

[54] **CIGARETTE DISPENSER WITH SWIVEL ACTING EJECTOR**

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[51] Int. Cl. **A24f 15/06**

[58] Field of Search **221/210, 247-249, 221/255, 262, 270**

[56] **References Cited**

UNITED STATES PATENTS

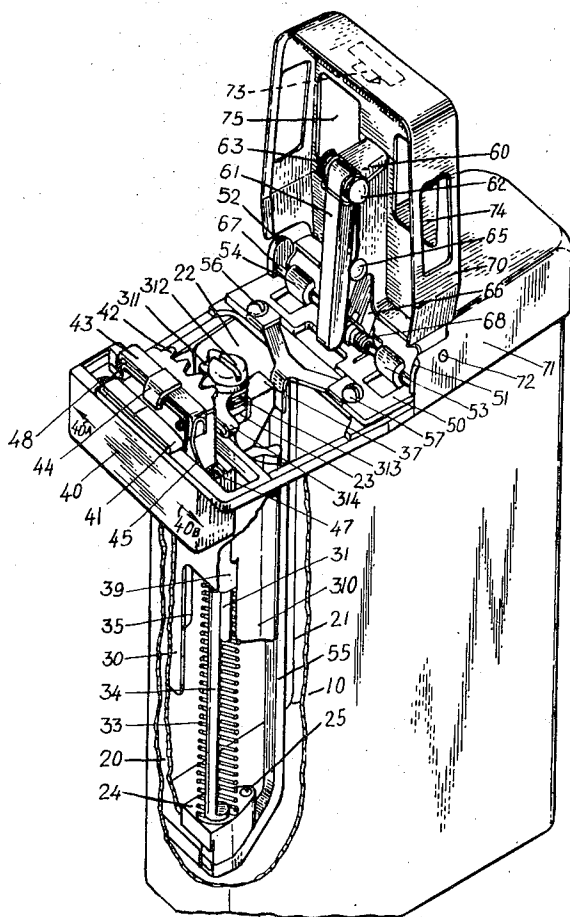
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Assistant Examiner—David A. Scherbel
Attorney, Agent, or Firm—Yuter & Rosen

[57] **ABSTRACT**

An article dispenser for dispensing elongated articles such as cigars or cigarettes on a basis independent of article length, including a base member surrounding at least a portion of the article length, and a spring loaded manipulatable catcher mechanism positioned inside the base member. The catcher includes a swivel plate and opposed shields. The catcher is held in a retracted position by a cover set across an opening in the base member against the spring pressure. The cover is releasable by a slide action switch which simultaneously laterally positions the swivel plate against the side of an article and within either of the opposed shields. The catcher mechanism then rises with release of the spring, thereby projecting the article through the opening for dispensing.

11 Claims, 16 Drawing Figures



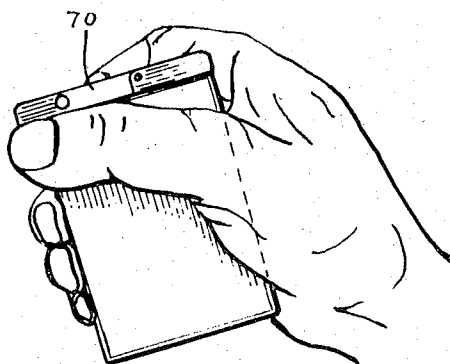


Fig. 1A

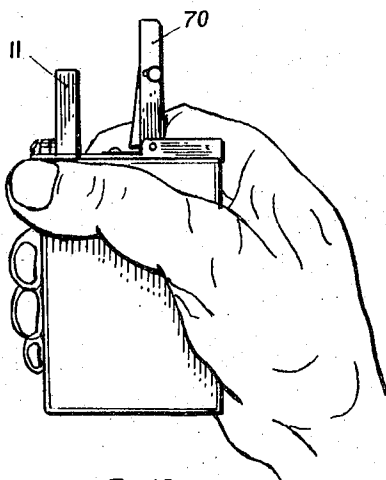


Fig. 1B

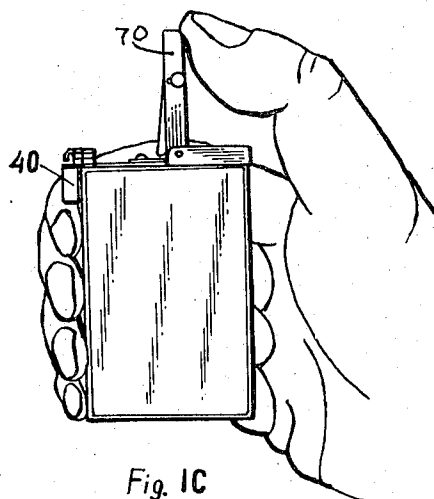


Fig. 1C

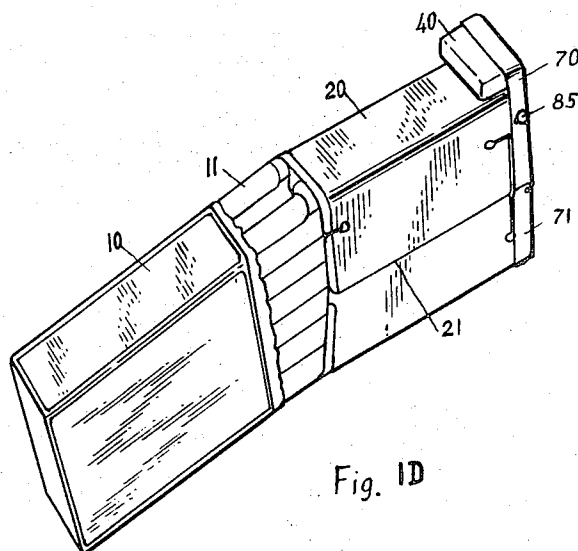


Fig. 1D

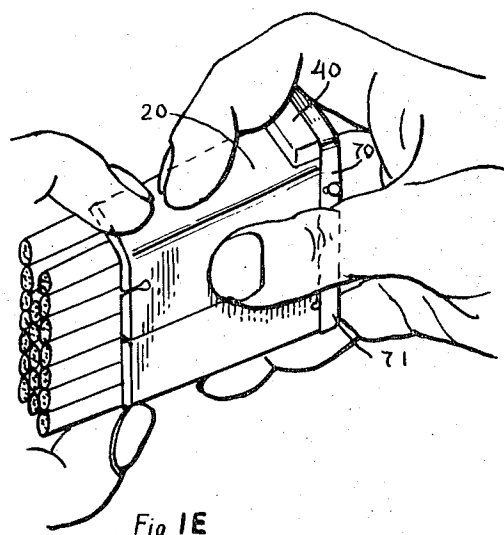


Fig. 1E

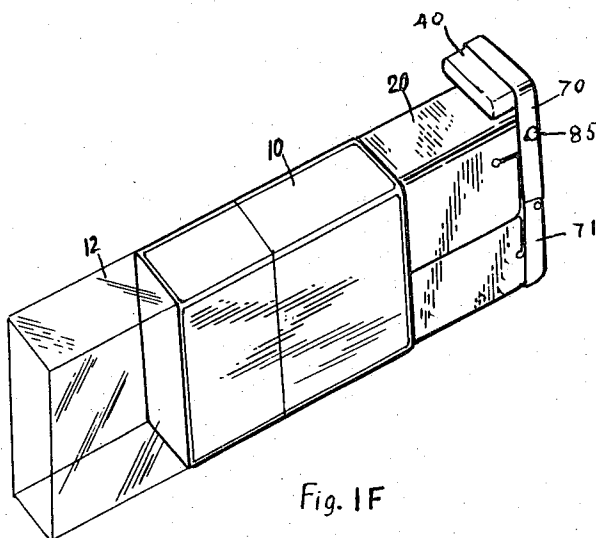


Fig. 1F

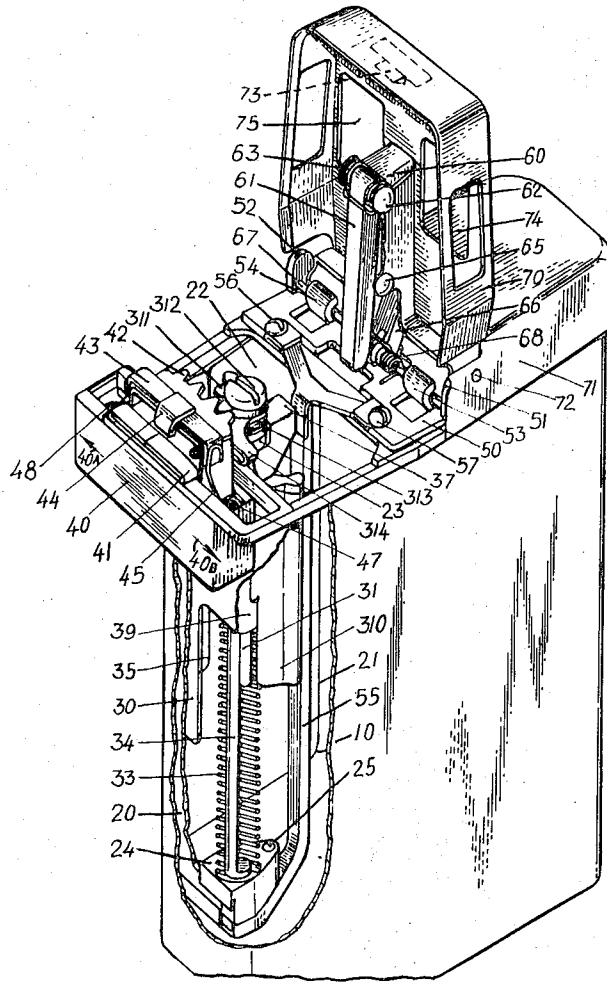


Fig. 2

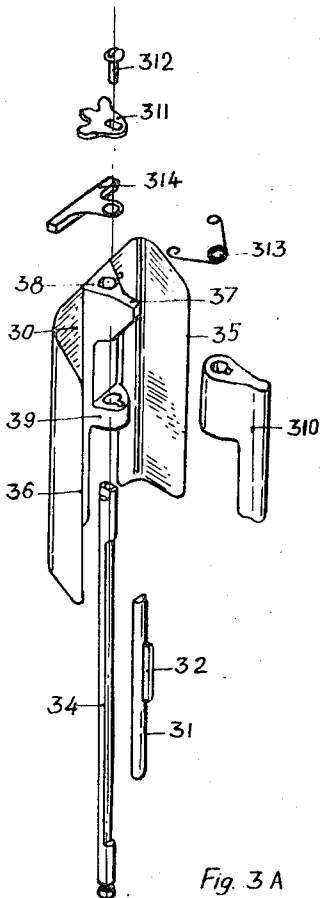


Fig. 3 A

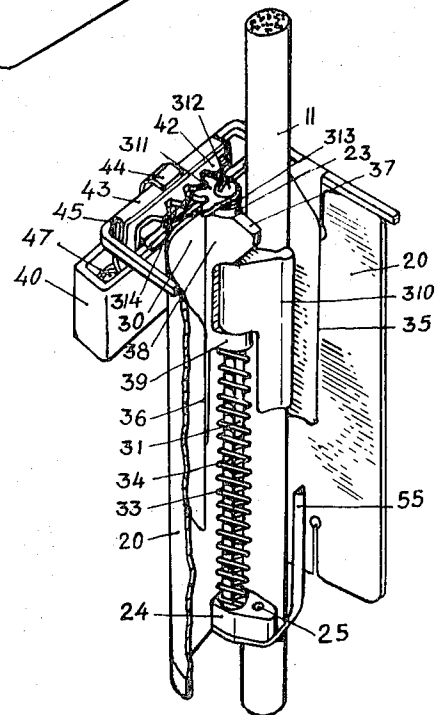
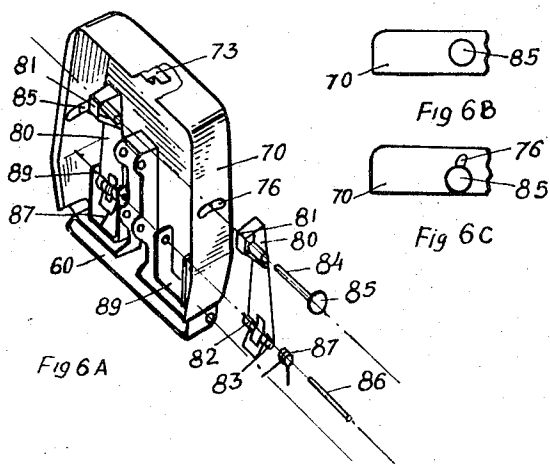
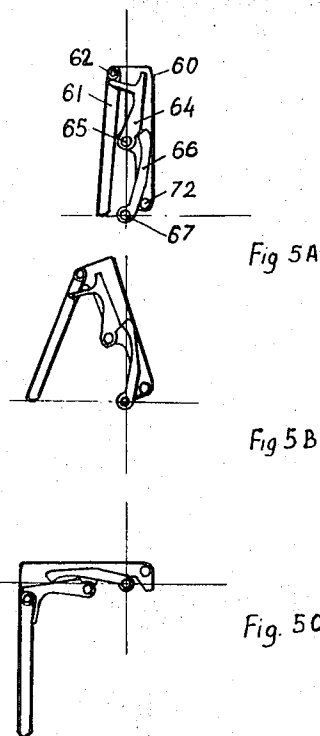
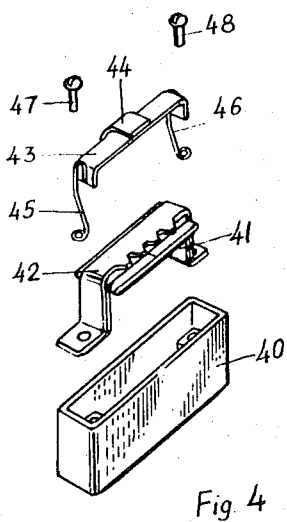


Fig. 3 B



CIGARETTE DISPENSER WITH SWIVEL ACTING EJECTOR

This invention relates to article dispensing, and more particularly to a dispenser for cigars or cigarettes which is independent of the length of the article to be dispensed.

Conventional article dispensers employed with elongated articles such as cigars or cigarettes have been available for many years in various forms. The modern day advent of filter devices, small cigar forms, and varying length cigarettes have made widespread use of such dispensers relatively impractical since prior dispensers have worked on a fixed length principle. In addition, conventional dispensers have required accurate positioning or alignment of articles, resulting in frequent jamming or otherwise relatively unreliable operation.

Accordingly, it is the principal object of the present invention to provide an article dispenser for elongated articles which is reliable and easily operable.

It is a further primary object of the present invention to provide an article dispenser for elongated articles such as cigarettes or the like which is operable with articles of varying length.

It is a still further object of the present invention to provide an efficient jam-free operational mechanism employable in conjunction with article dispensing.

The foregoing objects are realized by means of an article dispenser including a base member surrounding at least a portion of the article length, and including a spring loaded manipulatable catcher mechanism positioned inside the base member. The catcher includes a swivel plate and opposed shields. The catcher is held in a retracted position by a cover set across an opening in the base member against the spring pressure. The cover is releasable by a slide action switch which simultaneously laterally positions the swivel plate against the side of an article and within either of the opposed shields. The catcher mechanism then rises with release of the spring, thereby projecting the engaged article through the opening for dispensing.

The foregoing objects and brief description of the invention will become more apparent from the following more detailed description and appended drawings, wherein:

FIGS. 1A-1F illustrate the operation of the dispenser in conjunction with loading and dispensing articles such as cigarettes.

FIG. 2 is a view of the dispenser, partly broken away.

FIG. 3A is an exploded view of the catcher mechanism showing the swivel plate and shields.

FIG. 3B is a view of the catcher mechanism engaging a cigarette by pressing it against a shield with the swivel plate.

FIG. 4 is an exploded view of the slide mechanism.

FIGS. 5A-5C show the operation of the cover mechanism.

FIGS. 6A-6C illustrate an alternative cover embodiment.

Referring first to FIGS. 1A-1C, the dispenser is shown dispensing an article (cigarette) 11 by releasing the cover 70 using the slide mechanism 40. Referring to FIGS. 1D-1F, the dispenser is illustrated as including a base member 20 (FIG. 1D) surrounding at least a portion of the elongated articles, herein shown as cigarettes 11, after one article has been removed. The base

member 20 is made of an elastic metal material such as stainless steel and includes a side slit 21 enabling expansion or contraction of its lower opening to accommodate loading of the articles. The dispenser includes a dispensing slide mechanism 40 and a cover 70. The back portion 71 of the cover 70 can be employed to accommodate a conventional cigarette lighter. Once the cigarettes are in position (FIG. 1E), the original cigarette pack 10 can be reinserted over the base member 20 (FIG. 1F) to close the unit (FIG. 1A). Dispensing is effected by sliding the slide mechanism 40 (FIGS. 1C and 1D) in either lateral direction causing the cover 70 (FIG. 1B) to open and a cigarette 11 to project through the opening in the dispenser. After removal of the cigarette 11, the cover 70 can be closed (FIG. 1C), thereby resetting the mechanism.

Referring now to FIG. 2, a broken view of the dispenser is shown in its open position. The dispenser includes the surrounding metallic base member 20 (also see FIG. 1D), the upper cover portion 70, fixed cover portion 71, and the slide mechanism 40. The cover 70 covers the dispensing opening area 22. To facilitate observation of the proper positioning of an article to be dispensed, the cover 70 may include observation windows 74 and 75.

The cover 70 is spring biased to its open position by means of the coil springs 68 mounted about a shaft 67 pivotally supported to the upper frame sides 51 and 52 of the dispenser.

The dispensing operation is illustrated generally by means of the catcher mechanism 30 and 310 (FIG. 3A), operable in accordance with the slide mechanism 40 (FIG. 3B). The slide action switch 40 (FIG. 4) includes an upper bracket 41 with a rack gear 42 and a lock bracket 43 with a closure lip 44 and flexible legs 45 and 46. Together, these parts are fixed with screws 47 and 48 into slide action switch 40 and are movable therewith. A corresponding catch 73 (FIG. 6A) is formed on the interior front portion of the cover 70 for engagement with the segment 44 (FIGS. 2 and 4) during closure of the cover 70.

A driven gear 311 (FIGS. 2 and 3A) is fixed on a shaft 34 which is in turn pivotally mounted in a lower bearing 24 and upper bearing 23. A spring 313 maintains a bias on either side of the slide mechanism 40 maintaining the slide mechanism 40 normally biased in the center of either of its two travel directions 40A and 40B.

The catcher mechanism 30 and 310 (FIG. 3A) are normally biased upward by means of a coil spring 33 (FIG. 2). The upper portion of the catcher mechanism includes a ledge 37. When the cover 70 is closed, a pressing pin 61 moves to engage the ledge 37 and thereby depress the catcher mechanism 30 and 310 downward against the spring tension of spring 33. Upon closure, the catch 73 engages the segment 44 and locks the mechanism in position. Before loading the articles into the dispenser, it is first necessary to remove one to make room for the catcher mechanism 30 and 310.

All catcher mechanism parts are illustrated in further detail in FIG. 3A. The catcher mechanism body 30 includes first and second opposed shields 35 and 36 mounted about the central shaft 34. A swiveling plate 310 rides along the shaft 34 together with the body 30 and key slide 31 with key 32. Deflection of the shaft 34 by means of movement of the driven gear 311 causes the swiveling plate 310 to move toward one or the

other of the shields 35 and 36, thereby laterally engaging an article therebetween (FIG. 3B). Upon lateral engagement and subsequent release of the cover 70 (also see FIG. 2), the spring 33 exerts upward pressure on the lower bracket portion 39, thus causing both shields 35 and 36 and swiveling plate 310 to move to their upper position, and the engaged article to project up through the opening area 22. Since the sliding action 40 causes both catcher engagement of an article and release of the cover, the length of the catch 73 and lip 44 must have a relative dimensioning sufficient to hold the cover 70 in closed position until sufficient engagement of the article is achieved. The lateral engagement technique permits the same mechanism to accommodate varying length articles, thus achieving a principal advantage. Release causes the cover 70 to be raised by ledge 37 pushing upward on the pressing pin 61. The cover 70 is maintained in its open position by virtue of the cover spring 68.

The shield walls 35 and 36 (FIGS. 3A and 3B) are constructed of relatively elastic material and are designed to conform to the interior walls of the base member 20. Thus, pressure on the slide action 40 should be sufficient to press the swivel plate 310 against the article 11 which, in turn, presses against the shield 35 or 36 and through to the base member wall 20 with sufficient frictional force to overcome the upward urging of the catcher mechanism body 30 by the spring 33 with the top 70 open. A slight release of pressure will then permit the ejection of the article. This feature thus provides a manual delay in ejection which may be of advantage in the dispensing operation.

It is noted that the dispensing is opposite to the direction of the slide mechanism 40. Movement of the action in the direction 40A results in the swivel plate 310 moving in the direction towards shield 36, and vice versa. Selection of the desired dispensing side is facilitated by the windows 74 and 75. With the dispenser slightly tilted forward (FIG. 1A), the articles are gravity fed into the catcher mechanism. Selection is made on either side as desired or necessitated by the presence or absence of an article in accordance with observation through the windows 74 and 75 with the cover 70 in its closed position.

When the cover 70 is closed, the slide mechanism 40 and its associated catcher mechanism are in their normal or central position. Since the swivel plate 310 is a relatively thin segment, provision must be made to insure a clear passage for the return of the swivel plate 310 and catcher mechanism body 30 to its pre-set position. This is accomplished by the separator bar 55 (FIGS. 2 and 3B) which effectively places articles on either side of it. The swivel plate 310, normally central, is pressed down under action of the pressing pin 61 on bracket 37 to its pre-set position for the next dispense operation.

The action of the cover 70 is positioning the pressing pin 61 into engagement with the ledge 37 is shown in greater detail in FIGS. 5A-5C. FIG. 5A shows the mechanism when the cover 70 is in its open position. An upper lever 64, swivelable about a point 65, and a lower lever 66, swivelable about a point 67, are fixed within a central control segment 60 (FIG. 2) inside cover 70. The pressing pin 61 is itself swivelable about a point 62 and spring loaded to a bias position as shown in FIG. 2 and FIG. 5A. Closing of the cover 70 causes the lower lever 66 to exert a force upon upper lever 64

in turn forcing pin 61 toward an engaging position (FIG. 5B). When the cover 70 is fully closed (FIG. 5C), the pressing pin 61 is in its engaging position and presses ledge 37 (FIG. 2) and, in turn, the catcher mechanism body 30 into a downward position.

Referring to FIGS. 6A-6C, an alternative embodiment for article detection is illustrated. Here, the cover 70 is provided with slots 76 on either lateral side thereof. For ease of illustration, one side is shown assembled while the other side is disassembled. The principle of detection in this case is optical or finger sensing. Thus, the mechanism includes a frame 89 mounted on either lateral interior wall of the cover 70. The frame includes a pivot pin 86 mounted in holes in the frame 89. The pin 86 passes through corresponding passages 82 and 83 in a plate 80. The plate 80 includes an indicating pin 84 with indicating button 85. The plate is dimensioned and mounted so that the pin 84 passes through the side wall slot 76, with the indicating button 85 exterior to the wall of the cover 70. The plate 80 includes a sensing segment 81 depending therefrom. The sensing segment 81 acts as a mechanical analog to the optical window described hereinabove. To that end, when it is desired to ascertain the location of an article to be dispensed, i.e., left or right shield area, it is only necessary to take a look or sense with the finger on the indicating button 85. If the button does not undergo its full travel (FIG. 6B), i.e., to the end of the slot 76, then it is apparent that an article lies beneath the sensing segment 81 and a dispensing can be made from that side.

If an article has not been sensed on either side of the catcher mechanism body 30 (FIG. 6C), by tilting the dispenser forward and squeezing and releasing it in the region of side slots 21 (FIG. 1D), articles will be urged to fall into catching shields 35 and 36 of the catching mechanism.

The sensor described above is located on both sides of the cover to provide sensing as desired.

A spring 87 (FIG. 6A) is mounted to the plate 80 for maintaining the sensor recessed within the cover 70 when open. In the closed position of cover 70, legs of spring 87 are confined in between cover 70 and ear 53 (FIG. 2) so plate 80 with its sensing segment 81 can freely drop onto the top of the article and indicate its presence (FIG. 6B) or its absence (FIG. 6C).

It will be apparent that the back portion 71 (FIG. 2) of the dispenser can receive a lighter of either the flint wick or gaseous variety.

It is thus evident that a single convenient and efficient lateral engagement mechanism has been shown for accommodation of varying length elongated articles for dispensing. In addition, the side construction of the dispenser allows the user to employ the original container as the base portion of the mechanism, thereby facilitating identification as well as reducing the amount of material necessary for construction. All materials described in conjunction with the invention may be conventional in material, including spring steel for springs; high impact polystyrene for the cover, parts of the slide action switch and sensing mechanisms; and thin elastic metal for shield and base members. Obviously, substitutions of equivalent materials and mechanisms may be possible without departing from the spirit and scope of the invention as disclosed herein.

What is claimed is:

1. An article dispenser comprising a base member in an initial position surrounding at least a portion of said articles, a cover member covering said articles, a catcher positioned within said base member, first means for releasing said cover member from said initial position for exposing an opening into said base member and moving said catcher into lateral engagement with one of said articles, second means responsive to release of said cover for sliding said catcher and said article engaged therewith upwardly along said base member until said article projects through said opening, and third means responsive to the closing of said cover for resetting said catcher in its initial position within said base member.

2. The dispenser of claim 1 wherein said catcher includes a swiveling plate and a shield, each said article engaged by said catcher being partially surrounded by said plate and said shield.

3. The dispenser of claim 2 wherein said shield is a deformable material and is in normally engageable contact with the interior of said base member, said article dispensing being additionally controllable by exertion of pressure against said shield through said engaged article by action of said first means for overcoming said second means release by frictional force between said shield and said base member, thereby delaying said release until said pressure is partially relieved.

4. The dispenser of claim 1 wherein said catcher includes first and second opposed shields and an elongated swivel plate positioned therebetween, said first means being alternately moveable in a first direction resulting in lateral article engagement between said plate and said first shield, and in a second direction resulting in lateral article engagement between said plate and said second shield.

5. The dispenser of claim 4 wherein said catcher in-

cludes a separator positioned along the length of said swivel plate between said plate and the area of said dispenser storing articles to be dispensed, said articles being gravity fed to said catcher mechanism and separated about said plate by said separator.

6. The dispenser of claim 4 wherein said third means responsive to the closing of said cover for resetting said catcher in its initial position within said base member comprises a ledge connected to said catcher and a pressing pin pivotally connected to said cover for pressing on said ledge when said cover is being closed.

7. The dispenser of claim 4 wherein said first means for releasing said cover for exposing an opening into said base member and moving said catcher into lateral engagement with one of said articles comprises a slide mechanism with interlocking gear means connecting said slide mechanism to said swivel plate.

8. The dispenser of claim 1 whereas said cover includes a transparent area for observation of the presence or absence of an article to be dispensed.

9. The dispenser of claim 1 wherein said cover includes moveable sensor means having a first position indicating the presence of an article to be dispensed, and a second position indicating the absence of an article to be dispensed.

10. The dispenser of claim 9 wherein said moveable sensor means comprises a sensing mechanism pivotally mounted within said cover and adapted to be held in an upper position by an article beneath it or to drop to a lower position in the absence of an article beneath it.

11. The dispenser of claim 1 wherein said base member is compressible and a contained article may be moved into a dispensable position by simultaneously compressing said base member and tilting said dispenser toward said catcher.

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