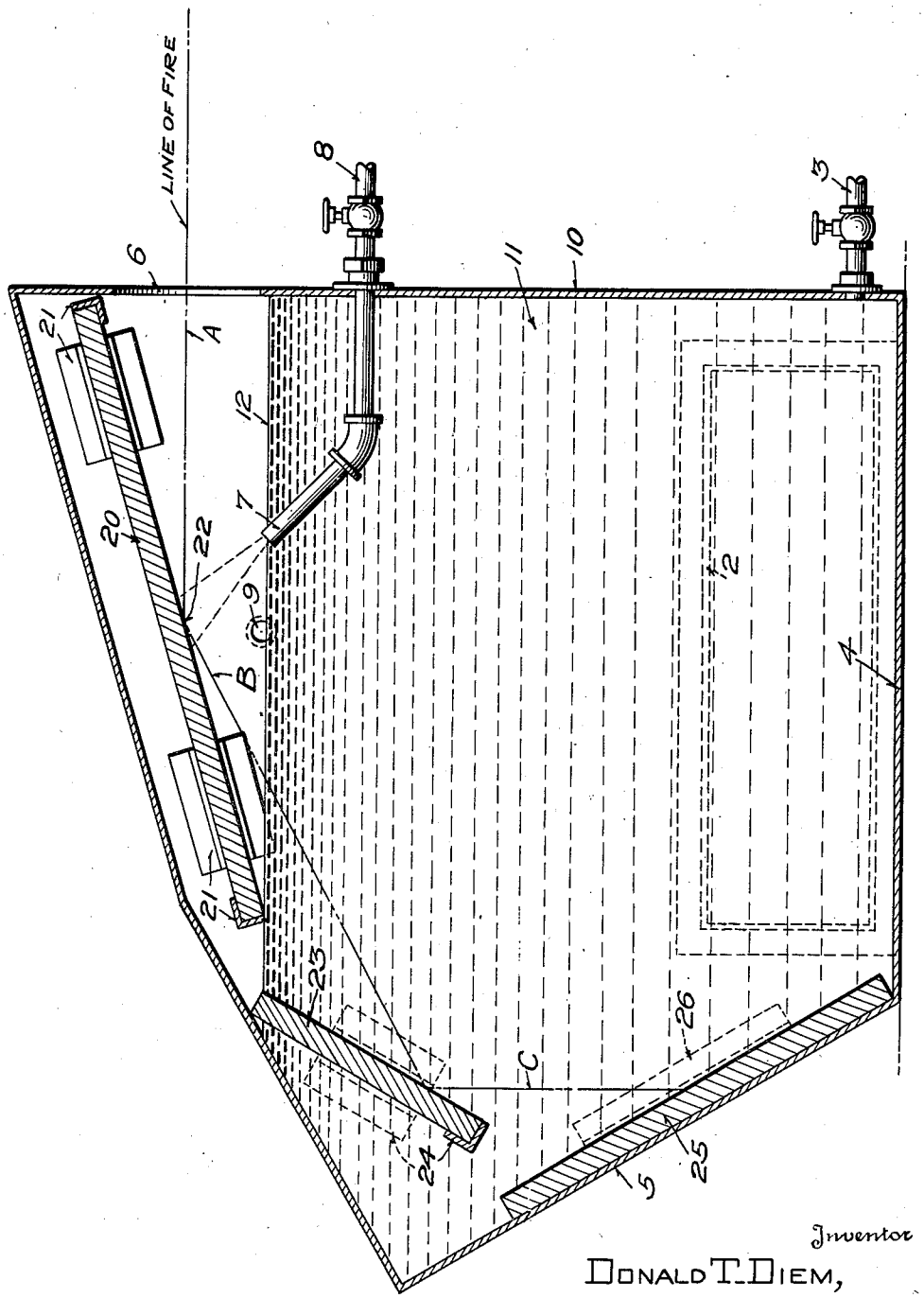
May 13, 1947. D. T. DIEM 2,420,304

SPENT BULLET TRAP

Filed May 5, 1944



Inventor

DONALD T. DIEM,

By C. E. Herrstrom & H. E. Thibodeau

Attorneys

Patented May 13, 1947

2,420,304

UNITED STATES PATENT OFFICE

2,420,304

SPENT BULLET TRAP

Donald T. Diem, Saginaw, Mich.

Application May 5, 1944, Serial No. 534,362

5 Claims. (Cl. 273—102.4)

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

1

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 a device for salvaging the spent bullets fired from rifles, machine guns and other small-arm weapons undergoing performance, endurance or other tests necessitating the firing of the weapon with live ammunition. Such spent bullets and bullet particles are reclaimed for the value of their metal contents. At present the bullets are reclaimed by using sand pits which are objectionable for many reasons, including the need of removing and replenishing the sand at frequent intervals, the very unsatisfactory working conditions for the men handling the sand, the resulting dust and dirt spreading over weapons and materials, the high cost of maintenance, etc.

The object of this invention is to provide a spent bullet trap which will avoid the above enumerated objections and which will take up very little space, which will be clean in operation and low in maintenance cost, and which will be easily accessible for removing the bullets and bullet particles. For the attainment of this and such other objects as may appear or be pointed out herein I have shown one embodiment of my invention in the accompanying drawing.

The improved spent bullet trap of this invention comprises a tank 10 which may take the outline and shape of the tank shown in the drawing. The tank is water-tight and is filled for most of its volume with water 11 which is maintained at the level 12 by the provision of an overflow hole 9 located at that level and by the continuous inflow of water through inlet 8. The tank, including the portion above the water level, is completely closed except for the said overflow outlet 9 and an opening 6 provided in the front wall of the tank just above the water level 12.

The line of fire A from the weapon is directed through the opening 6, the bullets striking an armor plate 20 placed above and close to water level 12 and inclined at a small angle thereto. Plate 20, which may be one and one-quarter inch armor plate, is secured to the opposite sides of the tank by angle irons 21 fastened to the tank sides. The projectiles, entering the tank on line of fire A are deflected after striking the plate 20 at area 22, along the path B and submerge in the body of water of the tank. The bullets deflected from plate 20 along path B strike a second armor plate 23 which is wholly

2

submerged in the water. Plate 23, which may also be one and one-quarter inch armor plate, is secured to the tank sides by angle irons 24 and is inclined at the proper angle to the first plate 20 to cause the path C of bullets deflected from second plate 23 to strike a third armor plate 25 which rests upon an inclined wall 5 of the tank. Plate 25, which may be of armor plate similar to plates 20 and 23, is secured by angle irons 26. Tank wall 5 and armor plate 25 are inclined at an angle to both the second deflector plate 23 and to the floor 4 of the tank, so that the bullets and bullet particles deflected from plate 23 will be directed to the lower region of the tank and become deposited on tank floor 4.

Preparatory to reclaiming the bullets and bullet particles from the tank, the water is drained off through drain outlet 3. One or more doors 2 are provided near the bottom of the tank which are sealed water-tight during the firing; these doors are opened during reclamation to enable the bullets and bullet particles to be shoveled out.

The area 22 where the bullets enter the trap on line of fire A is cooled and lubricated by the water pumped through inlet 8 and caused to be sprayed against the plate. For this purpose pipe nipple 7 inside the tank is inclined upwardly towards the armor plate 20. While the best results are obtained with the tank filled with water to level 12 submerging the two armor plates 23 and 25 (as shown in the drawing), the trap may be used without the body of water, the water being merely sprayed against plate 20 and allowed to immediately drain off through bottom outlet 3.

I claim:

1. In a trap for salvaging spent bullets, the combination of a tank, an inlet pipe for conducting water under pressure into the tank, the said tank having an outlet hole to establish a water level line high up in the tank with a clear tank space above the water line, the front wall of the said tank having an opening into the said top clear space and opening therefrom to the atmosphere, an armor plate in the said clear tank space inclined at a small angle to the said water line and presenting a central impact area in the line of fire of bullets entering the tank through the said front opening, the said inlet pipe having a pipe nipple within the tank directed towards the said armor plate, and at an angle to the line of fire of the bullets, to spray the water against its said impact area, a second

armor plate in the tank below the said water line and inclined toward the first said plate to intersect the path of bullets deflected from the first said plate and to deflect the bullets therefrom in a downward direction, a third armor plate in the tank below the water line and inclined to the said downward bullet direction to deflect the bullets therefrom towards the floor of the tank, a drain outlet near the tank bottom, and a door providing access into the tank for removing the bullets deposited on the said tank floor.

2. In a trap for salvaging spent bullets, the combination of a tank, an inlet pipe for conducting water under pressure into the tank, the front wall of the said tank having an opening into the upper region of the tank, an armor plate in the said upper tank region inclined from above said opening downward in the direction of movement of entering bullets at a small angle to the line of fire and to the water level and presenting a central impact area in the line of fire of bullets entering the said front opening, the said inlet pipe having a pipe nipple within the tank directed towards the said armor plate, and at an angle to the line of fire, to spray the water against its said impact area, a second armor plate in the tank inclined toward the first said plate to intersect the path of bullets deflected from the first said plate and to deflect the bullets in a downward direction, a third armor plate in the tank and inclined to the said downward bullet direction to deflect the bullets towards the floor of the tank, an outlet near the tank bottom for the said sprayed water, and a door providing access into the tank for removing the bullets deposited on the said tank floor.

3. In a trap for salvaging spent bullets, the combination of a tank, an inlet pipe for conducting water under pressure into the tank, the said tank having an outlet hole to establish a water level line high up in the tank with a clear tank space above the water line, the front wall of the said tank having an opening into the said top clear space, an armor plate in the said clear tank space inclined at a small angle to the said water line and presenting a central impact area in the line of fire of bullets entering the said front opening, the said inlet pipe having a pipe nipple within the tank directed towards the said armor plate to spray the water against its said impact area at an angle to the line of fire of the bullets, a pair of armor plates in the tank below the said water line to intersect the path of bullets deflected from the first said plate and to successively deflect the bullets downward in the tank at successively increased angles to the course of bullets entering the tank, a drain outlet near the tank bottom, and a door providing access into the tank for removing the bullets deposited on the said tank floor.

4. In a trap for salvaging spent bullets, the combination of a tank, an inlet pipe for conducting water under pressure into the tank, the front wall of the said tank having an opening into the upper region of the tank, an armor plate in the said upper tank region inclined from above said opening downward in the direction of movement of entering bullets at a small angle to the line of fire and to the water level and presenting a central impact area in the line of fire of bullets entering the said front opening, the said inlet pipe having a pipe nipple within the tank directed towards the said armor plate to spray the water against its said impact area at an angle to the line of fire of the bullets, a pair of armor plates in the tank to intersect the path of bullets deflected from the first said plate and to successively deflect the bullets downward in the tank at successively increased angles to the course of bullets entering the tank, an outlet near the tank bottom for the said sprayed water, and a door providing access into the tank for removing the bullets deposited on the said tank floor.

5. In a trap for salvaging spent bullets, the combination of a tank, an inlet pipe for conducting water under pressure into the tank, the said tank having an outlet hole to establish a water level line high up in the tank with a clear tank space above the water line, the front wall of the said tank having an opening into the said top clear space, an armor plate in the said clear tank space inclined at a small angle to the said water line and presenting a central impact area in the line of fire of bullets entering the said front opening and deflecting the bullets into the water, the said inlet pipe having a pipe nipple within the tank directed towards the said armor plate to spray the water against its said impact area at an angle to the line of fire of the bullets, means for directing the said bullets through the water towards the floor of the tank, a drain outlet near the tank bottom, and a door providing access into the tank for removing the bullets deposited on the said tank floor.

DONALD T. DIEM.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,356,992	Gilson	Aug. 29, 1944