

No. 610,772.

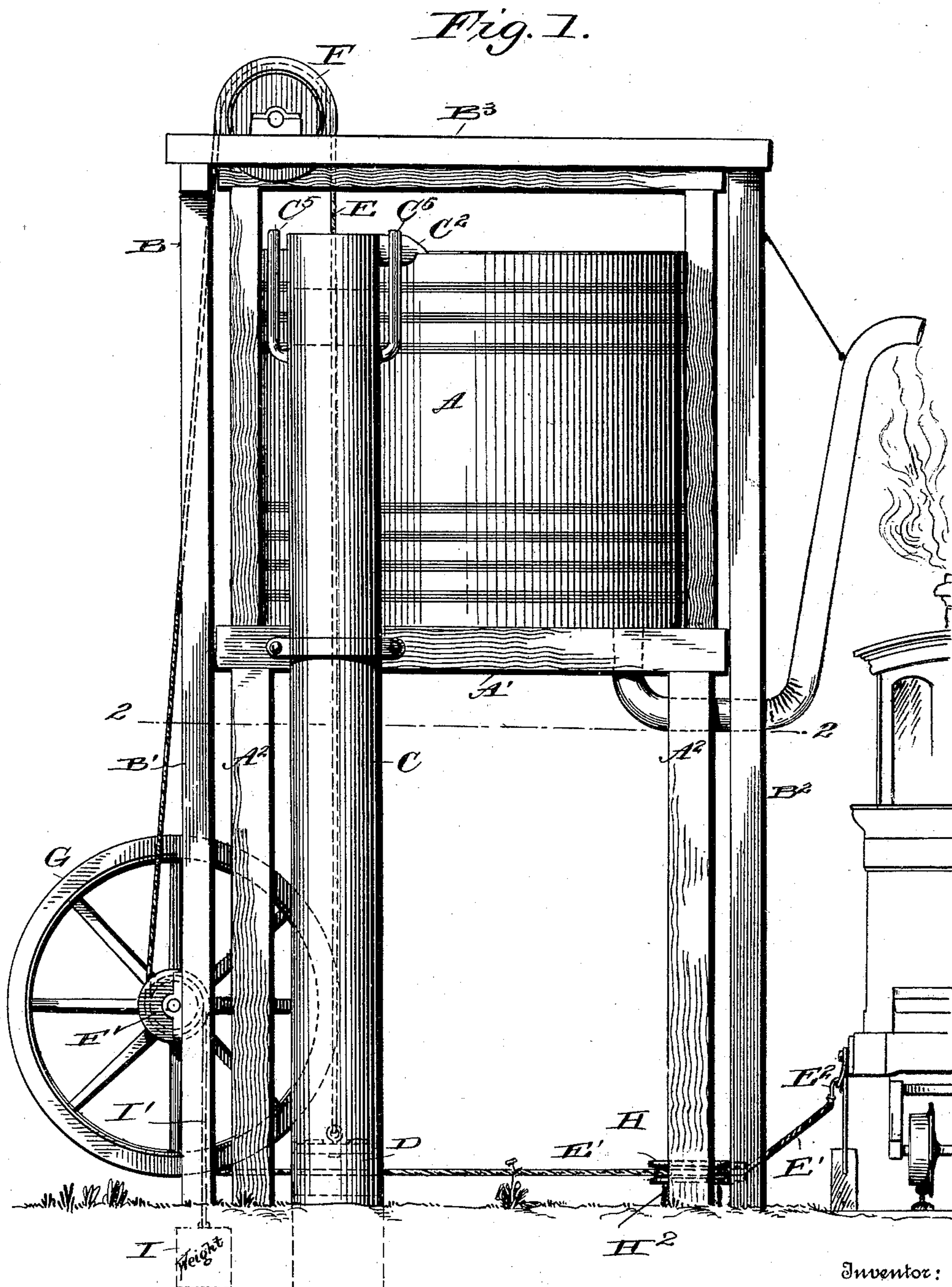
Patented Sept. 13, 1898.

J. W. SKILTON.
RAILWAY TANK FEEDER.

(Application filed Oct. 27, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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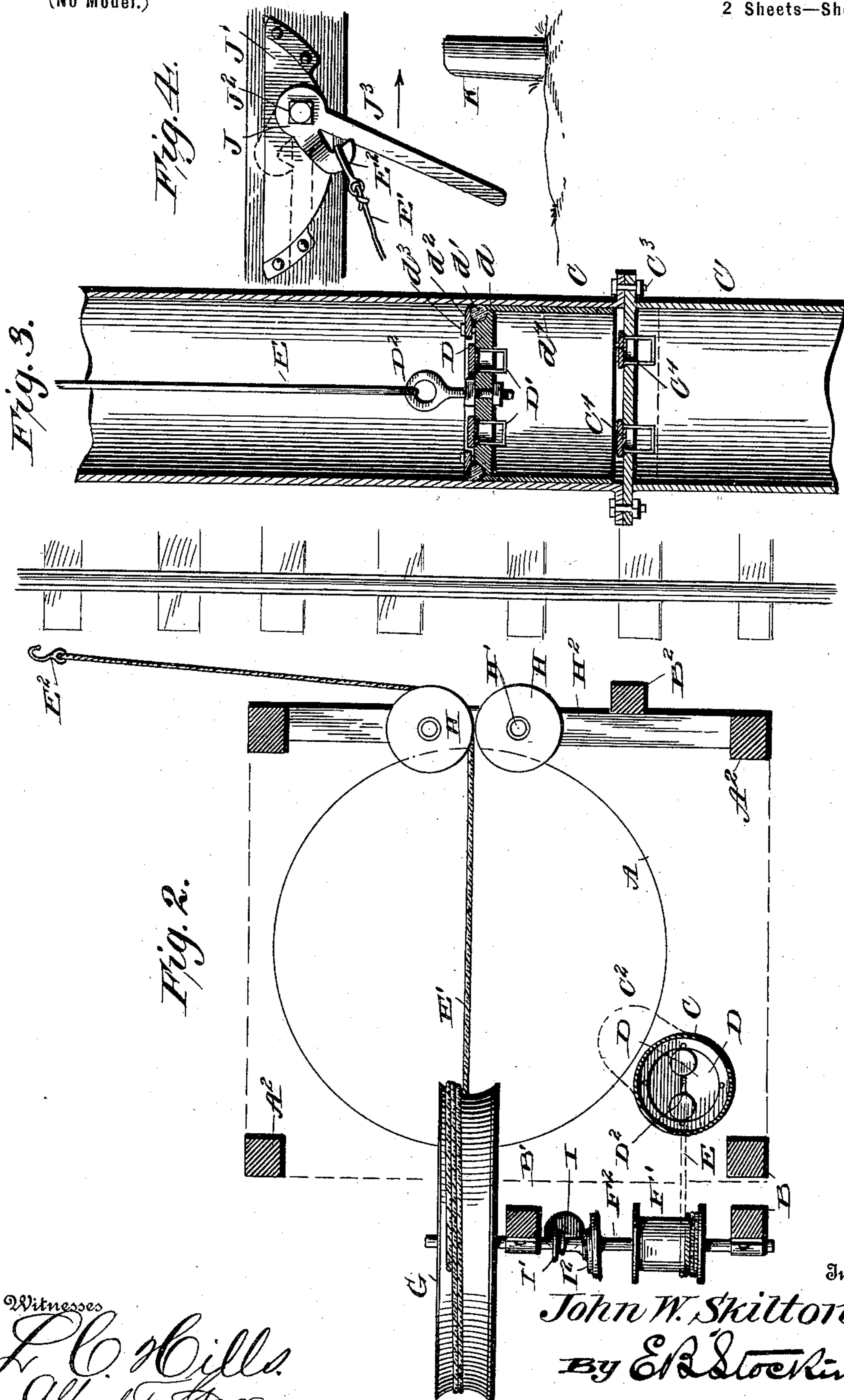
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UNITED STATES PATENT OFFICE.

JOHN W. SKILTON, OF DAYTONA, FLORIDA, ASSIGNOR OF TWO-THIRDS TO
EGBERT B. BROWN, OF CHICAGO, ILLINOIS.

RAILWAY-TANK FEEDER.

SPECIFICATION forming part of Letters Patent No. 610,772, dated September 13, 1898.

Application filed October 27, 1897. Serial No. 656,572. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. SKILTON, a citizen of the United States, residing at Daytona, in the county of Volusia, State of Florida, have invented certain new and useful Improvements in Railway-Tank Feeders, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to an improvement in railway-tank feeders, and has for its object to particularly improve the means for elevating the water from the source of supply to the storage-tank and, further, to improve the details of construction of the elevating and operating means, so as to facilitate the operation of the same and elevate the maximum amount of water with a minimum expenditure of power.

20 Other objects and advantages of the invention will hereinafter appear in the following description, and the novel features will be particularly pointed out in the appended claims.

In the drawings, Figure 1 represents a side elevation of the invention. Fig. 2 is a cross-section upon the line 2 2 of Fig. 1. Fig. 3 is an enlarged detail section of the pipe for elevating the water and the valves therein, and Fig. 4 is a detail elevation of the tripping device located upon the moving device.

30 Like letters of reference indicate like parts throughout the several figures of the drawings.

The letter A designates a storage-tank of any desired construction and capacity, the same being supported upon a framework A' of ordinary construction and suitably elevated by means of the vertical standards A². For the purpose of supporting and receiving the weight and strain incident to elevating the water I provide a supplemental frame B, which consists of the oppositely-located vertical standard B' at the rear of the tank and the standard B² at the front of the tank, these two standards being connected together by the horizontal beams B³, extending from their upper ends and forming an independent support for part of the apparatus.

50 The tank just described and the supplemental support are located adjacent to the well or source of water-supply, and extending

upward from this water-supply to the upper portion of the tank a pipe C is located, which communicates at its lower end with a pipe C', extending into the well or source of water-supply, and at its upper end is provided with a conveying-mouth C² for delivering the water into the tank. At the lower portion of the pipe C, I locate a cross-plate C³, which is provided with upwardly-opening valves C⁴, adapted to allow the passage of water upward from the pipe C' and to prevent the return of the water to said pipe. The upper portion of the pipe C is provided with one or more vent-pipes C⁵, which are for an object to be hereinafter set forth.

Traveling within the pipe C is a valved piston D, provided with upwardly-opening valves D' and suitable means D² for the attachment of the cable E for the purpose of elevating the piston. The upper surface of the piston is provided with a grooved way *d*, within which lies an annular packing-ring *d'*, held in position and compressed to the desired degree by means of an annular plate *d*², which plate is adjusted by means of suitable screws or bolts *d*³, passing through the same and into the body of the piston. Projecting downward from the piston there extends a sleeve *d*⁴, which fits within the pipe C and serves to prevent binding of the piston D.

The cable E from the valve extends over a sheave or pulley F, suitably journaled upon the beams B³, and thence downward to the winding-drum F', located upon a shaft F², which shaft is suitably journaled on the standards B' at the rear of the tank. Located upon this shaft F² is a winding-wheel G, of greater diameter than the drum F' and adapted by its connection with the shaft F² to rotate in unison with the winding-drum. Extending from this winding-wheel is a cable E', which passes at the front of the tank between suitable guiding-pulleys H, mounted upon journals H', extending upward from a cross-beam H², located near the foundation of the tank. The cable E' may be carried in either direction from the pulleys H and is provided with a hook E², adapted to be connected to a moving motive power—as, for instance, a locomotive or car traveling upon a track extending adjacent to the tank.

It will be observed that when the piston has been raised in the pipe C the cable E' will be unwound from the wheel G, and for the purpose of rewinding this cable upon the wheel, and thus retracting the same to its initial position and also assisting the return of the piston, a retracting-weight I is provided, which is connected by means of a cable I' with a spiral drum or disk I², and the cable is so wound upon the disk that the movement of the winding-drum to elevate the piston will at the same time elevate the weight, which latter will in its return movement unwind the cable E from the drum F' and rewind the cable E' upon the wheel G, thus returning all of the operative parts in their initial position by the time the piston has returned to its lowermost position.

For the purpose of releasing the cable E' from the locomotive-tender or other moving part to which it may be attached for applying motive power I provide an outwardly-bent pivoted hook J, mounted upon a plate J', located on any suitable portion of a moving member. This hook is pivoted by means of a pivot-pin J² and provided with an operating lever or arm J³, which in its movement is adapted to engage a permanently-located striker or stop K, which latter throws the lever or arm upward in the position shown by dotted lines in Fig. 4, and thus releases the hook E² and the cable E'. It will be observed that it is essential to the successful operation of this releasing device that the strain upon the cables E and E' incident to the raising or elevating of the body of water should be relieved prior to the release of the cable E' from the motive power. This is effected by means of the vent-pipes C⁵, located at the upper portion of the pipe C, so as to admit air beneath the piston D when the same has reached substantially the upward limit of its movement. The admission of air at this time breaks the suction existing beneath the piston and in that manner relieves the piston of the body of water raised by it incident to the vacuum created by the movement of the piston between its lower surface and the surface of the water in the source of supply. The water above the piston has been partially discharged into the tank prior to the admission of air beneath the piston and when this releasing action occurs is left free to return of its own weight or assisted by the weight I to its lowermost position in the pipe C. The upward movement of the piston has, by the suction created thereby, raised a body of water from the pipe C' into the lower portion of the pipe C and trapped the water above the valves C⁴, so that the piston in its upward movement performs a double function of partially elevating a body of water from the well or source of supply into the lower portion of the pipe C and carrying the water above the piston upward and discharging it into the tank A. It will be seen that this construction of parts obviates the necessity of a very

extended movement of the piston in order to trap above the same sufficient water to supply the tank, as if the piston itself descended into the well a very deep well would be required in order to trap the necessary amount of water, while by the construction shown a surface well of slight depth may be used, as the body of water to be carried upward by the piston is first raised by suction above the level of the ground, so that the upwardly-extending pipe C may be used as a stand-pipe to receive and contain the body of water to be raised in the next movement of the piston.

From the foregoing description of the operation of the several parts it is believed that the operation of the invention as a whole will be clearly understood. In brief the operation is as follows: The cable E' having been attached to the outwardly-bent pivoted hook J, located on the tender of the locomotive, and the movement of the locomotive begun, the said cable will be unwound from the large winding-wheel G and the leverage secured from this wheel will be transmitted to the shaft F², winding-drum F', and cable E to elevate the piston, which latter in its movement carries above it the body of water contained in the pipe C and by suction elevates a further body of water from the pipe C' into the space above the valved plate C³. The piston continues its upward movement until it reaches substantially the limit thereof and the water above the same is discharged, when by the actions of the vents C⁵ the weight of the water held by suction beneath the piston is released, and thus the jar or rebound incident to the releasing of the cable E' from the motive power is obviated as the piston is released free of weight. The outer end of the cable E' will be rewound upon the drum G by the action of the weight I, and at the same time the piston D will descend in the pipe C as the cable E is unwound from the drum F'. The downward movement of this piston is permitted by the valves D', which allow the water beneath the piston to pass upward above the same, whereby when the piston has reached the lower end of the pipe C a body of water is trapped above the same ready to be raised in the next operation of the device. It should be stated that the stop K is located in such relation to the operating-cables and other parts that it will operate upon the lever J³ immediately after the entrance of air beneath the piston through the vents, and the cable E', having been relieved of its strain, will be readily detached from the hook when the same is swung into its upward position.

It is obvious that numerous changes may be made in the details of construction of the several parts without departing from the spirit of this invention as defined by the appended claims.

Having described my invention and set forth its merits, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a pipe provided

with a valve at its lower portion and having a valved piston therein, of means for elevating said piston, and means for admitting air beneath said piston when it approaches the discharge at substantially the upward limit of its movement; substantially as specified.

2. The combination with a pipe provided with a valve at its lower portion and having a valved piston therein, of means for elevating said piston, and an air-vent beneath the discharge at the upper end of said pipe; substantially as specified.

3. The combination with a pipe having a valved piston therein, of a valved plate located at the lower portion of said pipe, means for elevating said piston in said pipe, and an air-vent at the upper portion of said pipe beneath a discharge-opening; substantially as specified.

4. The combination with a pipe provided with a valve at its lower portion and having a valved piston therein, of a power-shaft, a winding-wheel thereon provided with a cable adapted to connect with a source of motive power, a winding-drum on said shaft provided with a cable connected to said valved piston, a retracting-weight connected to said shaft to return the parts to their initial position and a vent device at the upper portion of said pipe; substantially as specified.

5. The combination with a pipe provided with a valve at its lower portion and having a valved piston therein, of a power-shaft, a winding-wheel thereon provided with a cable adapted to connect with a source of motive power, a winding-drum on said shaft provided with a cable connected to said valved piston, a vertically-pivoted hooked lever located on the source of motive power and connected to the cable leading from said winding-drum, means for oscillating said lever in a vertical plane when said piston has reached substantially the vertical limit of its movement, and a vent device adjacent to a discharge-opening

for admitting air beneath said piston prior to the movement of said lever; substantially as specified.

6. The combination with a tank and its supporting-frame, of a pipe provided with a valve at its lower portion and located adjacent to said tank, a valved piston, a supplemental supporting-frame independent of the tank-frame and provided at its upper portion with a sheave and at its lower portion with a power-shaft, cables extending from said power-shaft to said valved piston and to a source of motive power and a retracting device connected to said shaft for returning said cables to their initial position; substantially as specified.

7. The combination with a pipe having at its lower portion a valved plate, of a valved piston operating within said pipe, means connecting said piston with a source of motive power, an air-vent at the upper portion of said pipe, and means to release the motive power for elevating said valved piston after the same has passed said air-vent; substantially as specified.

8. The combination with a tank, of a pipe located adjacent thereto and provided at its lower portion with a valved plate, air-vents at the upper portion of said pipe, a valved piston within said pipe, a power-shaft provided with a winding-drum, a cable extending from said winding-drum to said valved piston, a winding-wheel located on said power-shaft, a cable extending from said winding-wheel to a moving member, and a releasing device carried by said member and adapted to release said cable when the valved piston reaches substantially the upward limit of its movement, substantially as specified.

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

JOHN W. SKILTON.

Witnesses:

J. W. WILKINSON,
L. MORETON MURRAY.