

(No Model.)

2 Sheets—Sheet 1.

R. J. FOSTER & J. W. COLLIE.

WATER ELEVATOR AND CARRIER.

No. 297,249.

Patented Apr. 22, 1884.

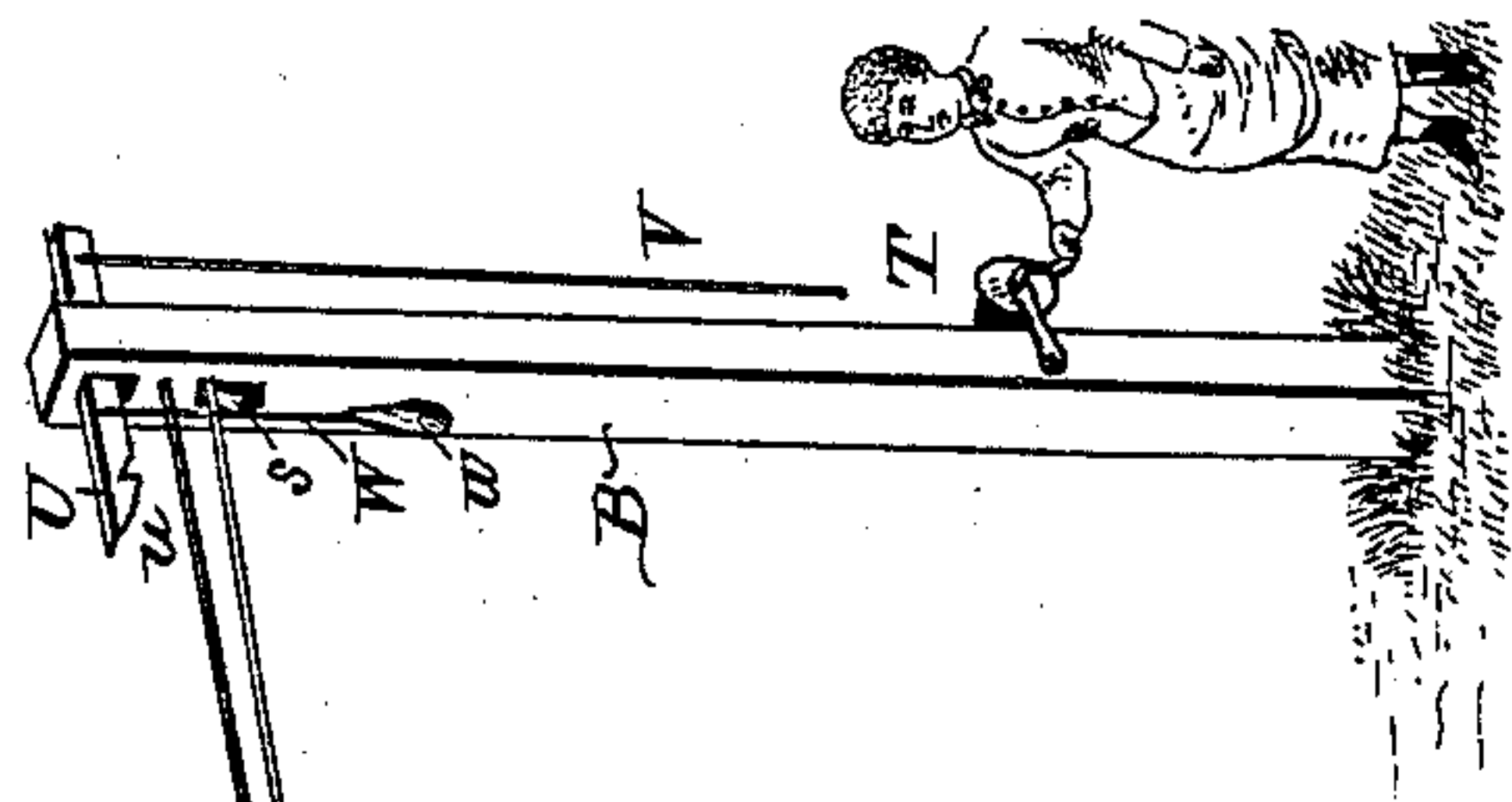


Fig. 1.

Fig. 2.

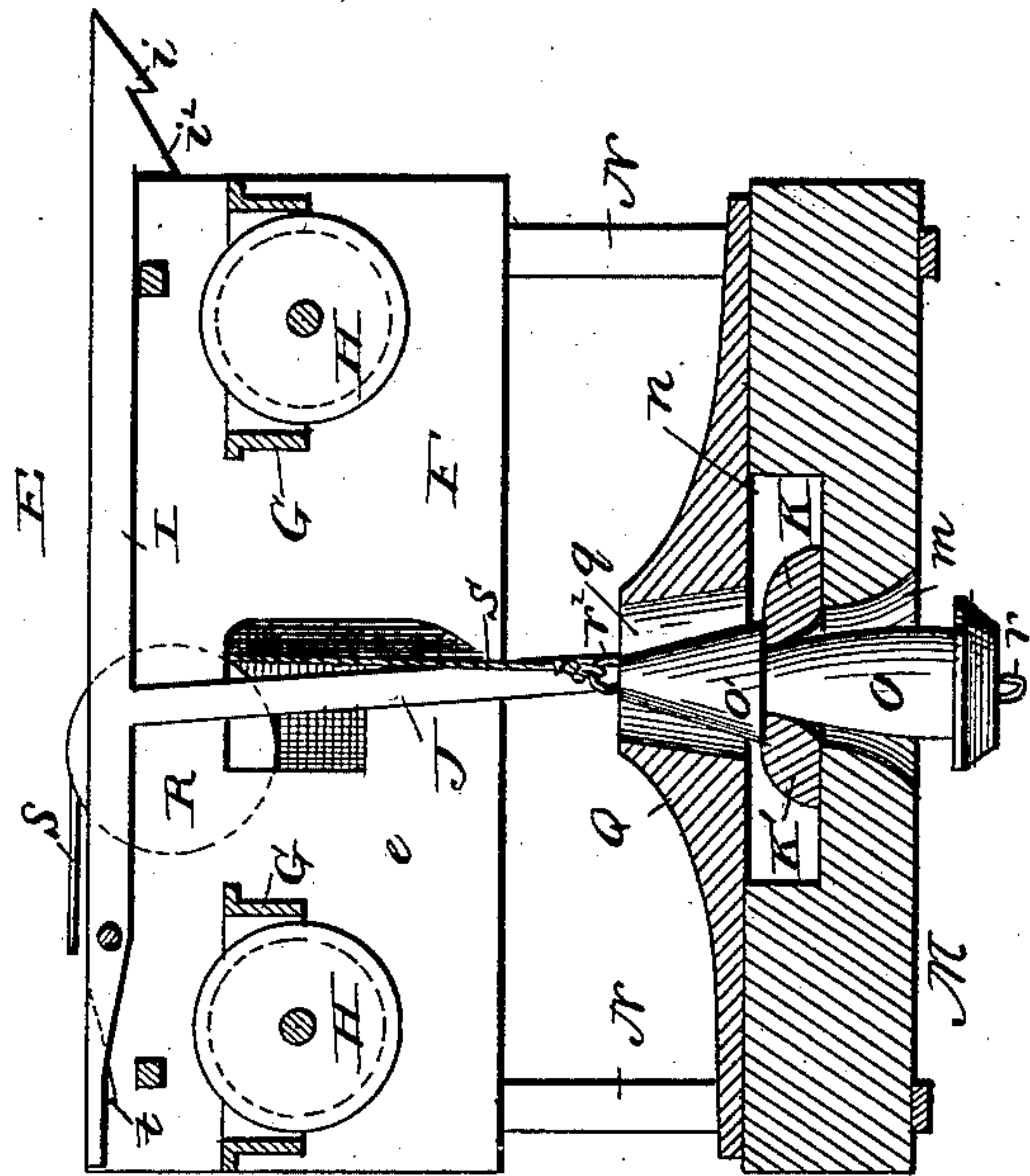
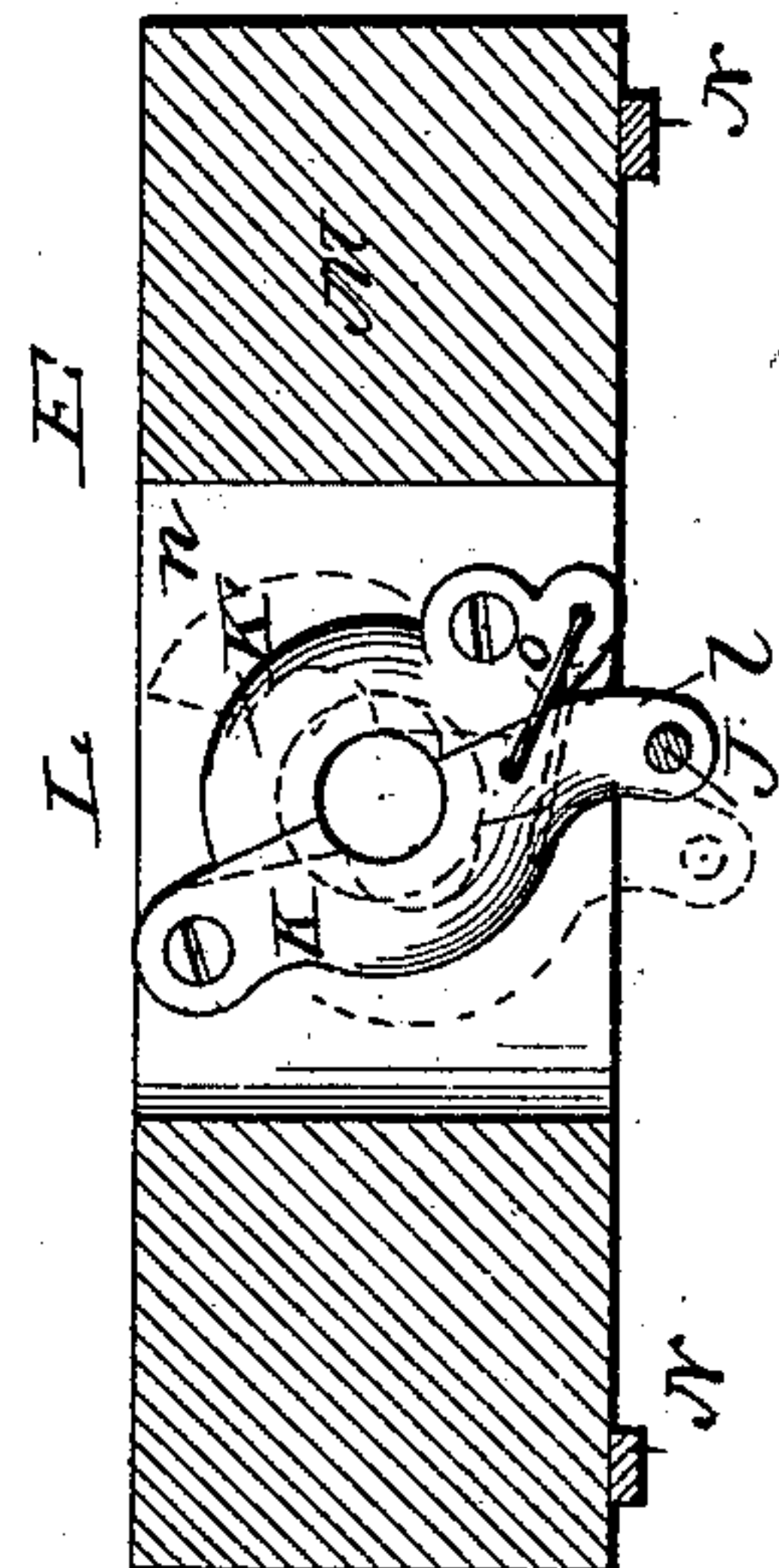


Fig. 3.



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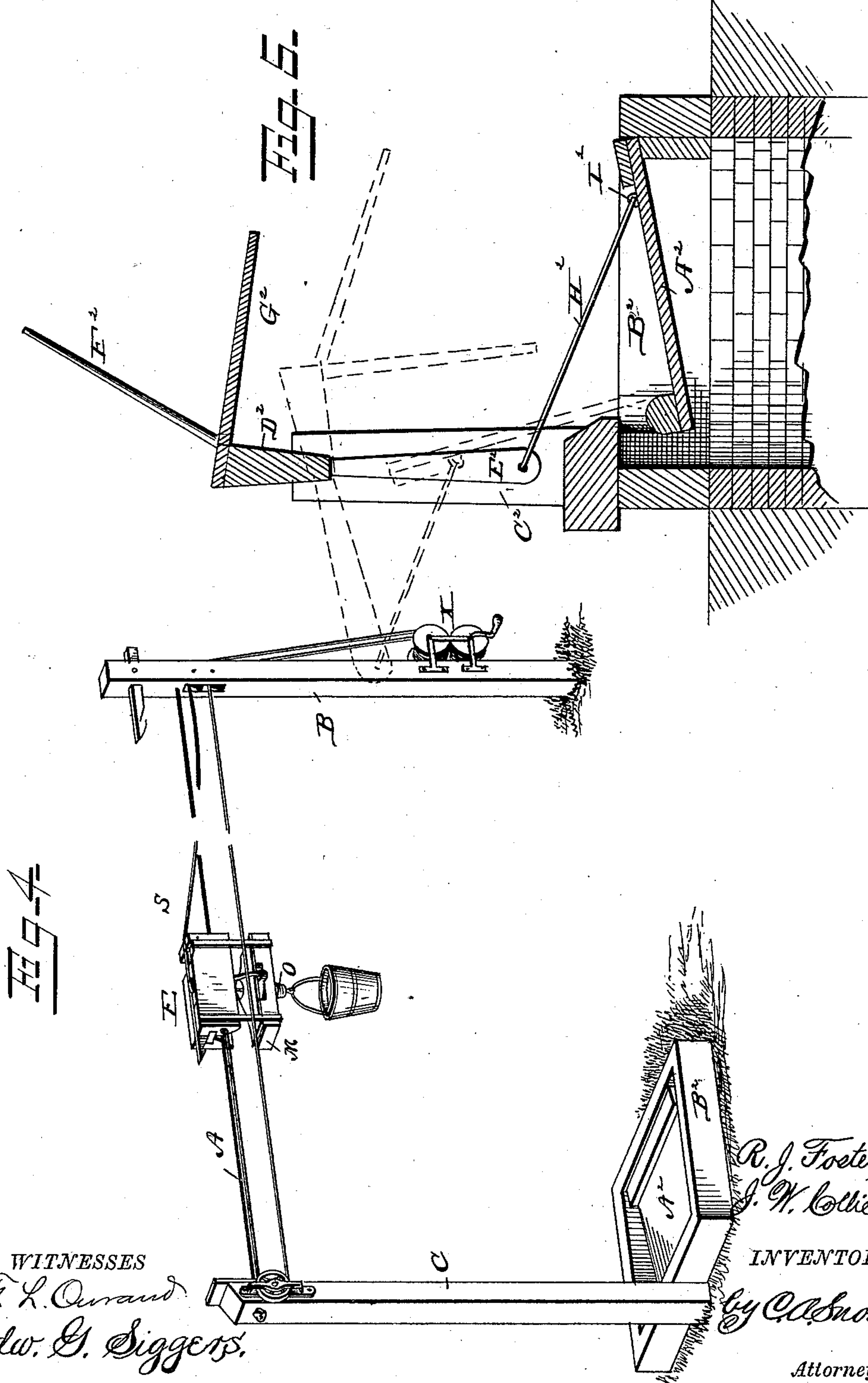
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# UNITED STATES PATENT OFFICE.

ROBERT J. FOSTER AND JOHN W. COLLIE, OF VIOLA, ARKANSAS.

## WATER ELEVATOR AND CARRIER.

SPECIFICATION forming part of Letters Patent No. 297,249, dated April 22, 1884.

Application filed June 25, 1883. (No model.)

*To all whom it may concern:*

Be it known that we, ROBERT J. FOSTER and JOHN W. COLLIE, citizens of the United States, residing at Viola, in the county of Fulton and State of Arkansas, have invented a new and useful Water Elevator and Carrier, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to water elevators and carriers, and the object of the same is to facilitate drawing water from a well or cistern, generally placed some distance from the house.

Another object of our invention is to provide the well or cistern with a door which will open by the weight of the bucket and close immediately after the bucket is withdrawn, so that insects and other disagreeable matter will not be allowed to pass into the well.

To attain the aforesaid objects, our invention consists in the peculiar construction and combination of parts hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of our improved water elevator and carrier arranged in position for use with our improved well-door applied to the well. Fig. 2 is a longitudinal vertical section of the carriage in enlarged size. Fig. 3 is a detail sectional view of the lower frame, showing the conical block in operative position. Fig. 4 is a modification of Fig. 1. Fig. 5 is a view of a well, showing our improved well-door applied in position, and illustrating the movement of the door in dotted lines.

Like letters refer to corresponding parts in all the figures.

Referring to the drawings, A designates a wire or cable secured to a post, B, near the house, and to a similar post, C, at the well or cistern. When the distance between the posts is great, the wire is supported in intermediate posts, D.

E designates a traveling carriage formed of two connected sections, *e e*, and provided at the under side with a longitudinal groove, F. Between the two sections of the carriage the pulley-blocks G G are fitted in recesses in the sections, and journaled in said blocks are pulleys H H, which rest on the wire or cable A. A T-shaped latch, I, is pivoted in the space between the sections of the carriage, and the

upper horizontal head-piece of this latch is provided at the end toward the well or cistern with a downwardly-projecting hook, *i*. The shank J of this latch extends vertically downward a short distance, and then curves outward to connect with an extension, *l*, of one of the arms, K, of the clasp L, which will be presently described. As seen, the shank extends outside of the lower frame, M, of the water-carrier and passes through an eye of said extension *l*. The frame M is suspended from the carriage E by one or more L-shaped bars, N, and an opening, *m*, is formed in the frame for the passage of the conical block O.

L designates a clasp fitted in a recess, *n*, formed in the upper part of the frame M, said clasp consisting of two arms, K K', curved to fit around the conical block O, the arms being pivoted at opposite ends and connected backward of the extension *l* by a link, *o*. One arm, K', is free at one end, as shown, so that as the conical block passes through the opening *m* the head of the block presses against the free end of said arm and pushes it laterally aside, permitting the block to readily pass through, the annular shoulder *o'* of said block resting upon the two arms of the clasp.

Q designates a guide-board secured to the top of frame M, and inclosing the recess *n*, in which the clasp is fitted, and provided with an opening, *q*, through which the head of the block O protrudes, and is thereby retained in a vertical position, so that the passage of the conical block will always work readily. At the bottom of the conical block is secured a hook, *r*, to which is attached a well-bucket, and at the head of the block is a similar hook, *r'*, having a rope, S, attached thereto, and passing upward over a pulley, R, journaled in the upper part of the carrier. The rope S, after leaving pulley R, extends toward the house, resting in arms *d* in the posts D, so as to keep the rope from off the ground. The rope passes over a pulley, *s*, in the post B, erected near the house, and extends down and joins with a windlass, T, secured in the post, said windlass being provided with a crank for winding the same.

U designates a latch pivoted to the upper part of post B, and having a downwardly-projecting hook, *u*, adapted to catch over a notch, *t*, formed in one end of the carriage. When



the carriage E is coming from the well to the post B, it strikes the hook *u* before it reaches the post, and the peculiar shape of the front face of the hook permits the latch to rise up over the carriage and the hook *u* to drop into the notch *t*. While in this position the hook *u* presses against the inner free end of latch I and raises said latch, which will in turn permit the well-bucket to descend.

The operation of our apparatus may be readily understood from the foregoing description, taken in connection with the annexed drawings. When the carriage E is at the house, the bucket has descended to be emptied, and the carriage is held in place by the latch U catching over a notch, *t*, in the carriage. By winding the rope S on the windlass T, the conical block O is drawn through the opening *m*, the head of the block pressing the arms of the clasp apart, so as to permit its passage. The sliding of the arms imparts a sliding movement to the shank J, which moves the latch I upward, and the latch U is freed from the notch *t* at the same time. The carriage is now released and moves down on the cable toward the well, the bucket being secured on the end of the conical block, which is retained in position by the annular shoulder *o'* of the block resting upon the arms of clasp L. The carriage runs down the cable under the action of its own weight, or can be pulled down, as hereinafter stated. When the carriage arrives at post C, the hook *i* of latch I catches over a plate, X, secured to the top of said post. By this movement of the latch the shank J is moved laterally, causing the opening or sliding apart of the arms K K' of clasp L, whereby the conical block O is released, and the bucket descends through the well-door, the construction of which will be presently described, into the well. By winding the rope S on the windlass T, the bucket is raised to the frame M, the conical block passing through the opening *m* and sliding the arms K K' of clasp L apart. This sliding movement of the arms moves the shank J laterally, causing the latch I to be raised over the plate *x* and the block O to be locked by said arms. The carriage then moves toward the house, and when it arrives at the post B the latch U catches in the notch *t*, the pressure of the latch U on the free end of latch I raising the last-named latch, permitting the block O to be disengaged and the bucket to descend. The T-shaped latch I is provided with a hook, *i'*, somewhat larger than the hook *i*, the purpose of the additional hook being to insure the elevation of the said latch, so that the bucket will not fail to descend when the carriage reaches post C.

In Fig. 1 we have shown means attached to the latch U whereby the front of the latch is rendered heavier, so that the weight of the front portion of said latch will more readily effect the elevation of the T-shaped latch I. As shown, the latch U is pivoted nearly midway of its length to the post B, the rear end having a cord, V, attached thereto, so that

said latch can be elevated and withdrawn from the notch in carriage E by simply pulling on to the cord. W designates a cord attached to the latch U between the pivot thereof and the hook *u*, a weight, *w*, being fixed on the end of said cord, so that the increased weight will tend to force the hook *u* against the end of latch I, and thereby elevate said latch. As seen, this weighted cord adds an additional weight to the hook *u* of latch U, and thus the latch U will never fail to elevate the latch I.

In Fig. 4 I have shown a modification of the water-carrier. It consists, essentially, of the pulley at top of post B and a pulley attached to post C. The wire or cable is stretched between the two posts, and the carriage runs on said wire, while one portion of the cord runs from one of the pulleys or rollers X in the post B over the pulley in the top of the said post. After leaving the last-named point, the cord is passed along the wire or cable, resting in arms on the intermediate posts until it reaches the carriage, where it passes over a pulley in the upper portion of said carriage and connects with the conical block *o*. The cord then passes from the loop in the head of the conical block around a pulley in post C, and returns back to the post B near the house. One end of the cord is secured to one of the pulleys or rollers X, while the other end of the cord is secured to the other pulley, a crank being secured to one of the pulleys, as shown. The operation of this construction is obvious. By winding the crank the cord on one pulley is wound up and that on the other pulley is unwound, causing the carriage to proceed toward the well by operating the crank one way and to return from the well by turning the crank the opposite way. As seen, the pulleys run in reverse directions to each other, and are operated by the contact of the two pulleys. Thus one of the pulleys will be taking up the cord while the other is relieving itself of the same. This construction is very desirable when the cable is run on an upgrade or whenever the carriage will not run by its own weight, for in such cases elevating the wires to suit the grade would be especially inconvenient at the house.

In Fig. 5 we have shown our well-door applied in position to a well and operating by the weight of the bucket. A<sup>2</sup> designates the well-door journaled in sockets in the frame B<sup>2</sup>, which is placed over the well-casing. Posts or standards C<sup>2</sup> are erected at one end of the frame, and to the upper end of the standards is journaled the device for operating the well-door. Said device consists of a pivoted board, D<sup>2</sup>, provided with a handle, E<sup>2</sup>, and having a series of fingers, F<sup>2</sup>, depending therefrom, and which extend over the space above the well-door. The board D<sup>2</sup> is also provided with a downward extension, G<sup>2</sup>, against which the bucket operates when descending into the well. A cord or wire, H<sup>2</sup>, connects the handle E<sup>2</sup> with a staple, I<sup>2</sup>, in the upper face of the well-door, so that as the board D<sup>2</sup> is swung around by



the action of the bucket it will open or close the well-door, as the case may be. The operation is obvious. As the well-bucket descends into the well it strikes against the extension  $G^2$  and depresses said extension by the weight of the bucket, and by means of the connection between the handle  $E^2$  and the well-door said well-door is opened and swings upward against the standards  $C^2$ . The bucket is thus allowed free passage into the well, and after being filled it is brought up, as hereinbefore described, the top of the bucket as it ascends striking against the fingers  $F^2$ , bearing them upward, and causing the board  $D^2$  to swing backward on its journals. By the swinging movement of said board the handle  $E$ , connecting with the well-door, operates said door to close it after the passage of the bucket. The advantages of this construction are obvious. The door is kept closed, but is readily opened by the descent of the bucket and closed as the bucket ascends. The door will thus prevent the entrance of insects, &c., into the well, as the water will never be exposed to permit the passage of such disagreeable matter.

Having thus described our invention, we claim and desire to secure by Letters Patent—

1. In a water-carrier, the combination, with the carriage  $E$ , of the T-shaped pivoted latch, provided with hooks  $i i^2$  at one end and with a shank,  $J$ , curving outward at the bottom, so as to connect with an extension of clasp  $L$ , said clasp consisting of two pivoted arms curved to fit around the conical block  $O$ , substantially as set forth.

2. In a water-carrier, the combination, with the wire or cable  $A$ , the plate  $x$ , secured to post  $C$ , and the latch  $U$ , pivoted to post  $B$ , and adapted to catch over a notch,  $t$ , formed in one end of the carriage, of the carriage  $E$ , having the T-shaped latch  $I$  pivoted therein and provided with hooks  $i i^2$ , the shank  $J$ , curving outward at the bottom, so as to connect with an extension of clasp  $L$ , said clasp consisting of two connected pivoted arms, the frame  $M$ , suspended from the carriage and formed with an opening,  $m$ , the rope  $S$ , and conical block  $O$ , to which the rope is attached, said parts arranged and operating substantially as shown and described.

3. In a water-carrier, the combination, with the carriage  $E$ , of the latch  $I$ , formed with a shank,  $J$ , curving outward at the bottom, and a clasp fitted within a recess in the lower frame,  $M$ , and provided with an extension,  $l$ , said shank connecting with said extension, as set forth.

4. In a water-carrier, the combination, with the carriage  $E$ , of the latch  $I$ , formed with a shank,  $J$ , curving outward at the bottom, a clasp,  $L$ , fitted within a recess of frame  $M$ , and

formed of two pivoted arms connected together, one arm being free at one end, and an extension,  $l$ , formed on one of said arms, said shank connecting with said extension, as set forth.

5. In a water-carrier, the combination, with the carriage  $E$ , formed in sections  $e e$ , of the latch  $I$ , working in a groove between the sections, a frame,  $M$ , suspended by bars from the carriage and provided with an opening,  $m$ , a clasp,  $L$ , fitted within a recess in said frame and covered by a guide-board,  $Q$ , a conical block,  $O$ , adapted to pass through the opening  $m$  in the frame to an opening in the guide-board, and a shank,  $J$ , of latch  $I$ , connecting with an extension,  $l$ , of the clasp, for the purpose set forth.

6. In a water-carrier, the combination, with the carriage  $E$ , formed with a notch,  $t$ , and provided with a T-shaped latch pivoted therein, the shank of said latch connecting with a clasp below said carriage, of a latch,  $U$ , pivoted to a post near the house, said latch formed with a hook adapted to catch in the notch  $t$ , and serving by its weight to elevate the T-shaped latch for the purpose set forth.

7. A latch pivoted to a post near the house, and provided with a hook at one end adapted to catch in a notch,  $t$ , in the carriage, said latch serving by its weight to elevate a T-shaped latch journaled in the carriage, and thereby release the bucket, as set forth.

8. In a water-carrier the well-door journaled in a frame above the well or cistern, operating devices connecting with said door, and having an extension and a series of fingers, said extension being operated by the descent of the bucket and the fingers by the ascent of the bucket, as set forth.

9. In a water-carrier, the combination, with the well-door journaled in a frame above the well or cistern, of a board pivoted to standards erected on said frame, a series of fingers projecting from the board, an extension depending at or about right angles to the said board, and means for connecting the well-door and board together, for the purpose set forth.

10. The combination, with the conical block  $O$ , of a clasp for retaining the same, consisting of two pivoted arms connected together, one of said arms being free and the other being connected with the operating mechanism, as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

ROBERT J. FOSTER.

JOHN W. COLLIE.

Witnesses:

ALBERT C. FORESTER,  
LEANDER D. SMITH.