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DISPENSERS

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FIG. 1

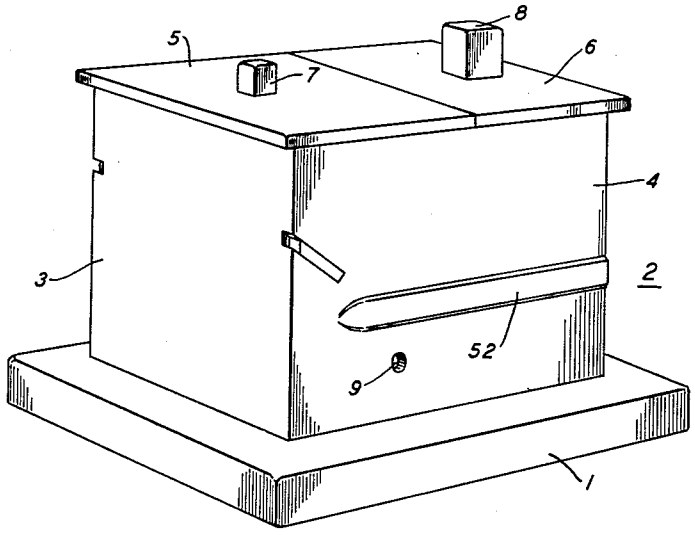


FIG. 2

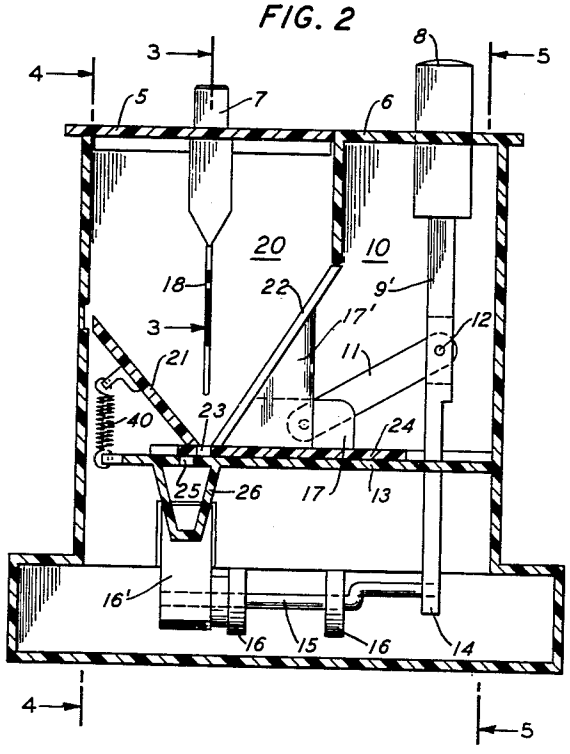
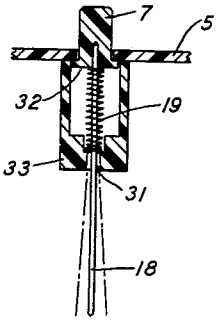


FIG. 3



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FIG. 4

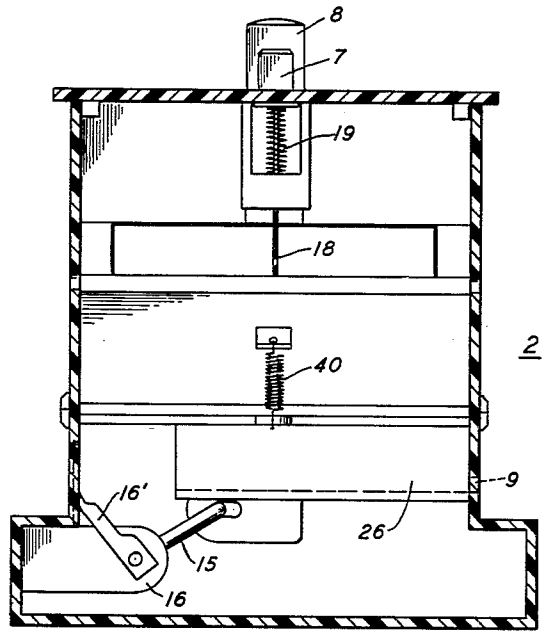
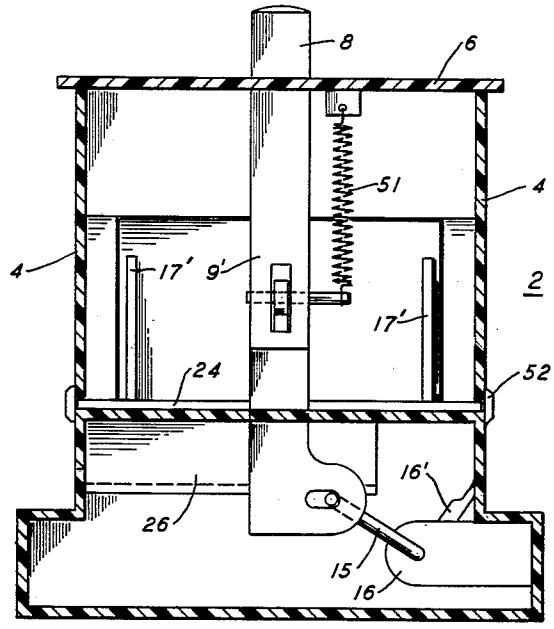


FIG. 5



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FIG. 6

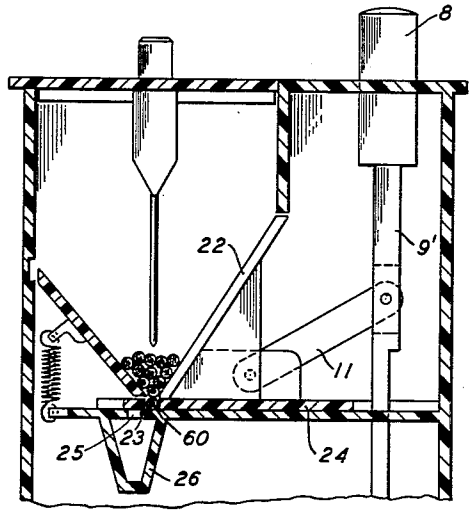


FIG. 7

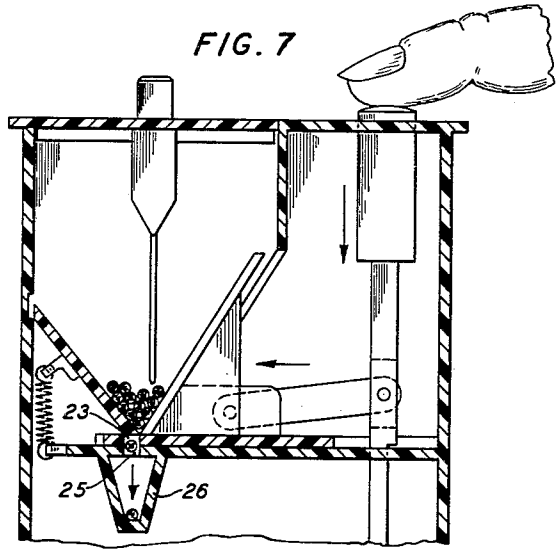
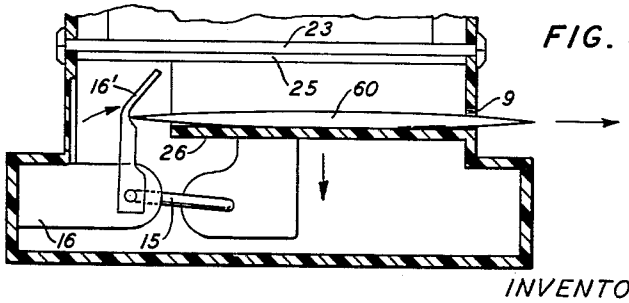


FIG. 8



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2,712,883

DISPENSERS

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Application March 13, 1951, Serial No. 215,281

5 Claims. (Cl. 221—201)

This invention relates to dispensers and, more particularly, to dispensers of toothpicks, cigarettes, and the like.

An object of the invention is to automatically dispense slender articles, such as toothpicks and the like, in a sanitary manner, whereby the article is untouched by human hands.

A feature of the invention is a plastic dispenser having a plastic hopper for containing the articles and a movable side wall for the hopper which drops the article into an auxiliary feed hopper prior to ejection.

Another feature of the invention is a dispenser having a push-button mechanism for ejecting a toothpick or the like from a hopper by means of a movable finger.

Another feature of the invention is a push-button operated rod for jiggling the toothpicks or the like when they become jammed at the opening of the feed hopper.

Referring to the figures of the drawing:

Fig. 1 is a perspective view of the dispenser;

Fig. 2 is a longitudinal cross section of the dispenser;

Fig. 3 shows the jiggler rod in section taken on line 3—3 of Fig. 2;

Fig. 4 is a sectional view of the dispenser along line 4—4 of Fig. 2;

Fig. 5 is a sectional view along line 5—5 of Fig. 2;

Figs. 6 and 7 are longitudinal cross-sectional views showing the operations involved in the ejection of a toothpick; and

Fig. 8 is a transverse sectional view.

The toothpick dispenser shown in Fig. 1 comprises a plastic base 1, an oblong box 2 having plastic side walls 3, 4, and a divided top wall 5, 6 with protruding plastic push-buttons 7, 8. Each top wall 5, 6 is rectangular in shape.

Fig. 2 shows a longitudinal section of the dispenser, wherein the hopper 20 is a receptacle for the toothpicks and has sloping side walls 21, 22 made of plastic, such as Plexiglas.

The toothpicks lie horizontally in the hopper receptacle as illustrated in Figs. 6 and 7. The bottom toothpick lies in a slot 23 cut out in the horizontal base 24 associated with the movable sloping wall 22 and rests on the fixed shelf 13.

The other sloping side wall 21 is yieldable, being connected at its back side by a spring 40 to the shelf 13. The sloping wall 21 is slidable in its own plane and in conjunction with sloping side wall 22 defines a slot of variable width overlying slot 23 of fixed width.

An auxiliary feed hopper 26 receives an individual toothpick when the wall 22 is slid over to cause slot 23 to register or align with the cooperating slot 25 in the top wall of feed hopper 26.

A toothpick of normal size will drop thru the slots 23, 25 when they register. An oversize toothpick might tend to be jammed at the bottom of the hopper 20, but the motion of side wall 22 and its integrally connected base 24 cause the oversized toothpick to lift side wall 21, which is yieldable and slidable in its own plane.

The sloping wall 21 which is mounted to be slidable in its own plane fits into oblique notches in plastic walls 4 (see Fig. 1) and is made yieldable by spring 40, which holds it down toward the base plate 13. The ends of spring 40 are connected to lugs respectively attached to the side wall 21 and base plate 13.

The side wall 21 normally does not move or lift when normal sized articles drop into the bottom of the slot 23. Only when oversize articles with larger diameter than normal appear at the bottom of slot 23 will the wall 21 be actuated thru the motion of side wall 22 pushing the oversize article under wall 21 to lift it. The members 17' support the sloping wall 22 on sliding base 24.

The toothpicks are ejected one at a time horizontally from the bottom of hopper 26 and opening 9 in side wall 4 shown in Fig. 1.

The push-button 8 is integrally connected with a longitudinal pusher rod 9' of plastic material, which moves up and down in compartment 10. A plastic link member 11 is connected at one end 12 to the middle of the pusher rod 9' and at the other end it is pivotally connected to the back of side wall 22 by means of a pin attached to plastic tab 17.

The pusher rod 9' extends loosely through an opening in the base 13 of compartment 10. Its lower end 14 is connected to a crank 15 journalled in plastic bearings 16. The end of the crank 15 is provided with an ejecting finger 16', which, as shown in Figs. 4 and 8, moves forward to engage the toothpick in the bottom of feed hopper 26 to propel and eject it out of opening 9.

Fig. 3 shows the jiggler rod 18 whose function is to agitate the toothpicks when toothpicks jam together at slot 23. The rod 18 is operated by push-button 7 to move downward and sidewise to free the jammed toothpicks. The opening 31 is sufficiently large to permit free play and sidewise movement of rod 18. The push-button 7 is retracted by spring 19 after the latter is compressed during the jiggle operation between the push-button base 32 and the pocket formed in plastic holder 33, integral with top wall 5.

Fig. 5 shows the spring 51 which retracts the pusher rod 9' and button 8. The base 24 of the sloping wall 22 slides in a guideway 52 cut into side walls 4, 4 of the dispenser 2.

Figs. 6, 7, and 8 show the mode of operation in dispensing and ejecting a single toothpick at a time from the auxiliary feed hopper 26.

When the push-button 8 and push rod 9' are pushed down, the link 11 flattens out and pushes the side wall 22 and its base 24 forward. The toothpick 60 which lies in slot 23 is carried forward concomitantly and dropped through opening 25 into the feed hopper 26. The push rod and button are returned to the position shown in Fig. 6 by spring 51; and on the next push downward of the button 8, the ejecting finger 16' moves forward to contact the toothpick 60, as shown in Fig. 8, and propel it through hole 9.

What is claimed is:

1. A dispenser for slender articles comprising a box, having a hopper therein with sloping side walls defining a slot of variable width, a fixed shelf member in said box having a fixed transverse slot, one of said sloping walls having a horizontal base plate with a transverse fixed slot offset from said slot in the shelf, pivoted means for sliding said base plate on said shelf to align said fixed slots, the other sloping side wall being mounted in the box to slide in its own plane and having a yieldable means connecting it to said shelf member whereby articles of varying cross-section may rest in the slot of the moving base plate and lift said yieldable wall when

passing thereunder and a receptacle depending from said shelf member to receive articles dropped thru said slots.

2. The structure of claim 1, and a push-button having a push-rod connected to said pivoted means, said push-rod moving said base plate horizontally and a crank connected to the end of said push-rod having a finger member for ejecting the slender article from said receptacle.

3. A dispenser comprising a hopper for stacking slender articles, said hopper having sloping side walls defining a slot of variable width, a fixed shelf having a transverse slot of fixed width therein, one of said sloping walls being slidable on the shelf and having an integral base plate with a transverse slot of fixed width, the other sloping wall being yieldably mounted and slidable in its own plane, and a spring connected to the said shelf member and sloping wall whereby an oversize article lying in the slot of the moving base plate lifts the yieldable sloping wall in passing thereunder, and a push-button connected to said base plate to cause the fixed slots to register and a receiver depending below said shelf and connected thereto to support articles dropped thru said slots.

4. A dispenser comprising a box having a hopper therein, said hopper having moveable sloping side walls terminating in a transverse opening of variable width, a shelf member supported in said box, having a transverse slot of fixed width, one of said side walls having a slotted base plate slidable on said shelf, the other side wall being mounted on the box and slidable in its own plane and having a spring connection to said shelf member whereby its end rises and falls in response to varying size of dispensed articles, a push-button mechanism located externally of said hopper, and pivoted levers connected between the slidable wall and said push-button for moving said base plate slot into registry with said shelf slot and a receiver for dropped articles located below said shelf slot.

5. A dispenser for slender articles comprising a box with notched sides and having a hopper therein provided with sloping side walls, whose adjacent ends define a slot of variable width, a fixed horizontal shelf member supported by said box and having a transverse slot therein of fixed width, one of said sloping walls having a horizontal base plate with a fixed slot of equal width offset from said shelf slot, the other sloping wall being mounted in said notched sides and slidable in its own plane and having a spring connection to said shelf whereby its end may rise and fall at the base slot to accommodate articles of different thickness, push-button operated means for sliding the horizontal base plate on the shelf to cause the fixed slots to register, a receiving trough, having an opening, located below said slots, and an ejector connected to said push-button for ejecting articles dropped into said trough, thru said opening.

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