Jan. 9, 1968 J. C. CHAMBERS 3,362,580

DISPENSER FOR SELECTED QUANTITIES OF ARTICLES

Filed Oct. 21, 1966

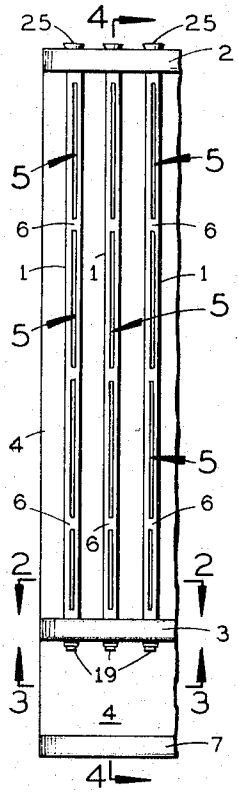


FIG. 1

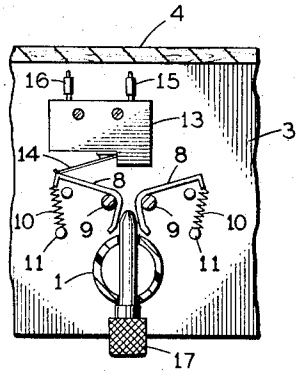


FIG. 5

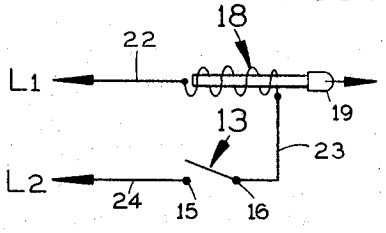


FIG. 6

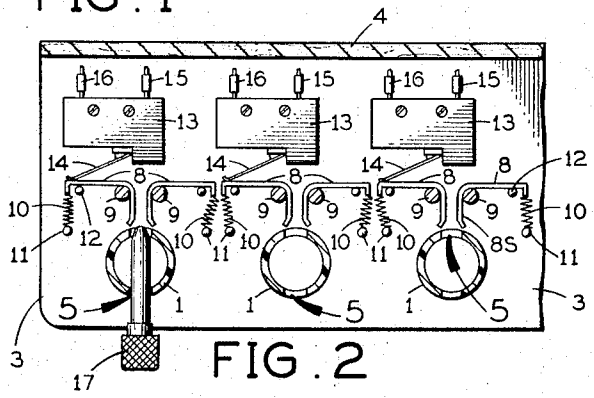


FIG. 2

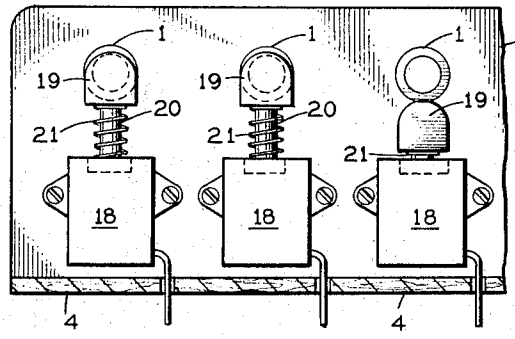


FIG. 3

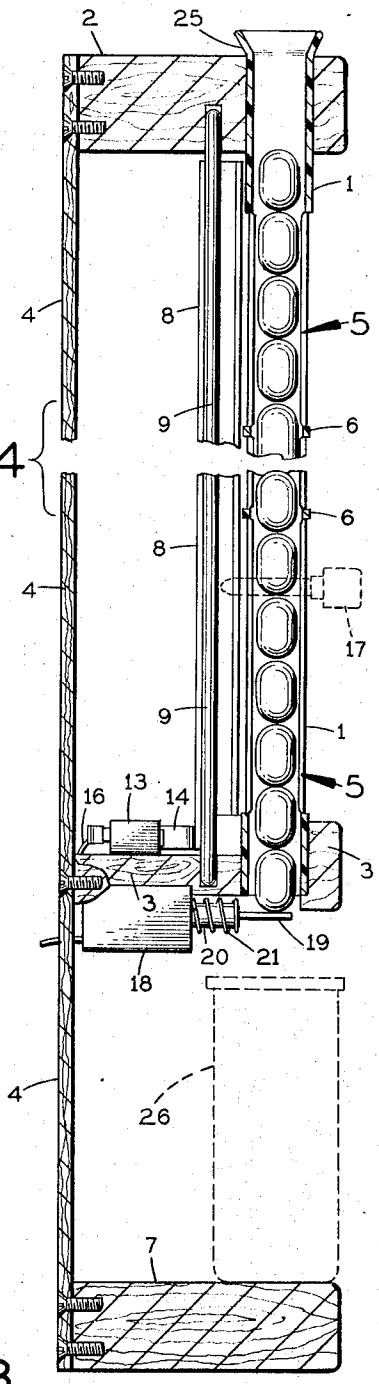


FIG. 4

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DISPENSER FOR SELECTED QUANTITIES OF ARTICLES

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4 Claims. (Cl. 221—207)

This invention relates in general to dispensers and more particularly to a device for selectively dispensing selected numbers of like bodies.

Reference is had to applicant's pending application, Ser. No. 458,868, now Patent No. 3,294,284.

The device described in the aforesaid application relates to a plurality of rotary magazines, whereas the present invention provides for a plurality of vertical magazines in linear fixed relation and includes certain electric improvements for improved reliability and for a relatively low cost manufacture.

These and other objects and advantages in one embodiment of the invention are described and shown in the following specification and drawing, in which:

FIG. 1 is a fragmentary front elevation of the dispensing device in reduced scale.

FIG. 2 is a fragmentary enlarged top plan view of the dispenser taken through section line 2—2, FIG. 1.

FIG. 3 is a fragmentary enlarged bottom plan view taken through section line 3—3, FIG. 1.

FIG. 4 is a fragmentary enlarged cross sectional side elevation taken through section line 4—4, FIG 1.

FIG. 5 is a fragmentary view of a portion shown in FIG. 2 in changed position.

FIG. 6 is a schematic wiring diagram for the dispensing device.

Referring to FIG. 1, a predetermined plurality of hollow dispensing tubes 1, of uniform wall thickness, three of which are shown supported by spaced horizontal supports 2 and 3 which are secured to frame 4 by well known means. Each tube has a plurality of apertures or slots 5 therein of uniform width, and in the case of slots, a relatively small bridge 6 therebetween. A shelf 7, to be hereinafter described, is positioned beneath the lower ends of the tubes, as shown.

Referring to FIGS. 2 and 4, a pair of elongated angle release members 8 are independently supported by rods 9 secured thereto with the opposite ends thereof pivoted in horizontal supports 2 and 3, as shown in FIG. 4.

Referring to FIG. 2, each coil spring 10 has one end thereof secured to the outer edge of each member 8 with the opposite end thereof secured to a fixed pin 11 in support 4 for urging the member 8 in the position shown against a stop pin 12 in support 3 for positioning one side 8s of the angle member 8 in parallel spaced relation to a central plane of the slots 5, as shown.

Referring to FIG. 2, a normally open single circuit electric switch 13, having an operating lever 14, is positioned on support 3 for operation by one of each pair of members 8, as shown. Each switch is preferably of the well known enclosed snap action type and has terminals 15 and 16 projecting therefrom.

FIGS. 2 and 4 also show a dispensing pin 17 which is intended to be manually inserted through a selected vertical position in any one of the slots 5 for engaging both members 8 and spreading same and operating lever 14 for closing switch 13, as shown in FIG. 5.

An electro-magnet 18, preferably of the solenoid type, is secured to the under side of support 3, as shown in FIG. 3, with a blade 19 secured to the outer end of the core 20 of the magnet with the blade normally positioned in close proximity over the lower end of each tube 1 and urged into this position by a spring 21. Each blade normally covers the lower end of each tube 1 for holding the bodies within the bore of the tube against the action of gravity.

Referring to FIG. 6, the circuit for operating each electro-magnet 18 is shown wherein the magnet 18 and the switch 13 are series connected to a source of power L_1 and L_2 by conductors 22, 23 and 24, respectively. It is apparent that additional magnets for other tubes have like circuits connected to L_1 and L_2. The upper end of each tube 1 terminates in a flare 25 for convenience in loading.

In operation and referring to FIG. 4, and under the assumption that each tube is filled with like bodies, a vessel 26 is positioned on shelf 7, as shown in dotted lines, under a selected tube 1 and the pin inserted above a selected number of bodies to be dispensed, as shown in dotted lines. When the pin is fully inserted, the switch 13 corresponding with the tube is operated, as illustrated in FIG. 5, which will energize a corresponding electro-magnet 18 and withdraw the blade 19 thereof from the bottom of the selected tube and thus permit all of the bodies below pin 17 to gravitate into the container.

It is understood that certain modifications in the construction, utilizing the features above described, are intended to come within the scope of the appended claims.

Having described my invention, I claim:

1. A device for selectively dispensing small bodies comprising a means forming a support,

a plurality of tubes of uniform cross section secured in vertical parallel spaced relation on said support,

each of said tubes having a plurality of elongated slots through opposite walls thereof and central with respect to a plane through the axis of each of said tubes,

a pair of elongated lever means pivoted in said support in adjacent relation to each of said tubes with the side of each lever normally positioned a predetermined distance from said plane and movable outward from each other a predetermined angle to an operated position,

independent spring means biased between said support and each said lever means for urging the latter into said normal position,

an electric switch means operatively related to one of said lever means for movement from a normal open to a closed position when said lever is moved to said operated position,

an electro-magnetic shutter means on said support normally positioned adjacent and across the lower end of each of said tubes and movable therefrom to a discharge position when energized,

a source of electric energy,

a circuit means connecting said source of energy and said switch means and said electro-magnetic means,

a cylindrical pin means dimensioned to be manually moved through a selected slot in a selected one of said tubes normal said axis thereof and engaging and moving said lever means from its said normal to its said closed position whereby a plurality of bodies in said tube will be selectively dispensed by inserting said pin means through said tube above the selected number of bodies which will operate and close said switch means and move said shutter to said discharge position and permit said selected number of bodies to gravitate downward out of said tube.

2. In a dispensing device of the character described a means forming a frame,

an elongated tube of uniform cross section secured in fixed vertical relation on said frame,

said tube having a plurality of elongated slots through opposite walls thereof and central with respect to a plane through the axis of said tube,

electro-magnetic shutter means secured to said frame normally positioned adjacent and across the lower end of said tube and movable therefrom to a discharge position when energized,

a selection pin means for manual insertion through a selected one of said slots for separating a predetermined number of uniform bodies retained in end to end relation within said tube with respect to the lowermost one thereof normally resting on said shutter means,

an elongated lever means pivoted in said frame in adjacent relation to said tube with one side thereof normally positioned in the path of movement of the end of said pin means when the latter is manually inserted through any one of said slots and adapted to be moved by said pin means to a displaced position,

spring means biased between said frame and said lever means for urging the latter into said normal position,

a normally open electric switch means on said frame operatively related to said lever means for movement thereby from an open to a closed position when said lever means is moved from said normal to said discharge position,

a source of electric energy,

a circuit means connecting said switch means and said shutter means to said source of energy whereby the insertion of said pin means in a selected position in a selected slot will energize said shutter means and permit the gravity discharge from said tube of said bodies positioned below said pin means.

3. In a dispensing device of the character described a means forming a frame including a pair of projections in vertical spaced relation,

at least one elongated tube of uniform cross section detachably secured in vertical position on said projections,

said tube having a plurality of apertures through opposite walls thereof and central with respect to a plane through the axis of said tube,

an electro-magnetic shutter means secured to said frame with a movable portion thereof positioned across the lower end of said tube for movement

therefrom to a discharge position when energized,

a selection pin for manual insertion through any selected one of said apertures for separating a predetermined number of uniform bodies retained in end to end relation within said tube with respect to the lowermost one of said bodies resting on said portion of said shutter means,

an elongated lever means pivoted at opposite ends thereof in each of said projections respectively in adjacent relation to said tube with one side thereof normally positioned in the path of movement of said pin when the latter is manually inserted through any selected one of said apertures with said lever means adapted to be moved by said pin from a normal to a displaced position,

spring means biased between said frame and said lever means for urging the latter into said normal position,

a normally open electric switch means on said frame operatively related to said lever means for movement thereby from an open to a closed position when said lever means is moved from said normal to said displaced position,

a source of electric energy,

a circuit means connecting said switch means and said shutter means to said source of energy whereby the insertion of said pin in a selected aperture will energize said shutter means and move said portion thereof to said discharge position and permit the gravity discharge from said tube of the number of said bodies positioned below said pin.

4. The construction recited in claim 3 including a shelf means secured to said frame a predetermined distance below the lower end of said tube for holding a receptacle to receive bodies discharged from said tube.

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