Nov. 6, 1923. 1,473,013

W. A. CLARK

GRAPPLE

Filed June 16, 1921

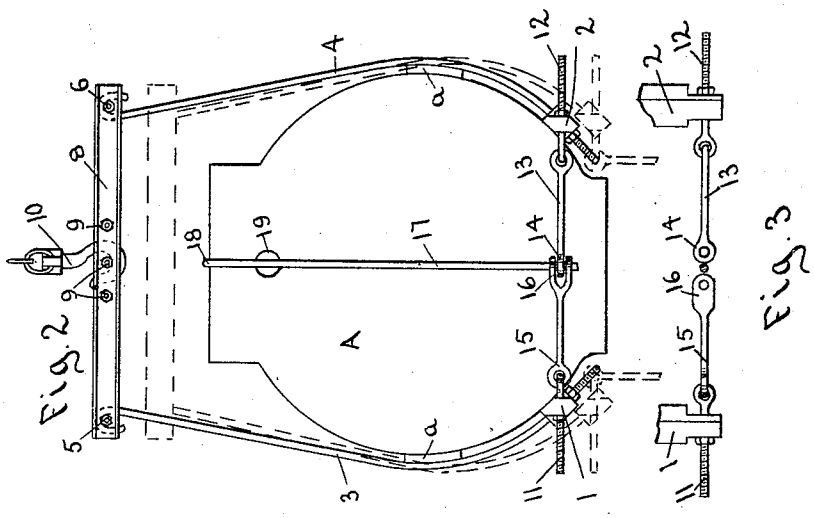

Fig. 2

Fig. 3

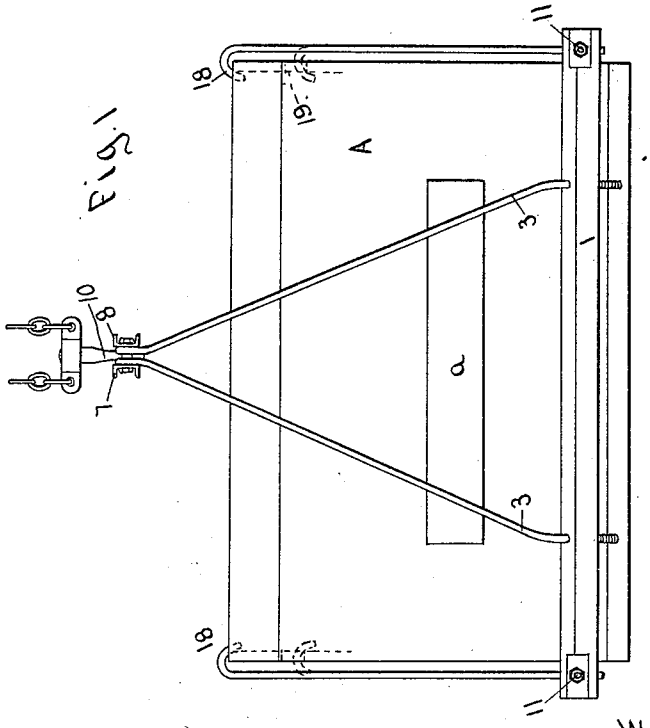

Fig. 1

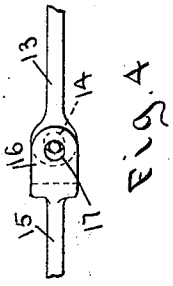

Fig. 4

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Att'ys

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UNITED STATES PATENT OFFICE.

WINTHROP A. CLARK, OF STAMFORD, CONNECTICUT, ASSIGNOR OF ONE-HALF TO FREDERICK MORRIS BROWN, OF STAMFORD, CONNECTICUT.

GRAPPLE.

Application filed June 16, 1921. Serial No. 478,014.

To all whom it may concern:

Be it known that I, WINTHROP A. CLARK, a citizen of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented new and useful Improvements in Grapples, of which the following is a specification.

This invention relates to grapples, more particularly of that type which is used in connection with hoists, and while not restricted to such use, has been designed primarily for facilitating the handling of concrete septic tanks.

It is desirable that grapples of this character shall be readily releasable when the object handled has been placed in the position required, and for this purpose this invention provides a device which is released automatically on sufficient slackening of the hoisting members, but which retains firm hold of the object as long as these members are under tension.

For a more complete understanding of this invention, reference may be had to the accompanying drawings, in which

Figure 1 represents a side view of the grapple as applied to a septic tank for hoisting.

Figure 2 is an end view.

Figure 3 is a detail showing the link holding mechanism.

Figure 4 is a detail of the link connection shown in holding position.

Referring to these drawings, at A is indicated a load to be handled which, in this case, is shown as a concrete septic tank, though any similar articles having sloping or tapered sides could be handled as well. The grapple comprises a pair of work engaging side bars 1 and 2, in which are made fast the lower ends of a pair of rods 3 and 4. (These rods may be spaced from the sides of the load, if desired, by strips such as shown at *a*.) The upper ends of these rods are pivoted on bolts 5 and 6 extending between a pair of spaced channels 7 and 8. Midway of the length of these channels are positioned bolts as 9, with which a hoisting hook 10 of any suitable hoisting mechanism may be engaged. The side bars 1 and 2 are intended to be placed partially under the object to be raised, the weight of the load causing the bars to tend to move apart, and are normally held toward each other in the position shown in Figure 2 by means of a separable link connection at each end. This connection, as shown in Figures 2 and 3, comprises eye bolts 11 and 12 fixed through the members 1 and 2, the eye bolt 12 having pivoted in the eye thereof a link 13 having an eye 14. The eye bolt 11 has pivoted thereto a link 15 having a forked extremity 16, the forks having eyes similar to the eye 14. The link 13 may pass between the forks 16 and a locking pin 17 may be passed through the eyes in the links. When the grapple is engaging a load and is placed under tension, the members 1 and 2 are wedged apart by the load so that links 13 and 15 are placed under tension and firmly grip the pin 17, as shown in Figure 4. If now the hoist is allowed to slacken, thus relieving the tension on the links 13 and 15, their frictional engagement with the pin 17 is released and they may drop off from the end thereof. The pin 17 is preferably hooked at its upper end, as shown at 18, to pass over the top of the load. In case this load is a septic tank, instead of engaging the top of the tank the pin may engage through the pipe opening 19 in the end face thereof, as shown in dotted lines.

It is evident that when the bars 1 and 2 are adjusted in the position shown in full lines in Figure 2 and the pin 17 passed through the eyes of the links 13 and 15, the object may be hoisted. When the object is placed in the required position and the grapple is allowed to become slack, the links 13 and 15 are released, as above described, so that on subsequent lifting of the hoist the grapple is removed from the object. This is of particular importance when placing septic tanks, as it enables them to be set in the ground without requiring a workman to descend into the hole in which the tank is placed in order to release the grapple, the pin 17, which extends up to or near the top of the load, being removed readily from above after the grapple has been withdrawn.

Having thus described certain embodiments of this invention, it should be evident that many changes and modifications might be made therein without departing from its spirit or scope as defined by the appended claims:

1. A device of the class described comprising opposed object engaging members, hoisting means connected to said members, a link connected to each member, and means

operative only when said links are under tension for connecting said links together.

2. A device of the class described comprising opposed object engaging members, hoisting means connected to said members, a link connected to each member and having an eye at its outer end, and a pin passed through said eyes and held in position therein by the frictional engagement of the links thereon while they are under tension.

3. A device of the class described comprising opposed object engaging members, hoisting means connected to said members, links pivoted to said members and having eyes at their outer ends, and object supported pins extending downwardly through the eye of a link from each member to hold them in connection as long as the object is being raised and from which they may be dropped to be disconnected on the slackening of said hoisting means.

4. A device of the class described comprising opposed strips for engaging on either side of and beneath an object to be lifted and in position to be forced apart by the weight of said object, a link pivoted at each end of each strip and having a hole therethrough, an object supported pin engaging through the holes of a link from each strip, said links being retained thereon solely by the forcing apart of said strips, and a hoist connected to said strips.

5. A device of the class described for hoisting an object having a tapered lower face and an opening in each end, comprising a pair of opposed strips for engagement under opposite sides of said face and urged apart thereby, a link having a hole at its outer end pivoted at each end of each of said strips so that a pair of holes in links carried by opposite strips may be in registry, a pair of rods having their upper ends formed to engage in one of said openings and passing through said perforations to hold said links connected as long as tension is exerted thereon and releasable therefrom on the release of such tension, and hoisting means connected to said strips.

In testimony whereof I have affixed my signature.

WINTHROP A. CLARK.