

(No Model.)

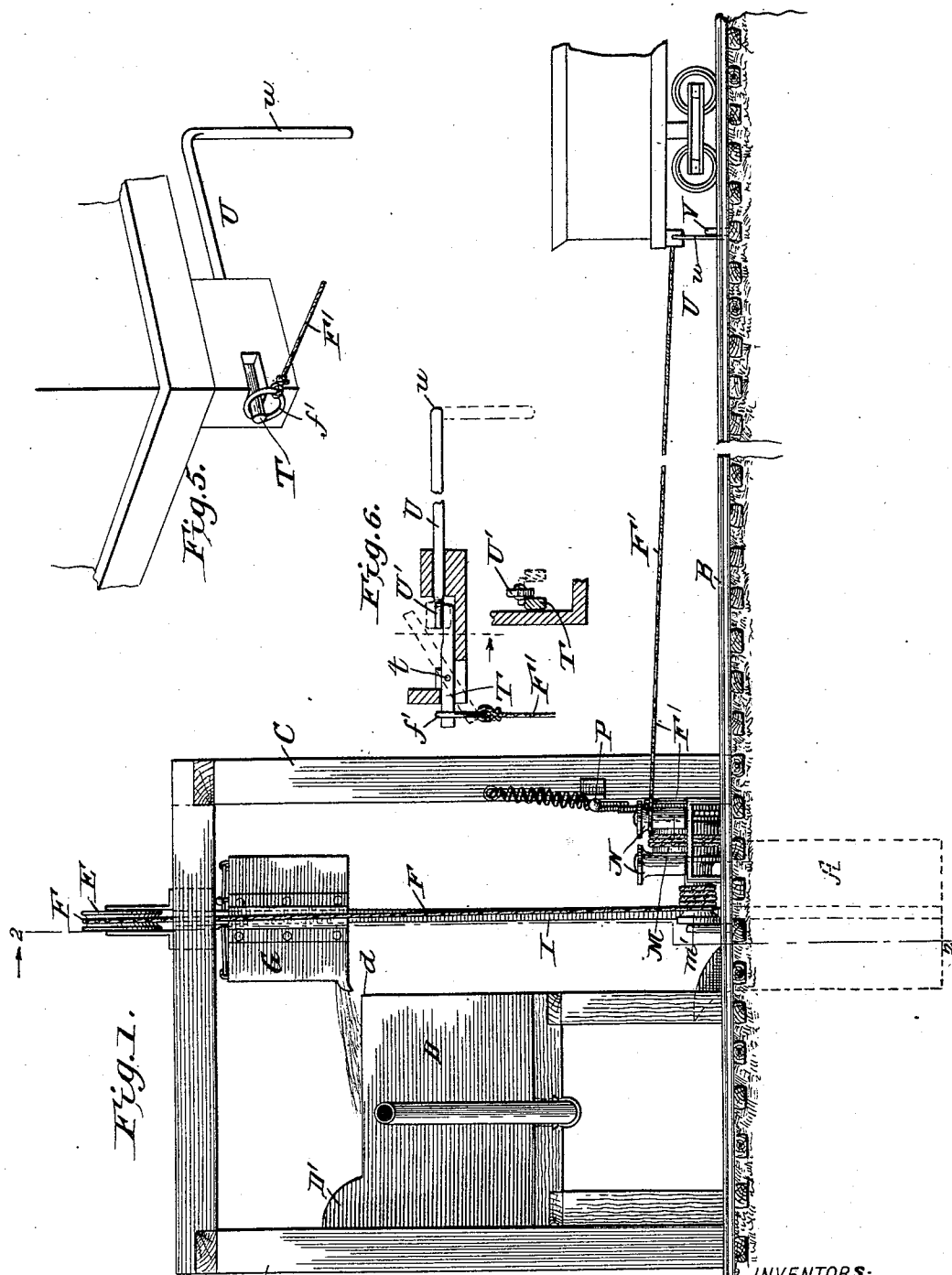
3 Sheets—Sheet 1.

M. BURT & J. W. SKILTON.

TANK FEEDER.

No. 470,982.

Patented Mar. 15, 1892.



WITNESSES:

Fred G. Dietrich
P. B. Surpin.

INVENTORS:

Merritt Burt
John W. Skilton

BY

Merritt Burt

ATTORNEYS

(No Model.)

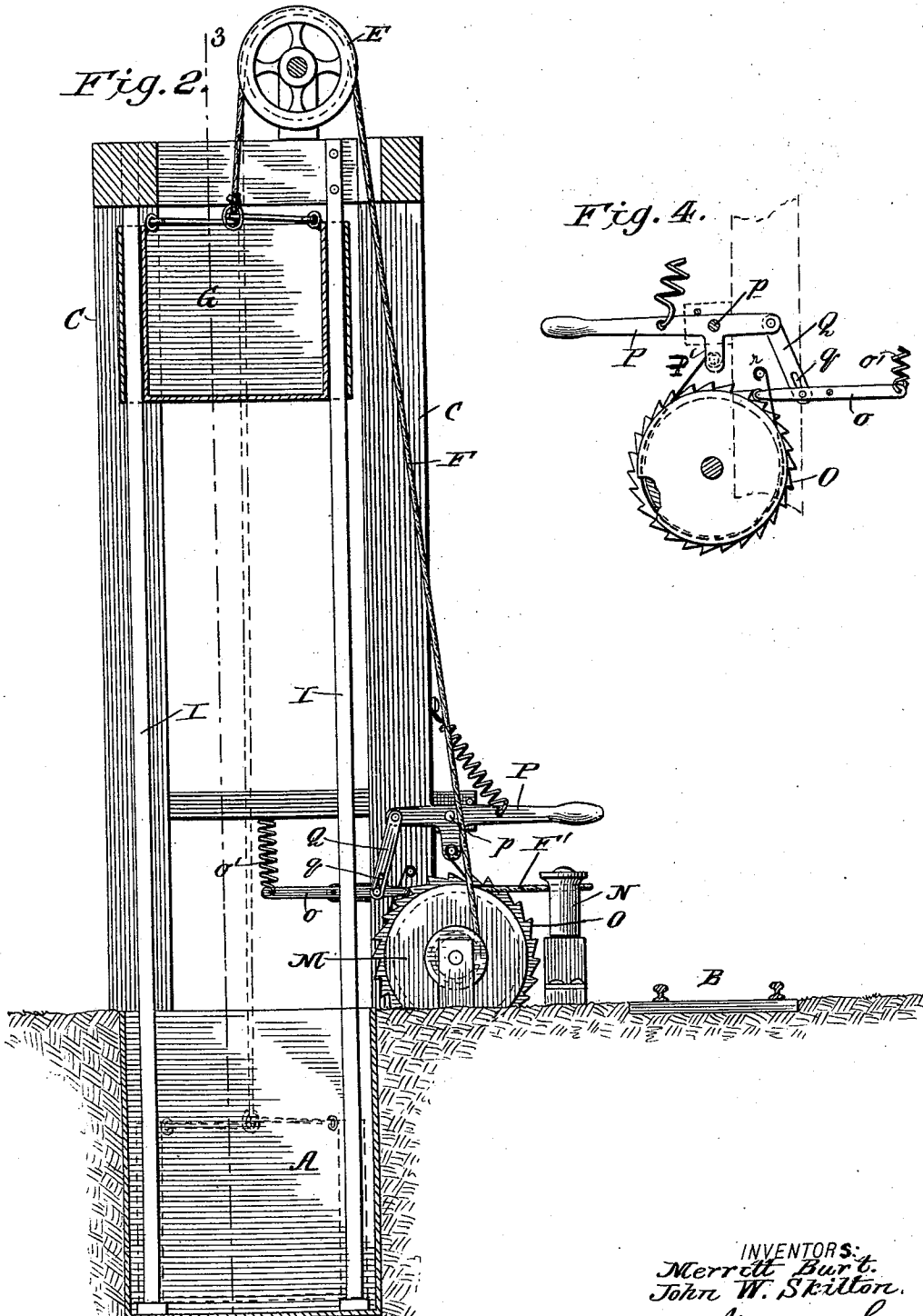
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INVENTORS:
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John W. Skilton.

BY *Wm. L.*

ATTORNEYS

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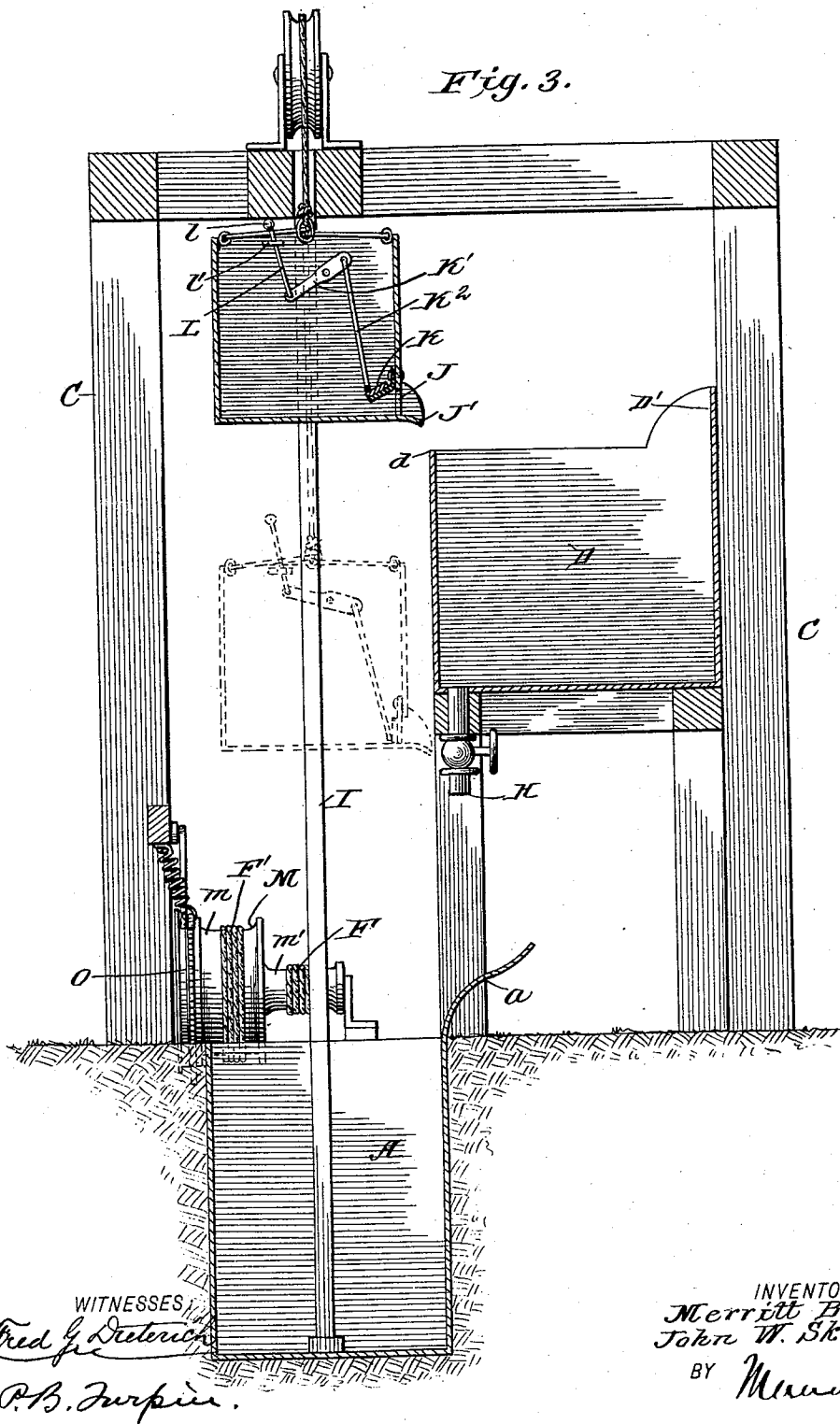
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UNITED STATES PATENT OFFICE.

MERRITT BURT AND JOHN W. SKILTON, OF JACKSONVILLE, FLORIDA.

TANK-FEEDER.

SPECIFICATION forming part of Letters Patent No. 470,982, dated March 15, 1892.

Application filed April 11, 1891. Serial No. 388,601. (No model.)

To all whom it may concern:

Be it known that we, MERRITT BURT and JOHN W. SKILTON, of Jacksonville, in the county of Duval and State of Florida, have invented a new and useful Improvement in Tank-Feeders, of which the following is a specification.

This invention is an improvement in tank-feeders, and has for an object, among other improvements, to provide a simple novel construction whereby the trains on the railroad may be utilized to directly and positively raise a large quantity of water and to automatically discharge such water into the track-tank.

The invention consists in certain novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a front elevation of our improved tank-feeder. Fig. 2 is a vertical section thereof on about line 2 2 of Fig. 1. Fig. 3 is a vertical section on about line 3 3 of Fig. 2. Fig. 4 is a detail view of the detent and brake mechanism; and Figs. 5 and 6 are detail views illustrating the devices for automatically disconnecting the pulling-rope from the car.

A reservoir A, which may be a cistern, well, or other suitable receptacle for a body of water, is located, in the construction shown, alongside of and adjacent to the track B. A frame C is erected over the reservoir A and serves to support the track-tank D and the elevated guide-pulley E for the hoisting-rope F. This pulley E is located vertically above the reservoir A and in such relation to the track-tank D that the water-elevating bucket G will move vertically alongside of and close to the track-tank, such tank being arranged at its side *d* next the bucket G to receive the water discharged from the bucket. At its upper end on the side opposite the side *d* the tank D has a guard board or extension D', which serves to prevent the water discharged laterally from the bucket from passing off at the opposite side of the tank. The tank is provided at its bottom over the reservoir with a valve-controlled outlet H, whereby the tank may at will be emptied into the said reservoir, and the reservoir has an inclined guide board or plate *a*, which directs into the reser-

voir any water that may fall between the bucket and tank. The bucket G is supported at one end of the rope F and is guided in its vertical movements by guide-rods I, which prevent said bucket from turning. This insures the proper relation between the discharge-opening of the bucket and the tank.

At one side and at or near its bottom the bucket has the lateral discharge-opening J, which is controlled by a valve K, arranged to open into the bucket. This valve K is automatically opened when the bucket reaches its uppermost position by means of valve-operating mechanism, including a trip rod or rods L, projecting at *l* and arranged to engage a part of the frame and open the valve K just as the bucket reaches its highest position. In the construction shown the valve-operating mechanism includes rocking levers K', rods K², connecting one end of said levers with the valve, and the rods L, connected with the opposite ends of the levers and extending up through suitable guides *l'*. Immediately below its discharge-opening J the bucket is provided with a lateral spout J', which gives direction to the water discharged from the bucket to cause the same to enter the tank.

The operation of so much of the apparatus as has been described is as follows: The bucket being lowered into the reservoir fills with water, its valve opening to permit the inflow of water. Then the bucket is raised, the valve remaining closed, as shown in dotted lines, Fig. 3, until the bucket reaches the position shown in full lines in said Fig. 3, when the valve will be automatically opened. In said position the outlet of the bucket is above the side of the tank and the water passes out and into the tank. While both the bucket and tank are shown to be rectangular in cross-section, it is manifest that they may be circular or of other cross-sectional shape, if desired.

The hoisting-rope F, supporting the bucket at one end, extends up over the guide-pulley E and thence down and connects with the drum M. This drum M is arranged below the tank, preferably near the ground-level, and is preferably made with large and small cylinders *m m'*, the rope F being secured to and wound on the cylinder *m'*. The pulling-

rope F' is secured at one end to the cylinder *m*, wound thereon, and passes off between guide-pulleys N N, and in operation is connected at its other end with a locomotive or car, as will be presently more fully described. It should also be stated that the ropes F F' are wound on the cylinders *m m'* in opposite directions, so that as the rope F' is drawn off the drum it will so turn the drum as to cause the rope F to wind on the drum and to hoist the bucket, which, when raised to the desired point, is emptied into the tank in the manner before described.

To hold the bucket when elevated to its height or to any other height desired, we provide detent mechanism comprising a ratchet-wheel O on the drum and a pawl *o*, engaging such ratchet-wheel in such manner that the pawl when engaged with the ratchet-wheel will prevent the drum from turning in the direction to lower the bucket, but will permit the drum to revolve freely in the opposite direction. A spring *o'* actuates the pawl into engagement with the ratchet-wheel, and it may be moved out of such engagement by means of the lever P. This lever is pivoted at *p* and has its rear end connected by a link Q with the point end of the pawl *o*, the link being slotted at Q at its connection with the pawl, so that the latter can rise freely over the ratchet-teeth as the drum is turned in one direction. By this lever the pawl can be quickly released from the ratchet to permit the bucket to descend.

In order to regulate the descent of the bucket, we provide a brake for the drum, which brake we prefer to combine with the detent mechanism in such manner that as the pawl is freed from the ratchet-wheel the brake is applied. To this end we provide the brake-strap R, fixed at one end *r*, passed partly around the drum or a part S thereof, the part S forming a brake surface or bearing and secured at its other end to an arm P' of the lever P. This arm P' projects, preferably, radially from the pivot *p* of the lever. The result of this construction is as follows: As the lever is moved to release the pawl *o* from ratchet O, the brake-band is tightened and manifestly such band may be tightened to any desired extent to properly regulate the descent of the bucket.

The pulling-rope F extends between the guide-pulleys N N and when drawn by a train moving in either direction on the track will operate to raise the bucket of water. In connecting the pulling-rope with the cars it is preferred to provide the pulling-rope with a ring or loop *f'* and to catch the same over a pin T on the car. This pin T is pivoted at *t* between its ends and may tilt on said pivot to adjust it to the position shown in dotted lines in Fig. 6, when the ring *f'* may slip off the pin T. To hold the pin T in position to secure the ring *f*, we employ the shaft U, journaled and having at one end the right-angled arm *u* and at its other the flattened portion U'.

When in the full-line position shown in Figs. 1, 5, and 6, the shaft will by its part U' hold the pin T in its position (shown in Fig. 6) and will in such position secure the ring *f'*. On the track is provided a projection V in position to engage the arm *u* and turn the shaft U to the dotted position, Fig. 6, when the pin T may be released to turn back and permit the ring *f'* to slip off. In practice the projection V is suitably arranged to release the ring *f'* when the bucket G has been raised to its highest position.

Now we wish it understood that we do not desire to be limited in our invention to the use of the apparatus in connection with a railway, as the invention may be used for irrigation, drawing water from mines in place of pumps, and for supplying water-works without departing from some of the principles of our invention. It is also manifest that stationary engines may be employed for lifting the bucket or tank.

Having thus described our invention, what we claim as new is—

1. The combination, in an apparatus substantially as described, of the reservoir, the tank, the bucket movable vertically alongside the tank and provided at its bottom with a lateral discharge-opening arranged at the side next the tank, the valve controlling such opening, the tripping devices by which to open said valve, and the devices for hoisting the bucket, all substantially as and for the purposes set forth.

2. In an apparatus, substantially as described, the combination of the reservoir, the tank provided at its outer side with an upwardly-projected extension, the bucket movable vertically along the inner side of the tank and having at its bottom a lateral discharge-opening, a valve controlling such opening, valve-opening devices, and the operating mechanism, all substantially as and for the purposes set forth.

3. In an apparatus, substantially as described, the combination, with the reservoir, tank, and bucket, of the drum, the rope connecting the drum and bucket, the detent device, the brake, and the lever connected with the detent and brake and arranged to apply the brake as the detent is released, substantially as set forth.

4. The combination, in an apparatus, substantially as described, of the tank, the bucket movable alongside the tank, the frame having vertical guides for the bucket, whereby the bucket is held from turning, the said bucket having a lateral discharge-opening, a valve controlling such opening, tripping devices, including a rod or rods extended to engage the framing when the bucket is raised to its highest point, and operating mechanism, all substantially as set forth.

5. The combination, in an apparatus, substantially as described, of the reservoir, the tank, the bucket, the drum having the ratchet-wheel and the brake-surface, the rope con-

necting the drum and bucket, the pawl engaging the ratchet-wheel, the lever, a connection between said lever and the pawl, and the brake-band held at one end and passed partly
5 around the drum and connected at its other end with the lever, all substantially as described, whereby as the lever is operated to release the pawl the brake will be applied, substantially as set forth.

10 6. The combination, in an apparatus, substantially as described, of the reservoir, the tank, the bucket, the hoisting-rope, the pull-

ing-rope, the locomotive or car movable alongside the said devices, and devices supported on said car or locomotive and arranged to secure the pulling-rope in connection therewith and to release said rope when operated,
15 substantially as and for the purposes set forth.

MERRITT BURT.
JOHN W. SKILTON.

Witnesses:

L. A. SKILTON,
IRA A. BLALOCK.