

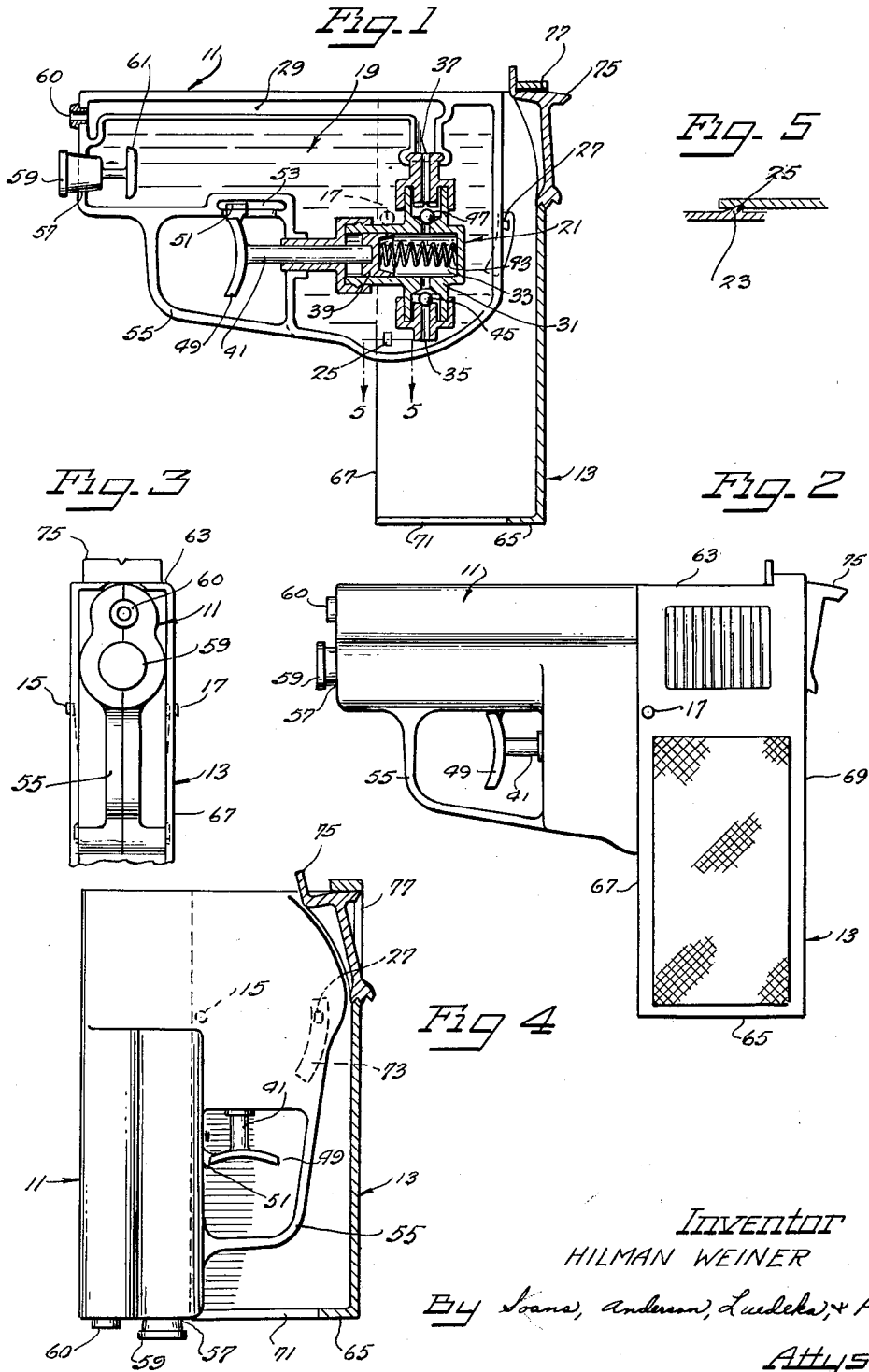
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FOLDABLE WATER PISTOL

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FOLDABLE WATER PISTOL
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This invention relates to a toy, and in particular to a water gun capable of being folded into a compact unit having a shape not resembling that of a gun.

The principal object of this invention is to provide a toy water gun which can be folded into a unit having a different shape so that it may be concealed within the hand or pocket, but which can easily be unfolded to surprise unsuspecting friends. An additional object of the invention is to provide a toy water gun which can be folded in such a manner that the trigger section is enclosed within the handle thereby avoiding the possibility that the trigger will catch on the child's clothing and discharge the gun when the child places the gun in his pocket. Other objects and advantages of the invention will become apparent by reference to the following descriptions and drawings of which:

FIGURE 1 is a sectional elevational view of the water gun showing the inner arrangement of the fluid chambers and pump;

FIGURE 2 is an elevational view of the water gun shown in FIGURE 1 as it would appear in the unfolded position;

FIGURE 3 is an end view of the water gun shown in FIGURE 1 looking in the direction of the open end of the barrel; and

FIGURE 4 is a partially sectioned view of the water gun in the folded or compact position, showing the relationship between the two sections when they are folded together;

FIGURE 5 is a sectional view showing the cooperation of detents and notches as they appear when retaining the gun in the unfolded position.

In general, the illustrated gun resembles an automatic revolver and comprises a barrel section 11, and a handle section 13 foldably attached to the barrel section by pins 15 and 17. A fluid reservoir 19 and a pumping means 21 are also included, and are shown in the preferred embodiment of FIGURE 1 as contained in the barrel section 11. The handle 13 is of a generally hollow construction so that it may enclose certain portions of the barrel section 11 when the gun is folded, and the pins 15 and 17 are appropriately located so that the gun can be folded into a shape similar to that shown in FIGURE 4. Detents 23 and notches 25 and 27 are also provided, and cooperate to maintain the gun in both the open and closed position. As can be seen in FIGURES 1 and 2, the gun generally resembles an automatic pistol or revolver when in the unfolded position, with the handle 13 forming an angle of approximately 90° with the top of the barrel section 11. However, when the gun is folded to the position shown in FIGURE 4, it is transformed into a compact package in which the trigger and hammer are enclosed in the handle 13, thus concealing the fact that the toy is a water pistol.

More specifically, the toy comprises a barrel section 11 containing a fluid reservoir 19 and a pumping means 21. A discharge channel 29 is also shown contained within the barrel section 11, and functions as a barrel through which fluid passes as it moves from the reservoir and out of the gun. The pumping means 21 causes the fluid to move under pressure from the reservoir 19 to the discharge channel 29 and to accomplish this purpose, the inlet side of the pumping means is in fluid communication with the reservoir 19, and the outlet side of the pumping means is in fluid communication with the discharge chan-

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nel 29. The pumping means 21 is capable of creating sufficient pressure to cause the fluid to leave the discharge channel in the form of a suitable jet. While the illustrated embodiment shows the reservoir 19 and the pumping means 21 located in the barrel section 11, it is understood that either or both of these elements could be contained in the handle section 13 and connected to the barrel section by flexible tubing or the like.

The pumping means 21 is shown in the preferred embodiment of FIGURE 1 as a standard piston-type pump, but a variety of pumping means would be satisfactory. The pump as shown includes a pump housing 31 containing a cylindrical pumping chamber 33. Fluid enters the pumping chamber 33 through a fluid-input channel 35, and leaves through a fluid-output channel 37. In order that pressure may be created in the pumping chamber 33, a plunger 39 is provided. Communication between the plunger 39 and the outer portion of the gun is accomplished by means of a plunger rod 41. A biasing means 43 is located intermediate the end of the pumping chamber 33 and the plunger 39 to return the plunger to the front of the chamber after the discharge stroke. So that fluid will flow in only one direction through the pump 17, check-valves in the form of balls 45 and 47 are provided in the fluid-input and fluid-output channels 35 and 37 respectively. The balls are of a diameter somewhat larger than the diameter of the channels 35 and 37 so that it may be possible for them to block the flow of fluid through these channels. As can be seen best in FIGURE 1, when the plunger is moved forward in the chamber 33, the ball 45 in the fluid-input channel 35 maintains that channel in a closed condition so that fluid will not flow back into the reservoir 19, but ball 47 in the fluid-output channel 37 allows fluid to flow out of the pumping chamber 33 and into the discharge channel 29 from which it will leave the gun. However, when the biasing means 43 forces the plunger back to the forward end of the chamber 33, ball 45 allows fluid to flow from the reservoir 19 into the pumping chamber, while spherical element 47 closes outlet channel 37 so that fluid will not flow back from the discharge chamber 29.

A trigger arrangement is provided for the gun by attaching an arcuate strip 49 transversely to the end of the plunger rod 41. The upper end of the strip 49 is provided with a flange 51 which rides in a channel 53 of the barrel section 11. The cooperation of the flange 51 and the channel 53 prevents the strip 49 from rotating on the plunger rod 41. The barrel section 11 also includes a trigger guard 55 which adds to the realism of the toy and also aids in preventing an inadvertent discharge of the gun.

Fluid is placed in the gun through a fluid inlet opening 57 which is shown in the illustrated embodiment as located in the front end of the gun. The opening 57 is provided with a plug 59 to insure that fluid will not leave the reservoir once it has been placed therein. In order that the plug 59 will not be completely removed from the gun and lost by the child, a retaining strip 61 is provided having a length somewhat greater than the diameter of fluid inlet opening 57 so that the strip 61 will not easily pass through.

A discharge nozzle 60, through which fluid leaves the gun, is located at the exit end of discharge channel 29. The inner diameter of the nozzle 60 is relatively small since the length of the path of the water jet emitted from the gun is generally inversely proportional to the inner diameter of the nozzle. In addition, during the operation of the gun, once the discharge channel 29 has been filled with fluid, it will remain filled until the reservoir 19 is emptied. Hence, the inner diameter of nozzle 60 must be small enough to prevent the fluid from leaking out when the channel 29 is filled.

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The handle section 13 is foldably attached to the barrel section 11 by pins 15 and 17, and includes a top edge 63, a butt edge 65, a forward edge 67, and a rear edge 69. The handle section is of a generally hollow design, being open both along its forward edge 67 and its top edge 63. In addition, the butt edge 65 contains a slot 71 to permit the sides of the handle to move in and out easily during the folding and unfolding of the gun.

The pins 15 and 17 are preferably located in such a manner that the folded gun will comprise as compact a unit as possible. With reference to the preferred embodiments of FIGURES 2, 3, and 4, the location of the pins is approximately equidistant between the top and rear edges 63 and 69, and near the forward edge 67, of the handle. In this manner, the top edge 63 of the handle will be generally flush with the rear edge of the barrel section when the gun is folded, and will be flush with the top edge of the barrel section when the gun is unfolded, thus enabling the gun to have a compact and attractive design in either position. In addition, the location 15 and 17, as well as the configuration of the barrel section 11, enable the barrel section to rotate freely within the handle section 13, and yet fit compactly within the handle section 13 when the gun is folded as shown in FIGURE 4.

Means for retaining the gun in either the open or closed position is provided by pairs of detents 23 and two sets of notches 25 and 27 located on either side of the gun. The detents 23 are located on the surface of the body section 11 somewhat behind the trigger guard 55 as can best be seen in FIGURE 1. The notches 25 which hold the gun in the open position are located on the forward portion of the inner side of the handle section 13 and will align with the detents 23 when the gun is unfolded. The cooperation of the detents 23 and the notches 25, as shown in FIGURE 5, will prevent the gun from folding together when the trigger is pulled. In order that the gun may be maintained in the closed position, the notches 27 are provided. Entry ways 73 for the detents 23 are also provided so that the detents may be fit easily into and out of the notches. The cooperation of the detents 23 and the notches 27 maintains the gun in the folded position.

Finally, a hammer 75 is provided in the gun handle 13 to add to the realism of the toy. Since it is desirable that the distinctive features of the gun be concealed when the gun is in the folded position, the hammer 75 is adapted to move into the gun handle 13 when the gun is folded, as shown in FIGURE 4, and for this purpose it is pivotally fixed to the gun handle 13 in a slot 77 of an appropriate size in the rear edge 69 of the handle. When the gun is unfolded, however, the location of the pivotal pins 15 and 17 is such that the lower portion of the body section 11 will contact the hammer 75 and force it back into the position shown in FIGURES 1 and 2 in which the gun is in the unfolded position.

The above description relates one preferred embodiment of the invention. However, it is to be understood that it is possible to devise many variations of the toy without departing from the invention. For example, the pumping means 21 or reservoir 19 could be contained in the handle 13.

A toy water gun has thus been provided which can be transformed into a compact package having a shape other than that of a gun. In addition, a toy gun has been provided which can be folded so as to enclose the trigger within the handle and thus eliminate the possibility of an accidental discharge of the gun when the child carries it in his pocket.

Various features of the invention are set forth in the appended claims.

What is claimed is:

1. A foldable toy water pistol comprising a barrel section and an elongated handle section, said barrel section including a fluid reservoir, a discharge opening in said barrel section, and a pumping means in said barrel section operable to discharge fluid from said reservoir out said discharge opening, said handle section comprising a generally hollow body having an opening along one side wall portion and an opening along the top wall portion thereof, means pivotally connecting said barrel section with said handle section so that a portion of said barrel section is always received within said generally hollow body and providing for relative movement of said barrel and handle sections between an operative position, wherein said barrel section is projecting from said handle section at generally right angles thereto, and a folded position wherein said barrel section is disposed lengthwise of said handle section to close said openings in the handle and provide a generally rectangular unit.

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2. A foldable toy water pistol comprising a barrel section and an elongated handle section, said barrel section including a fluid reservoir, a discharge opening in said barrel section, a pumping means in said barrel section operable to discharge fluid from said reservoir out said discharge opening, and a trigger projecting outwardly from the barrel section and operatively connected with said pumping means, said handle section comprising a generally hollow body having an opening along one side wall portion and an opening along the top wall portion thereof, means pivotally connecting said barrel section with said handle section so that a portion of said barrel section is always received within said generally hollow body and providing for relative movement of said barrel and handle sections between an operative position, wherein said barrel section is projecting from said handle section at generally right angles thereto with said trigger exposed, and a folded position wherein said barrel section is disposed lengthwise of said handle section to close said openings in the handle, with said trigger received within said handle section, to thereby provide a generally rectangular unit.

3. A foldable toy water pistol comprising a barrel section and an elongated handle section, said barrel section including a fluid reservoir, a discharge opening in said barrel section, a pumping means in said barrel section operable to discharge fluid from said reservoir out said discharge opening, and a trigger projecting outwardly from the barrel section and operatively connected with said pumping means, said handle section comprising a generally hollow body having an opening along one side wall portion and an opening along the top wall portion thereof, means pivotally connecting said barrel section with said handle section so that a portion of said barrel section is always received within said generally hollow body and providing for relative movement of said barrel and handle sections between an operative position, wherein said barrel section is projecting from said handle section at generally right angles thereto with said trigger exposed, and a folded position wherein said barrel section is disposed lengthwise of said handle section to close said openings in the handle, with said trigger received within said handle section, to thereby provide a generally rectangular unit.

4. A foldable toy water pistol comprising a barrel section and an elongated handle section, said barrel section including a fluid reservoir, a discharge opening in said barrel section, a pumping means in said barrel section operable to discharge fluid from said reservoir out said discharge opening, and a trigger projecting outwardly from the barrel section and operatively connected with said pumping means, said handle section comprising a generally hollow body having an opening along one side wall portion and an opening along the top wall portion thereof, means pivotally connecting said barrel section with said handle section so that a portion of said barrel section is always received within said generally hollow body and providing for relative movement of said barrel and handle sections between an operative position, wherein said barrel section is projecting from said handle section at generally right angles thereto, and a folded position wherein said barrel section is disposed lengthwise of said handle section to close said openings in the handle, with said trigger received within said handle section, to thereby provide a generally rectangular unit, and cooperating means on said barrel section and said handle section which is operable to releasably retain said sections in said operative and folded positions.

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