Sept. 26, 1967 E. HENDERSON 3,343,709

SAFETY CLOSURE

Filed March 24, 1967

Fig 1

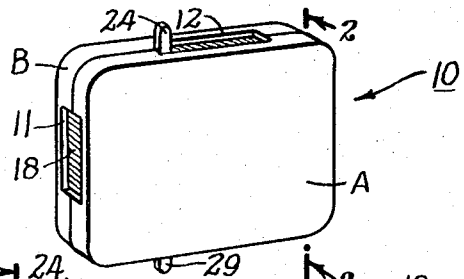


Fig 2

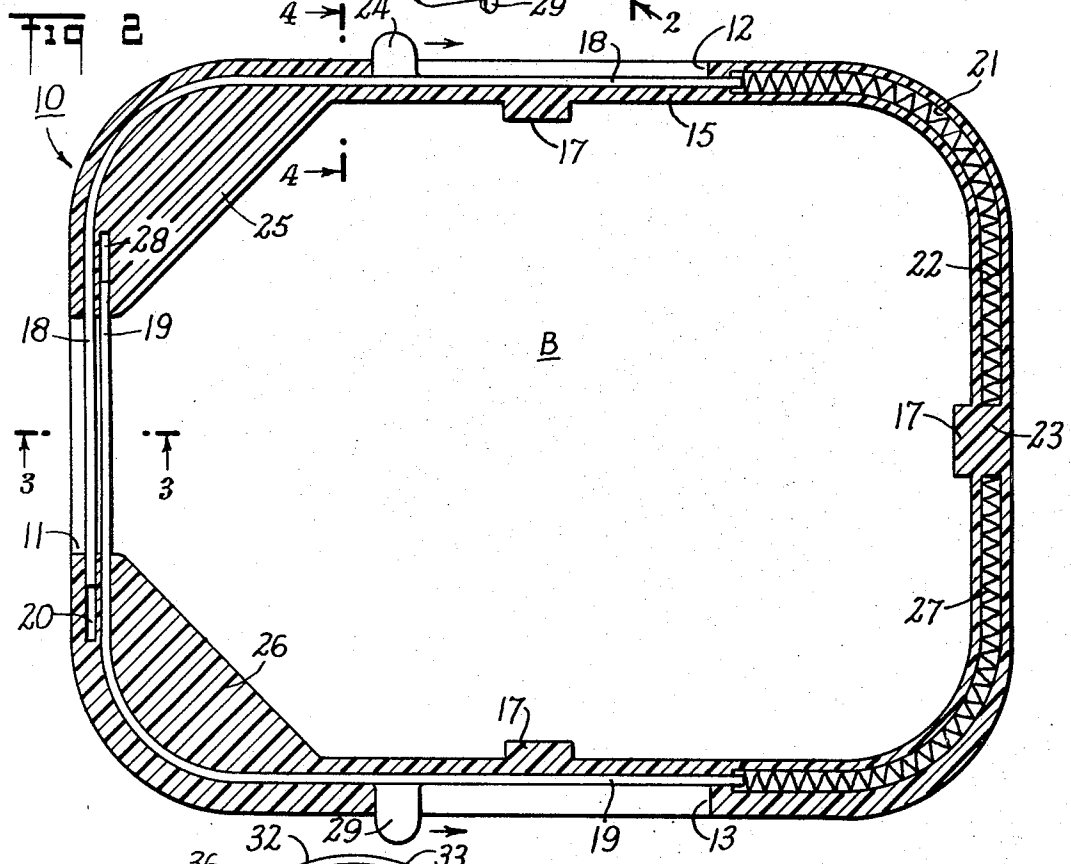


Fig 5

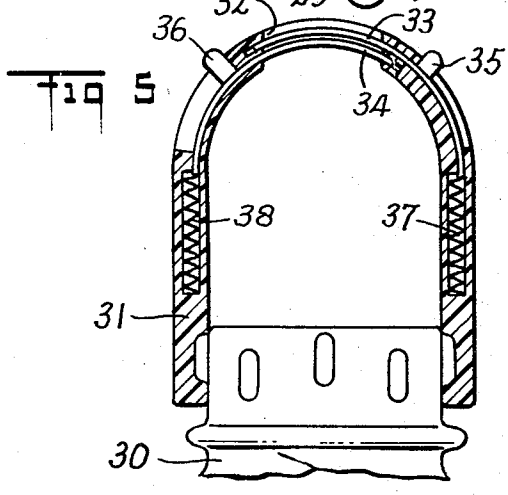


Fig 3

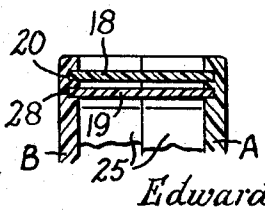
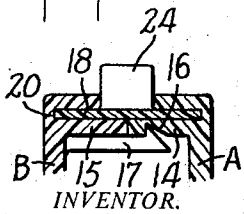


Fig 4



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SAFETY CLOSURE

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ABSTRACT OF THE DISCLOSURE

A safety closure for a container for pills, pharmaceutical tablets or the like having a normally closed discharge opening which involves cooperating slidable gates mounted in the container, one at each end of the discharge opening thereof, and independently slidable longitudinally to bring their free ends into and out of overlapping closing position across the discharge opening. Spring means are provided to bias the gates toward closing position whereby both the gates must be held open at the same time to permit discharge of articles from the container.

The present invention relates to safety closures for containers for pills, tablets or the like.

The medical profession has long been deeply concerned over the number of accidental deaths of infants, especially two- and three-year-olds, from poisoning by ingestion of various kinds of pills, tablets and the like. In many instances, as with aspirin, the substance is not lethal in usually indicated doses but becomes so where excessive numbers of pills or tablets are swallowed.

Efforts have been made, with little success, to supply a pill package or dispenser of such construction as to defy the ingenuity of small children bent upon releasing the contents.

Among such devices are those incorporating features such, for example, as shown in the U.S. patents to Waterman 2,722,309 and 2,692,698 and to Butner 2,899,047. Also, a large pharmaceutical manufacturing concern has marketed certain of its tablets or pill products in a container having some features shown in Waterman 2,722,309.

As early as 1955 the Committee on Toxicology of the Council on Pharmacology and Chemistry of the A.M.A. recommended that

"Salicylates should be packaged to make accidental access more difficult, e.g., individual wrapping in metal or plastic foil or type of closure that cannot be removed by a child, preferably a top that automatically closes."

In September 1966, Dr. James L. Goddard, Commissioner of the Food and Drug Administration, testifying before the congressional committee relating to the "Child Welfare Act," in reply to the question whether or not a "practical safety closure for drug containers is available," stated

"We are not sure there is one, but the purpose of the law is to encourage development of suitable closures."

My own inspection of pill and tablet dispensers exposed in drug stores reveals that no satisfactory safety closure is there available.

Accordingly, an object of the present invention has been to provide an effective closure for drug containers which will be appropriate in dispensing a wide variety of pills, tablets, etc., and will materially reduce the likelihood of accidental discharge of the contents or removal thereof by children.

It is contemplated that this favorable result may be achieved in the use of a package having a discharge opening normally and automatically closed by two independently retractable spring-pressed or biased gates which in operation must be held simultaneously in open position against the biasing force. This arrangement calls for greater ingenuity on the child's part to discover that both said gates must be held open at the same time in order to release the contents of the container.

A dispenser for tablets, pills or the like including safety closure features according to my invention comprises in general a container wherein wall portions have a discharge opening, a slot at each end thereof and guide channels including overlapping end portions extending across the width of said opening. Two spring-pressed gates are operatively mounted one in each channel with an outer or operative end portion normally extending across and closing said opening and with said operative end portions overlapping to provide in effect a double closure. Each gate has a finger piece or knob extending outwardly through one of said slots whereby said gate may be manually retracted to open position against spring resistance independently of the other; and the extent of endwise movement of such gates is conveniently limited by engagement of their knobs with the opposed end walls of said slots. The arrangement and mounting of the gates are such that said discharge opening is normally closed against discharge of the tablets, or the like, by one or both of said gates and is not open for discharging tablets unless both gates are held simultaneously in retracted or open position against the spring resistance.

Other objects and distinctive features of my invention will appear from consideration of the following description and claims and by reference to the accompanying illustrative drawings wherein

FIG. 1 is a side view in perspective of one form of dispenser embodying the invention;

FIG. 2 is a view on enlarged scale in section from the line 2—2 of FIG. 1;

FIG. 3 is a fragmentary sectional view on the line 3—3 of FIG. 2;

FIG. 4 is a fragmentary view in section on the line 4—4 of FIG. 2;

FIG. 5 is a view partly in vertical section illustrating a modification wherein the closure is incorporated in a cap or cover for a bottle, jar, can or the like which carries the supply of tablets, pills or the like, to be dispensed.

Referring to the drawings, it appears that my invention may be embodied in various types of containers or packages. As seen in FIG. 1, the dispenser includes a generally flat box **10** having safety closure means more clearly shown in FIG. 2. Thus, an end wall of box **10** is provided with a discharge opening **11**. The opposed sidewalls have the slots **12** and **13**, respectively. Said end and side walls are conveniently provided by the cooperating peripheral flanges **14**, **15** of shells A and B advantageously of plastic as polyethylene or the like and which are retained in permanent assembled relation by suitable securing or interlocking means. Thus, as an example, flange **14** on one of said shells, as A in FIG. 4, is provided with notches or grooves **16** positioned and adapted to be operatively engaged by and interlocked with latches **17** extending inwardly from the flange of the opposed shell B. Where the parts are made of plastic, or other suitable locally flexible material, it is contemplated that they may not only be conveniently produced by conventional apparatus and procedures but also may readily be locked or otherwise secured together permanently in operative box forming relation with a supply of pills or the like enclosed therein. Thereafter, the contents are accessible only after discharge through said opening **11**.

To render removal of the box contents more difficult for small children, opening **11** is controlled by two independently operable gates which are normally spring-biased and thus automatically pressed into and retained in closing position, i.e. with their outer end portions extending in overlapping relation across said opening **11**.

Accordingly, said opening is advantageously controlled by the slidable gates **18** and **19**, conveniently formed from suitable plastic parts or strips which, in the dimensions employed, are relatively flexible. As seen in FIGS. 2 and 3, gate **18** rides endwise in a guide channel **20** provided in the opposed interengaging or contacting edge surfaces of the flanges of parts A and B. An elongated recess **21** houses a spring **22** or other suitable resilient or compressible member, the outer end of which bears against the inner end of gate **18** and the inner end of which bears against one side of a partition at **23**. An actuating lug or knob **24** projects from gate **18** through slot **12**. The operative closing end portion of outer gate **18**, as seen in closed position, FIG. 2, normally extends across and automatically closes opening **11**. Similarly, the operative closing end portion of inner gate **19** also normally extends across and provides a second automatic closure for opening **11**.

As seen in FIG. 2, abutments **25** and **26** are provided in the box wall adjacent the ends of opening **11**. It will be seen that the outer end of the operative or closing portion of gate **18**, when in closing position, is engaged in a recess, as at **20**, FIG. 2, in part defined by a portion of abutment **26**.

In mounting and mode of operation, gate **19** having knob **29** is similar to gate **18**, being biased into closing position by spring **27** and having its end engaged in recess **28** when in that position.

To liberate a pill or the like through opening **11**, said gates are retracted to open position by manually actuating knobs **24** and **29** against resistance of said springs. An adult or discreet user may, if desired or convenient, move both knobs simultaneously in the direction of the arrows, FIG. 2, to clear the opening **11**. However, if an infant has possession of the dispenser and attempts to release the contents, it is contemplated that he is unlikely to retract both gates together or to hold one gate open while he retracts the other. Thus, the herein described safety closure fulfills the requirement laid down by the A.M.A. that it automatically closes when retracting force on the gate biasing springs is released.

In the modification, FIG. 5, a container or package in the form of a bottle **30**, or the like, is provided with a cover or cap **31** permanently secured thereto after it has received the desired supply of pills, etc. Said cover is provided with a discharge opening **32** which is controlled by spring biased gates **33**, **34** mounted to slide in guide channels corresponding in function to those provided in the above described embodiment of FIGS. 1 through 4. Gate **33** has a knob **35** and gate **34** has a knob **36**. By manual actuation the user may retract one of said gates at a time, or may retract and hold both thereof out of closing relation to opening **32** against resistance of springs **37** and **38**, respectively. With this embodiment of the invention, it is likewise contemplated that the novel control whereby opening **32** is automatically closed and normally retained in closed condition, will prove effective in reducing the number of infant deaths from accidental ingestion of drugs commonly dispensed in pill, tablet or capsule form.

I claim:

1. Safety closure for a container for tablets, pills or the like, wherein the container wall has a discharge opening and a slot spaced from each end thereof, said closure including two gates for controlling said discharge opening, each being slidable independently of the other toward and from operative position across said opening and each having a knob projecting through one of said slots to facilitate manual actuation of said gate and to limit the extent of endwise movement thereof in the slot, each of said gates being biased to extend across and thus to automatically close said discharge opening and normally retain the same in closed condition, and gate guiding channels in the container wall having spaced parallel end portions disposed in mutually overlapping relation opposite to and coextensive with said discharge opening and each of said gates being mounted in one of said channels whereby said end portion of one or the other of said gates is normally conditioned to extend across and thus to close said opening which thereby normally remains closed unless both gates are held in retracted open position at the same time.

2. Safety closure according to claim **1** and wherein the container includes a cap permanently secured in tablet confining relation thereto, wall portions of said cap being provided with said discharge opening and with said gate guiding channels, said gates being operatively mounted in said channels.

3. Safety closure according to claim **1** and wherein the gate carrying wall is provided at each end of the discharge opening with a recess which forms, in effect, an extension of one of said guide channels and is arranged and adapted to receive an end of the gate which is mounted in said channel, thereby to retain said end against accidental inwardly directed displacement from closing position.

4. Safety closure according to claim **3** and wherein the container is a box having top, bottom and side walls, the discharge opening being located in one side wall and the slots in the side walls contiguous thereto, said box having relatively thickened wall portions at each end of said opening, and each of said recesses being located in one of said thickened wall portions.

5. Safety closure according to claim **1** and wherein said container wall includes recesses each closed at its inner end and arranged with its outer end in open communication with the inner end of one of said channels, and a resilient gate biasing element mounted in each recess and arranged to operatively engage an inner end of the gate therein and thereby to normally press said gate into closing position across said discharge opening.

6. Safety closure according to claim **1** and wherein the container comprises cooperating tablet confining parts one of which has a peripheral flange providing a lateral wall for the container, said parts being assembled with the flange of said one part secured permanently in abutting relation to opposed portions of the other part.

7. Safety closure for a container for tablets, pills or the like, wherein the container wall has a discharge opening and a slot spaced from each end thereof, said closure including two gates for controlling said discharge opening, each being slidable independently of the other toward and from operative position across said opening and each having a knob projecting through one of said slots to facilitate manual actuation of said gate and to limit the extent of endwise movement thereof in the slot, each of said gates being biased to extend across and thus to automatically close said discharge opening and normally retain the same in closed condition, and gate guiding channels in the container wall having spaced parallel end portions disposed in mutually overlapping relation opposite to and coextensive with said discharge opening and each of said gates being mounted in one of said channels whereby said end portion of one or the other of said gates is normally conditioned to extend across and thus to close said opening which thereby normally remains closed unless both gates are held in retracted open position at the same time against the spring resistance and when pressure on one or both knobs is released, the gate or gates close automatically.

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