Oct. 17, 1950 B. WALKER 2,525,843

BULLET TRAP

Filed March 16, 1945

Fig. 1.

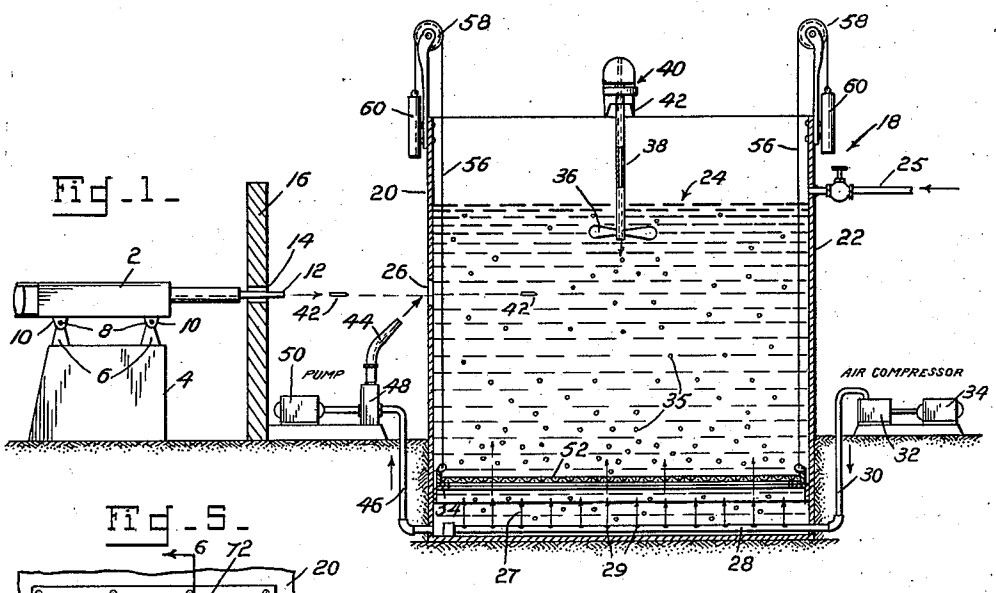


Fig. 5.

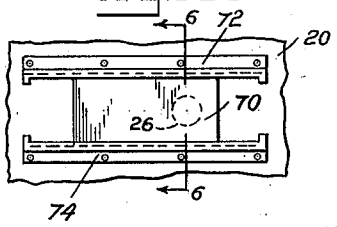


Fig. 2.

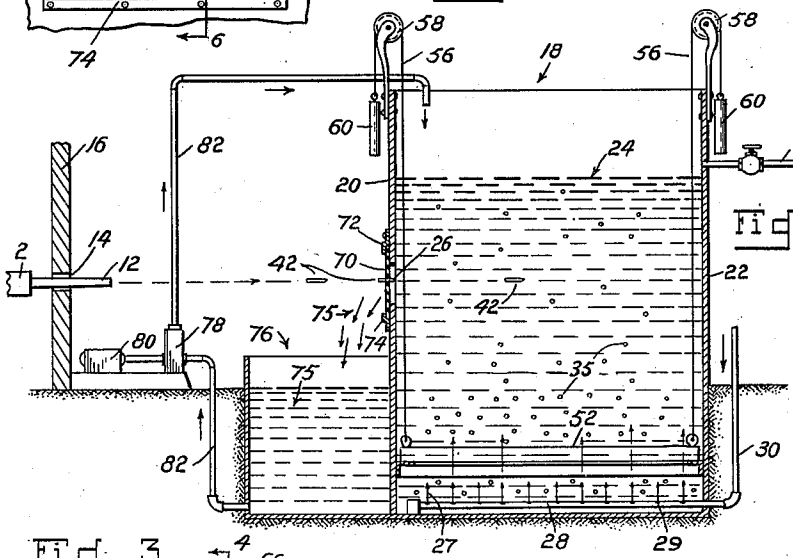


Fig. 6.

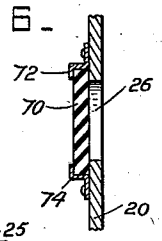


Fig. 4

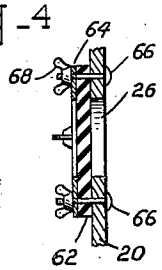
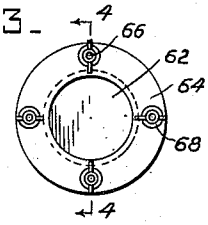


Fig. 3.



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BULLET TRAP

Brooks Walker, Piedmont, Calif.

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8 Claims. (Cl. 273—102.4)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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The invention described herein may be manufactured and used by or for the Government for governmental purposes without the payment to me of any royalty thereon.

This invention relates to bullet traps.

A purpose of the invention is to provide a trap for bullets that are fired out of small arms such as rifles and machine guns.

Another purpose of the invention is to provide a bullet trap which is safe to use and which occupies relatively little space as compared with that occupied by a rifle or machine gun range of customary size.

A further purpose of the invention is to provide a means of salvaging the bullets fired into the bullet trap with a minimum of deformation of the fired bullets due to the trap itself.

Other and further purposes of the invention will become apparent from the following description and attached drawings.

A preferred embodiment of the invention has been illustrated in the drawings in which:

Figure 1 is a device showing the preferred form of the invention.

Figure 2 illustrates a modified form of the invention.

Figure 3 is a face view of one form of cover for a bullet inlet hole.

Figure 4 is a section taken on line 4—4 of Figure 3,

Figure 5 is a face view of another form of cover for a bullet inlet hole, and

Figure 6 is a section taken on line 6—6 of Figure 5.

In the test firing of small arms and automatic weapons, it is desirable to avoid the use of full size ranges wherever possible. This may be done by firing the gun into a sand trap, but this method has many well known disadvantages such as the expense of replacing the sand which is largely reduced to a fine powder dust as a result of firing bullets into it. The powdered sand is also considered to be quite deleterious to the health of workmen who must remove it. The present invention provides a means of overcoming the inherent defects of sand traps. It is effective, safe and requires no replacement of sand. In addition it permits a far greater recovery of spent bullet scrap and to a certain extent permits inspection of bullets after firing them.

Referring now to Figure 1, a weapon 2, such as a machine gun or other small arm, is mounted on a pedestal or table 4 in any secure manner such as by means of upwardly projecting lugs 6 having transverse holes aligned with the corresponding holes 8 in the downwardly projecting lugs 10 of the machine gun 2. The barrel 12 of the gun 2 extends through a hole 14 in a protective wall 16. While the wall 16 may be made of concrete of sufficient thickness, it is preferable to make it of

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heavy gauge steel to guard the operator of the gun against possible injury from bullet fragments.

The bullets from the gun 2 are fired into a tank 18 two side walls of which are shown at 20 and 22. The tank is preferably made of heavy gauge steel, wood or other suitable material and contains water or other suitable liquid or mixture of liquids 24 which enters the tank from pipe 25. The bullets fired from the gun 2 enter the tank through a hole 26 formed through side wall 20 at the same level as the line of fire from the gun barrel 12.

A horizontal pipe 28 or a series of parallel pipes arranged in the water 24 near the floor of the tank 18, has a large number of small holes 29 in its walls through which compressed air inside the pipe 28 can enter the water 24. The pipe 28 is connected by pipe 30 to an air compressor 32 driven by a motor 34 whereby a continuous flow of air is caused to pass out of the holes 29 in the direction indicated by arrows 27 into the water 24. This results in keeping the water 24 full of air bubbles 35. To assist in maintaining the air bubbles as long as possible we may add to the water 24 an oil of the type developed for the flotation process of gold extraction or oil of similar characteristics, thus creating a semipermanent mixture of water and air bubbles.

Another method of producing air bubbles in the water 24 is by means of a propeller 36 arranged on a vertical shaft 38 driven by a motor 40 or other means and supported on the tank 18 by a bracket 42. The shaft 38 may be hollow and open at both ends, and, the propeller 36 is arranged to propel water downward. The resulting vortex will cause air to be drawn downward and mixed with the water, forming a large number of bubbles and addition of the above-mentioned oil will create a semipermanent mixture of water and air bubbles.

The distance between walls 20 and 22 should be about 20 feet in order to slow a fired bullet 42 down so it will drop to the bottom of the tank before hitting wall 22.

Since hole 26 is located below the water level in the tank, means is provided to prevent or diminish the rate of escape of water through the hole 26. This is accomplished by means of an external pipe and nozzle 44 which forces water into the hole 26 from the outside as indicated in Figure 1. The tip of nozzle 44 is located near the hole 26 but outside the line of fire so it is not hit by fired bullets. Water for nozzle 44 is obtained from tank 18 through pipe 46 connected at one end to the water 24 and at the other end to a pump 48 driven by a motor 50.

As spent bullets drop to the bottom of tank 18, they can be removed in a variety of ways, such as by letting the water 24 out of the tank

through an outlet pipe or valve and then shoveling them out. Or, as illustrated, a horizontal wire screen 52 may be arranged on supports 54 near the bottom of the tank, the spent bullets falling onto the screen. The screen 52 may then be raised to the top of the tank by means of cables 56 running over pulleys 58 to balancing weights 60 and the bullets then shoveled or raked off the screen, or the screen may be tilted so the bullets fall off it into a hopper or other container. The propeller 36 and associated equipment would, if used, have to be moved out of the way when the screen is raised.

Figure 2 shows an alternative or modified form of the invention. It differs from the form shown in Figure 1 only in regard to the means used for avoiding wastage or loss of water through hole 26. Thus, as shown in Figure 2, the hole 26 is covered by a piece 62 of heavy rubberized fabric or fibre, for example like that used in rubberized fabric power transmission belts or in automobile tire casings. The fibre 62 may be held in place over hole 26 by means of an external annular flange 64 as indicated in Figures 3 and 4, the flange being held in place by bolts 66 having wing nuts 68. Or, the fibre 62 may be in the form of a long strip 70 as illustrated in Figures 2, 5 and 6, the strip 70 being supported between two angle irons 72 and 74 so that it may be moved to present an unpierced portion over hole 26 as needed. As bullets are fired through the fibre 62 or 70, the bullets will only make small holes in the fibre, through which a relatively small quantity of water will flow. This water 75 flows into a small tank 76 from which it is pumped back into tank 18 by pump 78 powered by motor 80 and through pipes 82, thus maintaining the level of water in tank 18.

While the invention has been described in specific terms herein, it is to be understood that numerous changes may be made in the shape, size, arrangement and materials without departing from the spirit and scope of the invention as claimed herein.

I claim:

1. A trap for stopping bullets fired from a weapon, said trap comprising a tank having lateral wall means for confining a liquid, said lateral wall means having an aperture therethrough at a position intermediate its top and bottom, and nozzle means positioned exteriorly of said tank and spaced from and below said aperture for directing a stream of liquid into said aperture in a direction inclined to the plane of said lateral wall means.

2. A trap for stopping bullets fired from a weapon, said trap comprising a tank having lateral wall means for confining a liquid, said lateral wall means having an aperture therethrough at a position intermediate its top and bottom; nozzle means positioned exteriorly of said tank and spaced from and below said aperture for directing a stream of liquid into said aperture in a direction inclined to the plane of said lateral wall means, and means for removing liquid from said tank at a position below said aperture and for pumping it to said nozzle means.

3. A trap for stopping bullets fired from a weapon, said trap comprising a tank having lateral wall means for confining a liquid, said lateral wall means having an aperture therethrough at a position intermediate its top and bottom; nozzle means positioned exteriorly of said tank and spaced from and below said aperture for directing a stream of liquid into said aperture in a direction inclined to the plane of said lateral

wall means, means for removing liquid from said tank at a position below said aperture and for pumping it to said nozzle means, and means for distributing air bubbles in liquid contained in said tank.

4. A bullet trap comprising a tank having vertically disposed liquid confining wall means, said wall means having an aperture therethrough at a position intermediate its top and bottom, and a nozzle positioned away from and below said aperture exteriorly of said tank for directing a stream of liquid into said aperture in a direction inclined to said wall means.

5. A bullet trap comprising a tank having vertically disposed liquid confining wall means, said wall means having an aperture therethrough at a position intermediate its top and bottom; a nozzle positioned away from and below said aperture exteriorly of said tank for directing a stream of liquid into said aperture in a direction inclined to said wall means, and means for removing liquid from said tank at a position below said aperture and for pumping it to said nozzle.

6. A bullet trap comprising a tank having vertically disposed liquid confining wall means, said wall means having an aperture therethrough at a position intermediate its top and bottom; a nozzle positioned away from and below said aperture exteriorly of said tank for directing a stream of liquid into said aperture in a direction inclined to said wall means, means for removing liquid from said tank at a position below said aperture and for pumping it to said nozzle, and means for distributing air bubbles in liquid contained in said tank.

7. A bullet trap comprising a tank having vertically disposed liquid confining wall means, said wall means having an aperture therethrough at a position intermediate its top and bottom, a liquid in said tank having its level above said aperture, and a nozzle positioned away from and below said aperture exteriorly of said tank for directing a stream of said liquid into said aperture in a direction inclined to said wall means.

8. A bullet trap comprising a tank having vertically disposed liquid confining wall means, said wall means having an aperture therethrough at a position intermediate its top and bottom; a liquid in said tank having its level above said aperture, a nozzle positioned away from and below said aperture for directing a stream of said liquid into said aperture in a direction inclined to said wall means, and means for removing liquid from said tank at a position below said aperture and for pumping it to said nozzle.

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