S. S. VAN KEUREN.

TORPEDO DROPPING MECHANISM FOR AIRSHIPS.

APPLICATION FILED FEB. 12, 1916.

1,191,375.

Patented July 18, 1916.

2 SHEETS—SHEET 1.

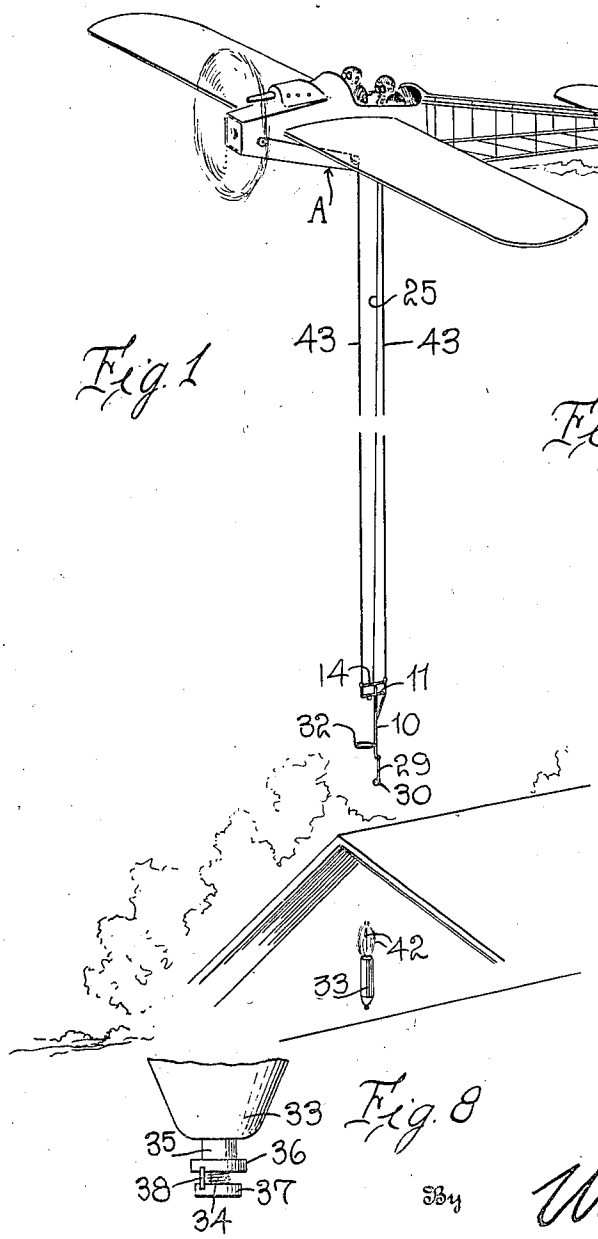


Fig. 1

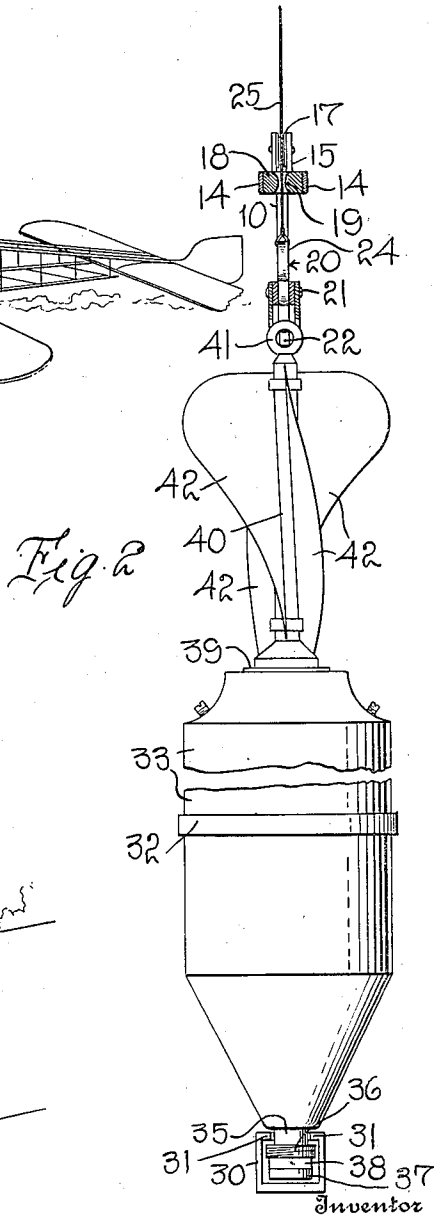


Fig. 2

Fig. 3

Inventor

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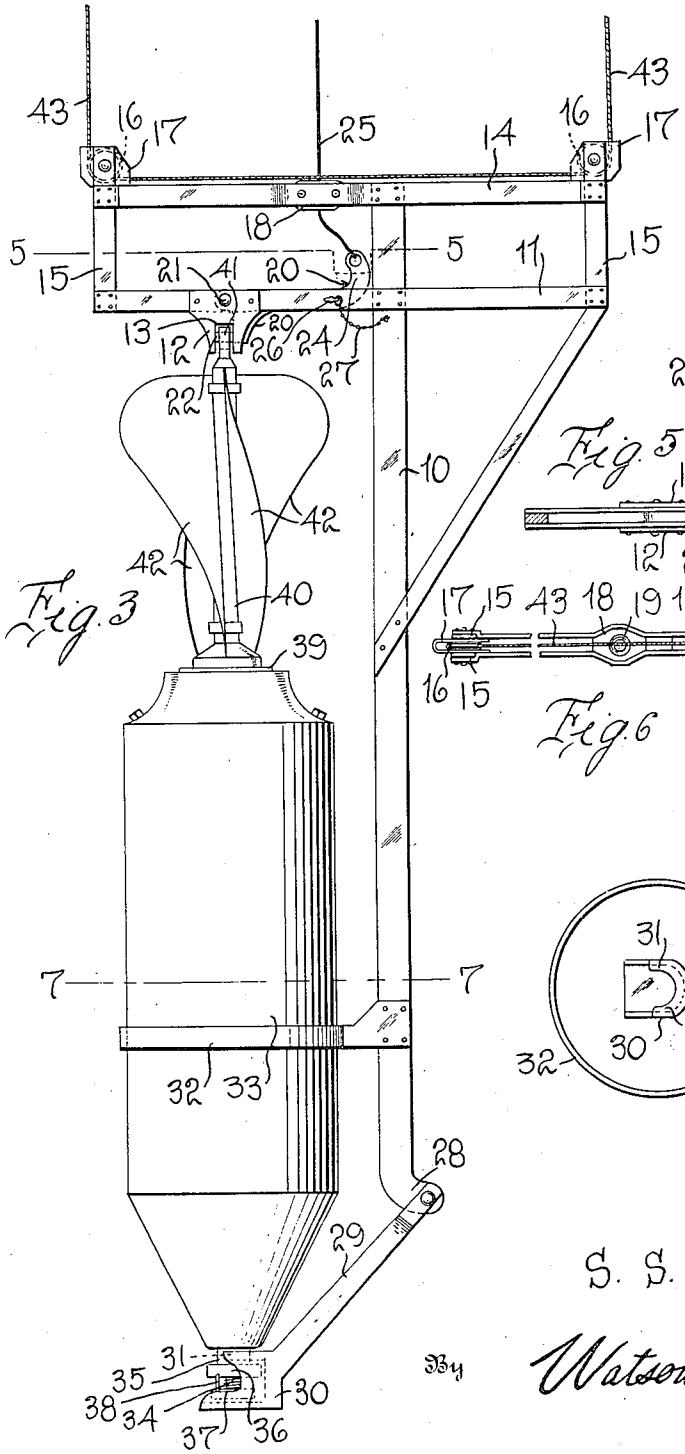


Fig. 3

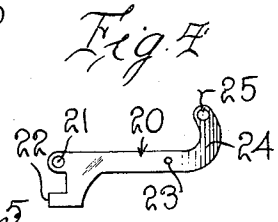


Fig. 4

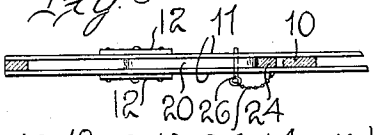


Fig. 5

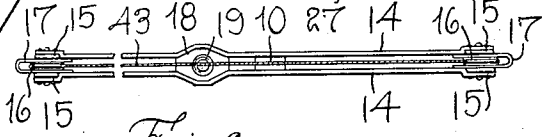


Fig. 6

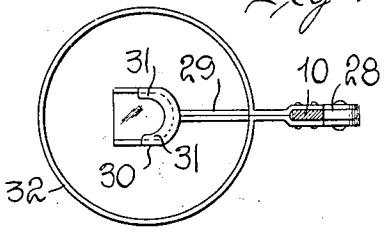


Fig. 7

Inventor

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UNITED STATES PATENT OFFICE.

SYLVANUS S. VAN KEUREN, OF ABERDEEN, SOUTH DAKOTA.

TORPEDO-DROPPING MECHANISM FOR AIRSHIPS.

1,191,375. Specification of Letters Patent. Patented July 18, 1916.

Application filed February 12, 1916. Serial No. 78,050.

To all whom it may concern:

Be it known that I, SYLVANUS S. VAN KEUREN, a citizen of the United States, residing at Aberdeen, in the county of Brown and State of South Dakota, have invented certain new and useful Improvements in Torpedo-Dropping Mechanism for Airships, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to aerial torpedoes, and particularly to means for supporting and dropping an aerial torpedo from an airship, the mechanism being particularly designed for use with the torpedo illustrated and described in my pending application for patent executed of even date herewith.

The general object of my invention is to provide a very simple mechanism which may be supported from an aeroplane or other airship, this mechanism being adapted in turn to support a torpedo in a vertical position and being provided with means for releasing the torpedo so that it may fall directly downward.

A further object of my invention is the provision, in connection with an airship, of a torpedo holder swung from the airship so that it may be lowered or raised and thus the torpedo, before it is launched, be brought relatively near to the target, without, however, placing the aviator and airship in danger.

A further object of the invention is to provide means for safely supporting a torpedo from an airship without danger of accidental explosion of the torpedo, and means for incidentally releasing the torpedo and permitting it to drop under the action of gravity.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a perspective view showing my torpedo support in operation; Fig. 2 is a sectional view of the support with the torpedo in elevation; Fig. 3 is a side elevation of the torpedo and support; Fig. 4 is a detail elevation of the latch; Fig. 5 is a section on line 5—5 of Fig. 3; Fig. 6 is a top plan view of the support; Fig. 7 is a section on line 7—7 of Fig. 3.

Referring to these drawings, it will be seen that the means for supporting the torpedo comprises a vertically disposed supporting bar 10, which, at its upper end, is rigidly connected to a pair of spaced bars 11 extending at right angles to the bar 10. These spaced bars 11 are formed with downwardly extending spaced ears 12, each of these ears being recessed as at 13 to receive an eye formed upon the upper end of the torpedo as will be later stated. At the upper end of the vertical bar 10 there is a second pair of horizontally arranged bars 14 extending parallel to the bars 11 and connected thereto at their ends by the vertical members 15 which at their upper ends support the pulleys 16 and the shields 17 for the pulleys. Disposed between the bars 14 is a block or filling piece 18 having an opening 19 through it, the opening being circular in plan view and the ends of the opening being rounded or flared.

Mounted between the bars 11 is a latch or sear 20. This sear is pivoted at its outer end as at 21, and just below the pivot is provided with the angular nose 22 which intersects the recesses or slots 13. The sear is also formed with a transverse perforation 23 and at its outer end is upwardly bent, as at 24, and operatively connected to a cord, chain, or other flexible connection 25 which may extend to any desired point of operation. The perforation 23 is to receive a pin 26 which is preferably in the form of a cotter pin so as to be retained securely in place and passes through perforations in the members 11 and through the sear so as to hold the sear from operation. This pin 26 is connected by a cord 27 to the vertical member 10. When the pin is in place the sear is held from operation and when the pin is removed the sear may be tripped by pulling upon the cord 25.

At its lower end the rod or supporting bar 10 is angularly bent, as at 28, and pivoted thereto is a supporting member 29 having at its end a shoe 30. This shoe is U-shaped in section transversely and is open at one end, the upwardly extending sides of the shoe having the inwardly extending flanges 31. The purpose of the shoe is to protect the firing head or pin of the torpedo from accidental actuation. Above the pivotal connection of the member 29 to the rod or bar 10 there is an annular member 32 which loosely surrounds the torpedo 33 and holds it in a vertical position until the torpedo is released.

The torpedo may be of any suitable kind but this supporting means is particularly

adapted for the torpedo illustrated and described in my pending application before referred to. The torpedo comprises a body 33 tapering at its lower end and there provided with a spring actuated firing pin 34. The firing plug 35 within which the pin is placed has a head 36, and disposed between it and the head 37 of the firing pin is a key 38. When the torpedo is disposed within the support, this key 38 is withdrawn. The inwardly turned flanges 31 of the member 30 engage the tapering end of the torpedo body and support it so that the head of the firing pin does not come in contact with the bottom of the member 30. The upper end of the torpedo is closed by a breech plug 39 from which extends a post 40 formed with an eye 41 at its upper end. This post 40 is provided with the spiral wings 42 which cause a rotation of the torpedo as it drops. The torpedo is intended to be filled with a bursting charge and with inflammable liquid and projectiles.

In practical use the torpedo holder or sling is supported by means of a cable 43 which is attached at one end to the frame A of the flying machine and passes over the pulleys 16 and then up again to the flying machine, as for instance, to a windlass or reel mounted thereon. When the torpedo is not intended to be dropped the torpedo is supported between the member 30 and the sear 20, the nose 22 of the sear engaging through the eye 41 of the post 40. The sear is locked in this position by means of the pin 26. Under these circumstances the torpedo is suspended without any danger of explosion. It cannot drop because it is locked by the sear and the firing head of the torpedo cannot be accidentally operated because it is covered by the member 30. Now when it is desired to use the torpedo, the pin 26 is withdrawn, leaving the sear free. The cord 25 is of any desired length and may also be passed over a reel on the flying machine. The cable 43 may then be lowered at one end so as to lower the torpedo a considerable distance below the flying machine and when it has been lowered a sufficient degree and the flying machine is above the target, the cord 25 is pulled which releases the sear. This releases the torpedo and inasmuch as the arm 29 immediately drops, the torpedo is released and drops downward on the target.

It will be seen that the torpedo supporting device may be made very light, that it is very simple in construction, that it entirely protects the torpedo from accidental firing, that the torpedo may be supported any desired distance away from the flying machine itself, and that the torpedo may be lowered from the flying machine so that it may be brought relatively close to the target while the flying machine is at a relatively great height and out of range of projectiles from anti-aircraft guns. It will also be seen that the member 30 acts to protect the firing head of the torpedo and prevent accidental discharge of the torpedo by projectiles striking this firing head.

Having described my invention, what I claim is:

1. Means for suspending and dropping aerial torpedoes including a hanger, a pivoted latch mounted upon the upper end of the hanger, means for operating the latch, and means engaging the lower extremity of the torpedo and holding it from lateral displacement while in the hanger, said means being shifted out of the way of the torpedo by gravity when the latch is released from its engagement with the torpedo.

2. Means for suspending and dropping aerial torpedoes including a skeletonic frame, a latch mounted upon the upper end of the frame and adapted to engage with the suspending eye of a torpedo, and means at the lower end of the hanger for protecting the firing head of the torpedo and movable automatically out of its engagement with the torpedo upon the operation of the latch, said means holding the torpedo from lateral displacement.

3. Means for suspending and dropping aerial torpedoes including a hanger and a pivoted latch mounted upon the upper end of the hanger and adapted to engage with the suspending eye of a torpedo, means for operating the latch and means for protecting the firing head of the torpedo and holding the torpedo from lateral displacement while in the hanger comprising a pivoted arm having an open-ended socket for receiving the firing head of the torpedo.

4. Means for suspending and dropping aerial torpedoes including a hanger, a pivoted latch mounted upon the upper end of the hanger, detachable means for holding the latch from movement, a cord operating the latch, and means for holding the torpedo from lateral displacement while in the hanger, said means engaging the lower extremity of the torpedo and movable automatically out of its engagement therewith upon the operation of the latch.

5. Means for suspending and dropping aerial torpedoes including a hanger having a vertically extending member and a laterally extending member at its top, a latch mounted upon the laterally disposed member and adapted to engage with the suspending eye of a torpedo, means at the lower end of the hanger for protecting the firing head of the torpedo and movable automatically out of its engagement with the torpedo upon the operation of the latch, means for operating said latch, and means for suspending the hanger from an airship.

6. Means for suspending and dropping

aerial torpedoes including a vertically disposed member, a transversely extending member having downwardly projecting spaced transversely slotted ears, a torpedo engaging latching pivotally mounted between said members and having its nose disposed between said ears, pulleys mounted on the hanger, a suspending cable passing through the pulleys, and a flexible connection leading to said latch.

7. Means for suspending and dropping aerial torpedoes including a vertically disposed member, a transversely extending member having downwardly projecting spaced transversely slotted ears, a torpedo engaging latch pivotally mounted between said members and having its nose disposed between said ears, pulleys mounted on the hanger, a suspending cable passing through the pulleys, a flexible connection leading to said latch, and detachable means for locking the latch from movement.

8. In means for suspending and dropping aerial torpedoes, a supporting frame having a horizontally extending member at its upper end, a latch on the upper end of said member for engaging the upper end of the torpedo and suspending it, a guide engaging around the lower portion of the torpedo and mounted upon said vertical member, an arm pivoted to the lower end of the vertical member, and a cap mounted upon said arm and adapted to engage over the firing head of the torpedo.

9. In a device for suspending and dropping aerial torpedoes, a vertical member, means mounted upon the upper end of the vertical member for detachably engaging the upper end of the torpedo and suspending it, an arm pivotally mounted at the lower end of said vertical member and having a cap thereon transversely U-shaped and formed with inwardly extending flanges at the upper edge of the cap, one end of the cap being open whereby the cap may engage over the firing head of the torpedo but held from swinging movement when the torpedo is suspended, said arm being free to swing in a vertical position when the torpedo is released.

10. A torpedo suspending and dropping device comprising a vertical member, upper and lower horizontally disposed members attached to and braced from the vertical member, downwardly projecting ears on the lower horizontal member, said ears being transversely slotted for the reception of a breech post on the torpedo, a latch pivoted to the lower horizontally disposed member and having an angular nose adapted to be inserted through the eye of the breech post, a cord attached to said latch, means for detachably holding the latch from actuation, a torpedo guide mounted upon the lower end of the vertical member, pulleys mounted upon the upper horizontal member, and a cable passing through said pulleys for suspending the device from an arch.

11. Means for suspending and dropping aerial torpedoes including a hanger for the torpedo having a releasing latch, and means for protecting the firing head of the torpedo comprising a pivoted arm having at its free end a cap transversely U-shaped and formed with inwardly extending flanges at the upper edge of the cap, one end of the cap being open whereby the cap may engage over the firing head of the torpedo, said arm being free to swing by gravity into a vertical position when the torpedo is released.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

SYLVANUS S. VAN KEUREN.

Witnesses:

C. G. ANDERSON,

J. C. MCINTYRE.