

March 28, 1944.

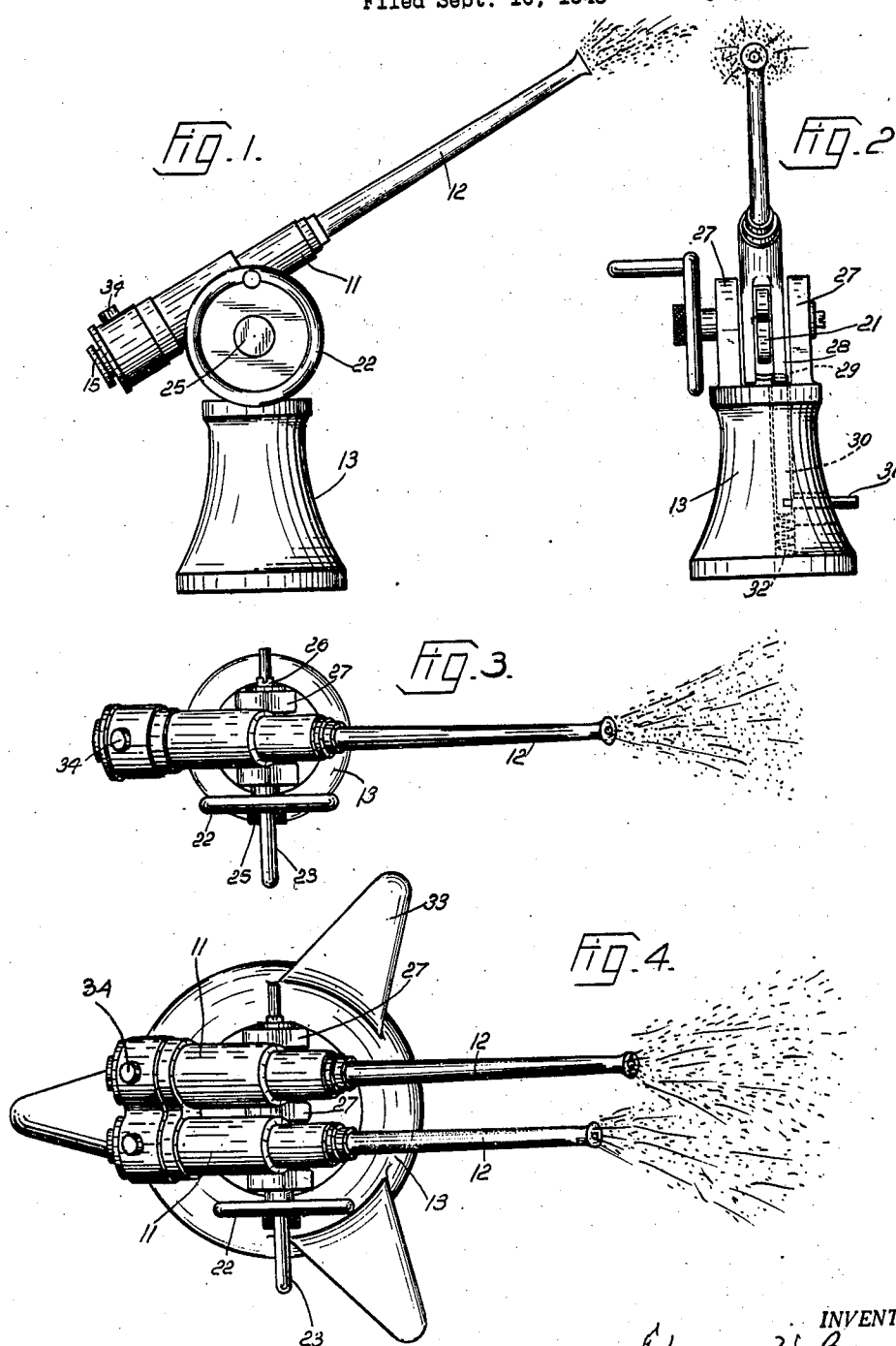
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2,345,173

TOY

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3 Sheets-Sheet 1



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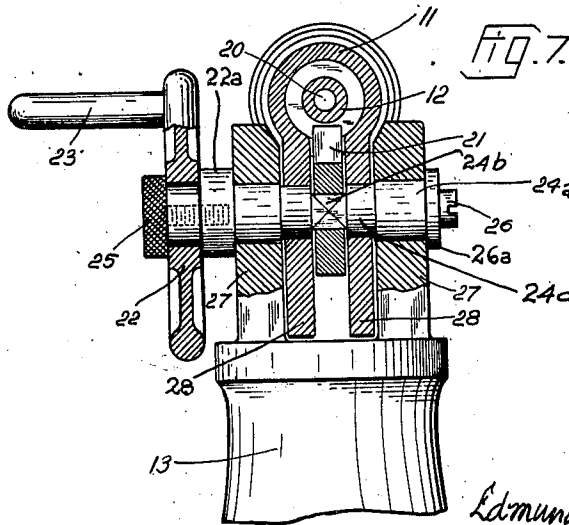
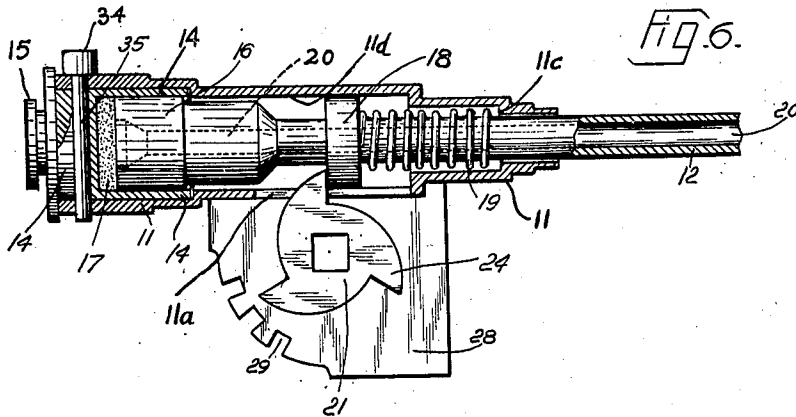
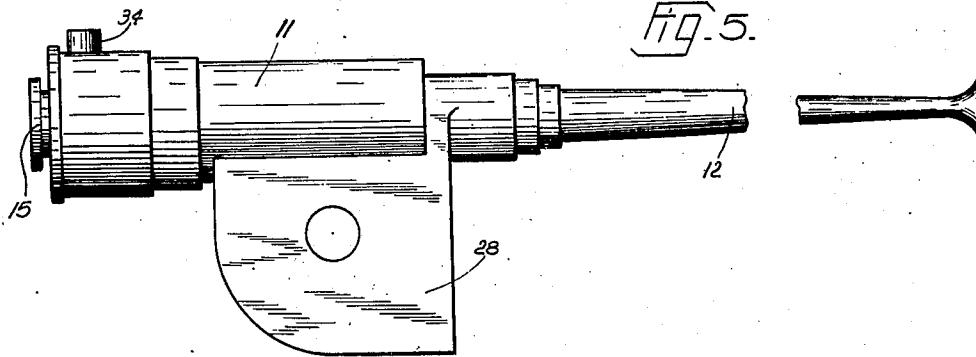
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3 Sheets-Sheet 3

Fig. 8.

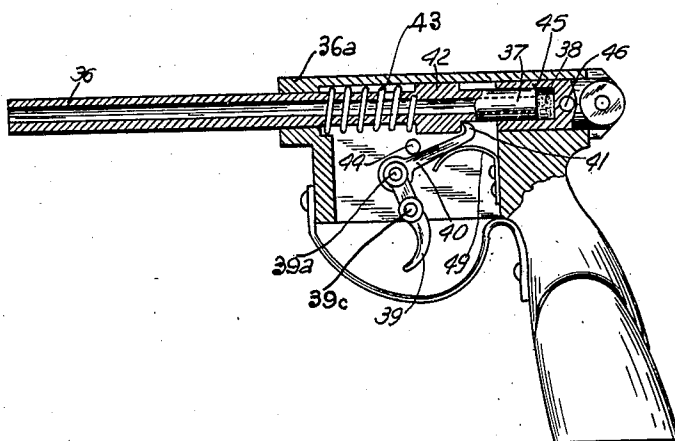
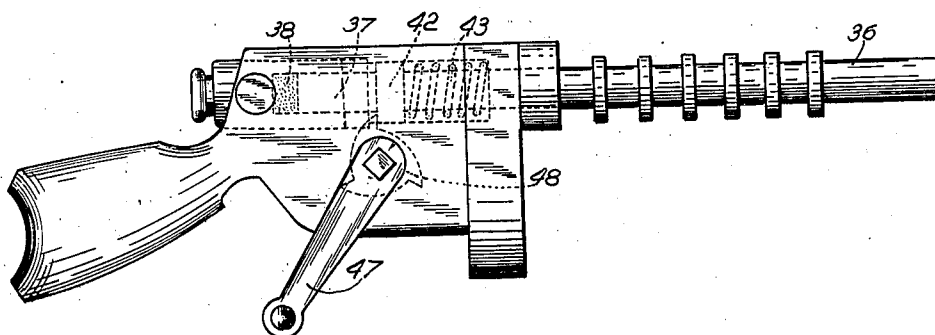


Fig. 9.



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UNITED STATES PATENT OFFICE

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TOY

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Application September 10, 1943, Serial No. 501,745

3 Claims. (Cl. 46—1)

My invention relates to a new and improved toy, which can also be used for various industrial purposes, when it is desired to dispense finely divided materials.

One of the objects of my invention is to provide a hand-operated toy machine gun or pistol or the like, which will produce intermittent noises and also visibly and intermittently discharge masses of powder.

Another object of my invention is to provide a simple and sturdy device, which has a minimum number of parts, and which can be made and assembled at low cost.

Numerous additional objects will be slated in the annexed description and drawings, which disclose several embodiments of my invention.

Fig. 1 is a side elevation of the first embodiment.

Fig. 2 is a front elevation of Fig. 1.

Fig. 3 is a top plan view of Fig. 1.

Fig. 4 is a top plan view of a double or twin device.

Fig. 5 is an enlarged side elevation of the gun barrel and certain adjacent parts.

Fig. 6 is a longitudinal section of Fig. 5, partially in elevation.

Fig. 7 is a transverse section of Figs. 5 and 6.

Fig. 8 is a side elevation, partially in section, showing a toy pistol which is made according to my invention.

Fig. 9 is a side elevation of another modification.

In the embodiments of Figs. 1-3 and Figs. 5-7, the device comprises an outer barrel or socket member 11. A cup 14, which is closed at its rear end, is located within and releasably fixed to said socket member 11. Said cup 14 can be slid longitudinally into and out of socket member 11. This cup 14 is a reservoir for the mass of powder 17. Said powder 17 may be talcum powder, or any finely divided solid material.

The front open end of cup 14 abuts an internal shoulder of socket member 11, in order to limit the forward movement of cup 14, when it is slid forwardly into position within socket member 11.

The gun-barrel 12 has a piston-enlargement 16, which fits closely and slidably against the internal longitudinal cylindrical wall of cup 14. The diameter of the longitudinal cylindrical wall of cup 14 is equal to the diameter of the part 11d of the internal cylindrical wall of socket 11 which is located directly in front of the front end of said cup, so that piston 16 can slide in said wall-part 11d. Said gun-barrel 12 has an enlarged head 18, which fits closely and slidably against the internal cylindrical wall 11d of the socket member 11. Said cylindrical wall 11d has a longitudinal slot 11a. A helical spring 19 has its rear end abutting the front

end of head 18, and its front end abutting the internal shoulder 11c of socket member 11. Said spring 19 is a biasing connecting means between socket member 11 and cup 14 and barrel 12, and it biases barrel 12 to the normal position shown in Fig. 6. In this position, the mass of powder 17 prevents further rearward movement of barrel 12.

The rear end-wall of cup 14 is releasably fixed to socket member 11, by means of the lateral pin 35, which has a releasable, tight, frictional fit in the aligned lateral bores of socket member 11 and cup 14. The rear end-wall of cup 14 has a finger-hold 15. The longitudinal bore 20 of barrel 12 extends through piston 16. The shape of the rear end of said bore 20 is indicated by broken lines in Fig. 6.

In order to assemble these parts, the barrel 12 is first inserted through the socket member 11. The cup 14 is then inserted and the pin 35 is then inserted. The cup 14 may be wholly or partially filled with powder, before the parts are assembled. Cup 14 and barrel 12 can be assembled externally of socket member 11.

The socket member 11 has a pair of integral and depending planar webs 28, which are parallel to each other, as shown in Fig. 7.

These webs 28 are adjacent respective up-standing bearings 27, which are fixed to stand 13, or which are integral with stand 13.

A shaft 24a is turnably mounted in bearings 27, and webs 28 are turnable on respective cylindrical portions 24c of said shaft 24a, so that the shaft 24a can be turned freely relative to said webs 28.

The middle part 24b of shaft 24a has a square cross-section. A cam-wheel 21, which has cams 24, has a square bore in which said square part 24b fits. Any other means can be provided for fixing cam-wheel 21 to shaft 24a.

One end of shaft 24a is provided with a washer 26a, which is fixed to said end of shaft 24a by screw 26. The other end of shaft 24a has an integral enlarged collar 22a. Wheel 22, which has a handle 23, is releasably fixed to collar 22a by means of a screw 25, whose shank is screwed into a tapped bore of collar 22a. Hence, washer 26a and collar 22a prevent any movement of shaft 24a, in the direction of its axis.

The top cam 24 of cam-wheel 21 extends through slot 11a.

When the shaft 24a is rotated by means of handle 23, so as to turn cam-wheel 21 clockwise from its position which is shown in Fig. 6, the forwardly moving top cam 24 exerts pressure against collar 18, so as to move barrel 12 forwardly from its biased position. During said forward movement of barrel 12, air can pass through its bore 20 into cup 14, behind the rear end-wall of piston 16.

When the top cam 24 releases collar 18, the spring 19 snaps the barrel 12 rearwardly, thus sharply compressing the air which was admitted into cup 14, during the forward movement of barrel 12. The air which was thus admitted is sharply forced out of barrel 12, together with some of the powder 17, thus simulating the effect of an explosion, including the noise of an explosion. By rapidly rotating shaft 24a, the effect of a machine gun is simulated. The noise is produced by the sharp impact of the piston 16 against the mass 17. Any suitable stop can be provided for limiting the rearward movement of piston 16, so that the impact of the piston 16 against said stop will produce the noise.

In order to reload the gun with powder, pin 35 is removed, and cup 14 is removed, either with barrel 12, or while leaving barrel 12 in socket 11.

The embodiment of Fig. 4 is identical with that of Figs. 1-3, 5-7, save that the embodiment of Fig. 4 has duplicate gun-barrels 12 and other accessory parts, and its pedestal 13 has lateral feet 33.

As shown in Figs. 2 and 6, one of the webs 28 is provided with a series of recesses 29. A latch pin 30 is mounted for vertical sliding movement in a bore of stand 13, so that the tapered head of said pin 30 can enter any of the recesses 29. Said pin 30 is upwardly biased by spring 32. A lateral pin 31 is fixed to latch pin 30. Said lateral pin 31 is vertically movable in a slot of stand 13. The socket member 11 and its barrel 12 can thus be angularly adjusted, while latch pin 29 is held down in inoperative position by lateral pin 31, so that holding pin 30 then clears the recesses 29. After the elevation of socket member 11 has been adjusted, latch pin 30 is allowed to rise, until its head enters the aligned recess 29. These parts can be omitted, by providing frictional contact between webs 28 and bearings 27. Said frictional contact is sufficient to hold socket member 11 in adjusted angular position.

The embodiment of Figs. 8 and 9 has an inner barrel 36, which has a piston-member 37, which is slidable in cup 45, which has a mass of powder 38. Barrel 36 also has an enlargement 42, whose longitudinal cylindrical wall fits slidably against the inner cylindrical wall of socket 36a. The front end of spring 43 abuts an internal shoulder of socket member 36a, and its rear end abuts enlargement 42. Pin 46 releasably fixes cup 45 to socket member 36a. Trigger 39 is pivoted at 39c to the casing of the device.

A hook-link 40 is pivoted to trigger 39 at 39a. A biasing spring 49 biases the hook-end 41 of the hook-link 40 into contact with the rear end-wall of enlargement 42. Hence, when the trigger 39 is turned counterclockwise from its position shown in Fig. 8, the pin 44, which is fixed to the casing, turns hook-link 40 downwardly around pivot pin 39a, until hook-end 41 releases enlargement 42, so that compression spring 43 snaps the barrel 36 and its piston 37 rearwardly.

The trigger 39 is provided with a conventional return-spring (not shown), for moving said trigger back to its normal position shown in Fig. 8, when the finger-pressure on trigger 39 is released.

In the embodiment of Fig. 9, I use a cam-wheel 48 which operates in the same manner as the cam-wheel 21, and said cam-wheel is rotated by handle 47. Otherwise the embodiment of Fig. 9 is the same as that of Fig. 8.

In each of the embodiments described herein, there is a cam member, namely, the cam-wheel 21 or the hook-link 40. Each said cam-member is connected to an extension of the socket member, because the respective casings of Figs. 8 and 9, are, in effect, extensions of the socket member. Likewise, the casing of Fig. 8 has a longitudinal slot through which the upper end of the hook-link 40 can project.

The piston-head 18 limits the forward movement of barrel 12, so that the rear end-wall of piston 16 is always located rearwardly of the rear end of slot 11a. The width of slot 11a is approximately equal to the width of cam-wheel 21.

I claim:

1. A device comprising a recessed outer member which is closed at its rear end, a hollow inner member, said inner member having a longitudinal through-and-through bore and having a part thereof fitting slidably in the recess of said outer member, said inner member being longitudinally slidable relative to said outer member, a spring which rearwardly biases said inner member relative to said outer member, actuating means for moving said inner member forwardly against the biasing force of said spring and for releasing said inner member at a predetermined part of said forward movement, so that said spring can then rearwardly snap said inner member.

2. A device comprising a socket member which has a through-and-through bore, a cup located in said socket member, said cup being open at its front end and having a closed rear end-wall, means for releasably fixing said rear end-wall to said socket member, said cup being longitudinally slidable into and out of said socket member, a barrel which has a through-and-through bore, said barrel being located in said socket member and projecting forwardly out of said socket member, said barrel having a piston which fits slidably in said cup, a biasing spring located in said socket member and rearwardly biasing said barrel relative to said socket member and said cup, said socket member having a longitudinal slot in front of the front end of said cup, said socket member also having an outwardly directed extension at said longitudinal slot, a cam member rotatably connected to said extension, said cam member having at least one cam extension which can project through said slot and abut a part of said barrel to move said barrel forwardly when said cam member is turned, said cam extension losing contact with said part of said barrel to release said barrel when said cam member has been turned through a predetermined angle, said biasing spring then snapping said barrel rearwardly relative to said socket member and said cup.

3. A powder-dispensing device which comprises a cup which is open at its front end and which is closed at its rear end, a barrel which has a through-and-through longitudinal bore, said barrel having a piston which fits slidably in said cup, said bore extending through said piston, means for longitudinally reciprocating said barrel relative to said cup, said means including a spring for moving said barrel rearwardly relative to said cup.

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