

S. R. BURGSON.
GRAPPLING TONGS.
APPLICATION FILED JUNE 17, 1919.

1,356,515.

Patented Oct. 26, 1920.

FIG. 1.

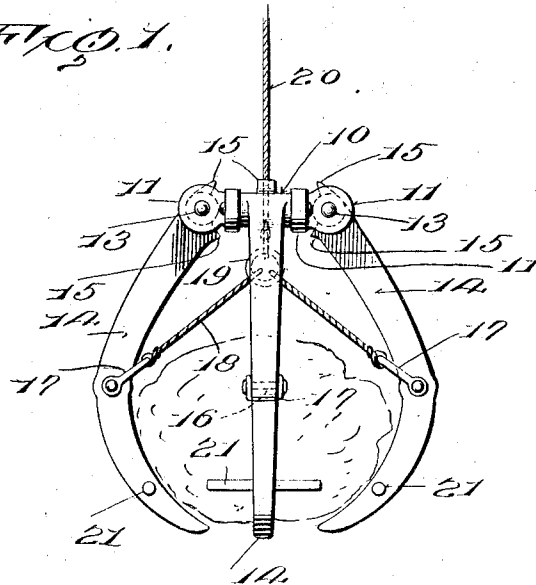


FIG. 2.

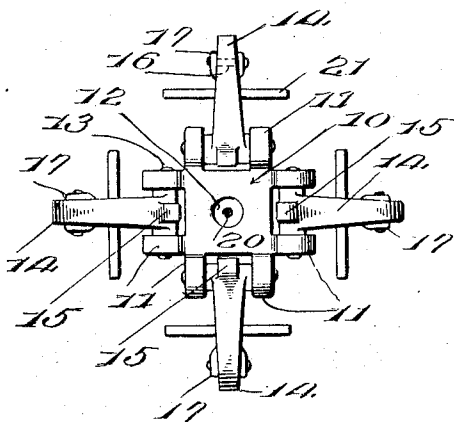
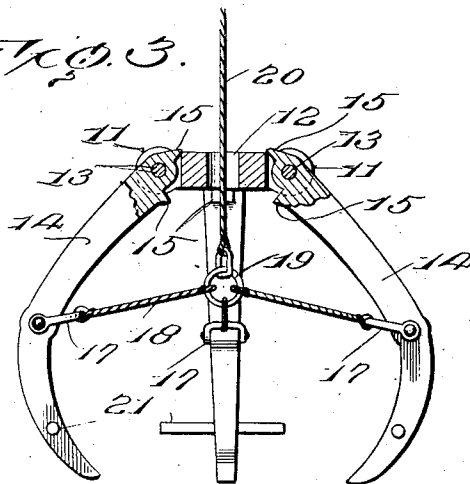


FIG. 3.



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GRAPPLING-TONGS.

1,356,515.

Specification of Letters Patent.

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To whom it may concern:

Be it known that I, STUART R. BURGSON, a citizen of the United States, residing at Drummond, in the county of Bayfield, State of Wisconsin, have invented certain new and useful Improvements in Grappling-Tongs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in grapples.

One object of the present invention is to provide a novel and improved device of this character which is especially adapted for use in lifting large stones, stumps, and the like.

Another object is to provide a novel and improved device of this character which will more firmly grip and hold the object to be lifted than with similar devices heretofore.

In a grapple of this kind the arms should be so pivoted and supported that when the device carries no load they are about balanced and they may be swung open and closed by hand, and the primary feature of the present invention consists in the formation of parts with this idea in view and the provision of handles on the arms so that they may be moved manually whether the structure contains a load or not.

Other objects and advantages will be apparent from the following description when taken in connection with the accompanying drawing.

In the drawing:

Figure 1 is a side elevation of a grappling tongs made in accordance with my invention.

Fig. 2 is a top plan view of the same.

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 2, the arms being in open position.

Referring particularly to the accompanying drawing 10 represents a head block of the grapple which is formed with the four pairs of radially extending apertured ears 11, and the central vertical opening 12. Disposed between each pair of ears 11, and mounted for swinging movement on the pin 13, is the grapple arm 14. The pivotal end of each of the arms 14 is formed with the pair of shoulders 15 which are arranged to engage with the block 10 to limit the upward and downward movement of the arm. In the intermediate portion of each of the arms 14 there is formed a transverse open-

ing 16 and engaged in this opening is a clevis 17 to which is attached one end of a cable 18. These cables all lead to a central ring 19, and to this ring is connected the lifting cable 20. The arms 14 are longitudinally bowed so as to more easily and firmly grip a large round object such as a large stone, stump, or the like. Extending transversely through each of the arms near its lower end is a straight rod constituting a handle 21.

In the operation of the device the arms 14 are spread apart and the device let down over the object to be lifted. Then, upon pulling upwardly on the cable 20 the arms 14 will be drawn toward each other and into embracing engagement with the object. The upward strain of the lifting cable 20 insures the firm gripping of the arms 14 with the object, as will be readily understood. When the arms are moved into the open position the upper shoulders prevent said arms from opening too far, while when the arms are not in engagement with an object the lower shoulders prevent said arms from swinging down too far and becoming entangled.

It should be noted that the structure is supported solely by the cable 20 which is connected with the ring 19, while the latter in turn is connected by the radial cables 18 with the arms 14 at about their midlength. This leaves the weight of the head block 10 and the pivots and the upper ends of the arms with a constant tendency to move downward under the law of gravity; but as such movement would rock the arms on their clevises 17 and tend to spread them, because their inner ends can not spread, the tendency is resisted by the short cables 18. When these reach nearly a horizontal line as seen in Fig. 3, the device is opened as wide as possible. Now when it is dropped over a large and substantially globular object such as a rock or stump, the operator grasps the handles 21 and moves the lower or gripping ends of the jaws in under such object before he applies tension to the main cable 20. The object itself will have raised the cables 18 and the ring, but manual adaptation of the several jaws to the object is practically indispensable in order to fit the structure thereto, before it can be successfully lifted. Upward pull on the main cable 20 now moves the parts as seen in Fig. 1, and the object can be lifted and swung aside.

The handles are now useful for swinging the object, turning it if it is to be dropped or

placed in a selected position, and otherwise
affording means for the operator to grasp
the load without putting his hands on the ob-
ject itself or on the arms which may be icy
5 or muddy or may by pressure become em-
bedded in the object, as if the latter be a
stump with the earth taken up by it.

Finally when the stump is deposited in a
wagon or at a distant point on the ground,
10 the handles are extremely useful because
they permit the operator to draw the jaw
ends of the arms 14 out from under the
stump so as to release the grapple therefrom,
after which tension on the main rope will
15 lift it off of the object as it would not do un-
less said jaw ends were held away from it at
this time. The specific use of straight pins
fixed transversely through the arms is pre-
ferred, because the ends of the pins are not

moved into contact with a substantially 20
globular object.

What is claimed is:

The herein described grapple comprising
a head block, a plurality of arms pivoted at
their upper ends to said block and with their 25
bodies curved inward at their lower ends
into gripping jaws, pins fixed transversely
through the respective arms near their jaw
ends, short cables leading from the mid-
length of the arms inward to a common 30
point, and a main cable leading from said
point upward through the head block.

In testimony whereof, I affix my signa-
ture, in the presence of two witnesses.

STUART R. BURGSON.

Witnesses:

G. L. McINTOSH,
E. S. RADCLIFFE.