

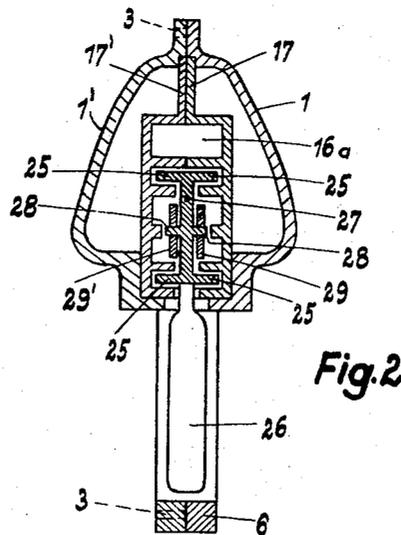
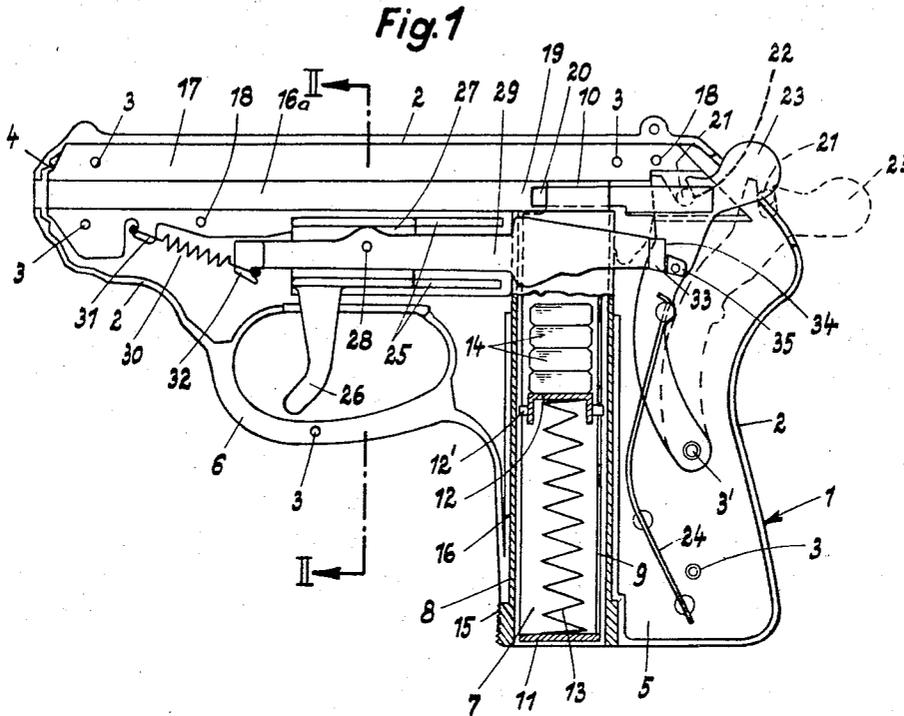
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DISPENSER FOR TABLETS

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DISPENSER FOR TABLETS

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The present invention relates to a semi-automatic toy gun for ejecting sweets in tablet form, which gun consists preferably of injection-molded, synthetic thermoplastics and comprises a magazine, which is inserted into the grip of the gun and an ejector, which moves upon the release of a stressed spring to cause the uppermost of the tablets, which are urged against a stop, to be ejected through the barrel of the gun.

Numerous types of toy guns have been disclosed. One of these known toy guns comprises a housing, which has a barrel portion, grip and trigger guard. This housing consists of two substantially symmetrically one-half sections. A magazine is contained in the grip and contains a stack of tablets, which is under the action of a feeding spring. The tablet which is at the top of the stack at a time lies in a chamber which is aligned with the barrel and in the path of an ejector. When the trigger is actuated to release the ejector, the latter ejects the uppermost tablet through the barrel.

These known toy guns consist of a few solid elements, which are injection-molded from synthetic thermoplastics. A few molds are sufficient and the assembly is very simple. On the other hand, injection-molded thermoplastic parts are subject to a considerable shrinkage, particularly in relatively large structures so that the designer must allow for large tolerances and must avoid a concentration of large amounts of material because this would result in distortion at the transitions. For the reasons stated above, the toy guns of the type described do not have a natural appearance and the components which are essential for the function of the toy gun, such as the barrel portion and the ejecting mechanism, are highly simplified to allow for the large tolerances of the parts. In addition to their unesthetic and unnatural appearance, the loading of these toy guns is complicated owing to this simplified structure and the guns may have disadvantages which often reduce the time for which the guns can be operated without trouble.

In a large part of these toy guns, the ejector and/or parts connected to it, such as a slider which is movable in the direction of the barrel, must be pulled back by hand to their inoperative position when the tablet has been ejected. In other designs, high pressure is applied to the tablets so that the pressure-sensitive sweet tablets may be crushed. The low precision involved in the manufacture may cause a jamming of the moving parts so that the operation is disturbed.

It is an object of the invention to eliminate these disadvantages of the known toy guns and to provide a semi-automatic toy gun which is suitable for ejecting sweets in tablet form and in which those parts which require a higher precision, such as the barrel and various parts of the ejecting mechanism, are separate from large members, such as the housing sections, so that a gun is simulated in appearance and in function whereas the parts are designed to enable an easy and quick assembling of the toy gun in spite of the fact that the functions of the gun are assigned to a plurality of elements, and the gun has a long life even when subjected to rough usage, such as by children.

This is accomplished according to the invention in that two substantially symmetrical barrel members are provided, which constitute the barrel body and are sur-

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rounded by the two housing sections and embrace a slider, which carries the trigger and which is slidable in guiding grooves parallel to the axial direction of the barrel, said slider having transmitting members connected to it, which push the ejector to its operative position against the stress of a spring.

An illustrative embodiment of the toy gun according to the invention will now be described with reference to the accompanying drawing, in which

FIG. 1 is an elevation showing the toy gun according to the invention when a housing section has been removed and

FIG. 2 is a vertical sectional view taken on line II—II in FIG. 1.

FIG. 1 shows one of the two symmetrical, thin-walled housing members 1, 1' of the toy gun or pistol. Each section 1, 1' has an upturned edge portion 2 and pins 3, 3', which are formed on the housing member 1 and protrude at right angles and with clamping action are received by mating holes in the other housing member 1' so that the housing sections 1, 1' are frictionally connected. Each housing member 1, 1' comprises a barrel portion 4, a grip portion 5 and a finger guard 6. The magazine 7 comprises an outer housing 8, which is rectangular in cross-section, and an inner housing 9, which is longitudinally slidable in the outer housing 8. The inner housing 9 has a U-shaped cross-section and is formed with two upwardly directed stops 10. A compression spring 13 is provided between the bottom 11 of the inner housing 9 and a discharge member 12, which is movable in the inner housing in the axial direction of the housing 8, 9 and which is guided by projections 12' in recesses or grooves of the outer housing 8. A stack of tablets 14 is disposed between the movable discharge member 12 and the stops 10 as long as the magazine is outside of the gun. In the present example, the tablets are generally prismatic. Alternatively, they may be round or have a different shape. The magazine 7 is slidable from below into the grip 5 of the gun and carries stops 15. Guide rails 16 are formed on the grip and provide for a guidance of the magazine in the grip 5 when the magazine is being inserted into the gun.

The barrel 16a of the gun is formed by a separate barrel body, which consists of two thin-walled, symmetrical, plastic members 17, 17', which are disposed in rounded recesses of the housing 1, 1' and are secured to the housing by the pins 3, which extend through the barrel members. The barrel members are held together by pins 18. The barrel body 16a formed by the two barrel sections 17, 17' terminates in an outwardly directed orifice at one end and at the other end in a downwardly open chamber 19 when the same partly receives the magazine 7, which is inserted from below into the grip 5 until the stops 10 of the magazine engage the top surface of the barrel. The tablets 14 are urged upwardly by the magazine spring and tend to enter the chamber 19. This is normally prevented by an ejector 20, which enters the chamber 19 from behind the barrel. The ejector 20 has a forked rear portion. The two limbs are connected by a pin 21, which engages a groove 22 of a pivoted bail 23. The bail 23 is pivoted about a pivot pin 3', which serves also as a clamping pin, and is biased by a spring 24 to move the ejector 20 toward its normal or inoperative position in the chamber 19 to form a stop for the tablets 14.

The barrel body constituted by the two barrel members 17, 17' has a portion provided with guiding grooves 25 in which a slider 27 is slidable in a longitudinal direction. The slider carries a trigger 26. Two motion transmitting member 29, 29' are disposed symmetrically on opposite sides of the slider 27 and secured by pins 28 to the slider. The transmitting members are clamped together at their ends. Upon actuation of the trigger 26, the transmitting members 29, 29' are displaced together with

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the slider 27 in the longitudinal direction, approximately parallel to the axial direction of the barrel 16, against the force of a coil spring 30, which is secured to the barrel body 17, 17' and to the motion transmitting members 29, 29' by means of hooks 31 and 32, respectively. At their rear end, the two transmitting members 29, 29' are provided with an abutment 33 engaged by an engaging portion 35 of the pivoted bail 23 under the action of the spring 24.

The toy gun described thus far has the following mode of operation:

The actuation of the trigger 26 causes a rearward movement of the slider 27 and the two transmitting members 29, 29' along the guiding grooves 25 against the force of the coil spring 30. During the first phase of this movement, the abutment 33 of the transmitting members 29, 29' acts through the engaging member 35 on the pivoted bail and against the force of the spring 24 imparts an angular movement about the pivot pin 3' to said bail, whereby the ejector 20 is moved out of the chamber 19 into its cocked position. The engaging member 35 is designed to slide from the abutment face 34 and release the spring 24 when the pivoted bail has reached the end of its angular movement. In this position, which is shown in dotted lines, the uppermost tablet of the stack jumps against the stop 10 of the inner magazine housing 9 while the stop engages the upper surface of the barrel 16. During the second phase of the movement, the released spring 24 moves the pivoted bail 23 and the ejector 20 to the inoperative position, whereby the uppermost tablet of the stack is ejected through the barrel 16.

This design results in a satisfactory operation even when tablets are ejected in rapid succession. Damage to the tablets is avoided as far as possible. The ejector is automatically returned to its inoperative position and need not be reset by hand. The division of the ejecting mechanism into a plurality of small elements and the use of barrel members permit a precision which ensures a satisfactory operation. The parts are of simple shape and symmetrical as far as possible so that the manufacturing costs are reduced. This allows for a wide choice in the external form of the housing so that a close simulation to the appearance of a gun is enabled. The use of clamping pins enables the parts to be assembled simply by being clamped together. This work can be carried out by unskilled workers without need for a long training.

What is claimed is:

1. A dispenser for tablets comprising, in combination:

- (a) a housing having the shape of a pistol;
- (b) a barrel body mounted in said housing and defining an elongated barrel having two ends, an orifice directed outward of said housing at one end of said barrel, and a transversely open chamber at the other end of said barrel,
 - (1) said body being formed with guide means outside said barrel and elongated in a common direction therewith;
- (c) a slider member slidably engaging said guide means for movement toward and away from an inoperative position;
- (d) a trigger member projecting from said housing and fastened to said slider member for joint movement;
- (e) yieldably resilient biasing means biasing said trigger member and said slider member toward said inoperative position thereof;
- (f) an ejector member longitudinally movable relative to said barrel body between a normal position in which a portion of said ejector member is received in said chamber, and a cocked position in which said ejector member is longitudinally offset from said normal position in a direction away from said orifice;
- (g) a tablet magazine releasably mounted in said housing adjacent said chamber;

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(h) yieldably resilient discharging means in said magazine for moving tablets from said magazine inward of said chamber through the open side of the same,

(1) said discharging means holding one of said tablets in abutting engagement with said ejector member when the same is in the normal position thereof, and discharging said tablet into the chamber when the ejector member is in the cocked position;

(i) spring means urging the ejector member toward the normal position;

(j) motion transmitting means interposed between said slider member and said ejector member for moving the ejector member from the normal position to the cocked position and for thereafter releasing the ejector member for return to the normal position by said spring means when said trigger member is moved away from the inoperative position thereof against the restraint of said biasing means, said motion transmitting means including

(1) a first abutment member guided in said housing in a straight path,

(2) a second abutment member guided in said housing in an arcuate path intersecting said straight path,

(3) means urging one of said abutment members in a direction toward the intersection of said paths in such a manner that the abutment members engage each other while the second abutment member is located in said straight path, and said one abutment member moves past the other abutment member when said second abutment member moves out of said straight path, and

(4) means connecting said abutment members to said slider member and to said ejector member respectively for simultaneous movement with the connected member.

2. A dispenser as set forth in claim 1, wherein said first abutment member is connected to said slider member for joint movement therewith, and said second abutment member is pivotally connected to said ejector member for movement of the ejector member longitudinally of said barrel when said second abutment member moves in the arcuate path thereof.

3. A dispenser as set forth in claim 2, wherein said second abutment member is mounted in said housing for angular movement about an axis transverse of the direction of elongation of said barrel.

4. A dispenser as set forth in claim 3, wherein said housing has two portions essentially consisting of thin-walled plastic and spacedly enveloping said barrel body and means connecting said members to each other in abutting engagement substantially in a plane, said portions of the barrel body being substantially symmetrical relative to said plane.

5. A dispenser as set forth in claim 4, wherein said barrel body has two barrel members substantially symmetrical relative to said plane and means connecting said members to each other in abutting engagement substantially in said plane.

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