing said cartridge outwardly of said container; releasable lock means for preventing outward movement of said cartridge; weight means resting on said material when said container is inverted; and trip means in said container associated with said lock means; said trip means being arranged to release said lock means upon being struck by said weight means when a sufficient quantity of material has been discharged to allow said weight means to strike said trip means.

3. A coupon-ejecting and granular material dispensing package, comprising: a container for the granular material having an aperture at one end through which the material is discharged when the container is inverted; a cartridge tube in said container and fixed thereto; an ejectable cartridge in said tube; spring means in said tube for biasing said cartridge outwardly of said tube; lock means releasably interconnecting said tube and said cartridge to prevent ejection of said cartridge; trip means in said container for releasing said lock means when tripped; and a freely movable weight ring surrounding said tube and resting on said material when said container is inverted, said weight ring being arranged to strike said trip means and trip the same when said container is inverted and sufficient material has been discharged therefrom to bring the level of said material below the level of said trip means.

4. The device of claim 3, in which said lock means comprises a ball held in engagement with said cartridge by an annular spring; and said trip means comprises an arm arranged to disengage said annular spring from said ball when struck by said weight ring.

5. The device of claim 3, in which said lock means comprises a pivotally mounted member engaging said cartridge, and said trip means comprises an arm fixed to said pivotally mounted member and extending into the path of said weight ring to pivotally disengage said member from said cartridge under the action of said weight ring.

6. The device of claim 5 in which the portion of said pivotally mounted member engaging said cartridge is a pointed element passing through the wall of said cartridge tube and having its point embedded in the side of said cartridge.

References Cited in the file of this patent

UNITED STATES PATENTS

822,638	Vester	June 5, 1906
1,640,285	Mortka	Aug. 23, 1927
1,935,134	Swan	Nov. 14, 1933
2,151,684	Casella	Mar. 28, 1939
2,284,218	Livingotone	May 26, 1942