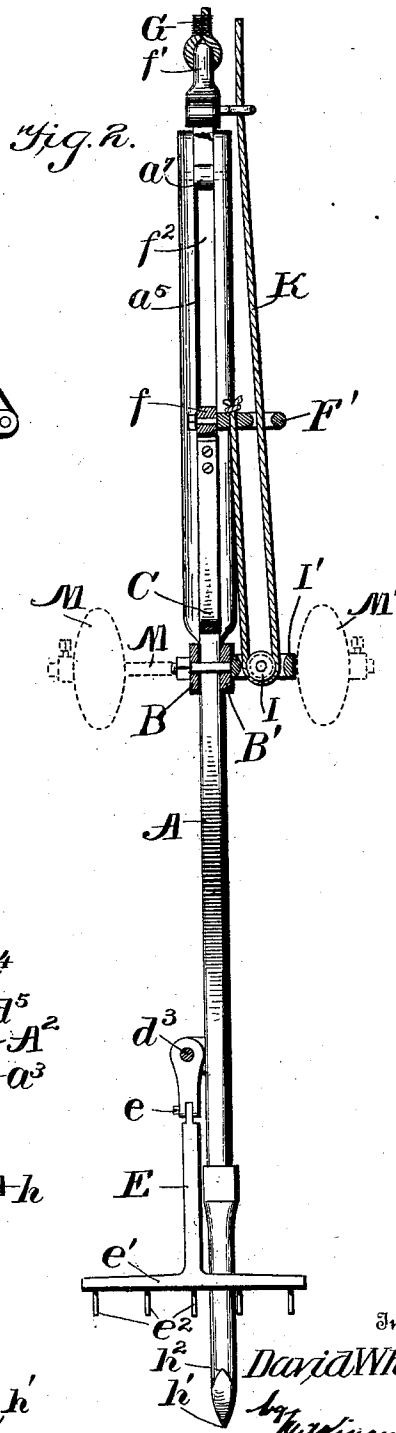
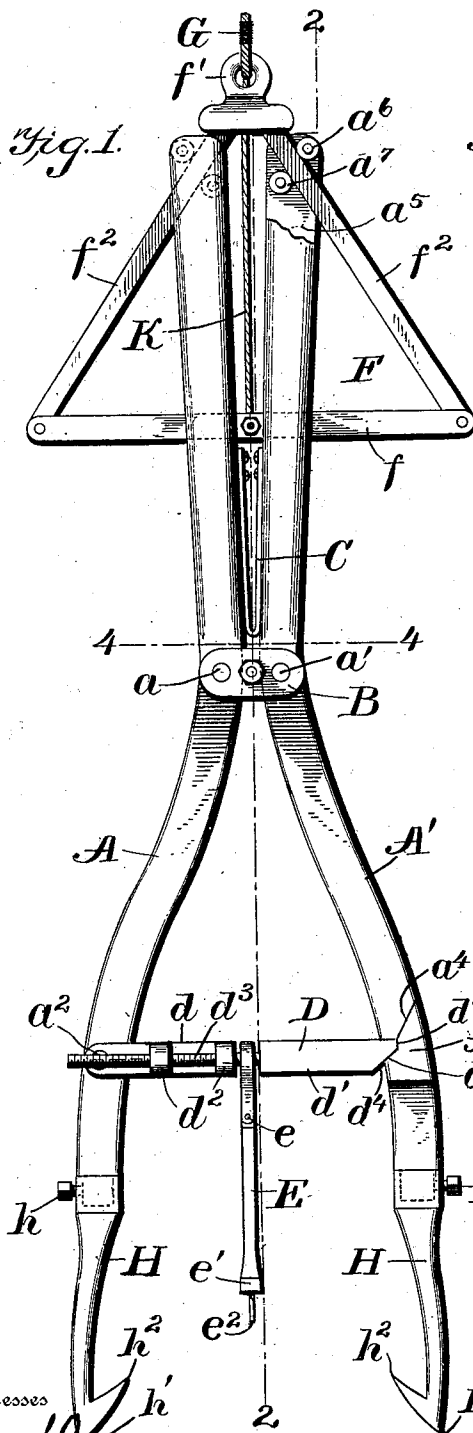


D. WHITE.
GRAPPLING HOOK.

(Application filed Nov. 27, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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No. 701,654.

Patented June 3, 1902.

D. WHITE.
GRAPPLING HOOK.

(Application filed Nov. 27, 1901.)

(No Model.)

2 Sheets—Sheet 2.

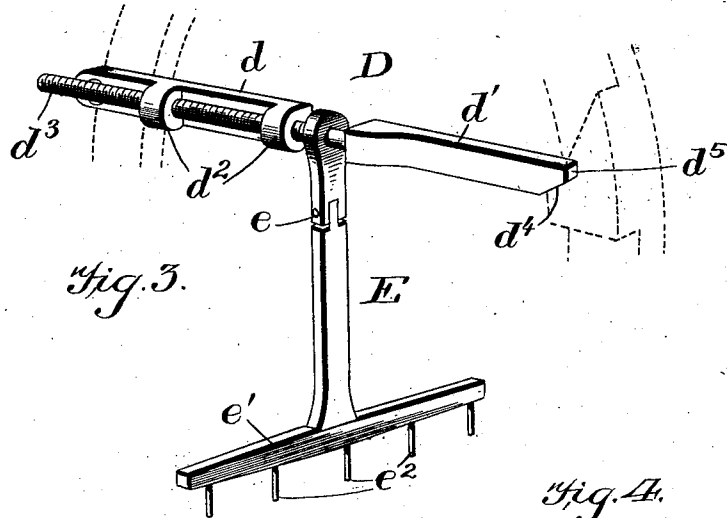


Fig. 3.

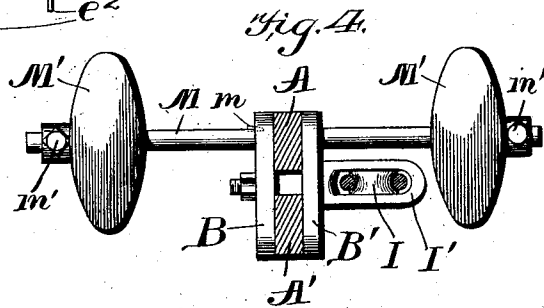


Fig. 4.

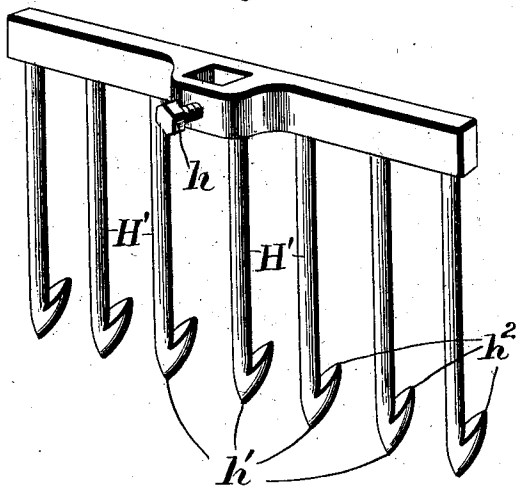


Fig. 6.

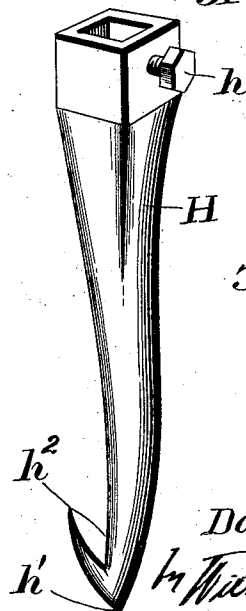


Fig. 5.

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UNITED STATES PATENT OFFICE.

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GRAPPLING-HOOK.

SPECIFICATION forming part of Letters Patent No. 701,654, dated June 3, 1902.

Application filed November 27, 1901. Serial No. 83,847. (No model.)

To all whom it may concern:

Be it known that I, DAVID WHITE, a citizen of the United States, residing at Kentwood, in the parish of Tangipahoa and State of Louisiana, have invented certain new and useful Improvements in Grappling-Hooks; 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.

My invention relates to improvements in grappling-hooks, and is designed especially for lifting objects out of wells, but may be used for any purpose where it is required to lift objects out of holes or out of the water.

Referring to the accompanying drawings, in which the same parts are designated by similar letters of reference throughout the several views, Figure 1 represents a side elevation of my improved grapple, the parts being shown in their set position ready for lowering into a well. Fig. 2 represents a vertical section of the same, taken on the line 2 2 of Fig. 1. Fig. 3 represents a perspective view of the setting and releasing device. Fig. 4 represents a horizontal section of the device, on an enlarged scale, taken on the line 4 4 of Fig. 1. Fig. 5 represents a perspective view of one of the grappling-hooks. Fig. 6 represents a perspective view of a series of grappling-hooks attached to a cross-bar, which device may be used in place of the hook shown in Fig. 5.

A and A' designate a pair of shanks, each pivoted about midway of its length in a pair of plates B and B', as at a and a' , respectively. The upper ends of these shanks are straight, and the lower ends are curved away from each other just below the plates B and B', and then curved to bring their lower ends approximately parallel, as shown in Fig. 1.

Between the upper ends of the shanks A and A' and just above the plates B and B' is secured a V-shaped spring C, which tends to press the upper ends of the shanks apart, and consequently bring the lower ends together.

Pivoted at a point a^2 on the shank A is a cross-bar D, formed of two pieces d and d' . The piece d is provided with threaded sockets d^2 to receive a screw d^3 , which projects from

the piece d' . By this construction the length of the bar D may be varied by turning the screw d^3 . The free end of the bar D is beveled, as at d^4 , leaving a small square end d^5 , and the shank A' is provided with a shoulder A^2 , against which the end d^5 of the bar D is adapted to engage, the beveled part d^4 resting against an inclined portion a^3 of the shoulder. The upper part of the shoulder is inclined, as at a^4 , to allow the end of the bar D to slide off easily when disengaged. Hung from the middle portion of the bar D is the tripping-arm or the trigger E, which is jointed, as at e , to allow it to swing out of the way of the shank A' when the said bar is raised above the shoulder A^2 .

The upper part of the shanks A and A' are wider than the lower part and are slotted, as at a^5 , to receive a triangular frame F, the base f of which rests horizontally in the bottom of the slot a^5 , and the apex extends slightly above the shanks and is provided with an eye f' , situated above the center of the device. The guide-rollers a^6 and a^7 are journaled in each of the slots a^5 , the inclined sides f^2 of the triangular frame F passing between the two rollers of each pair, as shown in Fig. 1. When the triangular frame F is raised, the tendency of the two outer rollers a^6 will be to roll down the inclined sides f^2 , and thus open the upper ends of the shanks A and A', closing the lower ends thereof. When the triangular frame is lowered, the inside edges of the sides f^2 of the triangular frame will press against the rollers a^7 , and thus close the upper ends of the shanks A and A', opening the lower ends thereof. The rope or cable G is attached to the eye f' , so that in lifting the device the tendency will always be to close the lower ends of the shanks A and A'.

A hook H, like that shown in Fig. 5, or a series of hooks H', like that shown in Fig. 6, is secured to the lower ends of the shanks A and A' by set-screws h , the said hooks being pointed at their ends, as at h^1 , and having pointed hooks h^2 . When the device is to be lowered into a well, the lower ends of the shanks having the hooks attached are opened and set in that position by the bar D being placed in engagement with the shoulder A^2 , as shown in Fig. 1, the tripping-arm E hang-

ing down between the hooks. The tripping-arm E is provided with a cross-piece e' , having a series of pins e^2 pointing downwardly therefrom, and when the hooks H pass down
 5 on the sides of an object the tripping-arm will strike the said object and the bar D will be pushed upwardly, thus releasing the shanks A and A', which by the pressure of the spring C will immediately close upon the object.
 10 When the device is raised, the pull upon the rope G, which is attached to the triangular frame F, will tend to force the upper ends of the shanks apart and close the lower ends tighter, so that the harder the pull upon the
 15 rope the tighter the hooks will grip the object to be raised.

A grooved pulley I is mounted in a suitable bracket I' on the plate B', and an eye F' is secured to the base f' of the triangular frame F.
 20 One end of a rope K is secured to the eye F', and the said rope is then passed downward and around the pulley I and up through the eye F' and alongside of the rope G. By pulling upon the upper end of this rope K the tri-
 25 angular frame will be pulled downwardly, thus closing the upper ends of the shanks and opening the hooks. By this means an object which it is impossible or undesirable to lift may be released.

30 When it is desired to use the device in deep water, a bar M is passed through the plates B and B' and one of the shanks A or A' in place of the pivot-pin a or a' . This bar may be secured in place by a key m , and weights
 35 M' are secured on the ends of the bar M by set-screws m' .

Although I have described my invention as especially designed for lifting objects out of wells, deep holes, and water, it is obvious
 40 that the invention may be used to advantage for other purposes—such as, for instance, the hoisting or lowering of goods to and from the upper stories of warehouses or loading or un-
 45 loading timber or other objects on cars or the holds of vessels and like purposes. It will also be understood that I do not wish to limit myself to the precise details of construction as herein described, as many slight modifica-
 50 tions might be made in the device without departing from the spirit of the invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a grappling-hook, the combination
 55 with the spring-operated pivoted hooks, of a tripping-bar for holding said hooks open, and a trigger suspended from said tripping-bar for tripping the same.

2. In a grappling-hook, the combination
 60 with the spring-operated pivoted hooks, of a tripping-bar for holding said hooks open, and a pivoted rod or trigger suspended from said bar for tripping the same.

3. In a grappling-hook, the combination
 65 with the spring-operated pivoted hooks, of a tripping-bar for holding said hooks in their open position, and a trigger for tripping said

bar pivotally suspended transversely thereof, the said trigger being provided with a lower pivoted section, capable of a longitudinal
 70 swing in respect of said bar.

4. In a grappling-hook, the combination with the spring-operated pivoted hooks, of a tripping-bar for holding said hooks in a pre-
 75 determined open position and means for adjusting the length of said tripping-bar.

5. In a grappling-hook, the combination with the spring-operated pivoted hooks, of a tripping-bar for holding said hooks in an open
 80 position, comprising a plurality of sections, and means for adjusting said sections for shortening or lengthening the tripping-bar.

6. In a grappling-hook, the combination with the spring-operated pivoted jaws, of an adjustable tripping-bar for holding said hooks
 85 in a predetermined open position, and means suspended from said bar for tripping the same.

7. In a grappling-hook, the combination with a pair of shanks pivoted together mid-
 90 way of their length, and having hooks at one end, and means for opening the other ends and closing said hooks; of a bar pivoted to one of said shanks and adapted to hold said
 95 hooks open, means for adjusting the length of said bar, and means for tripping said bar to allow said hooks to close, substantially as described.

8. In a grappling-hook, the combination with a pair of shanks pivoted together mid-
 100 way of their length, and having hooks at one end, and means for opening the other ends, and closing said hooks; of a bar pivoted to one of said shanks and adapted to hold said
 105 hooks open, means for adjusting the length of said bar, and a tripping-arm for raising said bar to allow said hooks to close, substantially as described.

9. In a grappling-hook, the combination with a pair of shanks pivoted together mid-
 110 way of their length, and having hooks at one end, rollers in the other end, and a triangular frame engaging said rollers and adapted to open one end of said shanks and close the
 115 said hooks; of a bar for holding said hooks open and means for tripping said bar to allow the hooks to close, substantially as described.

10. In a grappling-hook, the combination with a pair of shanks pivoted together mid-
 120 way of their length, and having hooks at one end, and rollers in the other end; of a triangular frame engaging said rollers and adapted to open one end of said shanks and close the
 125 said hooks, and a rope connected with the apex of said triangular frame for lifting said device, substantially as described.

11. In a grappling-hook, the combination with a pair of shanks pivoted together mid-
 130 way of their length and having hooks at one end and rollers in the other end, and a pulley mounted near the pivotal points of the
 said shanks; of a triangular frame engaging said rollers and adapted to open and close one end of said shanks, a rope attached to the

apex of the triangular frame for lifting the device and for moving the triangular frame in the direction to close the said hooks, and a rope connected with the base of said triangular frame and passing over said pulley for moving said frame in the direction for closing the said hooks, substantially as described.

12. In a grappling-hook, the combination with a pair of shanks pivoted together midway of their length and having hooks on one end and weights near their pivotal points, of means for opening and closing said hooks, a bar pivoted to one shank and adapted to engage the other shank to hold said hooks open, and means for tripping said bar to allow said hooks to close, substantially as described.

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

DAVID ^{his} X WHITE.
mark

Witnesses:

O. P. AMACKER, Jr.,
G. A. KENNON.