No. 814,388. PATENTED MAR. 6, 1906.

E. Y. MOORE.

GRAPPLE.

APPLICATION FILED NOV. 2, 1905.

Fig. 1.

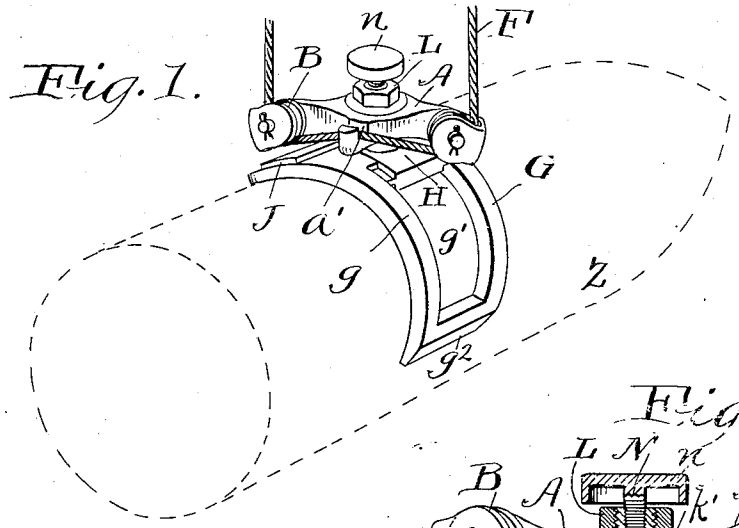
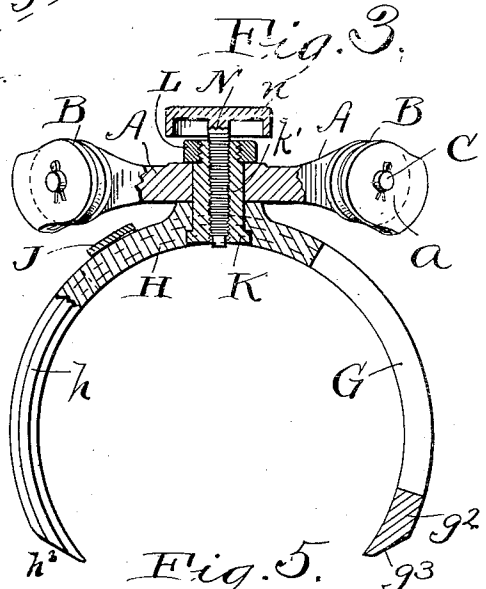


Fig. 3.



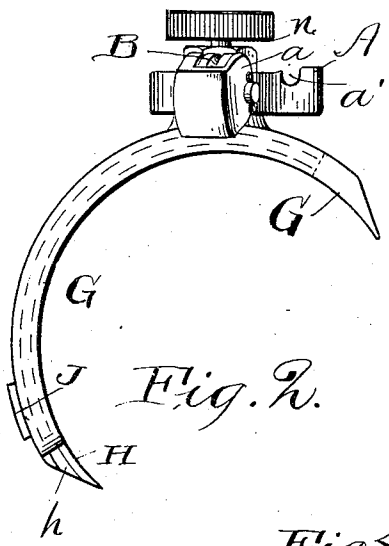


Fig. 2.

Fig. 5.

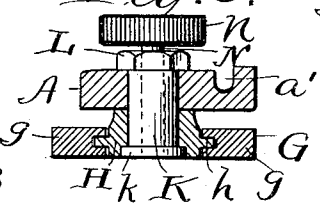
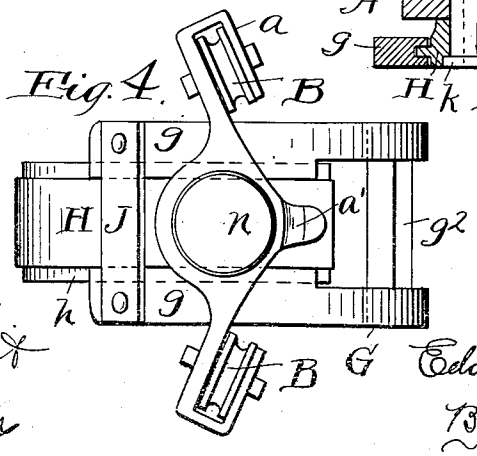


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

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GRAPPLE.

No. 814,388. Specification of Letters Patent. Patented March 6, 1906.

Application filed November 2, 1905. Serial No. 285,578.

To all whom it may concern:

Be it known that I, EDWARD Y. MOORE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Grapples, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of this invention is to provide an efficient device to be carried by a hoisting-cable and furnish means for grasping and holding the load. It is especially designed for use with an ammunition-hoist, being so formed that it may conveniently grasp a shell as it lies in its case and securely hold it. The grappling-arms are swiveled to the supporting-block, which allows the load to be turned as desired. The arms are so formed that the weight of the load prevents them from prematurely releasing the load, while a clamp is provided to prevent the load shifting endwise. These features are hereinafter more fully described, and summarized in the claims.

In the drawings, Figure 1 is a perspective view of my grapple supported by a cable and showing the load in place. Fig. 2 is an end view of grapple. Fig. 3 is a cross-section parallel with Fig. 2. Fig. 4 is a plan view. Fig. 5 is a cross-section through the swivel at right angles to Fig. 3.

Referring to the parts by letters, A represents a supporting-bar, which carries near each end a sheave B. The bar is formed with ends *a*, which project backward, so as to leave recesses in which the wheels are mounted, the wheels being journaled on pins C, extending through the ends *a* and the body of the bar. The supporting-cable (designated F) passes downward under one of the wheels B and then upward across a groove *a'* in the bar and then downward beneath the other wheel B and upward, as shown. The two ends of the cable are intended to be simultaneously elevated; but the sheave-and-groove arrangement is provided to allow the cable to shift when necessary, equalizing the strain on both reaches thereof.

G and H represent the two arms of the grapple. Each of these arms forms approximately a semicylinder. The arm G is bifurcated by an arc-shaped opening *g'*, which the arm H is adapted to occupy. On the edges of the arm H are projecting ribs *h*, which take into corresponding grooves formed by the inner faces of the two sides *g g* of the arm G. This allows the arms to be telescoped one within the other, as shown in Fig. 2, or extended, as shown in Figs. 1, 3, and 4. A bar J is secured at its ends to the free ends of the side members *g*, extending intermediately across the arm H, the other end of the arm G having the integral cross portion g^2. This makes a strong and secure construction.

The supporting-bar A is swiveled to the intermediate arm H by means of a member K, which is shown as a sleeve mounted in the arm H and having a head *k* on its under side occupying a recess in that arm, while above the arm it is journaled in the supporting-bar. Above the supporting-bar is a nut L, which serves to hold the members together. The stud is internally screw-threaded, and screwing through it is a clamping-pin N, which has an enlarged head *n* formed to be turned by the hand.

The shells (indicated by Z in Fig. 1) with which this grapple is primarily designed to be used lie ordinarily side by side in a case with a narrow space between them. To allow the arms of the grapple to pass most conveniently into this space and move around the shell, I bevel off the lower ends of the arms on their outer sides, as shown at g^3 and h^3. When this grapple is placed over the shell and one of the arms pulled out from the other, the grapple will pass around the shell far enough to support it, so that the elevation of the cable will raise the shell.

The weight of the shell acts downwardly and outwardly on the curved arms, which prevents any movement of the one into the other. The load may then be thus raised to any desired point and is easily released by simply allowing it to be supported on something, taking the weight off the grapple. To prevent the shell shifting longitudinally in the grapple, the clamping-screw N is provided. The ends of the bar A are bent out of alinement, as shown, to enable the cable to pass directly over the groove *a'*, which is far enough at the side to be out of the way of the head of the clamping-screw.

Having thus described my invention, I claim—

1. A grapple comprising a pair of arc-shaped arms slidably connected and having free ends, whereby the arms may be extended to embrace more than a semicircle or telescoped to occupy substantially a semicircle, and supporting means on the convex side of said arms.

2. A grapple comprising an arc-shaped arm having a pair of parallel side members, with a recess between them and a second arc-shaped arm guided to slide in said recess.

3. In a grapple, the combination of a pair of arc-shaped arms one being recessed to receive the other, there being grooves and ribs formed on the coöperating edges of said arms.

4. A grapple comprising a pair of arms adapted to telescope with reference to each other and having disconnecting ends adapted to be spread thereby, and a supporting-bar swiveled to one of said arms near its inner end.

5. In a grapple, the combination of an arc-shaped arm, a bar swiveled thereto, a second arc-shaped arm bifurcated and extending onto opposite sides of the first arm, and ribs and grooves on the coöperating edges of said arms.

6. A grapple comprising a bifurcated arc-shaped arm, a second arc-shaped arm guided in an arc in said bifurcation, a supporting-bar swiveled to said last-mentioned arm, and equalizing-sheaves carried by said bar.

7. A grapple comprising a bifurcated arc-shaped arm, a second arc-shaped arm guided in an arc in said bifurcation, a supporting-bar swiveled to said last-mentioned arm, and a clamping-screw screwing through the swivel.

8. In a grapple, the combination of a bifurcated arm, an intermediate arm extending into the bifurcation thereof, ribs and grooves on the coöperative edges of said arms, a stud mounted in the intermediate arm, a supporting-bar above the intermediate arm in which said stud is also mounted, said stud being internally screw-threaded, and a clamping-screw occupying such internal screw-thread and adapted to project below the intermediate arm and having a head above the supporting-bar.

9. A grapple comprising a pair of coöperating arms, a supporting-bar swiveled thereto, an equalizing-sheave carried near each end of the bar, and a support for the flexible elevating member carried by the bar intermediate of said sheaves, said support being at one side of the swivel and the sheaves being set at an angle to allow such flexible member to pass directly onto said support.

10. A grapple, comprising a pair of arms adapted to telescope with reference to each other and having disconnected ends made to approach or recede from each other by reason of such telescoping, and a supporting-bar swiveled substantially on a vertical axis to one of said arms.

11. A grapple, comprising a pair of arc-shaped arms adapted to telescope with reference to each other and having disconnected ends approaching or receding from each other by reason of such telescoping, and a radial clamping-screw carried by one of said arms.

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

EDWARD Y. MOORE.

Witnesses:
ALBERT H. BATES,
H. R. SULLIVAN.