No. 623,065. Patented Apr. 11, 1899.

P. M. BARRETT.

HOISTING AND CONVEYING APPARATUS.

(Application filed Dec. 9, 1898.)

(No Model.) 2 Sheets—Sheet 1

Fig. I.

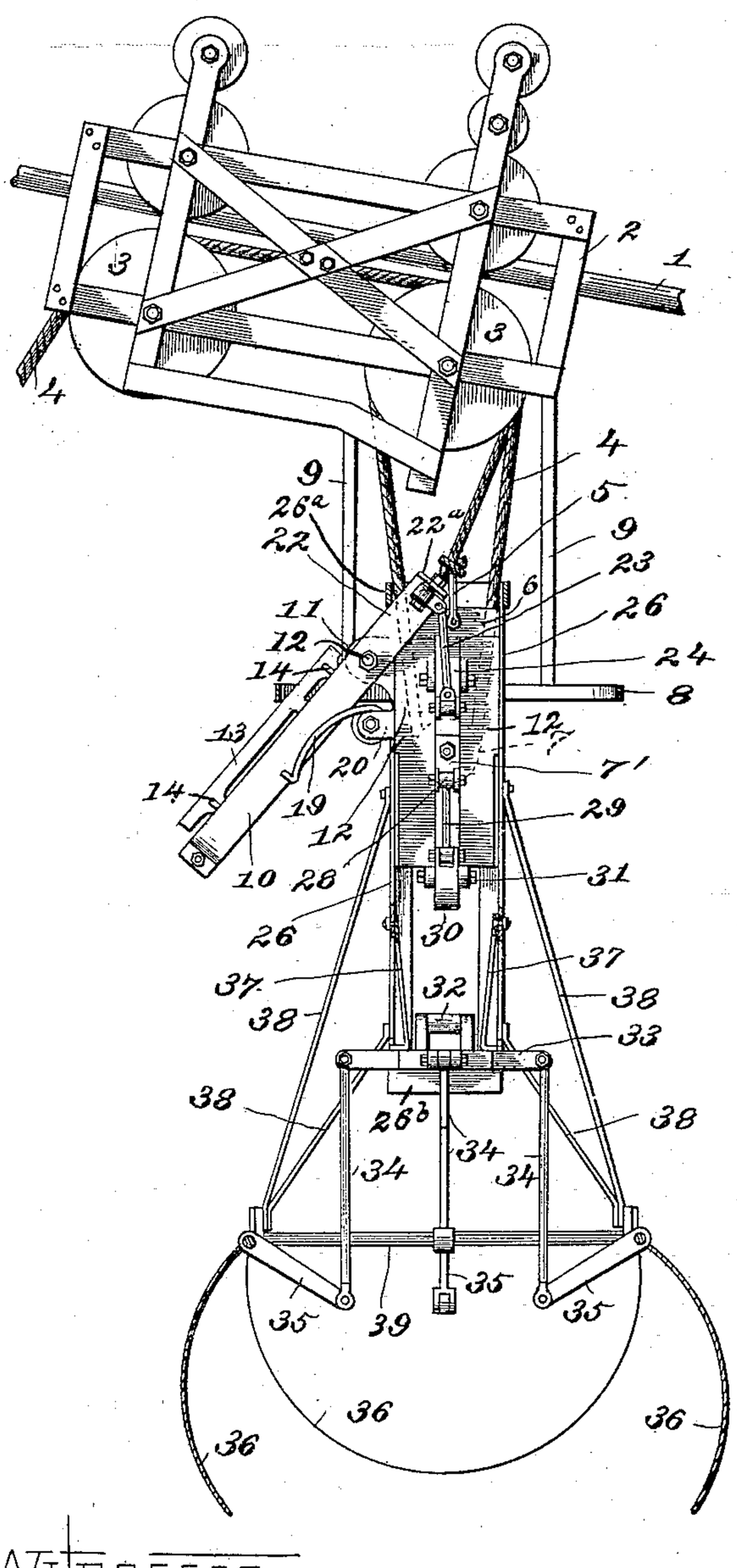
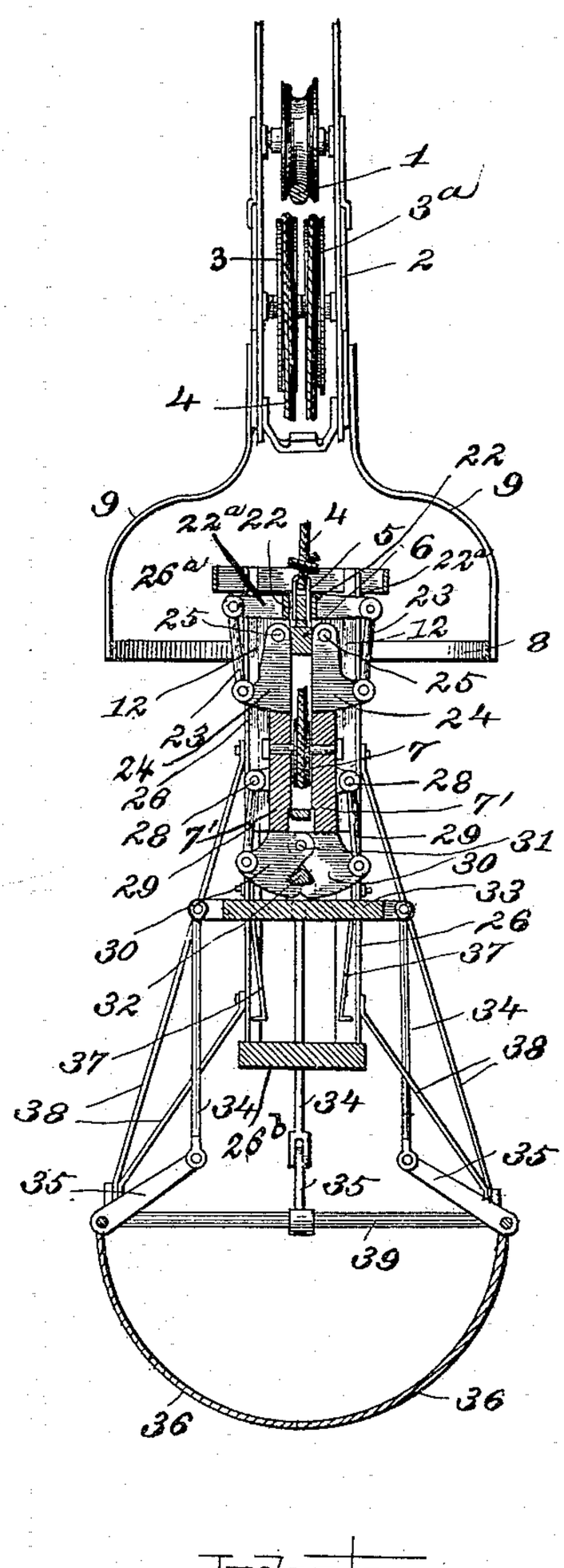


Fig. II.



Witnesses—

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Fig. III.

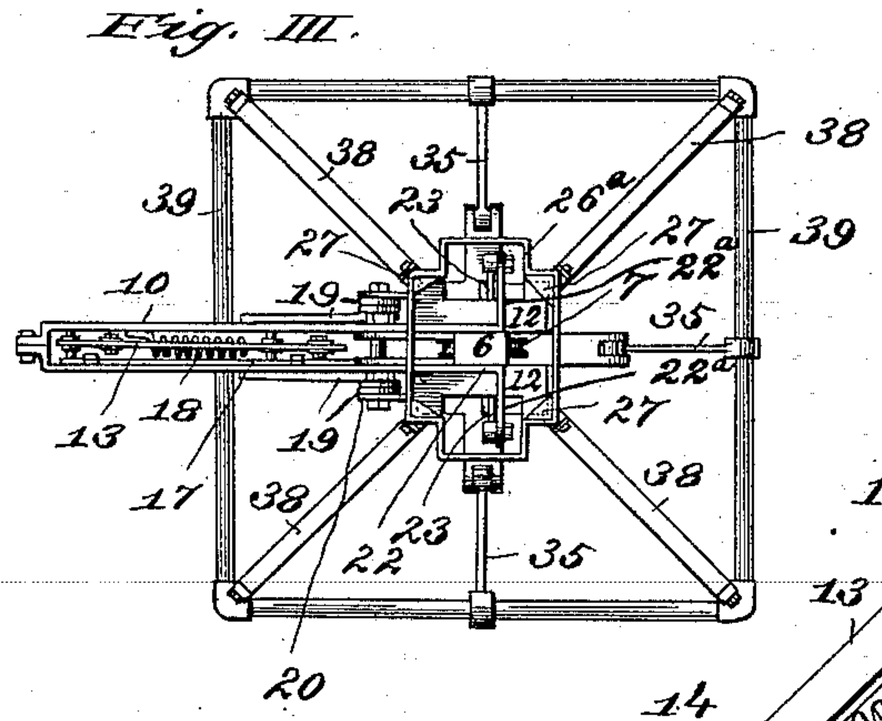


Fig. IV.

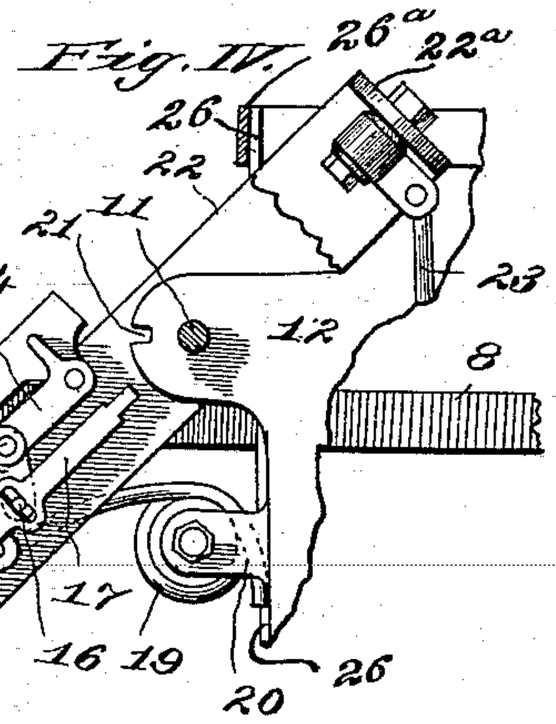


Fig. V.

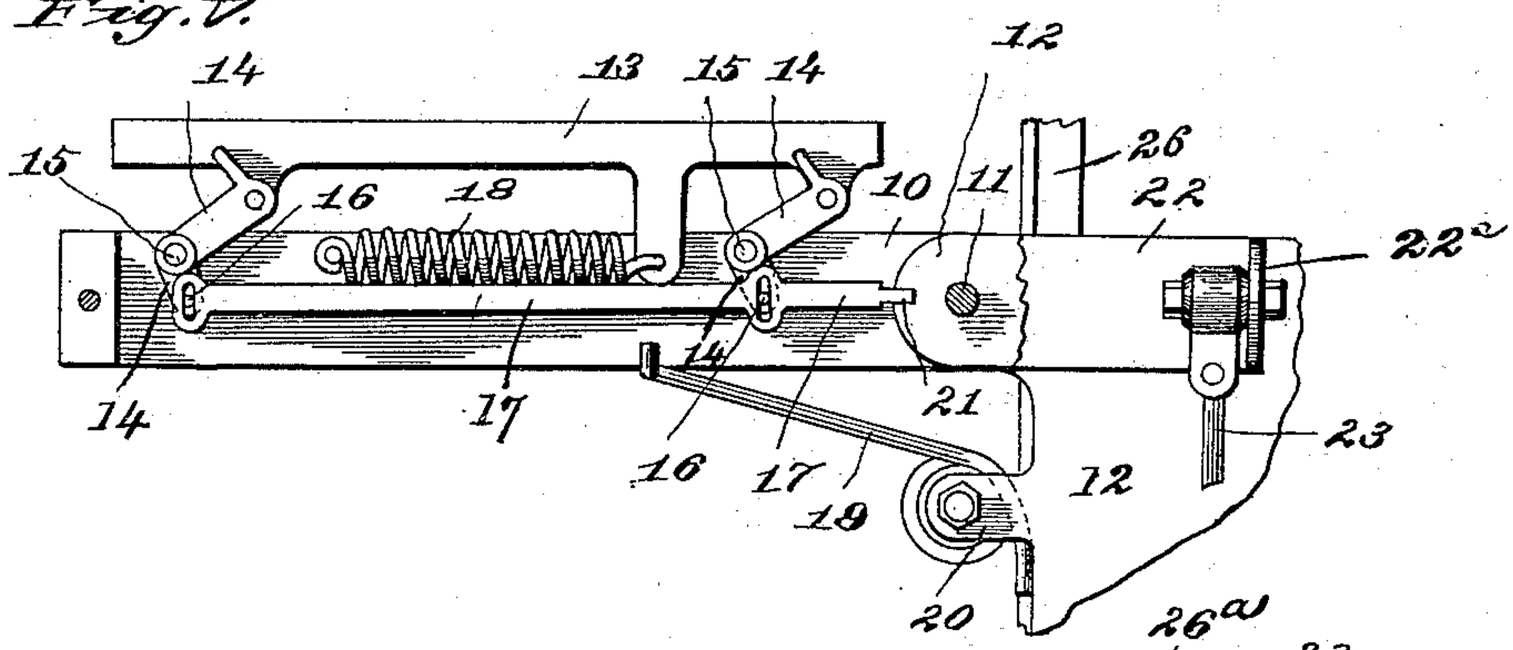
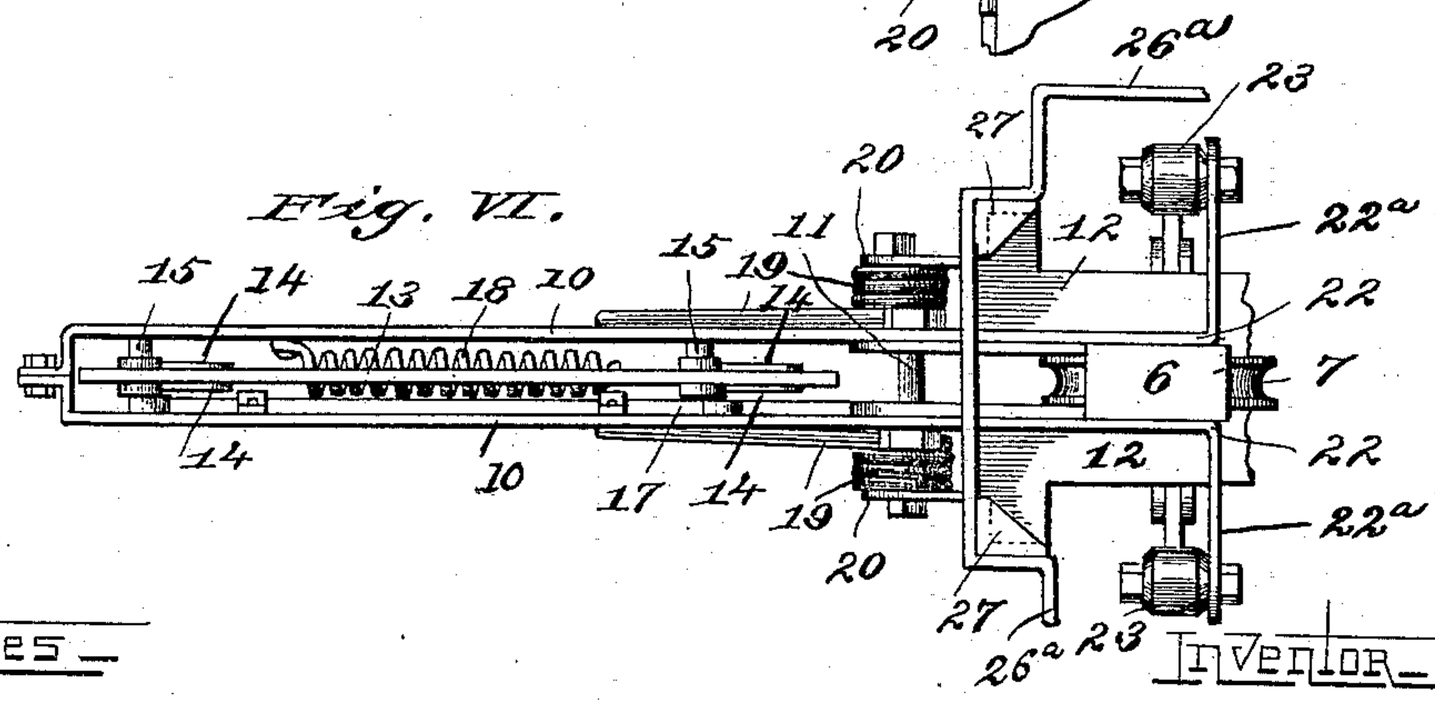


Fig. VI.



Witnesses—

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UNITED STATES PATENT OFFICE.

PATRICK M. BARRETT, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-THIRD TO MICHAEL CLEARY, OF SAME PLACE.

HOISTING AND CONVEYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 623,065, dated April 11, 1899.

Application filed December 9, 1898. Serial No. 698,727. (No model.)

To all whom it may concern:

Be it known that I, PATRICK M. BARRETT, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Hoisting and Conveying Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to provide an improved apparatus for hoisting and conveying coal, gravel, and sand and which may also be used for a dredging device. It is adapted to work automatically, and the necessity and danger connected with hand operation are thereby avoided.

The specific features of novelty are hereinafter described and pointed out and claimed.

Referring to the accompanying drawings, Figure I shows a side elevation of my improved hoisting and conveying apparatus, the apparatus being in a position to admit of the shovel-leaves being sunk in sand or the like. Fig. II shows a vertical section thereof, taken at right angles to that shown in Fig. I, but with the leaves closed. Fig. III is a top plan view, the traveler and tripper-ring being omitted. Fig. IV is a detail side elevation of the tripper, partly in section, the same being shown unlocked. Fig. V is a similar view, but the said tripper is shown locked. Fig. VI shows a top view of Fig. V.

1 is a cable on which the entire device is carried, and 2 is the traveler or carriage, which may be of any suitable construction. It is provided with sheaves 3, over which the hoisting-rope 4 travels. The end of this hoisting-rope is secured to the hook 5, which is fastened to the tackle-block 6. The said rope after passing over the sheaves 3 is passed under the sheave 7, said latter sheave being carried in the sliding bars 7′, then back over the sheave 3^a, and then secured to the hook 5.

8 is a tripper-ring supported from the traveler 2 by means of the straps 9. The tackle-block 6 is so constructed as to be drawn up into the tripper-ring 8, and it carries with it a tripper mechanism which is operated by its impact with one side of the said ring. It is constructed of a main bar 10, pivoted at 11 to the sliding block 12, said bar 10 carrying an impact-bar 13, supported by links 14, pivoted at 15 to the bar 10. These links extend beyond said pivots 15 and are provided with pins 16, which ride in slots in the locking-rod 17.

18 is a coil-spring adapted to keep the impact-rod 13 raised, and 19 is another spring supported on a bracket 20, attached to the sliding block 12, adapted to keep the tripper mechanism in its normal or horizontal position and whose resistance is overcome when the said tripper strikes the ring 8. The end of the locking-bar 17 engages in a recess 21 in the sliding block 12 and secures the same until the withdrawal of the said bar 17.

The inner ends 22 of the bar 10 have lateral extensions 22^a, to which are pivotally attached the links 23, which in turn are pivotally attached to a pair of pendent jaws 24. These jaws are pivoted at 25 to the tackle-block 6. It will be readily seen that when the tripper mechanism is thrown from the position shown in Figs. II and V to that shown in Figs. I and IV these jaws by reason of their connection through the links 23 to the said lateral extensions 22^a at the inner ends 22 of the tripper will spread and allow the passage upward of the sliding bars 7′, which carry the sheave 7, the same being raised by the pull of the rope 4 around said sheave.

The sliding block 12 slides in the square passage formed by the angle-irons 26. These angle-irons are bound together by a top frame 26^a. (Seen in Figs. III and VI.) The frame thus forms supports for the bucket-frame through the medium of the hangers 38. The main rope passes around the sheave 7, which is fastened between the bars 7′, which bars are guided in the sliding sheave-block 12, which in turn rides in the frame formed by the angle-irons 26. It is the rope that supports the whole device. When a pull is exerted on said rope and the buckets are closed, the sheave-bars 7′ are drawn upward and strike the check-plates 27. This keeps the whole apparatus rigid until it is dropped, so that the buckets rest on the earth. Then the sliding sheave-block falls down to the bottom of the angle-irons 26, allowing, through the me-

dium of the toggles described, the buckets to open and the load to be obtained. When the bar 13 impacts against the tripper-ring 8, it is unlocked, as described, and allows the inner end to be raised. This takes with it the links 23, the lower ends of which are pivoted to the jaws 24. This opens the said jaws 24 and allows the passage upward therethrough of the bars 7′. This upward passage of the sliding sheave-block is accomplished by the pull of the rope around the sheave 7. Secured to the ears 28 on said bars 7′ and pivotally attached thereto are the links 29. The hooks 30, which engage the eye 32, are hung on the pivot 31 on the sliding block 12 and are pivotally attached to the outer end of the links 29. 27 are check-plates secured in the top of said angle-irons to prevent the sliding block 12 from sliding too far. The angle-irons are braced by a frame 26^a at the top thereof and and by a block 26^b at the bottom of the same. The jaws 24 being spread, as described, and the pull on the rope 4 being further exerted, it draws the sheave-bars 7′ upward through the medium of the rope about the sheave 7. 28 are ears secured to said sheave-bars 7′, and to them are pivotally attached the links 29. These links in turn are pivotally attached to the hooks 30, which are hung on the pivot 31 to the sliding block 12. These hooks 30 when closed, Fig. II, engage the eye 32, which is rigid with a frame 33, made approximately in the form of a Greek cross. Links 34, pivoted thereto, also pivot with arms 35 and form a toggle. Arms 35 are rigid with the leaves 36. When the frame 33 is lowered, Fig. I, the toggle spreads the leaves apart. The said frame is held in place by means of the springs 37, secured to the angle-irons 26. Straps 38, also secured to the angle-irons 26, support the frame 39, which carries the leaves 36.

The springs 37 may either be sunk into the sides of the angle-irons 26 or the sliding block 12 may be cut out, as shown, Fig. I, to allow the passage thereover. The said sliding block 12, which slides in the square passage formed by these angle-irons, would slide too far upward when the load is relieved if it were not for the check-plates 27.

When the leaves 36, which form the bucket, are sunk in the material to be hoisted, the rope 4 is drawn tight by any suitable source of power after the sheave-bars 7′ are lowered so that the jaws 31 engage the eye 32. This closes the bucket by means of the toggle described, and the whole device may be as far below the tripper-ring as is desired; but when the bucket is to be opened and the load deposited the bar 13 is drawn up until it impacts with the ring 8, is unlocked, and the inner end of the main bar raised. This opens the jaws 24 and allows the sheave-bars 7′ to advance upward, drawing the hooks 30 apart, thus releasing the eye 32 and opening the leaves 36 of the bucket.

I claim as my invention and desire to secure by Letters Patent—

1. The combination of a tripper-ring, a main fall-rope, a tackle-block to which said rope is secured, and a tripper comprised of a main bar, an impact-bar, a locking-rod, said impact-bar being attached to said main bar by parallel rule-links and controlling said locking-rod, substantially as described.

2. In a hoisting apparatus, the combination of a tripper, a tackle-block, a tripper-ring adapted to operate said tripper, a spring adapted to hold said tripper horizontal until overcome by impact with said tripper-ring, links attached to the inner end of said tripper, and jaws pivoted to said tackle-block and attached to said links, substantially as described.

3. The combination of a sliding block, a tripper pivoted thereto, a tripper-ring, a tackle-block, jaws pivoted thereto, links connecting said jaws to the inner end of said tripper, a main fall-rope, a sheave carried in a sliding bar around which said rope passes, and adapted to raise the same on the opening of said jaws, substantially as described.

4. The combination of a sliding block, a frame in which said block rides, a sheave-bar, a pair of hooks pivoted to said sheave-bar, and link connection between said sheave-bar and said sliding block, substantially as described.

5. The combination of a pair of hooks, a frame, an eye on said frame adapted to be engaged by said hooks, a bucket made of leaves, toggle connection between said frame and said leaves, and springs adapted to keep said frame depressed until released, substantially as described.

6. The combination of a tripper, a pair of jaws operated by said tripper, a sheave-bar, a pair of hooks operated by the movement of said sheave-bar, an eye adapted to be engaged by said hooks, a bucket, and toggle connection between said eye and the leaves of said bucket, substantially as described.

PATRICK M. BARRETT.

In presence of—
E. S. KNIGHT,
STANLEY STONER.