No. 844,032. PATENTED FEB. 12, 1907.

E. Y. MOORE.

GRAPPLE.

APPLICATION FILED AUG. 4, 1906.

Fig. 1

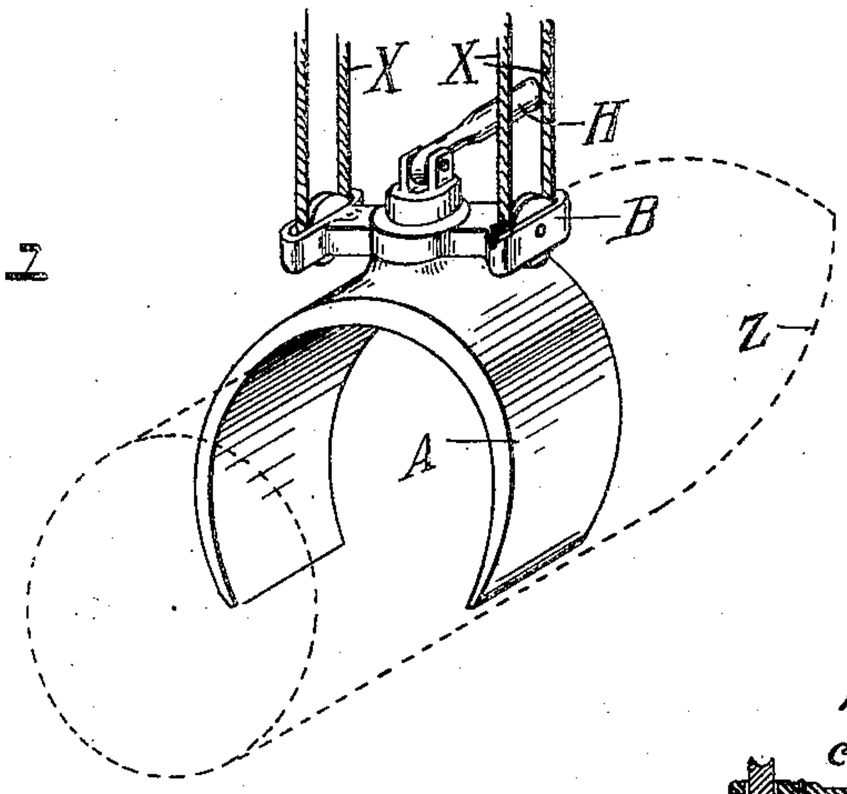


Fig. 2.

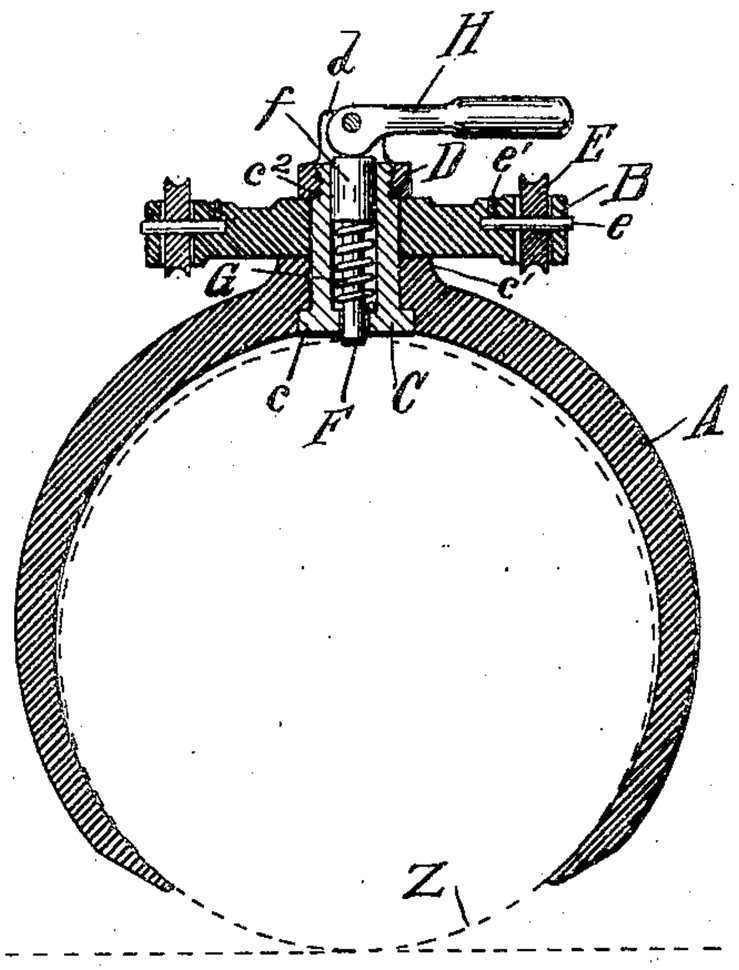
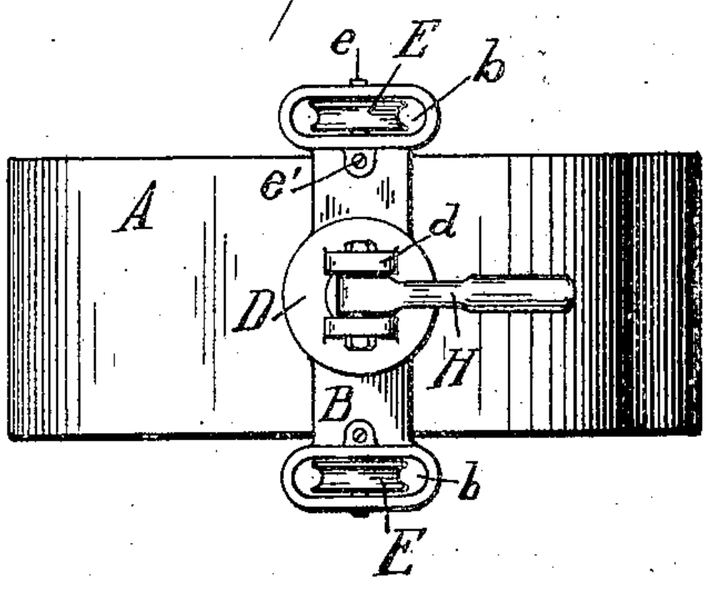


Fig. 3.



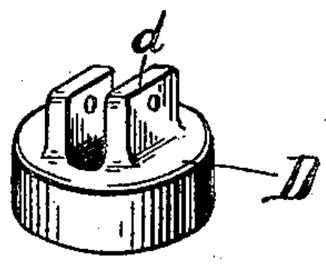


Fig. 4

WITNESSES:

Brennan B. West.

A. L. Lord.

INVENTOR,

Edward Y. Moore

BY By Bates, Fouts & Hull,

ATTYS.

UNITED STATES PATENT OFFICE.

EDWARD Y. MOORE, OF CLEVELAND, OHIO.

GRAPPLE.

No. 844,032. Specification of Letters Patent. Patented Feb. 12, 1907.

Application filed August 4, 1906. Serial No 329,269.

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 a very simple and efficient grapple to grasp a load to be elevated by a hoist.

My grapple is especially designed for use with an ammunition-hoist, being so formed that it may conveniently grasp a shell and securely hold it.

The invention is hereinafter more fully described, and its essential characteristics set out in the claims.

The drawings show my grapple.

Figure 1 is a perspective view thereof. Fig. 2 is a cross-section. Fig. 3 is a plan, and Fig. 4 is a perspective view, of the nut which secures the swivel-pin and carries the clamping-lever.

Referring to the parts by letters, A represents the body of the grapple, which consists of a rigid arc-shaped member,(a single casting, for example,) extending peripherally for over half a circumference and having such width lateral as may give it proper strength and a proper hold on the shell. The shell is indicated in dotted lines by Z in Figs. 1 and 2. When this shell is resting on a support, the body of the grapple is slipped over it endwise. This grapple-body extends sufficiently beyond the semicircumference to secure an efficient grasp on the shell, while, on the other hand, it terminates sufficiently short of a whole circumference to allow it to be conveniently slipped over the shell, as indicated in Fig. 2.

B represents a supporting-bar, which is swiveled to the grapple-body. As shown in the drawings, this swiveling is accomplished by a swivel-pin C, which has a head *c* seating in a recess on the under side of the grapple-body, the pin extending upward through an opening in the body and through a boss *c'*, formed on the body, and then passing through the swivel-bar B, a nut D screwing onto the pin above the bar. This nut rests on a shoulder c^2 formed on the pin, so that the nut may be tightly clamped without binding the bar. The swivel-bar near its ends is formed to present a pair of open vertical recesses *b*. These recesses are occupied by sheaves E, which are journaled on pins *e*, passing through the walls of the recesses and being clamped by set-screws *e'* bearing on these pins. Cables X, depending from any suitable hoisting mechanism, pass beneath the sheaves E, as shown in Fig. 1, and furnish means for elevating the load.

For effectively and quickly clamping the shell in the grapple I provide a clamping-plunger F, which is mounted in a bore of the swivel-pin C. This plunger projects at its lower end through a reduced portion of the bore and is adapted to bear on the shell and clamp it in the grapple, as indicated in Fig. 2. The plunger has a head *f*, and between this head and the bottom of the bore is a spring G, tending to elevate the plunger and normally holding it up out of the way. The plunger is depressed whenever desired by the cam-lever H, which is pivoted between lugs *d*, rising from the nut D.

It is particularly important in an ammunition-hoist that the load be grasped and elevated quickly. As such hoists are used on shipboard, where there may be considerable swinging movement, it is important that the shell be tightly clamped to the grapple to prevent it being accidentally dropped therefrom. My grapple has been designed with both these essentials in view. It may be slipped over the shell and clamped instantly. The hold obtained on the shell is very effective, while the shell may be instantly released when desired.

I claim—

1. In a grapple, the combination of a rigid arc-shaped member extending peripherally for over a simicircumference and uninterruptedly throughout its width, and supporting means adapted to carry such member with its opening downward, whereby the member may be passed longitudinally over the end of a substantially horizontal cylindrical object.

2. In a grapple, the combination of a rigid arc-shaped member extending for over a semicircumference, a swivel-pin secured at substantially the mid-point of such member and a supporting-bar swiveled to such member by such pin.

3. In a grapple, in combination, a rigid arc-shaped member extending for more than a semicircumference, a supporting-bar, means swiveling said bar to the member, and clamping mechanism for holding the load within said member.

4. In a grapple, in combination, a rigid arc-shaped member extending for more than a semicircumference, a supporting-bar, a pin swiveling said bar to the member, and a clamping-pin mounted in the swivel-pin.

5. In a grapple, in combination, load-holding mechanism, a bar swiveled thereto, a clamping-pin passing through such swivel, and a cam for operating such pin.

6. In a grapple, in combination, load-holding mechanism, a supporting-bar, a swivel-pin holding said bar to said mechanism, a clamping-pin passing through such swivel-pin, a spring within the swivel-pin tending to force the clamping-pin outwardly, and means for operating such clamping-pin.

7. In a grapple, the combination of load-holding mechanism, a supporting-bar, a tubular pin swiveling said bar to such mechanism, a nut screwing onto the pin, a cam-lever mounted on the nut, and a clamping-plunger mounted in the swivel-pin and operated by said cam-lever.

8. In a grapple, the combination of load-holding mechanism, a supporting-bar, a tubular pin swiveling said bar to such mechanism, a nut screwing onto the pin, ears on said nut, a cam-lever mounted between said ears, a clamping-plunger mounted in the swivel-pin and operated by said cam-lever, and a helical spring surrounding the plunger within the swivel-pin.

9. In a grapple, the combination of a rigid arc-shaped member extending for over a semicircumference, a supporting-bar swiveled to such member, said swivel-bar having near its ends recesses extending crosswise of the bar, and sheaves mounted in said recesses.

10. In a grapple, the combination of a rigid U-shaped member formed to grasp a round body by extending for more than a semicircumference thereof, and supporting means on the outer side of said member and carrying it at substantially the mid-point thereof, whereby said member may depend with its opening downward.

11. A grapple comprising a rigid U-shaped member, and a supporting-bar swiveled to the mid-point of such member.

12. In a grapple, the combination of a rigid U-shaped member, a supporting-bar swiveled to the mid-point of such member by a swivel-pin, and a clamping-pin mounted in such swivel-pin.

13. The combination of flexible mechanism, load-supporting mechanism, a bar swivelly secured to said load-supporting mechanism and supported by said flexible mechanism, a clamping-pin passing through the swivel, and a cam for operating such pin.

14. The combination of depending flexible raising mechanism, load-supporting mechanism, a bar swiveled to said load-supporting mechanism, and supported by said flexible raising mechanism, a clamping-pin passing through the swivel, a spring surrounding said clamping-pin and adapted to be compressed between shoulders on the pin and the swivel, a lever pivotally carried by the swivel, and a cam on said lever for operating said pin.

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

EDWARD Y. MOORE.

Witnesses:
S. E. FOUTS,
G. W. SAYWELL.