A. BRYANT.

GRAPPLE.

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1,171,315.

Patented Feb. 8, 1916.

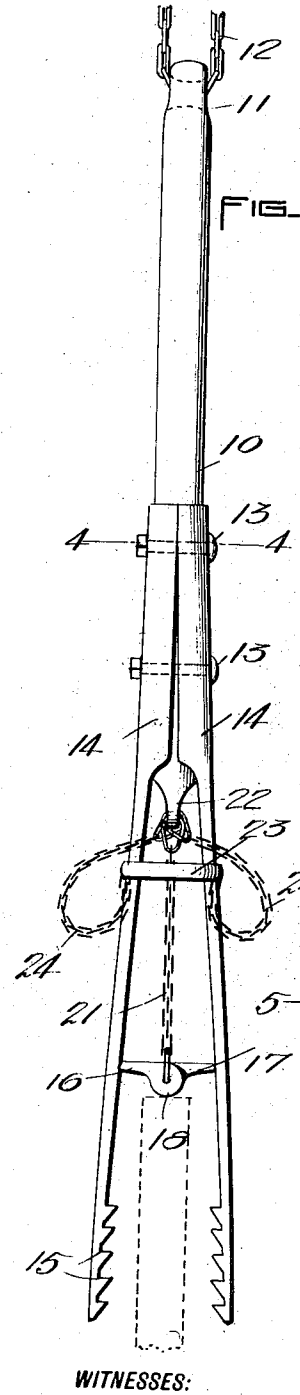


FIG. 1.

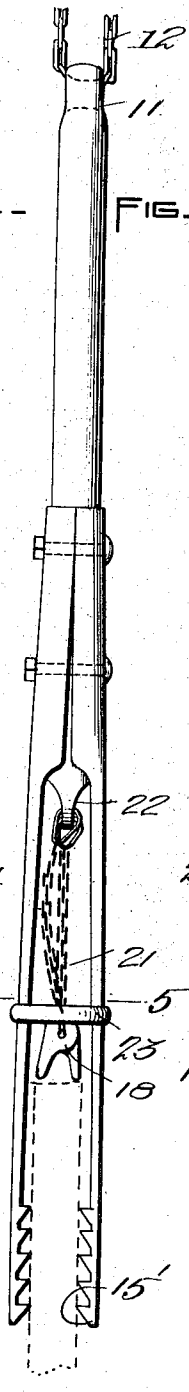


FIG. 2.

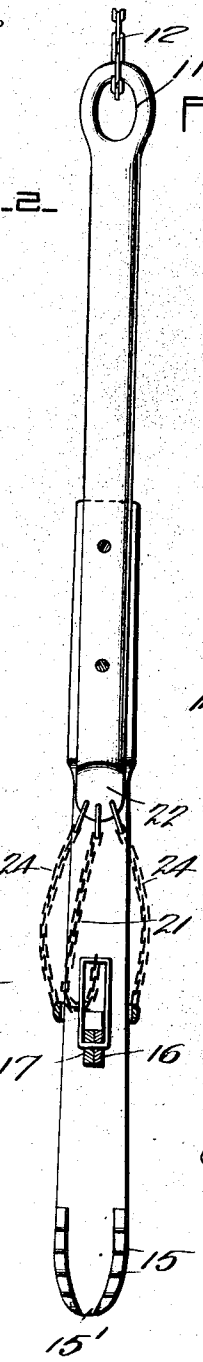


FIG. 3.

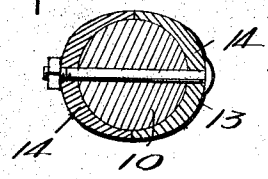


FIG. 4.

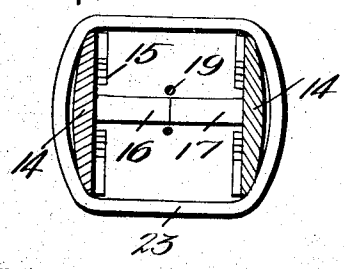


FIG. 5.

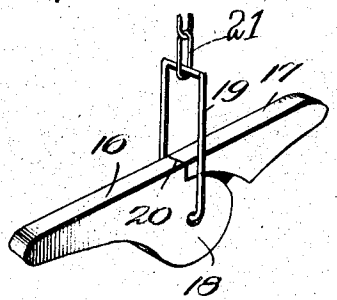


FIG. 6.

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GRAPPLE.

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To all whom it may concern:

Be it known that I, ALBERT BRYANT, a citizen of the United States, and a resident of Moulton, in the county of Lawrence and State of Alabama, have invented an Improvement in Grapples, of which the following is a specification.

This invention relates to grapples and more particularly to a grapple adapted for use in removing articles from wells.

One of the objects of the present invention is the provision of a grapple of this character which includes resilient elements held apart by a trip mechanism which, when contacted by an obstacle, permits said elements to return to normal position whereupon the article is securely held therebetween.

A further object is to provide means for retaining the elements in gripping position after the trip mechanism has been actuated so that said elements cannot be inadvertently opened or distended.

A still further object is the provision of a device of this character which is simple in construction, durable and effective in use, and one which may be manufactured at a minimum cost.

The inventive idea involved is capable of receiving a variety of mechanical expressions, one of which, for the purpose of illustrating the invention, is shown in the accompanying drawing, in which—

Figure 1 is a side elevation of the grapple showing the gripping elements in distended position. Fig. 2 is a view similar to Fig. 1 showing the elements in gripping position. Fig. 3 is a longitudinal sectional view. Fig. 4 is a transverse section on the line 4—4 of Fig. 1. Fig. 5 is a similar view on the line 5—5 of Fig. 2. Fig. 6 is a detail perspective view of the trip mechanism used in connection with the invention.

Referring more particularly to the accompanying drawing in which like reference characters indicate similar parts, the numeral 10 indicates a stock of any suitable length and made of any material desired, the same being provided at its upper end with a ring 11 for the reception of a supporting member 12, preferably chain. The lower portion of the stock 10 has secured thereto, by means of clamping bolts 13, the oppositely opposed clamping elements 14 which are preferably made of a resilient metal such as steel. The upper portions of the elements 14 are substantially semi-circular as shown so as to embrace the stock 10. The lower end of each element is provided for a distance along its longitudinal edges with a plurality of inwardly extending teeth 15 provided for the purpose of securely gripping the article therebetween when the elements are in closed position as shown in Fig. 2. The lower extremities of the gripping elements are sharpened as indicated at 15′ in Fig. 3 so that the same may be made to easily penetrate the soft bottom of the well.

A trip mechanism is used in connection with the invention to releasably retain the gripping elements in distended position and comprises a pair of coöperating arms 16 and 17 which are enlarged at their inner ends as indicated at 18 to provide a pivoted portion having openings therethrough for the reception of a link 19 for pivotally connecting the adjacent ends of the members together. Each member is also provided at its inner end with a shoulder 20 adapted to contact with each other whereby the members will assume the position shown in Figs. 1 and 6 when in operative position so that the same are free to be moved upwardly but not downwardly. The link 19 has one end of a flexible connection 21, such as a chain connected thereto, the other end of which is secured to the reduced lower end 22 of the stock 10.

From the foregoing description it will be seen that when the device is set, as indicated in Fig. 1, and then inserted into a well, should any portion of the trip mechanism come into contact with an obstacle the inner ends of the members comprising the trip will be moved upwardly and release the outer ends thereof from contact with the inner adjacent faces of the gripping elements 14 whereupon the latter, owing to their resiliency, will quickly move to their normal positions shown in Fig. 2 and grip the obstacle therebetween.

In order to retain the gripping elements 14 in engagement with an article so that said elements cannot be accidentally spread apart by coming in contact with some other obstacle, or otherwise, a locking device is provided including a ring 23 adapted to encircle the gripping elements as clearly shown in Fig. 5. This ring 23 is suspended from the lower end 22 of the stock 10 by means of chains 24 the lower ends of which are connected to the ring at diametrically opposite points. When the trip mechanism is

set to distend the gripping elements, the ring 23 is slid upward along the latter to the position shown in Fig. 1 and as soon as the trip is released and the elements moved to normal position, the weight of the ring 23 will cause the same to drop downwardly toward the lower end of said elements. The ring will then jam against the sides of the gripping elements and engage the same in such manner as to render it difficult to spread them apart. From this construction it will be apparent that when it is desired to remove the article from between the gripping elements it is first necessary to slide the ring 23 upward toward the position shown in Fig. 1 when it is possible to spread the gripping ends of the elements apart.

I claim:—

1. A grapple comprising a stock, gripping elements secured to one end of said stock and provided with inwardly extending teeth at their gripping ends, a flexible connection having one end secured to the inner end of said stock, and a trip mechanism carried by the other end of said flexible connection and including arms pivoted at their inner ends, the outer ends of said arms being adapted to engage the adjacent faces of the gripping elements to retain the same in distended position and actuated by contact with an obstacle to permit said gripping elements to move to normal gripping position.

2. A grapple comprising a stock, gripping elements secured to one end of said stock and provided with inwardly extending teeth at their gripping ends, a flexible connection having one end secured to the inner end of said stock, a trip mechanism carried by the other end of said flexible connection and including arms pivoted at their inner ends, the outer ends of said arms being adapted to engage the adjacent faces of the gripping elements to retain the same in distended position and actuated by contact with an obstacle to permit said gripping elements to move to normal position, and a ring connected to said stock and adapted to move longitudinally of said gripping members to prevent the same being spread apart when released by said trip mechanism.

3. A grapple comprising resilient gripping elements, and means including members pivoted to each other and detachably engaging said elements to retain the same distended.

ALBERT BRYANT.