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ANCHOR, GRAPNEL, AND THE LIKE.

APPLICATION FILED JAN. 17, 1918.

1,295,076.

Patented Feb. 18, 1919.

2 SHEETS—SHEET 1.

Fig. 2.

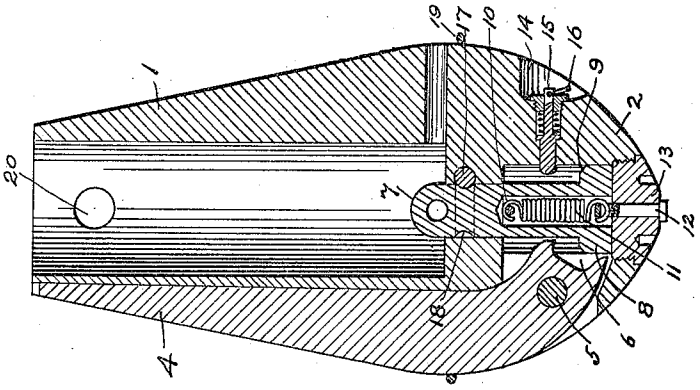
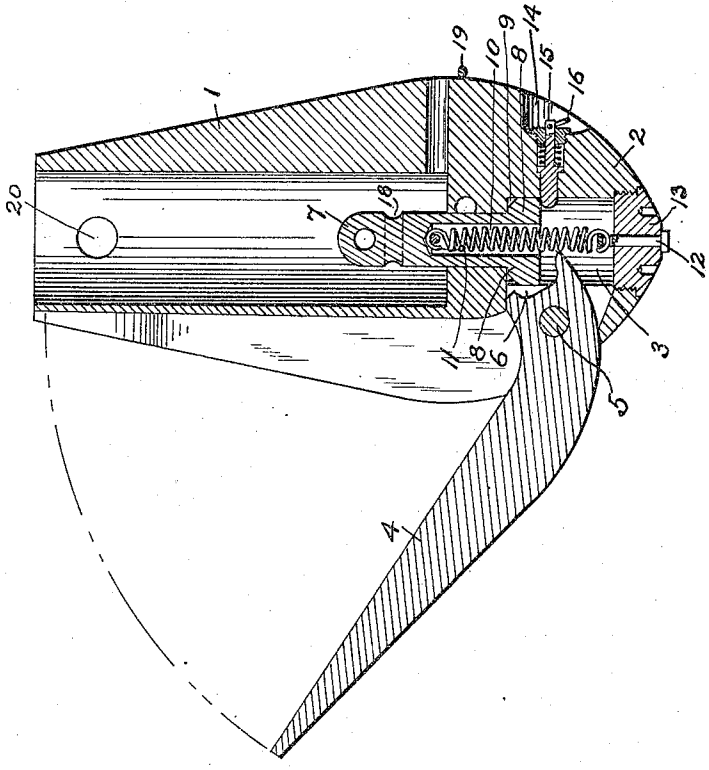


Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 4.

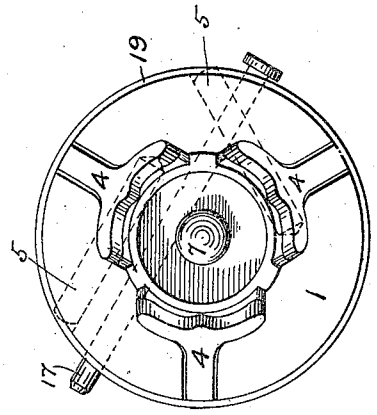
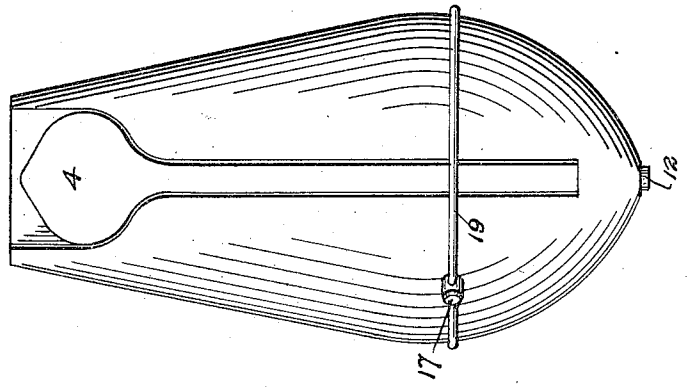


Fig. 3.



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UNITED STATES PATENT OFFICE.

CARLTON COLLINGWOOD SHERMAN AND HERBERT OCTAVIUS MOCK, OF LONDON, ENGLAND.

ANCHOR, GRAPNEL, AND THE LIKE.

1,295,076. Specification of Letters Patent. Patented Feb. 18, 1919.

Application filed January 17, 1918. Serial No. 212,369.

To all whom it may concern:

Be it known that we, CARLTON COLLINGWOOD SHERMAN, commander R. N., and HERBERT OCTAVIUS MOCK, lieutenant commander R. N. V. R., subjects of the King of England, residing in London, England, have invented certain new and useful Improvements in Anchors, Grapnels, and the like, of which the following is a specification.

This invention has for its object the provision of an improved form of anchors, grapnels or the like for use with submarine mines, submersible and above water craft, and other buoyant bodies which are required at times to be moored.

In boat anchors, and grapnels and like devices for use with marine life saving apparatus and for raising submarine cables, it has been proposed to employ pivoted flukes or barbs which in the case of boat anchors automatically open when the anchor is dropped and automatically close on the anchor being weighed and entering the hawse pipe, and in the case of life saving apparatus are adapted to fall outward on firing a rocket or projectile carrying the grapnel, or on the grapnel striking the ground, the flukes when once opened being in some cases prevented from moving inward by a spring locking bolt.

An anchor, grapnel or the like according to this invention is broadly of the type having pivoted or folding flukes or barbs, and comprises a shank connected to the anchor chain, cable or the like, a body portion in which the shank is slidably mounted to be displaceable in the direction of its longitudinal axis by the tension in the anchor chain, and flukes pivoted to the body portion and adapted to fall outward on the outer displacement of the shank, with or without means for preventing the flukes from returning to the closed position.

According to one form of anchor or grapnel embodying this invention the flukes are pivotally mounted near the lower end in a body, sleeve or like member, hereinafter referred to as the body, in which the shank has a limited sliding movement. The body may have any desired shape and may, if desired be provided with recesses or housings to receive the flukes when completely folded, in which condition the anchor, grapnel or the like as a whole, presents a perfectly smooth surface of a spherical, conical, stream-like or any other suitable form. The upper end of the shank is connected to the mooring cable or like member and the lower end is provided with means which operate to open the flukes automatically when the anchor is dropped. These means may consist of a cam or cams or an enlargement, or the like on the lower end of the shank engaging with the inner projecting ends of the flukes.

When an anchor or grapnel as above constructed is dropped, the shank moves through the body to the extent of its limited travel and causes the flukes to be thrown out by the operation of their lower pivoted ends.

When such an anchor or grapnel is to be used with submarine mine where it is particularly advantageous to have the flukes folded until the whole apparatus is launched, it is necessary to provide a locking means to maintain the flukes permanently in the open position after the anchor has been dropped. Such locking means may consist conveniently of one or more spring plungers mounted either in the shank or in the body and coöperating with recesses or holes in the body or shank respectively, engagement of the two parts taking place only when the shank and body occupy such relative positions as correspond to the flukes being fully open.

For ordinary use for boats and like purposes the locking mechanism may be dispensed with as the tension in the anchor cable keeps the flukes out.

In the accompanying drawings, Figures 1 and 2 are vertical sectional views showing the device in open and closed position, respectively.

Fig. 3 is a side elevational view.

Fig. 4 is a plan view.

Referring now to the accompanying drawings, Figs. 1 to 4 illustrate a construction of anchor particularly applicable for use with submarine mines, which fulfils the function of the usual plummet weight for releasing the winding drum of the mooring rope and giving the depth setting of the mine in the well known way, and also serves as a backing anchor for the sinker of the mine.

As illustrated in Figs. 1 to 4, the anchor consists of a body or sleeve portion 1, hereinafter referred to as the body, which is of conical shape for the greater part of its length and has a rounded bottom 2 provided with a central bore 3 suitably shaped for the

reception of the operating parts hereinafter described. The flukes 4 are pivotally mounted at the lower ends on pins 5 secured in the body 1, in such positions as to allow the lower ends of the flukes to project within the central bore 3. These extremities of the flukes are provided with recesses 6, the edges of which are beveled or rounded for efficiency in working. The shank 7 is slidably mounted in the bore 3 and is provided with a hole or other means at the upper end for securing the chain or cable of the anchor and with a flange or flanges 8 which is beveled or rounded at the upper edge 9 and limits the upward movement of the shank by engaging with the body portion 1 and serves to effect the operations hereinafter described.

The body 1 is conveniently hollowed out to house the chain or the like when the anchor is not in use, and a suitable cover plate may be provided to close the upper end and prevent the chain from falling out and fouling any of the mine gear during the transit or launching, the cover plate being connected to the sinker so as to be detached on the mine gear entering the water, or being displaced by the chain itself.

The shank is provided with a central recess, or bore 10 to house a spring 11 connected to a pin or the like 12 mounted in a plug 13 serving to close the lower end of the bore 3 and shaped to conform to the contour of the rounded bottom.

At a suitable position or positions in the body 1, one or more recessings or housings 14 are formed each to receive a spring bolt 15 which normally projects into the bore 3, a suitable ring, loop or the like 16 being provided on the outer end of the bolt to allow it to be withdrawn inward by hand or otherwise when desired.

When the shank is in the innermost position with the flukes closed, the flange 8 prevents any outward movements of the flukes. On tension being put on the anchor chain or cable the shank is drawn outward, the flukes opening out under their own weight as soon as the flange 8 is opposite the recess 6, or if the flukes do not fall outward under their own weight the flange 8 engages the upper shoulder of the recesses and turns the flukes outward. In the outward movement of the shank the beveled or rounded portion 9 of the upper face of the flange 8 engages the projecting end of the spring bolt 15 forcing it inward against the spring, the bolt returning to its original position on the flange passing the same, thereby preventing any possibility of the shank moving inward to any extent and consequently preventing the flukes from closing, until the spring bolt has been retracted by the ring or loop 16. The outward movement of the flukes is preferably limited by the upper shoulders of the recessed ends abutting against suitably shaped portions of the body 1.

To facilitate stowage and transport and to prevent any possibility of the flukes opening out before the anchor is actually to be used, a locking pin or bolt 17 may be provided, passing into the body 1 and engaging a groove or recess 18 is the shank 7, the bolt being secured against accidental withdrawal by a band, wire or the like 19 passing around the body 1.

A hole, slot, or the like 20 may be provided for suspending the plummet anchor on a hook carried by a suitable part of the mine gear, to prevent tension coming on the anchor chain or cable before the mine gear is launched, the anchor falling off the hook on launching taking place to fulfil its desired functions.

Although the shank shown on the drawings is of short length, it is to be understood that the length is made as required, and the central bore modified accordingly.

By using an anchor plummet as above described for submarine mines, a backing anchor is provided for the sinker preventing the same from being displaced along the sea bottom.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A device for use as an anchor, grapnel or the like comprising a body portion, flukes pivoted to said body portion, a shank mounted in said body portion for controlling the movement of said flukes and means for automatically returning the shank to position to close said flukes.

2. A device for use as an anchor, grapnel or the like comprising a body portion, flukes pivoted to said body portion and a shank mounted in said body portion and operatively engaged with said flukes for controlling their movements, said shank having a portion thereof adapted to enter into binding engagement with said flukes for maintaining them in open or closed position.

3. A device for use as an anchor, grapnel or the like comprising a body portion, flukes pivoted to said body portion, a shank mounted in said body portion and operatively engaged with said flukes for controlling their movements, said shank having a portion thereof adapted to enter into binding engagement with said flukes for maintaining them in open or closed position, and means for locking the shank in position to maintain said flukes in open position.

4. A device for use as an anchor, grapnel or the like comprising a body portion, flukes pivoted to said body portion, a shank connected to the anchor chain or like member slidable longitudinally in said body portion and having its lower end flanged, said flanged

end being operatively engaged with said flukes for controlling their movements and maintaining them in open or closed position, a spring connected to said shank and tending to normally hold same in position whereby said flukes are maintained closed and means for locking the shank in opposite position against the action of said spring whereby said flukes are maintained open.

5. A device for use as an anchor, grapnel or the like, comprising a body portion, flukes pivoted to said body portion and a shank connected to the anchor chain or like member slidable longitudinally in said body portion and having its lower end flanged, said flanged end being operatively engaged with said flukes for controlling their movements and being adapted to enter into binding engagement with said flukes for maintaining them in open or closed position.

6. A device for use as an anchor, grapnel or the like comprising a body portion, flukes pivoted to said body portion, a shank connected to the anchor chain or like member slidable longitudinally in said body portion and having its lower end flanged, said flanged end being operatively engaged with said flukes for controlling their movements and maintaining them in open or closed position, and a spring for automatically returning the shank to position to close said flukes.

7. A device for use as an anchor, grapnel or the like comprising a body portion, flukes pivoted to said body portion, a shank connected to the anchor chain or like member slidable longitudinally in said body portion and having its lower end flanged, said flanged end being operatively engaged with said flukes for controlling their movements and being adapted to enter into binding engagement with said flukes for maintaining them in open or closed position, and a spring bolt locking the shank in position to maintain said flukes in open position.

Signed at London, England, this 30th day of November, 1917.

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HERBERT OCTAVIUS MOCK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."