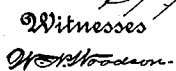


1,008,675.

2 SHEETS—SHEET 1.



Jeana M. Fallin -

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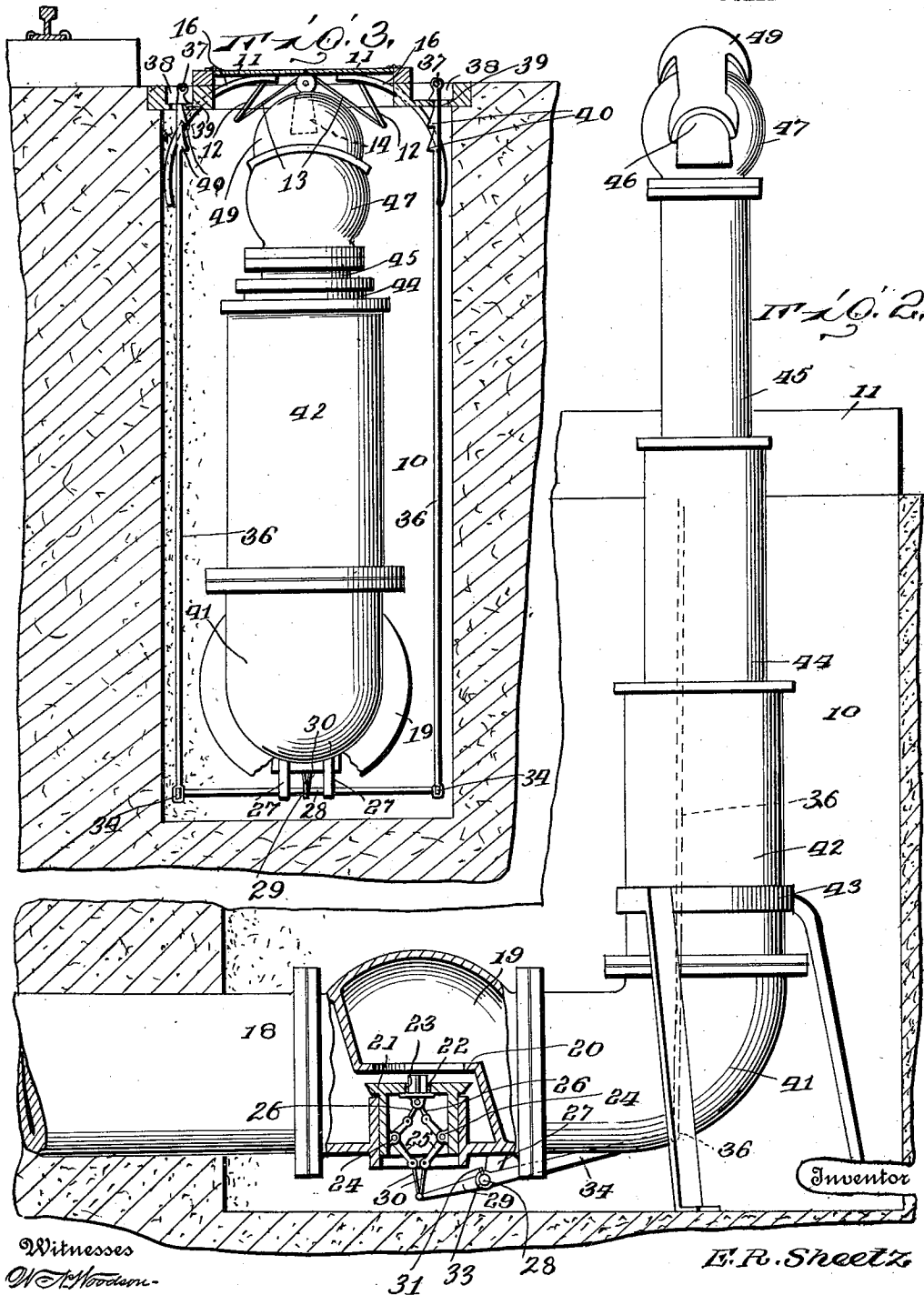
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E. R. SHEETZ.
COLLAPSIBLE WATER CRANE.
APPLICATION FILED JAN. 18, 1911.

1,008,675.

Patented Nov. 14, 1911.

2 SHEETS-SHEET 2.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWIN R. SHEETZ, OF TRENTON, MISSOURI, ASSIGNOR OF ONE-HALF TO R. M. WIGGINS,
OF TRENTON, MISSOURI.

COLLAPSIBLE WATER-CRANE.

1,008,675.

Specification of Letters Patent. Patented Nov. 14, 1911.

Application filed January 18, 1911. Serial No. 603,411.

To all whom it may concern:

Be it known that I, EDWIN R. SHEETZ, a citizen of the United States, residing at Trenton, in the county of Grundy and State of Missouri, have invented certain new and useful Improvements in Collapsible Water-Cranes, of which the following is a specification.

This invention relates to water towers having particular reference to an improved structure of this character adaptable to railways, and has for a main object to form a water tower which can be dropped into a pit beneath the surface level of a track so as to lessen accidents to employees on passing cars.

The invention has for another object to peculiarly mount a collapsible water tower at the side of the track which is automatically raised by the pressure of water entering the sections of the same, the pit in which the water tower is mounted being provided with doors which are also automatically opened by the striking of the rising sections of the tower thereagainst.

The invention further contemplates a device which can be readily closed by exhausting the fluid from the tower sections so that the sections collapse by their own weight into the pit and automatically close the doors.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a longitudinal vertical sectional view through the pit showing the improved water tower in a collapsed position and partially in section; Fig. 2 is a similar view disclosing the tower raised; Fig. 3 is a transverse sectional view of the outer end of the pit disclosing the tower collapsed therein; Fig. 4 is a detail end view of the doors and their operating mechanism, the doors being open. Fig. 5 is a detail view of the T-rod and its connection with the operating lever.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

Referring to the drawings the numeral 10 designates a pit which is of any pre-

ferred form, the same being disclosed as formed of a rectangular metallic casing provided with the hinged doors 11 adapted to close the upper end thereof. The doors 11 are provided at one end with oppositely extending arms 12 supporting the inner ends of cables 13 which support upon their outer ends a weight 14. The cables 13 pass over a pulley 15 disposed at the end of the pit 10. The doors 11 are controlled in their swinging movements by the operating arms 16 which are carried upon the doors at their inner edges and midway between their ends. The arms 16 are curved upwardly at a slight angle and lie adjacent to one another in the same horizontal plane when the doors 11 are open. The arms 16 are provided with lateral projections or lugs 17 adapted to overlap the adjacent arm and form a stop to limit the opening of the doors 11.

A supply pipe 18 extends into one end of the pit 10 at its bottom and is adapted to convey water under pressure to the improved tower. A valve casing 19 communicates with the inner end of the supply pipe 18 and is provided at its central portion with a horizontal web 20. A cylindrical inlet valve 21 is slidably disposed for vertical movement in the lower end of the casing 19 and is adapted to seat against the web 20 to close the opening therethrough. The cylindrical valve 21 is hollow and is provided at its upper end with an outlet opening 22 through which is mounted for reciprocation an outlet valve 23. The lower end of the cylindrical valve 21 is provided with pairs of ears 24 which are arranged in opposite relation and hingedly carry bell crank levers 25. The bell crank levers 25 are so mounted between the ears 24 that one of their arms extends down and is limited in outward movement by the side of the cylindrical valve 21. The opposite arms of the bell crank levers 25 extend inwardly toward one another and are connected by links 26 to the outlet valve 23. The casing 19 is provided upon its outer end with a pair of spaced depending supports 27 in the lower ends of which is journaled a T-rod 28 having the central arm 29 thereof extending beneath the cylindrical valve 21. Links 30 connect the vertical arms of the bell crank levers 25 with the outer end of the arm 29. The opposite ends of the T-rod 28 are provided with pins 31 extending radially there-

from and projecting through longitudinal slots 32 formed in the upper sides of rings 33. The rings 33 loosely engage over the ends of the T-rod 28 and are integrally formed with the operating levers 34. The outer ends of the operating levers 34 are connected by pull rods 36 passing to the top of the pit 10. The upper ends of the rods 36 are provided with handle holds 37 which are disposed in pockets 38 formed in the upper face of the pit and having lips 39 to adjustably receive a plurality of teeth 40. The teeth 40 are formed in the inner edges of the pull rods 36 and are adapted for adjustable engagement against the lip 39 to hold the rod 36 when adjusted.

The valve casing 19 carries an elbow 41 which extends up between the levers 34 to receive the lower end of the outermost section 42 of the improved tower. The section 42 is suitably mounted upon a bracket 43 within the pit 10. The section 42 carries a plurality of telescoping sections 44 and an innermost section 45 adapted to expand when the tower is raised. The innermost section 45 carries a spout 46 which is flanged thereon and adapted to be swung into various angles. The inner end of the spout 46 is provided with a valve 47 operable by a handle 48 which is carried upon the upper side of the spout 46. A hood or protector 49 is carried upon the upper side of the spout 46 and adapted to house the lever 48.

In operating the improved tower the handle 37 is grasped to raise the pulley rod 36 and swing the adjacent lever 34 about the end of the T-rod 28. As the lever 34 is swung the ring 33 is carried about the end of the T-rod 28 until the marginal end of the slot 32 strikes the stud or pin 31, when the motion of the lever 34 is imparted to the T-rod 28. The turning of the T-rod 28 turns the arm 29 down, as is disclosed in Fig. 2 to draw the links 30 down and move the vertical arms of the bell crank levers 25 inwardly toward one another. The in-turned arms of the bell crank levers 25 move up and push the outlet valve 23 into a closed position in the upper end of the inlet valve 21. Further action of the T-rod 28 draws the cylindrical valve 21 down away from the web 20 to admit the water under pressure from the feed pipe 18 into the elbow 41. The water under pressure within the elbow 41 passes to the sections 42, 44 and 45 causing the same to rise one within the other. The valve 47 is normally closed and the water cannot now escape through the spout 46. The hood or guard 49 of the spout strikes against the lower faces of the doors 11 and swings the same out to bring the arms 16 into engagement with one another beneath the spout. The projections 17 limit the upward movement of the arms 16 and hold the doors 11 at an inclination.

When the sections of the tower are extended the spout 46 is turned to overhang the tender of the locomotive, or other receptacle into which the water is to flow, when the handle 48 is depressed to displace the valve 47 and allow the water to pass through the spout 46. After the tender has been filled with water the valve 47 is closed and the spout 46 is swung into alinement with the pit 10. The operator now releases the pull rod from the lip 39 and allows the lever 34 to drop, to close the main or cylindrical valve 21. The pressure of the water in the feed pipe 18 bears against the valve 21 and holds the same closed. The pressure of the water in the column of the tower forces the valve 23 open and the water in the tower is permitted to escape into the pit as the sections are collapsed. When the outlet valve 23 is open the weight of the spout 46 and the weights of the telescopic sections 44 and 45 move the same down as the water is exhausted through the valve 23. When the spout 46 strikes the arms 16 it moves the same down and swings the doors 11 inward into a closed position.

It will be noted from Fig. 3 that the doors 11 completely house the improved tower and thereby prevent moving objects upon the track from striking against the tower.

This device is designed to lessen the dangers incident to the towers which are now permanent structures and extend up from the ground surface beside the track.

Suitable packing is disposed at the joints of the sections and elsewhere throughout the water tower where it is found necessary so as to prevent the leakage of the water under pressure.

Having thus described the invention, what is claimed is:

1. A water tower including a pit, extensible sections arranged in the pit adapted to rise therefrom, a spout carried by the sections, hinged doors carried by the pit and adapted to be opened by the upward movement of the sections and operating arms carried by the doors in the path of the spout to close the doors upon the return of the spout.

2. A water tower comprising a pit, extensible sections disposed in the pit, a spout carried by the uppermost section, hinged doors closing the pit, a hood overhanging the spout and adapted to strike the doors when extended whereby the doors are opened, and inwardly extending curved arms carried by the doors for engagement with the spout when collapsing whereby the doors are closed.

3. A water tower including a pit, hinged doors closing the upper end of the pit, counterweights carried in the pit and having connection with the doors, inwardly curved arms carried against the inner face

of the doors and adapted to interlock when the doors are open whereby the doors are held in upright position, extensible sections mounted in the pit and adapted to move up therethrough, a spout rotatably mounted upon the uppermost section, a hood carried over the spout for engagement against the doors to open the same, the lower side of the spout being adapted to strike the arms and close the doors, a supply valve connected with the lower end of the sections, and operating means disposed within the pit and having connection with the valve for controlling the flow of water to the sections.

4. A water tower including a pit, telescopic sections arranged within the pit, a supply pipe communicating with the end of the lower section, a valve connecting the sections with the interior of the pit, pull rods having connection with the valves and extending up through the pit, a spout mounted for rotation upon the uppermost section, a valve carried by the spout for controlling the flow of water therefrom, and hinged doors closing the pit and operable by the vertical movement of the spout.

5. A water tower including a pit, telescopic sections located in the pit, a supply pipe entering the lower end of the pit, a valve casing connecting the lowermost section with the supply pipe and having a central horizontal web, a cylindrical valve mounted in the lower end of the valve casing and seating against the web to close communication between the supply pipe and the sections, an outlet valve engaging

through the cylindrical valve and adapted to connect the lowermost section with the interior of the pit through the cylindrical valve, and pull rods extending up through the pit and having connection with the valves to alternately open and close the same.

6. A water tower including a plurality of telescopic sections, a supply pipe communicating with the lowermost section, an inlet valve connecting the supply pipe with the sections, an outlet valve connected to the sections for exhausting water therefrom, an operating lever having connection with the valves to alternately open and close the same, pull rods attached to the operating lever and extending up through the pit and having hand-holds upon their upper ends, a spout carried upon the uppermost section, and hinged doors closing the upper end of the pit and adapted to be opened and closed by the vertical movement of the spout.

7. A water tower including a pit, a plurality of telescopic sections located in the pit, means for extending the sections, doors hinged upon the pit and adapted to be opened by the expansion of the sections, and arms carried upon the door to engage with the sections when telescoping to close the doors.

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

EDWIN R. SHEETZ. [L. s.]

Witnesses:

ALIVINA L. KEITH,
OLIVE R. WIGGINS.