

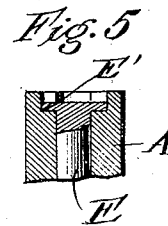
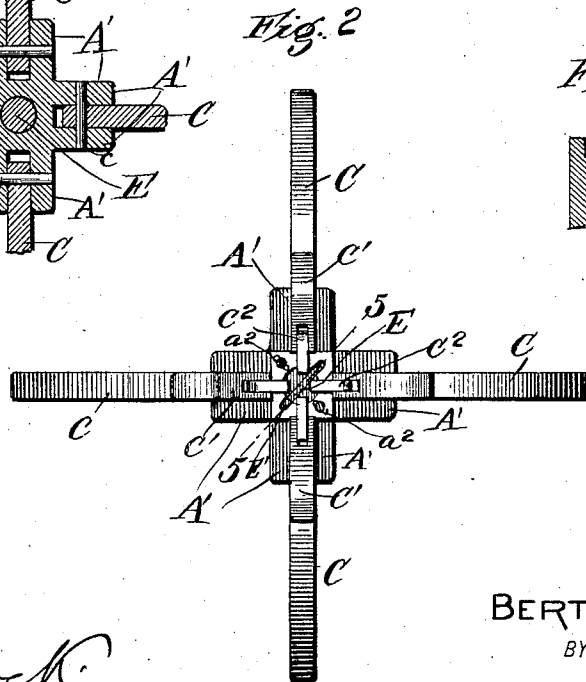
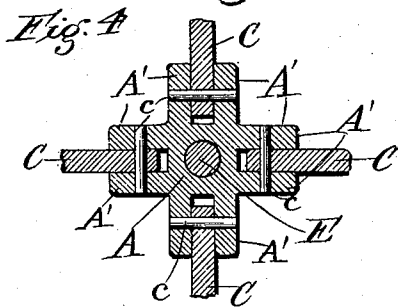
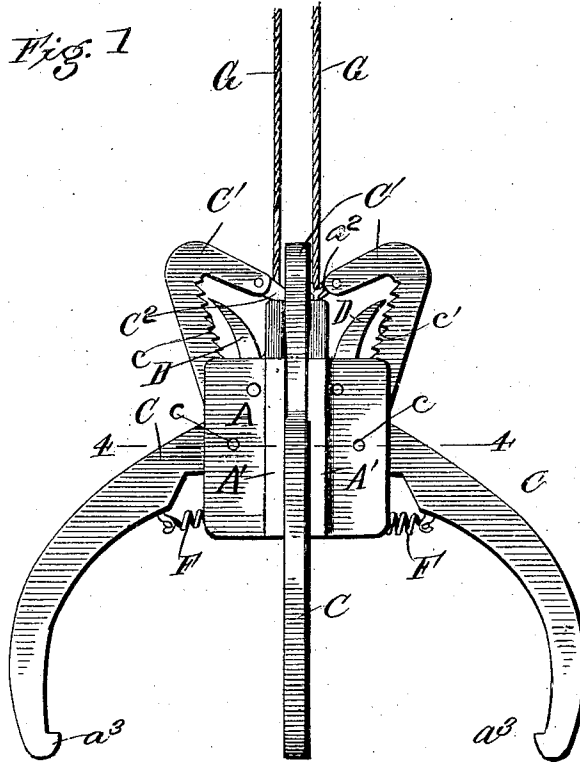
No. 845,555.

PATENTED FEB. 26, 1907.

B. LANGLEY.
AUTOMATIC GRAPPLING HOOK.

APPLICATION FILED SEPT. 26, 1906.

2 SHEETS—SHEET 1.



WITNESSES
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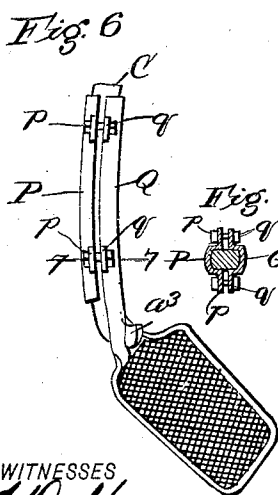
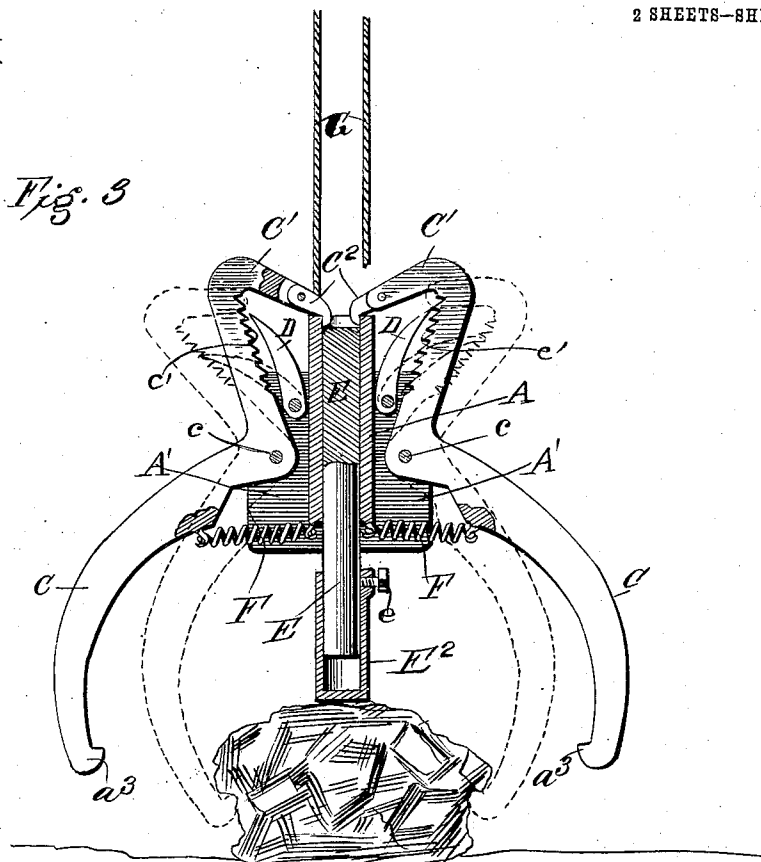
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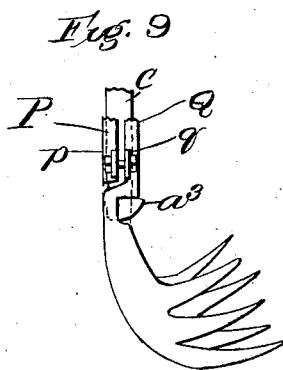
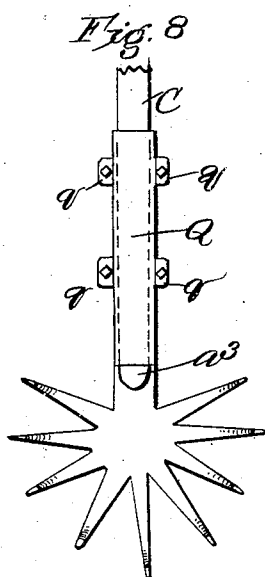
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

BERT LANGLEY, OF WOODWARD, OKLAHOMA TERRITORY.

AUTOMATIC GRAPPLING-HOOK.

No. 845,555.

Specification of Letters Patent.

Patented Feb. 26, 1907.

Application filed September 26, 1906. Serial No. 336,242.

To all whom it may concern:

Be it known that I, BERT LANGLEY, a citizen of the United States, and a resident of Woodward, in the county of Woodward, Oklahoma Territory, have made certain new and useful Improvements in Automatic Grappling-Hooks, of which the following is a specification.

My invention relates to improvements in devices for grappling in cleaning wells, &c., and has for its object to provide a device which will grapple and automatically take hold of objects with which it comes into contact. It may also be used as a means for removing lost tools, buckets, casings, &c., from wells and cisterns and for use in removing safes and other valuables from burning ruins and other places inaccessible by usual methods. It may also be used for removing stumps, logs, and all heavy foreign matter from lakes, &c.

To these ends my invention consists in certain novel features of construction, arrangement, and combination of parts, as will be hereinafter fully described, and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improvement. Fig. 2 is a top plan view of same. Fig. 3 is a sectional elevation showing my improvement in use. Fig. 4 is a horizontal section taken on the line 4 4 of Fig. 1. Fig. 5 is a vertical section taken on the line 5 5 of Fig. 2. Fig. 6 is a side elevation of an attachment that may be used with my device. Fig. 7 is a section taken on line 7 7 of Fig. 6. Fig. 8 is a front elevation showing another attachment which may be used with my improvements. Fig. 9 is a side elevation of same, showing mode of attaching to end of hook.

In carrying out my invention I use a frame or body part A, having the ears A' A' projecting from each side of the same, and between these ears are pivoted the hook or grapple arms C, bent, as shown, and pivoted at the point c. The upper part of the arms are bent inwardly at C' and have secured to their inner ends the hooks C², which normally project over the center of the frame A, which has a central vertical passage through the same from top to bottom. The inner faces of the upright portions of the hook or grapple arms C is serrated or provided with teeth c', which are to be engaged by the

pawls D, pivoted between the ears A' near their upper ends.

E is a tripping device consisting of a piston fitted to slide in the central passage of the body portion and having at its upper end the cross-bar E', which may rest in the sockets a' in the upper portion of the frame to prevent the piston from dropping out of the frame. To the lower end of the piston E is fitted an extension E², which telescopes on the same and may be held at any point by a set-screw e.

Secured to the lower end of the frame A are the springs F, the other ends of which are secured to the hook or grapple arms below their pivotal point, said springs tending normally to draw the lower ends of the hook or grapple arms toward each other and to the center.

To the upper part of the frame are secured the eyes a², to which are secured ropes or cables G, used to raise and lower the device to the position desired. To set the device for use, the piston E is lowered as far as it will go and leave room for the hooks C² above the top of said piston, then draw in the upper ends of the hook or grapple arms until said hooks C² fall into said space and over the edge of the aperture, the pawls D having been previously disengaged from the serrations and teeth. The device is now ready for use. To use the device, it is lowered until the extension E, which constitutes a trigger, strikes the object to be lifted, when it will be held stationary, while the weight of the device will cause the frame or body portion to lower, thus causing the trigger or piston to push the hooks C² from their position, which will permit the springs F to pull the lower ends of the hook or grapple arms forcibly toward the object. At the same time that they are moving into place the pawls D fall into the serrations c', and thus prevent the lower ends a³ of the hook or grapple arms from releasing their grip upon the object they have grasped. The entire device and the object grappled may then be raised from the well or water, and the object will be securely held until released by the operator. The ropes or cables attached to the top of the device are so arranged as to balance the device.

The attachments shown in Figs. 6, 7, 8, and 9 are intended to pick up small articles when they are loose and of great number. These attachments consist of a rear plate P, bent to fit the shank of arms and having

the projecting lugs *p* and the front plates *Q* similarly shaped and having the laterally-projecting lugs *q*, through which and the lugs *p* are passed bolts to secure the two plates to the shank of the hook-arm. The front plate *q* is provided with an opening *q'*, through which the hooked end *a*³ of the arms *C* pass and prevent shifting of the attachments on the shanks of the arms. The attachment shown in Fig. 6 is a foraminous shovel, while that shown in Fig. 9 is a claw device.

I claim—

1. A grapple consisting of a frame or body portion having a central vertical passage therethrough, bent gripping-arms pivotally secured to said frame, the upper ends of said arms projecting over said vertical passage, a piston slidably held in said passage, a foot-piece adjustably mounted on the lower end of said piston, said piston adapted to engage and trip the upper ends of the arms, pawls pivotally secured to said frame, teeth disposed on the upper portion of the bent arms and adapted to be engaged by said pawls, and springs secured at one end to the bent arms below their pivotal points and at their opposite ends to the frame.

2. A grapple consisting of a frame or body portion having a central vertical passage therethrough, bent gripping-arms pivotally secured to said frame, the upper ends of said arms projecting over said vertical passage, a piston slidably held in said passage, said piston adapted to engage and trip the upper end of the arms, pawls pivotally secured to said frame, teeth disposed on the upper portion of the bent arms and adapted to be engaged by said pawls, and springs secured at one end to the bent arms below their pivotal points, and at their opposite ends to the frame or body portion.

3. A grapple consisting of a frame or body portion having a central vertical passage therethrough, gripping-arms pivotally secured to said frame, the upper ends of said arms projecting inwardly toward the central vertical passage, hooks pivotally secured to the said upper ends of the arms and adapted to drop into the vertical passage, a piston slidably held in said vertical passage, said piston adapted to engage and trip at its upper end the pivoted hooks, springs controlling

the lower ends of the gripping-arms, and means for locking the gripping-arms when tripped.

4. A grapple consisting of a frame or body portion having a central vertical passage therethrough, bent gripping-arms pivotally secured to said frame, the upper ends of said arms projecting inwardly and having a portion adapted to engage the body portion at the upper end of the vertical passage, said piston adapted to engage and trip the said projecting portion of the arms, means for automatically forcing the lower ends of the arms inwardly toward each other, and two-part detachable gripping members at the lower ends of the gripper-arms.

5. In a grapple the combination with pivoted grappling-arms having inturned hooked lower ends of detachable gripping members at the lower ends of said arms said detachable members comprising a front shank having a transverse opening to engage the hooked lower ends of the grappling-arms, and a rear shank adapted to fit the grappling-arm, and means for connecting said shanks.

6. A grapple consisting of a frame or body portion having a central vertical passage therethrough, gripping-arms pivotally secured to said frame, hooks pivotally secured to the upper ends of the gripping-arms, and projecting inwardly and adapted to drop into the vertical passage, a piston slidably held in said vertical passage, said piston adapted to engage and trip at its upper end the pivoted hooks, and springs controlling the lower ends of the gripping-arms.

7. A grapple consisting of a frame or body portion having a central vertical passage therethrough, bent gripping-arms pivotally secured to said frame, hooks pivotally secured to the upper ends of the gripping-arms and projecting inwardly and adapted to drop into the central vertical passage, a piston slidably held in said passage, pawls mounted on said frame, teeth disposed on the upper portion of the bent arms and adapted to be engaged by the said pawls, and springs controlling the lower ends of the gripping-arms.

BERT LANGLEY.

Witnesses:

I. S. Ross.

GEO. S. Ross.