No Model.)

2 Sheets—Sheet 1.

C. THEOBALD.

WATER TANK.

No. 546,564. Patented Sept. 17, 1895.

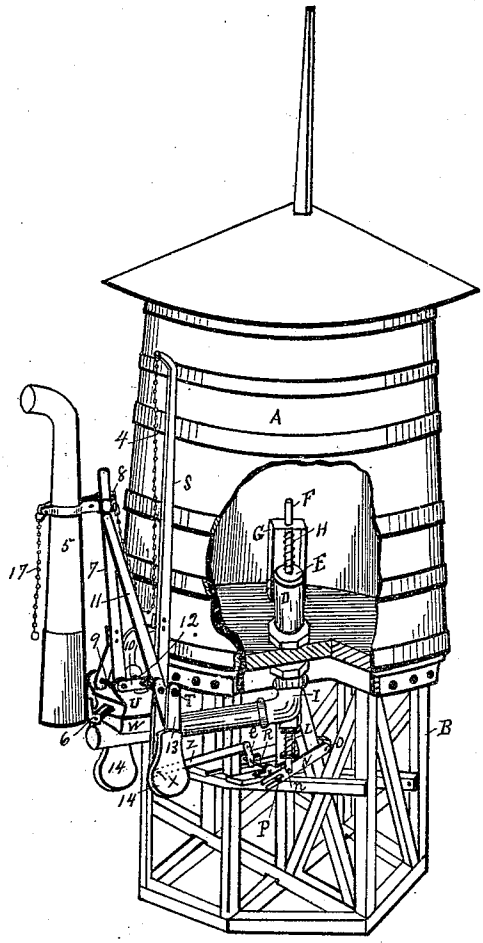

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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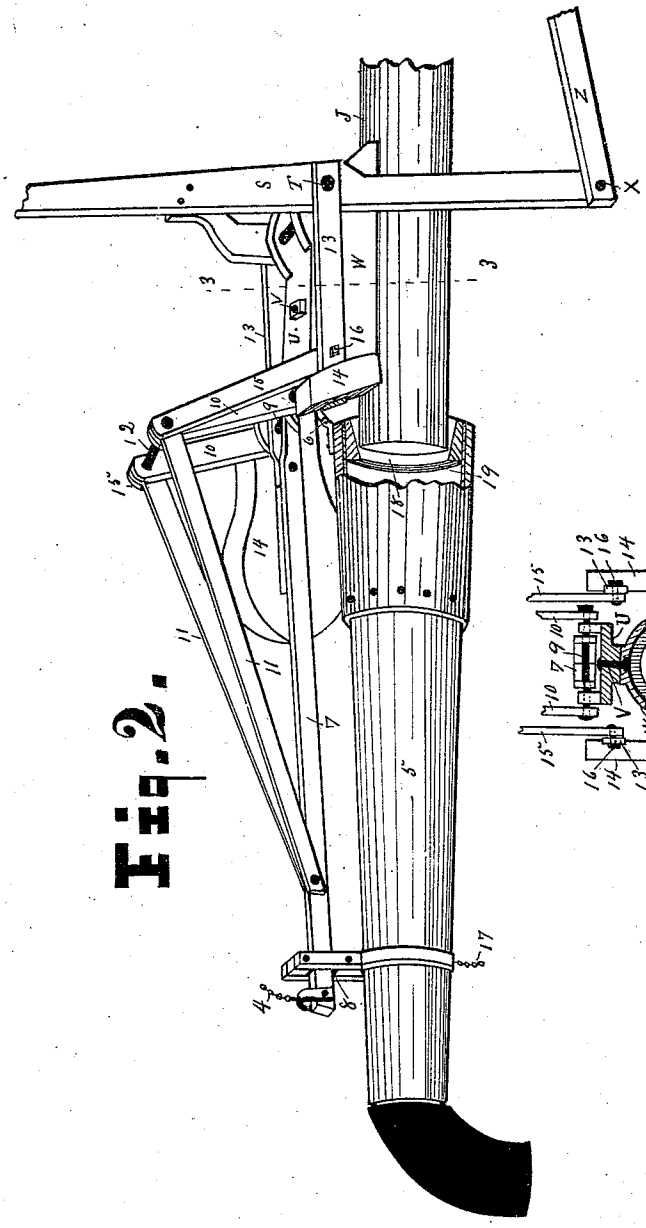

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

CORNELIUS THEOBALD, OF PLAINWELL, MICHIGAN.

WATER-TANK.

SPECIFICATION forming part of Letters Patent No. 546,564, dated September 17, 1895.

Application filed May 16, 1895. Serial No. 549,484. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS THEOBALD, a citizen of the United States, residing at Plainwell, in the county of Allegan, State of Michigan, have invented a new and useful Water-Tank, of which the following is a specification.

This invention relates to that class of railroad watering-tanks in which are employed an elevated tank for holding a storage of water, a fixed portion of a feed-pipe extending from said tank, an escape-valve, an adjustable portion of a feed-pipe for swinging down when supplying the tender of the engine with water, and means for operating said valve from the tender of the engine.

One important object of the invention is to draw the water from the tank through a feed-pipe which has an escape-valve operated from the bottom or beneath the tank, so that the customary freezing of the upper portion of the water in the tank will not interfere with the operation of the escape-valve nor its valve-stem either in unseating or seating said valve.

Another object is to facilitate the operation of the adjustable portion of the feed-pipe and the temporary locking in different adjusted positions by weights.

Other objects will appear in description and claims.

In the drawings forming a part of this specification, Figure 1 is a perspective view of the water-tank and apparatus ready for use, a portion of the tank being broken away, showing the interior escape-valve; Fig. 2, an enlarged broken perspective of feed-pipes and connections, showing operation; and Fig. 3 is a cross-section on dotted line 3 3 in Fig. 2, looking from a point at the right.

Referring to the lettered parts of the drawings, A in Fig. 1 is an elevated water-tank, and B is the frame-support beneath, as in ordinary constructions of this class. From the interior of the tank A, and extending down through the floor thereof, leads the upright portion D of the fixed feed-pipe J. On the upper end of this pipe D is seated a vertically-playing escape-valve E, having a valve-stem F, the upper end of which stem is guided by the yoke G. Between the valve E and the guide-yoke G is a spring H on the valve-stem F, and by this means the upward movement of the valve is against a spring resistance. This valve-stem F extends down through the hollow portion D of the pipe and projects vertically through the elbow I, to which elbow the horizontal portion J of the feed-pipe joins. There is another spring L on the valve-stem F at the lower end which assists the spring H; but ordinarily one spring is sufficient, and either or both may be used. At N is a lever pivoted at the rear end to the framework B at O. The lower end of the valve-stem F is pivoted to this lever N (at *n*) between the two ends of the latter. The forward end of the lever N is provided with an elongated slot, in which slot the end of the crank P of the rotary shaft R is inserted. At S is the chain-lever for operating the valve, said chain-lever S being fulcrumed on a shaft T of the bolster U. This bolster U is mounted upon a block W, to which it is pivoted at V, said block being attached on the fixed portion J of the feed-pipe. The chain-lever S extends below the pipe J and is pivoted at X to the end of a connecting-rod Z, the other end of said connecting-rod being pivoted to the crank *e* of the shaft R, Fig. 1.

In the operation of the escape-valve E the operator pulls forward on the chain-lever S by grasping the chain 4, attached to the upper end of said lever, and this action, through the means of the connecting-rod Z, shaft R, crank *e*, crank P, and the pivoted lever N, raises the escape-valve F from its seat on pipe D when desiring to draw water out of the tank A. By this means any freezing of the water in the top of the tank on the surface of the water or at the sides does not interfere with the correct operation of the escape-valve either in unseating or seating the same. Of course the valve seats itself after the chain-lever is released, and since the valve-stem does not pass up through the upper frozen water, as in instances heretofore, there is no ice to interfere with it. At 5 is shown the adjustable part of the feed-pipe, hinged at 6 to the bolster U. This adjustable pipe 5 is supported in its vertical and horizontal positions by a supporting-arm 7, which arm has a sliding connection at 8 with said pipe, so as to allow for lengthening and shortening when the pipe and arm are raised and low-

ered. Weights and other means also assist in supporting the adjustable pipe 5 and holding it locked. I will describe said means in connection with a further description of the arm 7. This arm is pivoted at 9 to the forward end of the bolster U. At this end are two short bars 10, at right angles to said arm 7, and pivoted to the same pivot at 9, one at each side. Braces 11 11 are attached to the supporting-arm 7 near its outer end and thence diverge toward the tank A, where they meet the outer ends of the short bars 10 and are all pivoted together at 12. Weight-arms 13, bearing weights 14—one on each side of the pipe J—are pivoted at the ends to the same pivotal shaft T to which the chain-lever S is pivoted. Short bars 15—one on each side—are pivoted at one end to the same pivot at 12 that the bars 10 are pivoted to, and are pivoted to the weight-bars 13 at the other end at 16, Fig. 3. This point of pivoting also appears at 16 in Fig. 2 back of the weight 14, which weight in this figure is broken to show the coupled ends of the fixed pipe J and the adjustable pipe 5.

When the adjustable pipe 5 is in its upright position, as in Fig. 1, the supporting-arm 7 and its braces 11 are upright, while the short bars 10 have swung back and down to a horizontal position, and the weight-bars 13 and their short bars 15 have swung down to nearly a vertical position back by the chain-lever S, thus bringing such a purchase on the pipe 5 and its supports as to successfully hold it temporarily locked in its up position until desiring to use it again. The used position of the adjustable pipe 5, as when letting water into the tender of an engine, is shown in Fig. 2, the operator having pulled on the chain 17, with which said pipe is provided. During this action the weight-bars 13 swing up to a horizontal position and the short bars 10 and 15 move forward and upward to an upright position, as in said figure. Thus the weights assist in both operations and hold the parts locked in both positions. When in the horizontal position just described, the operator grasps the chain 4 of the chain-lever S, and by pulling forward causes the escape-valve E to open, as before explained; but it will be seen that this means of drawing water from the tank A is not confined in its use to the particular means of operating the adjustable pipe 5, and hence may be employed with any arrangement suitable. It will be observed that one end of the chain 4 is attached to the sliding connections 8 of the pipe 5 and supporting-arm 7 in Fig. 1, while in Fig. 2 it is attached to the end of said supporting-arm. This is not material, since the only purpose is to bring the chain over in reach of the operator when the adjustable pipe 7 is swung down, and not to draw on the chain-lever to operate it, as might be at first supposed from the arrangement.

As has been explained, the bolster U, which supports the adjustable pipe 5 and its operating means and also the chain-lever S, is mounted on a block W on the fixed pipe J and is pivoted thereon at V. The object of this is so that the adjustable pipe 5 can be brought to accurately register with the water-port in the tender by carrying the end of the pipe laterally in one direction or the other, thus turning said bolster on its pivot in case the engine did not happen to stop at the desired point; but ordinarily it is expected there will be a sufficiently yielding capacity in the joints of the parts of the apparatus to provide for this adjustment without the pivot V.

The coupling end of the adjustable pipe 5 is made interiorly larger than the exterior end of the fixed pipe J, which couples with it when drawing water; but the interior of the pipe 5 is made funnel-shaped inward for a short distance, as at 18 in Fig. 2, so that the innermost end of the funnel portion is of a diameter less than that of the end of the fixed pipe J, which is inserted into it. By this means a sufficiently tight joint is established to allow the water to pass from one pipe into the other without undue leakage, and this is materially assisted by the shoulder 19, formed by the funnel portion, which prevents any backwater from wasting.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, of a tank, the fixed portion of the feed-pipe, a bolster pivotally mounted thereon, an adjustable portion of the feed-pipe hinged to the bolster, a supporting-arm having a sliding connection at one end with the adjustable pipe, and pivoted to the bolster at the other end, short projecting bars pivoted at one end to the same point, braces attached at one end to the supporting-arm, the other ends being pivoted at the ends of the projecting short arms, weight-bars pivoted to the bolster, and short bars pivoted at the pivoted ends of the braces and to the weight-bars, substantially as set forth.

2. The combination, of a tank, a fixed portion of the feed-pipe, a bolster pivotally mounted thereon, an operator's chain-lever pivoted to said bolster between its two ends, the rear end of said fixed portion of the feed-pipe being extended up through the bottom of the tank, an escape-valve having a downwardly extended stem and adapted to rise against a spring resistance, a crank-shaft having a crank at one end and provided with a projecting arm, a lever pivoted at one end to the tank frame and slotted at the other, said slotted end connecting the crank of the crank-shaft, the lower end of the valve-stem being pivoted to the slotted lever between its two ends, and a connecting-rod pivotally connecting the arm of the crank-shaft and the lower end of the operator's lever, substantially as set forth.

3. The combination, of a tank, a fixed portion of the feed pipe, a bolster thereon, an ad-

justable portion of the feed-pipe hinged to said bolster, a supporting-arm having a sliding connection at one end with the adjustable portion of the feed-pipe and pivoted to the bolster at the other end, short bars pivoted at one end to the same point, braces attached at one end to the supporting-arm, the other ends being pivoted at the ends of the projecting short arms, weight-bars pivoted to the bolster and short bars pivoted at the pivoted ends of the braces and to the weight-bars, substantially as set forth.

In testimony of the foregoing I have hereunto subscribed my name in the presence of two witnesses.

CORNELIUS THEOBALD.

Witnesses:
THOMAS W. STEWART,
LUCIUS C. WEST.