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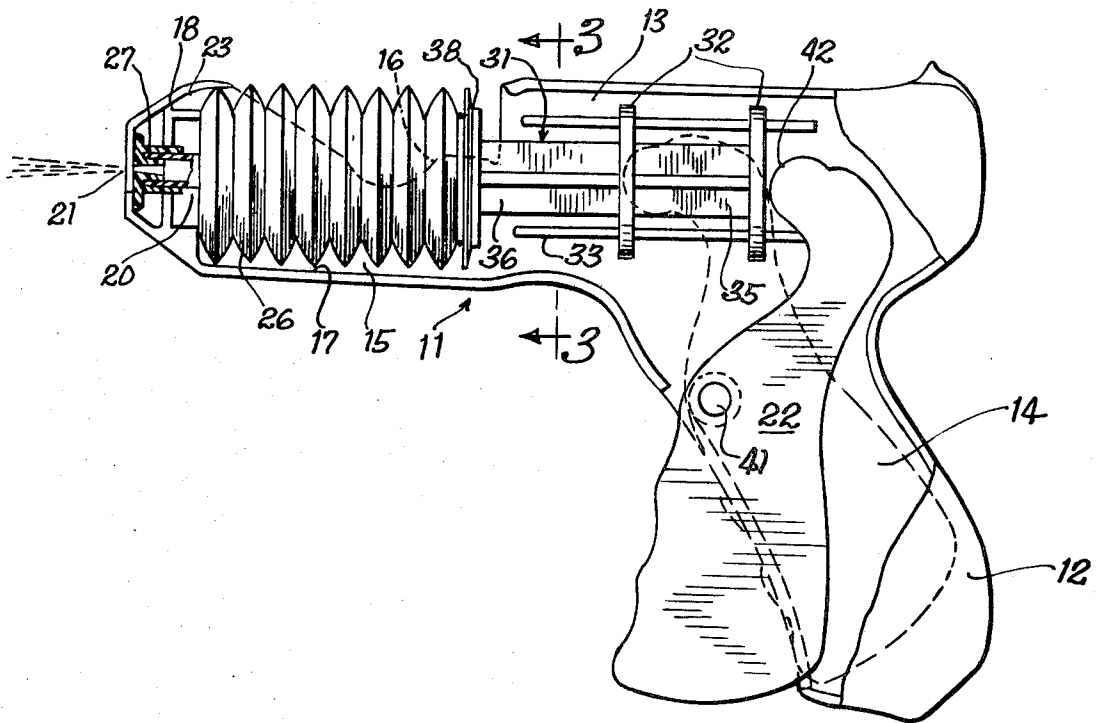
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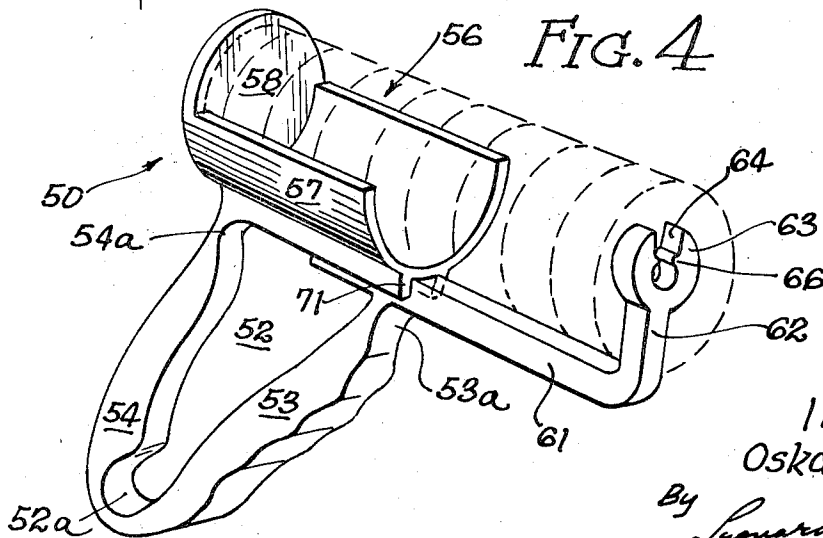
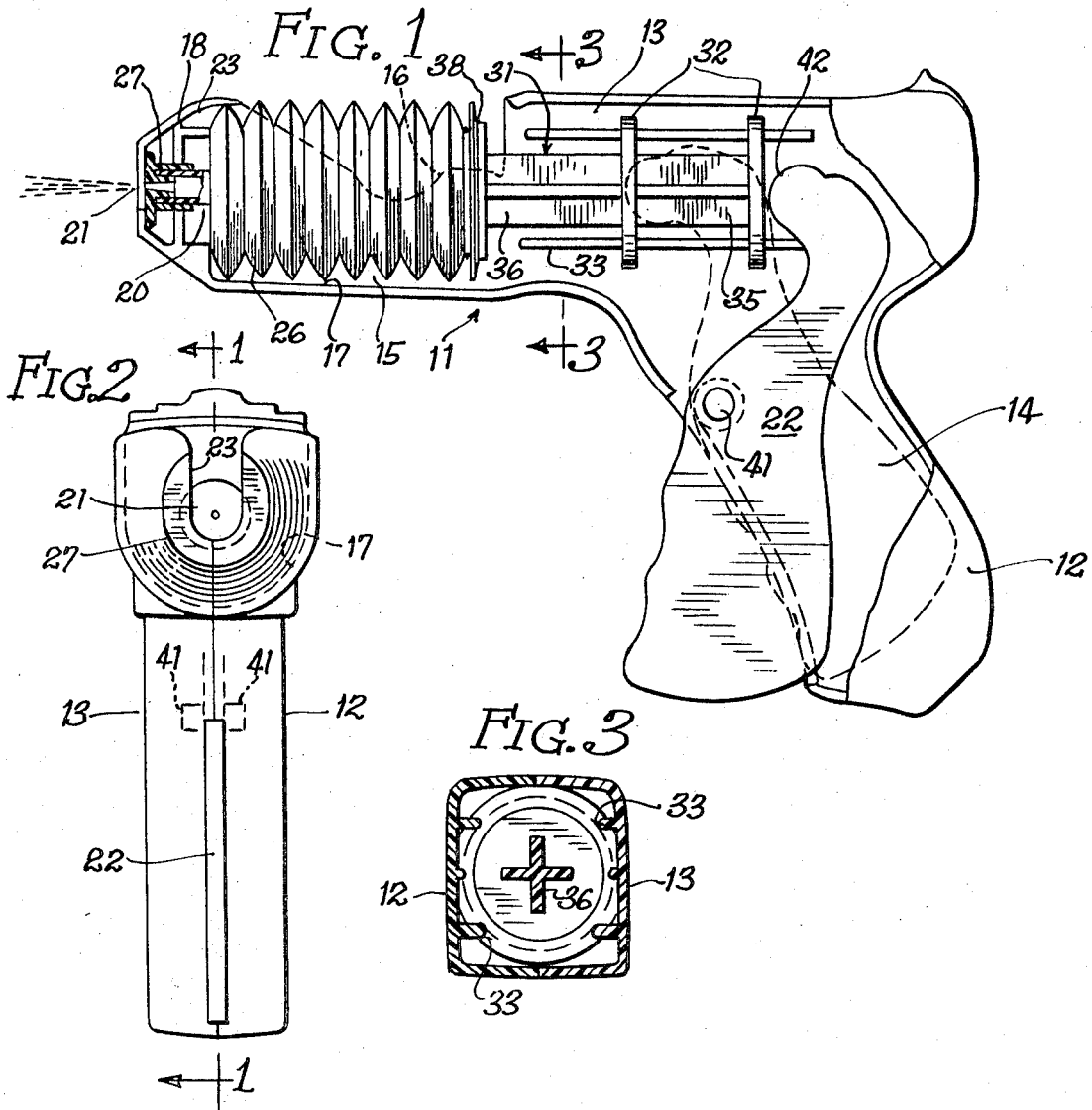
[54] **WATER PISTOL**  
**1 Claim, 4 Drawing Figs.**

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 [51] Int. Cl. .... **A63h 33/00**  
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 326, 327

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**ABSTRACT:** A toy water pistol having a detachably securable water-containing cartridge which serves not only as a reservoir for a substantial amount of water, but also as a biasing means for the trigger. The cartridge is constituted as a multiply-pleated bellows which is retained in a simulated barrel portion of the pistol. This portion is open on one side, permitting the cartridge to be easily inserted and removed. The forward end of the bellows has an orifice through which water is ejected when the bellows is compressed by squeezing of the trigger. A plunger having longitudinally spaced transverse webs is guided by axially extending, circumferentially spaced ribs within the barrel.





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## WATER PISTOL

## SUMMARY OF THE INVENTION

This invention relates to a toy water pistol having an easily replaceable cartridge serving as a reservoir for water, thereby eliminating the need for hermetically sealing components of the pistol. The cartridge is easily accessible from an open side of the barrel portion of the pistol, and may be removed, and reinserted, or replaced with another cartridge expeditiously and without having to disassemble any parts.

It is a primary object of this invention to provide a new and improved toy water pistol employing a compressible cartridge to contain the water.

Another object is to provide a toy water pistol as aforesaid arranged to eject a stream of water from an orifice at the front end of a cartridge thereby avoiding the need for precise alignment and assembly of the parts.

A further object is to provide an improved water pistol having a minimum number of parts and capable of being molded from plastic composition at relatively low cost.

Another object is to provide a water pistol employing a blow-molded, inherently resilient, plastic bellows as a cartridge for holding a charge of water, the bellows being normally in an expanded condition and operative, following compression, to exert a restoring force to bias the squeeze mechanism, e.g. a trigger, without the need of a separate spring to effect such bias.

## BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side elevational view with parts broken away to reveal the internal construction of the pistol;

FIG. 2 is a front elevational view;

FIG. 3 is a cross section taken on the line 3-3 of FIG. 1; and

FIG. 4 is a perspective view of an alternative form of pistol.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

FIGS. 1 and 2 show a toy water pistol having a body 11 which is molded or otherwise formed of two symmetrical shells 12 and 13 joined on a medial vertical plane and shaped to define a pistol grip 14 and barrel portion 15. It will be understood that the outer aspect of the gun will simulate to some considerable degree, a pistol of a conventional type in order to heighten the illusion. The sides of the barrel are cut away to define an opening 16 providing entrance to a chamber 17 shaped to detachably retain a cartridge 26. This latter is in the form of a multiply-pleated bellows, and is preferably blow molded of a resilient, but generally shape-retaining, plastic material such as medium or low-density polyethylene and terminates forwardly in a tubular extension 20 and there is a nozzle 27 in the form of a bushing press-fitted to the extension 20. An orifice 21 is provided in the front end of the nozzle 27. The front end of the chamber 17 is defined by a wall 18 having a U-shaped opening 23 therethrough into which the nozzle 27 is engaged with a moderate snap fit. By providing the orifice 21 in a separate part, e.g. the bushing 27, molding of the cartridge and provision of the orifice is considerably simplified.

At its rear the chamber 17 slidably receives a skeletonlike piston 31 to transmit the force of the trigger to the inner end of the cartridge 26. The piston comprises two discs 32,32 guided by a plurality of ribs 33 formed on the interior of the body and there are struts 35,36 integral with the discs 32,32. The rear strut 35 spaces the discs and the front strut 36 terminates in a disc 38 adapted to abut the rear face of the cartridge.

Compression of the bellows is effected by means of an actuator 22 simulating a trigger, and is rotationally supported by a pair of pins 41,41 pivoted in individual bores in the two halves 12 and 13. The upper end 42 of the trigger 22 engages the rear end of the piston 31 so that, when the trigger is squeezed, the bellows is compressed to discharge water through the orifice 21. It will be apparent that the child may control the extent of squeezing of the trigger to obtain brief or prolonged discharge of the water.

Further, it will be understood that the cartridge may be filled while in place or may be readily removed and filled from a tap or receptacle. If desired the child may have several cartridges already filled and may load them in the pistol successively without recourse to a source of water. These additional cartridges may be carried in pockets in a belt or pouch further to heighten the child's imagination.

If blow molded of medium or low-density polyethylene or material having like resiliency, and properly shaped, the multiply-pleated bellows 26 may be relied upon to exert a force against the end of the piston 31 of such magnitude as to bias the finger-engaging portion of the trigger 22 outwardly from the housing as shown in FIG. 1 so that, following compression of the bellows to discharge a stream of water and upon release of the trigger, this latter will be restored to normal, or rest, position by the inherent bias of the bellows, for subsequent actuation. In the conventional water pistol, a spring is needed to bias the trigger of the gun to rest position but, in accordance with the present invention the spring is eliminated, thereby further simplifying the pistol and reducing its cost.

FIG. 4 shows a modified form of the invention wherein the pistol is a one-piece injection molding adapted to receive and retain a water-containing cartridge of the type described above and shown in phantom. The pistol 50 comprises a one-piece molding of semirigid plastic composition such as medium or high-density polyethylene, polypropylene or other material which has generally shape-retaining qualities combined with some resiliency. The pistol comprises a grip 52 having a front portion 53 and a rear portion 54 which are deformable with respect to each other and the barrel portion 56 by reason of the necked zones 52a, 53a and 54a. Disposed at the upper end of the rear portion 54 and projecting forwardly, is a semicylindrical retainer 57 which is open at the front and closed at the rear by means of a wall 58. Carried at the top of the front portion 53 is an extension 61 substantially the thickness of said portion and formed with an upwardly projecting arm 62 having a bifurcated formation 63 at its distal end defining a slot 64 to receive, with a snap fit, the bushing 27 (FIG. 1). If desired the slot 64 may include ribs 66 for detent-type retention of the bushing. The rear wall of the bellows abuts the wall 58. The bottom of the retainer 57 carries a channel 71 mating with the extension 61 for sliding engagement. Accordingly, as the pistol grip comprising the parts 53,54 is squeezed, the bellows will be compressed as the parts 61,71 slide on one another. It will be obvious that the cartridge may be quite easily removed, charged and reinserted into operative position.

The sliding connection between the parts 61 and 71 may be realized by using a dovetail formation which is capable of being assembled with a snap fit to maintain operative relation of the parts.

It will be understood that if the pistol of the invention is to simulate a weapon with a longer barrel e.g. a rifle, that this may be done simply by providing the longer barrel and lengthening the piston 31 to correspond.

In order to increase the velocity of the stream of water the orifice 21 may take a frustoconical form, with the smaller end outward.

I claim:

1. A toy water pistol comprising:

- a. a body having a hollow barrel portion and a pistol grip portion, a forward upper end portion of said barrel portion being cut away,
- b. a cartridge including a multiply-pleated bellows to hold water to be dispensed as a stream when the bellows is compressed, said cartridge having an orifice at one end for passage of water,
- c. the forward end of said barrel portion having means to receive and removably retain said cartridge with the orifice disposed at the front end of said barrel portion when the cartridge is positioned in said forward barrel portion through said cut away,

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- d. a plunger having a web transversely of the axis of the barrel to abut the rear end of the cartridge, and a second web rearwardly thereof,
- e. means to guide said plunger for movement on said axis comprising axially extending, circumferentially spaced ribs at the rear of the barrel portion and within the same,

- f. means associated with said pistol grip portion to compress said bellows to discharge water through said orifice,
- g. said bellows comprising resilient, but generally shape-retaining material to normally bias the bellows in expanded condition.

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