Aug. 25, 1931. A. D. CANULETTE 1,820,118

MATERIAL HANDLING GRAPPLE

Filed May 28, 1931 2 Sheets-Sheet 1

Fig. 1.

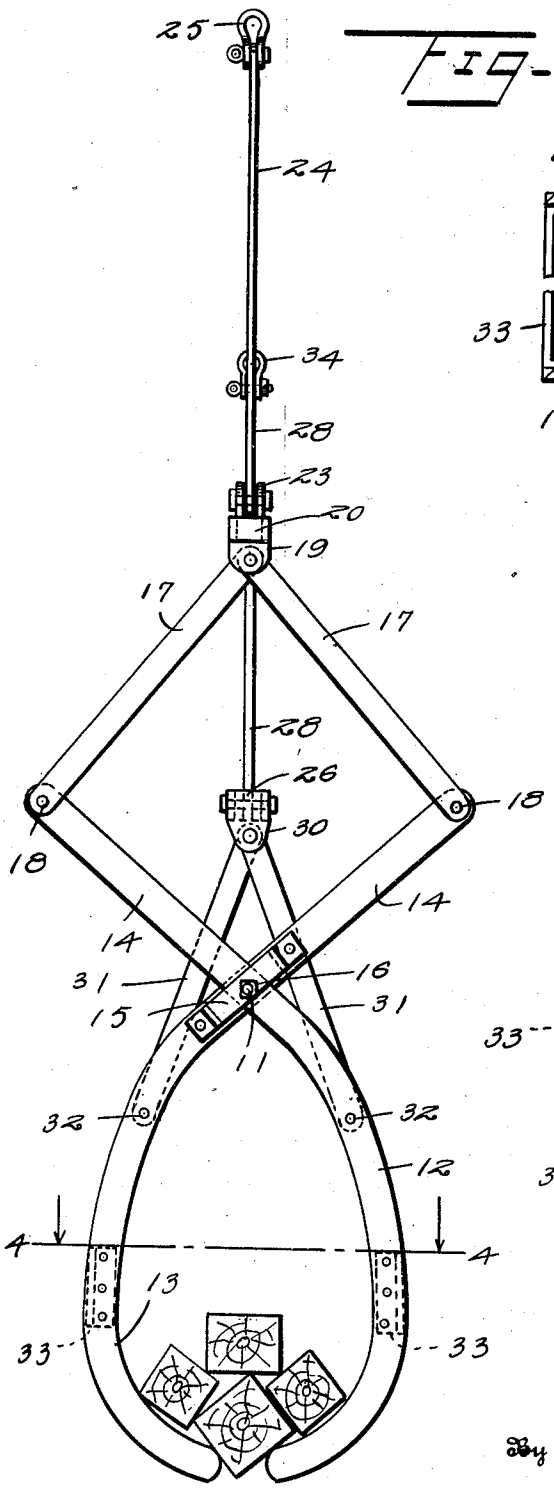



Fig. 4.

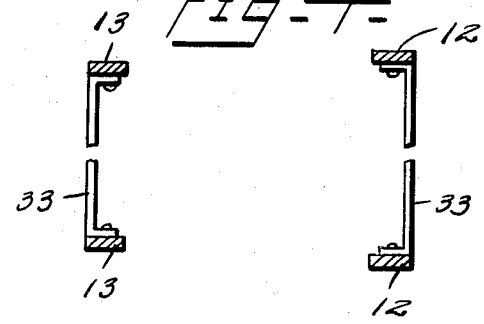
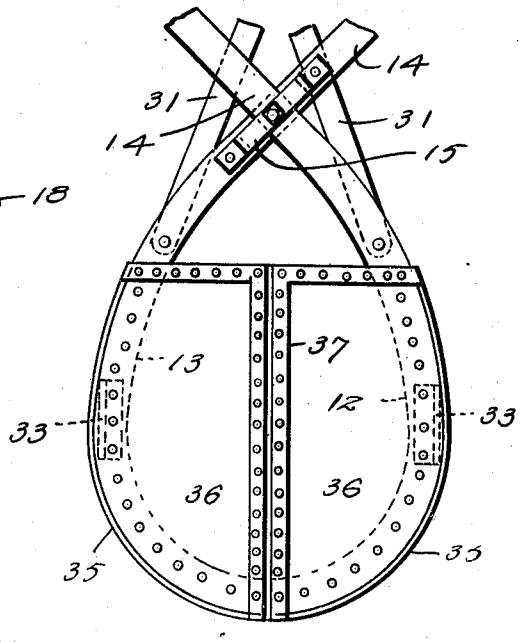



Fig. 5.




Inventor

A. D. Canulette

By Watson E. Coleman

Attorney

Aug. 25, 1931. A. D. CANULETTE 1,820,118

MATERIAL HANDLING GRAPPLE

Filed May 28, 1931 2 Sheets-Sheet 2

Fig. 2.

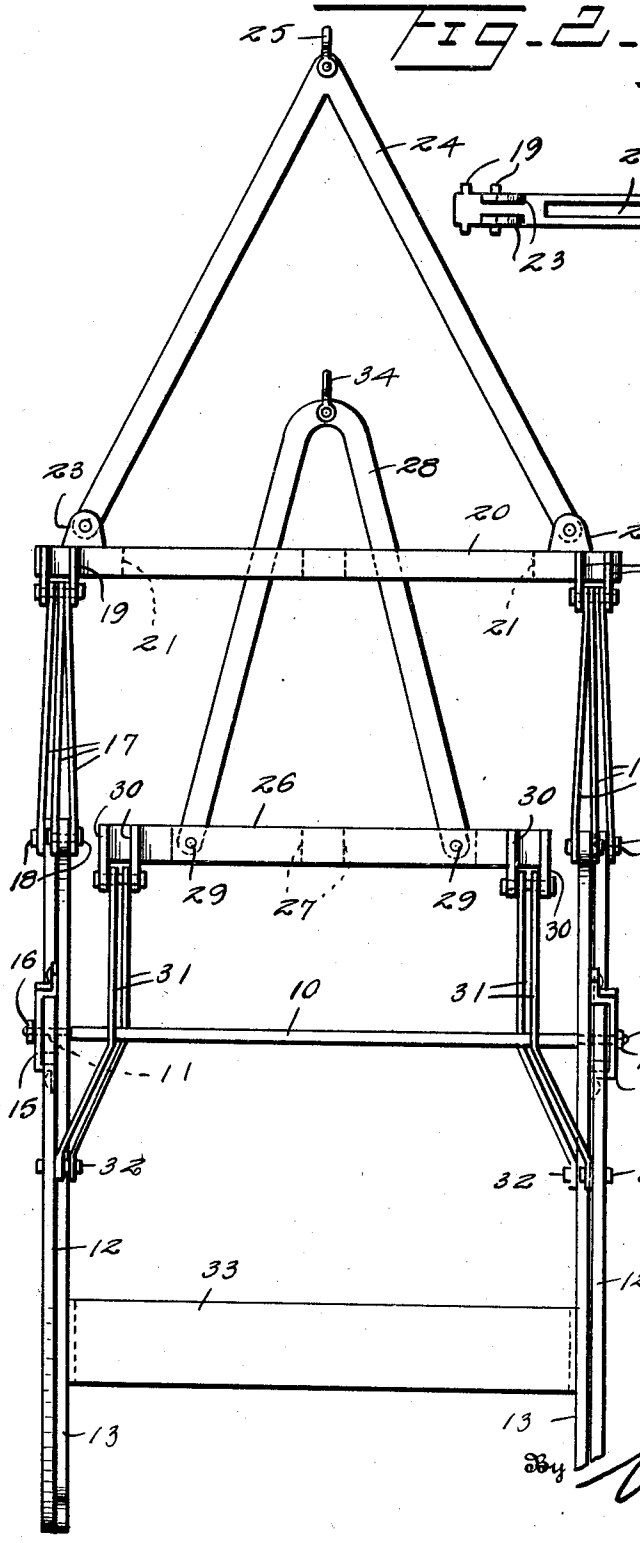



Fig. 3.

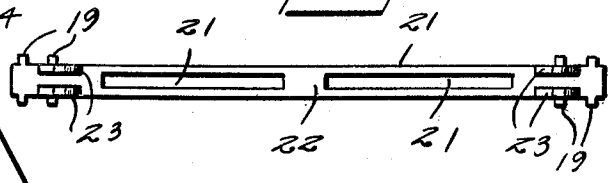
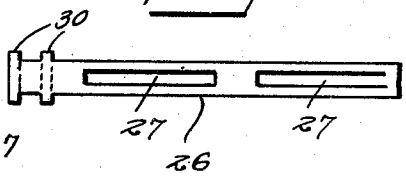



Fig. 3a.




Inventor
A. D. Canulette
By Watson E. Coleman
Attorney

Patented Aug. 25, 1931 1,820,118

# UNITED STATES PATENT OFFICE

ANDREW D. CANULETTE, OF SLIDELL, LOUISIANA, ASSIGNOR TO CANULETTE SHIP BUILDING CO. INC., OF SLIDELL, LOUISIANA, A CORPORATION OF LOUISIANA

## MATERIAL HANDLING GRAPPLE

Application filed May 28, 1931. Serial No. 540,730.

This invention relates to article handling devices and particularly to grapples whereby logs, heavy timbers, stones, and earth may be handled.

One of the objects of the present invention is to provide a very simple and effective grapple which may be used as above stated, but which may be readily converted into a "clam shell" grapple or bucket for the purpose of excavating or handling materials of a granular or more or less plastic character.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is an elevation of a grapple constructed in accordance with my invention;

Figure 2 is a front elevation thereof;

Figure 3 is an under side plan view of the upper cross bar;

Figure 3ª is a top plan view of the lower cross bar;

Figure 4 is a section on the line 4—4 of Figure 1;

Figure 5 is a fragmentary side elevation of the lower portion of the grapple showing it inverted to a "clam shell" bucket.

Referring to these drawings, 10 designates a transversely extending shaft or rod which is reduced in diameter at its extremities to form pintles 11. Pivoted on these reduced portions of the shaft are the two downwardly and inwardly curved jaws 12 and 13, these jaws intersecting each other and both of the jaws being pivoted upon the reduced end of the shaft. There is a pair of these jaws disposed on each end of the shaft 10. Each jaw is provided with a straight shank 14 and the shank of the outermost jaw of each pair has attached to it a strap iron 15 through which the shank of the other jaw passes and through which the pintle 11 passes, the jaws being held in place by the nuts or heads 16. The straight shanks 14 extend up in divergent relation to each other and at their upper ends are connected to links 17 by pivots 18. The links 17 extend upward and toward each other and are pivotally connected to ears 19 depending from a cross bar 20. Preferably the cross bar is formed, as illustrated in Figure 3, with slots 21 separated by an intervening portion 22. The cross bar is provided with upwardly extending ears 23 and a V-shaped yoke 24 has its lower ends attached to these ears 23, the upper end of this yoke being provided with a clevis I or any other like device designated 25 whereby a chain, cable or other supporting member may be connected to the yoke.

For the purpose of causing the opening of the jaws, I provide a cross bar 26 which is likewise formed with slots 27, this cross bar being supported by means of a V-shaped yoke 28, the legs of the yoke extending into said slots 27 and being pinned thereto by the pins 29. The cross bar is formed at its extremities with the depending pairs of ears 30. Pivoted between these ears at each end of the cross bar are a pair of links 31 which extend downward and outward away from each other, these links being pivoted at 32 to the respective jaws 12 and 13. Inasmuch as there are two pairs of jaws 12 and 13, there will be two pairs of links 31 connected with these jaws. One of the jaws on one side of the grapple is connected to the opposite corresponding jaw by means of a transverse plate or web 33 to thus so connect the like jaws on opposite sides of the grapple that they shall move together and stiffen the jaws. The yoke 28 is provided with the clevis 34 or like device whereby the yoke may be connected to a grapple, chain or other element permitting the raising or lowering of the yoke and thus causing the opening of the jaws or the closing of the jaws. The jaws will normally close under their own weight and under the weight of the links 31 the cross bar 26 and the yoke 28. When the yoke 28 is raised, however, the jaws are opened.

Under certain circumstances, it is desirable that this device shall be used as a "clam shell" dipper or bucket and under these circumstances, the connected jaws, as for instance, the two jaws 12 and the two jaws 13 will have attached to them and extending over their rear edge faces the web 35 and attached to the outer faces of the jaws extending toward the opposite jaw of the same pair will be a web 36.

The webs 35 and 36 are riveted to the jaws

and to the cross bars 33 and the webs will be reinforced along their edges at 37. Thus a "clam shell" bucket is readily formed from the plain grappling jaws. It will be obvious that these webs 35 and 36 may be attached by bolts and thus the webs may be removed or replaced when desired. This grapple has been found to be very effective in handling heavy timbers or beams, iron pipe or other articles of the same general character. The yoke 28 is raised so as to open the jaws, the jaws are then lowered bodily, the yoke 28 is then released and the jaws will swing down and around the beams, logs or other articles being lifted and will securely support them while they are being swung into place. This does away with the necessity of using slings for this purpose.

In order to show the value of this grappling hook, I may state that I actually made one and placed the same in use and that in rolling timber from water onto a barge deck, the best that could be done with the timber hook, which was the ordinary type of sling chain, was 150,000 board feet of timber in ten hours with a crew of nine men, whereas by using this grapple hook, 600,000 board feet of timber was loaded in ten hours with seven men and the cost of loading timber on the barges was cut three hundred per cent.

I claim:—

1. A grapple of the character described comprising two pairs of opposed crossed jaws, the jaws of each pair being pivoted to each other, transversely extending members connecting each jaw on one side with the corresponding jaw on the other side, a supporting cross bar for the jaws, two pairs of links pivoted to the ends of the cross bar and having their lower ends pivoted to the upper ends of the corresponding jaws, a cross bar below the supporting cross bar, a pair of links pivoted to the end of the second named cross bar and pivoted at their lower ends to the corresponding jaws, and independent yoke connected to the cross bars, the yoke connected to the upper cross bar supporting the weight of the grapple and the lower yoke acting to control the movement of the jaws.

2. A grapple of the character described, including two pairs of opposed crossed jaws, the jaws of each pair being pivoted to each other, the lower ends of the jaws being inwardly curved and the upper ends being straight, the straight portions of the jaws of each pair extending in divergent relation to each other, transversely extending members connected to the jaws on one side of the grapple and to the corresponding jaws on the opposite side of the grapple, a supporting bar for the jaws, two pairs of links pivoted to the ends of the supporting bar and extending downward divergently therefrom and pivoted to the upper ends of the jaws, a cross bar disposed below the supporting cross bar and having ears at its ends, a pair of links at each end of the second named cross bar and pivoted to said ears and pivoted at their lower ends to the jaws below the pivotal point thereof, and independent yokes connected to said cross bars.

3. A gripple of the character stated including two pairs of opposed crossed jaws, a transverse rod disposed between the pairs of jaws and constituting a pivot for each pair of jaws, the lower ends of the jaws being curved downward and inward, the upper ends of the jaws extending straight outward and upward, members connecting the jaws on one side with the jaws on the other side of the grapple, said members being disposed adjacent the lower ends of the jaws, a supporting cross bar, a pair of links on each end of the supporting bar pivoted thereto and pivoted to the upper ends of the jaws, a second cross bar disposed below the first named cross bar and independent thereof, links pivoted to the ends of the second cross bar and extending divergently downward and pivoted to the corresponding jaws below the pivotal centers of said jaws, and a yoke connected to the second cross bar, the first named cross bar having slots through which said yoke passes.

4. A grapple of the character described, comprising two pairs of opposed crossed jaws, the jaws of each pair being pivoted to each other, transversely extending members connecting each jaw on one side with the corresponding jaw on the other side, a supporting cross bar for the jaws, two pairs of links pivoted to the ends of the cross bar and having their lower ends pivoted to the upper ends of the corresponding jaws, a cross bar below the supporting cross bar, a pair of links pivoted to the end of the second named cross bar and pivoted at their lower ends to the corresponding jaws, independent yokes connected to the cross bars, and webs attached to the exterior edge faces of each jaw and extending down to the lower ends of the jaws, said webs extending inward across the end faces of the jaws and said webs abutting when the jaws are closed.

In testimony whereof I hereunto affix my signature.

ANDREW D. CANULETTE.