No. 648,366. Patented Apr. 24, 1900.

J. C. SIMMONDS & A. PENISTON.

OIL DISTRIBUTING PROJECTILE.

(No Model.) (Application filed July 14, 1899.)

Fig. 1.

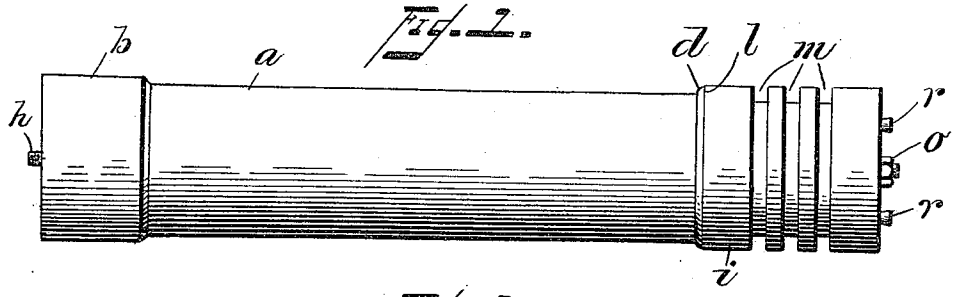


Fig. 2.

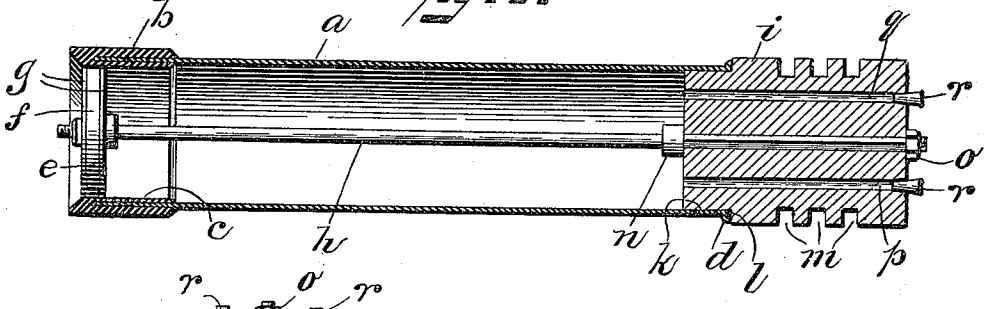


Fig. 3.

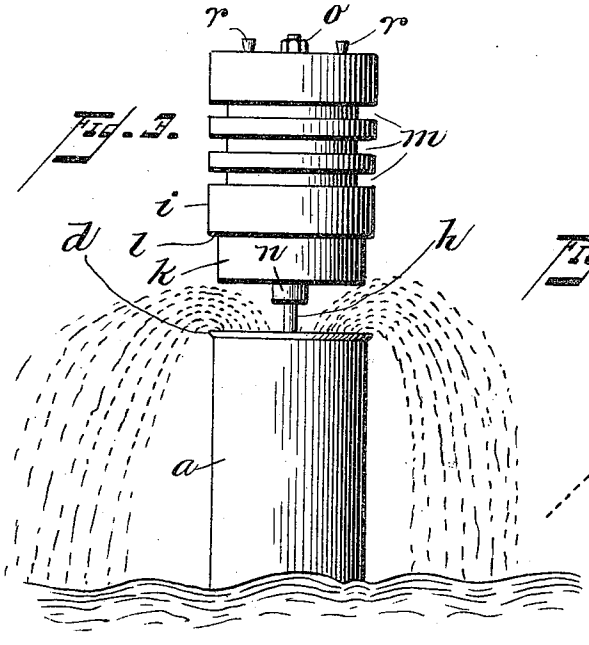
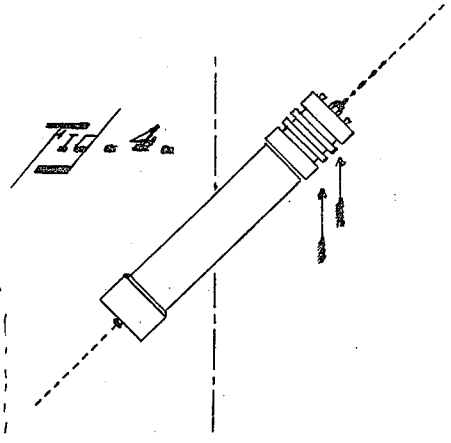


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN CHARLES SIMMONDS, OF NEW YORK, N. Y., AND ALONZO PENISTON, OF BALTIMORE, MARYLAND.

OIL-DISTRIBUTING PROJECTILE.

SPECIFICATION forming part of Letters Patent No. 648,366, dated April 24, 1900.

Application filed July 14, 1899. Serial No. 723,827. (No model.)

To all whom it may concern:

Be it known that we, JOHN CHARLES SIMMONDS, a citizen of the United States, and a resident of the borough of Manhattan, in the city, county, and State of New York, and ALONZO PENISTON, a subject of the Queen of Great Britain, and a resident of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Oil-Distributing Projectiles, of which the following is a specification.

Our invention relates to certain improvements on the device shown, described, and claimed in Letters Patent of the United States No. 495,569, granted to us on the 18th day of April, 1893, for a new and useful "automatic shell or receptacle for distributing oil on the waters of a heavy sea."

The invention described in this application consists, generally speaking, in a weighted shell proper, in a new steering device for the projectile, whereby steadiness of flight is obtained, in the means for loading the shell, in the means for connecting the two end closures or movable sections, and in the construction, combination, and arrangement of the several parts of which the projectile is composed, as will be hereinafter more fully described and claimed.

Referring now to the accompanying drawings, in which corresponding parts are desigignated by similar marks of reference, Figure 1 is a side elevation of a projectile formed in accordance with this invention. Fig. 2 is a longitudinal central section thereof. Fig. 3 represents a projectile constructed in accordance with this invention as it appears in discharging its contents upon striking the water. Fig. 4 is a diagrammatic view to illustrate the action of the steering-grooves.

The shell proper, *a*, is cylindrical in shape and the forward end thereof is weighted. By preference the shell is formed of sheet metal; but we do not limit our invention in this respect, and the forward end thereof may be weighted by a collar of lead surrounding that end, forming an exterior ring *b*, and also laid around the inner surface of the said end of the shell. This localizes the weight at the point desired and at the same time forms upon the interior of the shell a smooth seat *c* of reduced diameter to receive the forward closure or section, as will be hereinafter described. When the shell is made of sheet metal, as above stated, a beading or flange *d* may be constructed upon the rear end thereof to form a strengthening-shoulder to receive the plug, which serves as the rear-end closure or section and through which the propulsive force is exerted to throw the projectile.

The forward end of the shell is closed by a section *e*, resting snugly within the seat *c* and consisting by preference of a leather washer *f*, on each side of which is located a metallic strengthening-disk *g*. The disks and washer are mounted upon the forward end of the central rod *h*, the rear end of which carries the plug *i*. The forward end of the plug *i* is reduced in diameter, as at *k*, to seat within the rear end of the shell *a* and is provided with a shoulder *l*, which seats against the beading *d* upon the rear end of the shell, the external diameter of the plug in the rear of the shoulder being substantially the same as the diameter of the band *b* upon the forward end of the shell and with the band serves to center the projectile in the gun. The plug extends some distance rearwardly of the shell and is provided with a series of annular grooves *m* and is by preference made of comparatively-light material, such as wood. By this means we secure a projectile of considerable length, having its weight localized at its head for the purpose of assuring accuracy in flight. We have also found that the shoulders formed by the annular grooves *m* aid in imparting this desired accuracy, and we believe that this action of the shoulders is due to the fact that when the longitudinal axis of the shell no longer coincides with the direction of its movement, but is angularly disposed in relation thereto, as is shown in Fig. 4, (in which figure the line of flight is indicated by the broken lines and the axis of the cylinder is indicated by dotted lines,) the pressure due to the compression of air upon the side of the projectile acts upon the shoulders formed by the annular grooves *m* and shifts the axis of the shell and causes it to coincide with the direction of motion thereof.

An enlargement *n* is formed upon the central rod *h* immediately in front of the for-

ward end of the plug, and the latter is held upon the rod by means of a nut *o*, secured upon the rear end of the rod, whereby the plug may be removed from the rod for the purposes hereinafter referred to. That portion of the rod which passes through the plug may be angular in cross-section, or any other equivalent construction may be used to prevent turning of the rod while removing or replacing the nut.

In the operation of our invention it is intended that the projectile be filled with oil or other suitable substance, either by the removal of the plug *i* in the manner before described or through a filling-hole *p*, formed longitudinally in the plug. In the latter case a corresponding vent-hole *q* should also be provided to permit the escape of air from the shell, the holes *p* and *q* being subsequently closed by means of suitable plugs *r*. The projectile having been loaded, it is thrown upon the water in any suitable way—such, for instance, as from an air, spring, or powder gun. The preponderant weight of the forward end of the shell causes it to enter the water, its projectile force being altogether lost or greatly diminished vertically with the forward end down. The momentum of its impact drives the heavy shell beneath the surface, and at the same time the water acts upon the forward closure and starts the latter rearwardly within the shell, and this motion of the forward closure is communicated through the rod *h* to the plug *i*, which is thus started out of the rear end of the shell to permit the escape of the oil upon the surface of the water. The purpose of the enlargement *n* upon the rod is to prevent the latter being driven through the plug in case the plug should become stuck in the shell at the time the latter was thrown.

In the rearward movement of the closures the forward closure soon passes from within the reduced seat *c*, and friction being thus removed only a slight force will be required to completely carry the closures out of the shell.

It will be noted that whereas in our previous patent the weight was placed in the forward closure we, in the device shown in this application, place it on the shell itself, meaning by the term "shell" the part *a* which contains the oil, and in this specification and claims we wish to have that meaning given to this term, as we use the word "projectile" to denote the whole device formed by the shell and the removable connected closures. The advantage of placing the weight upon the shell instead of any other part of the projectile is that additional momentum is given to the shell to cause it to continue its movement in the water for the purpose of driving out the closures, and that the weight remains upon the forward end of the shell at all times instead of shifting rearwardly therein with the closures when the latter are driven rearwardly.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. An oil-distributing projectile, consisting of a shell to contain the oil, the shell itself being weighted and closures movable rearwardly therein upon impact of the projectile upon the water, substantially as described.

2. An oil-distributing projectile, consisting of a shell to contain the oil, the shell itself being weighted and having open ends closed by connected movable sections adapted to be unseated by the water as the projectile strikes its surface, substantially as described.

3. In an oil-distributing projectile, the combination of a shell having open ends, connected movable sections for closing said ends and a rearward extension upon the rear section and having annular grooves therein for the purpose of steering the projectile, substantially as described.

4. In an oil-distributing projectile, the combination of a shell having a seat of reduced diameter at its forward end, of connected end closures moving in the shell, one of the said closures normally resting within the reduced seat of the shell, substantially as described.

5. In an oil-distributing projectile, the combination with a tubular shell, having its forward end thickened for the purpose of adding weight thereto and forming a seat of reduced diameter, the rear end of the shell being strengthened by a flange, of connected end closures, the forward end closure resting within the reduced seat and the rear end closure having a shoulder thereon to rest against the flange of the shell, substantially as described.

6. In an oil-distributing projectile, the combination with a cylindrical shell having a weighted forward end, forming an exterior band and an interior seat of reduced diameter, of connected front and rear end closures for the shell, movable rearwardly therein, the rear end closure consisting of a plug of substantially the same diameter as the band upon the forward end of the shell and having annular grooves therein, substantially as described.

In testimony whereof we have hereunto set our hands.

JOHN CHARLES SIMMONDS.
ALONZO PENISTON.

Witnesses:
WILLIAM H. BERRY,
MURRAY HANSON.