

July 4, 1939.

C. H. MORGAN ET AL

2,164,340

TARGET

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Fig. 1.

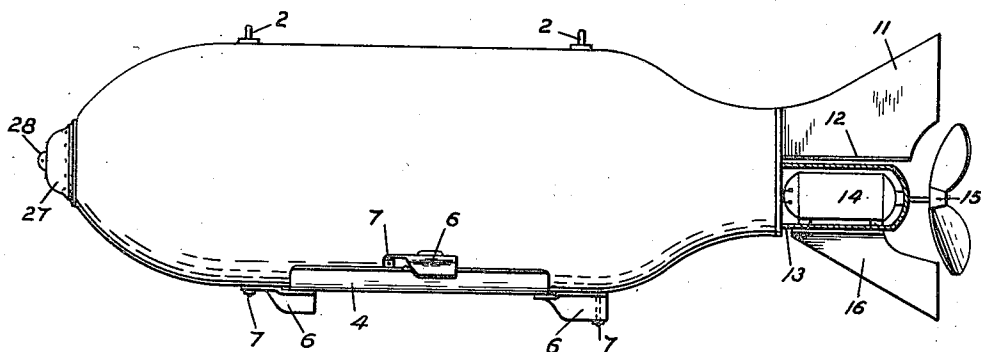


Fig. 2.

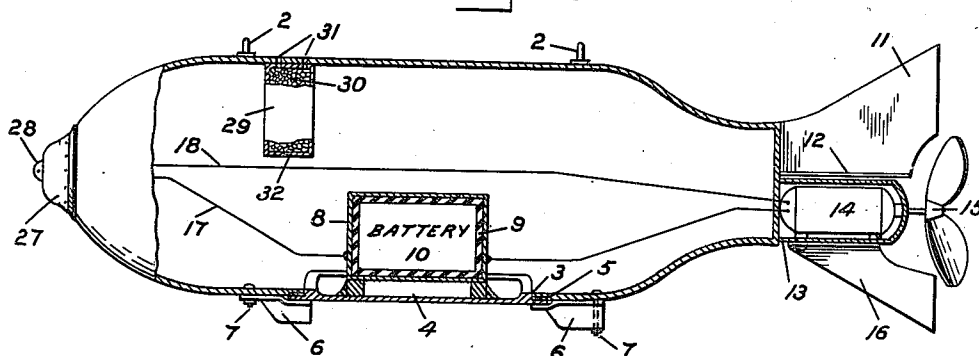


Fig. 3.

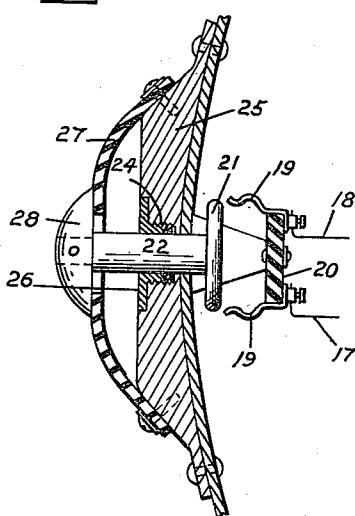
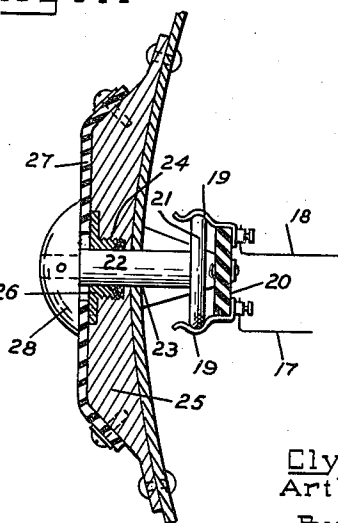


Fig. 4.



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UNITED STATES PATENT OFFICE

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TARGET

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3 Claims. (Cl. 273—105.2)

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

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

5 This invention relates to a target and more particularly it has reference to a self-propelled target capable of being launched from aircraft.

In conducting bomb target practice from aircraft it has been customary to employ either a 10 fixed or a towed target. The employment of a fixed target is not satisfactory, particularly for exercises simulating the bombing of naval targets which normally proceed at relatively high speeds.

15 The use of a target towed by another vessel has serious disadvantages such as the inherent danger to the towing vessel and its personnel and also the cost involved in the use of a towing vessel as well as the time required to tow the target out to sea.

20 Both fixed and towed targets have the additional drawback of being necessarily of limited dimensions and therefore extremely difficult to locate and observe from aircraft flying at the high altitude customarily employed in aircraft 25 bombing.

The purpose of this invention is to provide a target which is capable of being carried in the bomb rack of aircraft and launched therefrom in the same manner as a bomb, which will be float- 30 able on water and self-propelled on any desired course, which will carry apparatus for emitting a visible indicator such as smoke to disclose its location, and which may be arranged so that it will sink after a predetermined time and be 35 eliminated as a menace to navigation.

To these and other ends, the invention consists in the construction, arrangement and combination of elements described hereinafter and 40 pointed out in the claims forming a part of this specification.

A practical embodiment of the invention is illustrated in the accompanying drawing, wherein:

Fig. 1 is a view in side elevation of a target 45 constructed in accordance with the invention;

Fig. 2 is a longitudinal sectional view;

Figs. 3 and 4 are enlarged sectional views through the nose of the casing and showing the 50 switch;

Referring to the drawing by characters of reference, the target comprises a casing 1 which is a standard empty bomb body less tail fin and fuse assemblies and which is generally cylindrical with 55 streamlined lined ends. The casing is provided with a pair of lugs 2—2 by means of which it is releas-

ably attached to the standard bomb rack of aircraft and launched in the same manner as a bomb. The wall of the casing which is to be the bottom of the target when floated in water is formed with an opening 3 to permit the introduction and mounting within the casing of the various elements of the apparatus. A closure 4—4 for the opening is applied from the outside of the casing and is securely held against a gasket 5 by means of clamps 6—6 which are 5 threadedly mounted on bolts 7—7. The clamps are specially formed as fins so that upon submersion they will function to suppress rolling of the casing due to propeller torque.

The closure 4 is preferably employed as a support for a metal container 8 which is firmly secured in place as by welding and has a lining 9 of shock-absorbing material such as sponge rubber. A battery 10 enclosed in the container is of a well known, non-spillable shock-proof construction commonly employed in aircraft. 10

The upper portion of the rear end of the casing carries a vertical fin 11 and horizontal fins 12—12 which provides for stability of the target while in flight in the air, insure nose-first impact with the water, and assist in preventing 25 rolling action when the casing is being propelled on the water.

A bracket 13 attached to the rear end of the casing directly underneath the fins 11—12 carries a commercially obtainable outboard electric motor 14 with a direct shaft connection to propeller 15. While this motor could be installed within the casing to avoid the requirement for water tight motor construction its position as shown provides a desired balance for the casing when floating on the water. The bracket 13 also carries a rudder 16 which is arranged to be pre-set to provide for steering the target on a straight or on a curved course. 30

The battery 10 and the motor 14 are connected by lead wires 17 and 18, the latter including a switch, one form of which is shown in Figs. 3 and 4. The fixed contacts 19—19 of the switch are of the spring type and are carried on an insulated support 20 which is fixed within the casing and is in proximity to the nose thereof. The movable contact 21 is carried on the inner end of a plunger 22 which is slidably mounted in an aperture 23 in the nose of the casing and in an aperture 24 in a cap 25 fixed on the exterior of the casing. A stuffing box, indicated at 26, is mounted in the cap and serves to provide a water-tight seal for the plunger. A resilient member 27 of a material such as rubber is fixed to the 55

cap and engages behind a head 28 on the outer end of the plunger. This member serves to hold the plunger in the forward position as well as to protect it from the accumulation of material which might interfere with its movement.

When the target strikes the water the plunger is driven inwardly and its contact 21 is engaged and held in position by the spring contacts 19-19 to insure operation of the motor. The power supplied from the battery will be sufficient to provide from two to four hours of continuous operation but if it is desired to recover the target prior to the expiration of this time it will only be necessary to pull the plunger out of engagement with the spring contacts. If desired the plunger may be driven inwardly in any suitable manner upon launching the target.

A container 29 fixed to the interior of the casing is filled with a mixture 30 for example, carbide and tetrachloride, which when acted on by water is capable of producing a dense cloud of smoke. Vents 31 in the forward and upper surface of the casing permit the entry of water and the issuance of the smoke.

The container 29 is provided with an aperture 32 which will permit water to enter the casing and eventually cause it to sink. The length of time required to cause sinking of the target may be readily controlled by the size of the aperture

32. When it is desired to recover the target the aperture will be plugged or omitted.

We claim:

1. A target adapted to be launched on water comprising a floatable casing having an opening, a cover for the opening, means for clamping the cover in place and serving as stabilizers when submerged, a battery carried by the cover and disposed within the casing, an outboard electric motor mounted at the rear of the casing, a propeller driven by the motor, lead wires connecting the battery and the motor for establishing an electric circuit, a switch mounted in the nose of the casing and including a movable contact adapted to be driven inwardly on impact with the water, and a rudder for the casing.

2. A target adapted to be launched on water comprising a floatable casing having an opening, a cover for the opening, and means for clamping the cover in place and serving as stabilizers when submerged.

3. A target adapted to be launched on water comprising a floatable casing having a vent for admitting water into the casing, a container within the casing and arranged to receive water entering the vent, said container having an aperture for regulating the passage of water from the container to the casing to cause the casing to submerge, and a mixture in the container acted on by water to produce smoke.

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