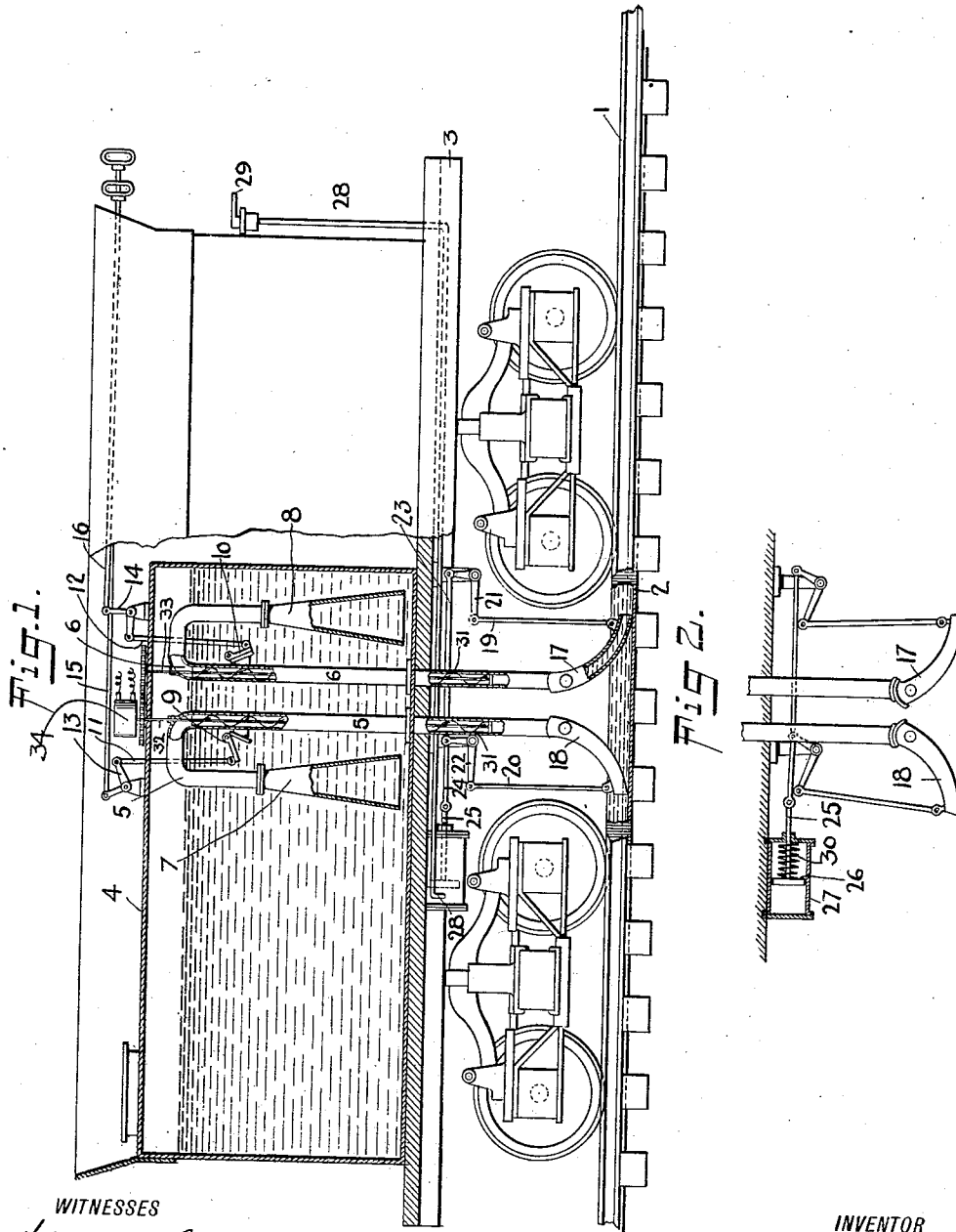


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DOUBLE WATER SCOOP.
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Patented June 17, 1913.



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DOUBLE WATER-SCOOP.

1,065,279.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM B. SMITH, a citizen of the United States, and a resident of Gardena, in the county of Los Angeles and State of California, have invented a new and Improved Double Water-Scoop, of which the following is a full, clear, and exact description.

This invention relates to improvements in double water scoops, and has for an object to provide an improved structure designed to be used upon the tender of a locomotive, or any other desired place, whereby water may be easily taken up and also discharged while the tender and locomotive are moving in either direction, or standing still.

A further object of the invention is to provide a double scoop structure which may be adjusted for causing cold fresh water to be taken up and at the same time discharge the warm water, or upper strata of water in the tank on the tender.

Another object of the invention is to provide pumps in connection with the double scoops, so that water can be drawn up and forced into the tank while the locomotive is running at any speed or standing still.

A still further object of the invention is to provide a water scoop structure in which the water taken up may be distributed or directed to the bottom of the tender, or a receptacle for receiving the water without appreciably agitating the water in the tank.

In carrying out the objects of the invention, it will be, of course evident, that the device could be attached to a tender, or to any other supporting means which is adapted to be moved over a track, so that the word "tender" when used in this specification is intended to cover any proper support for a device. Arranged in the tender, or forming part of the tender, is a tank in which a pair of discharge members are positioned, having one end extending through the bottom of the tank to a position near the track where they are connected with pivotally mounted scoops operated by suitable means, as for instance a compressed steam operated rod and lever mechanism. The scoops are connected together so that when one is lowered, the other is correspondingly lowered. Arranged in the tank are valve members connected with the pipes to which the scoops are secured, so that when one scoop is forcing water into the tank, the

valve member associated with the opposite pipe and scoop may be opened for permitting the discharge of the impure or heated water near the top of the tank. Suitable manually operated rods and levers are provided for manipulating these valves as occasion may demand.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the views.

Figure 1 is a side elevation of a tender showing an embodiment of the invention applied thereto, part of the tender and part of the embodiment of the invention being broken away for better illustrating the construction and arrangement; and Fig. 2 is a detail fragmentary side view of the scoops and associated parts in their elevated or raised position.

Referring to the accompanying drawings by numerals, 1 indicates a track of any desired kind having a trough 2 of any desired or preferred construction, which is maintained full of water so that when the train having a scoop passes over track 1, the same may take up water as desired. The tender 3 resting on the track 1 is provided with a tank 4 in which are mounted pipes 5 and 6. The pipes 5 and 6 have connected with the inner ends thereof discharge nozzles 7 and 8, which nozzles taper from the top to the bottom so that when the water is discharged from either of the nozzles the same will not agitate to an appreciable extent the water in the tank 4. The pipes 5 and 6 are provided with valve structures 9 and 10 which preferably are merely hinged covers or seats. These valve structures have connected therewith operating rods 11 and 12, which in turn are connected with bell crank levers 13 and 14. The levers 13 and 14 have pivotally connected therewith rods 15 and 16 which extend to the front of the tender 3 and are preferably provided with handles so that the same may be easily moved back and forth for opening and closing the valves 9 and 10 whenever desired.

As clearly shown in Fig. 1, the pipes 5 and 6 extend downwardly through the bottom of the tender to a point adjacent the track, and have pivotally connected therewith scoops 17 and 18 rounded or inclined in opposite directions so that water may be

taken up and discharged simultaneously regardless of the direction of movement of the tender. These scoop structures may be of any preferred or ordinary construction so that the same will need no further detail description, the same of course closing pipes 5 and 6 when raised to the elevated position as shown in Fig. 2. The scoops 17 and 18 have connected therewith links 19 and 20, which in turn are connected with bell crank levers 21 and 22. The bell crank levers 21 and 22 are pivotally mounted on suitable brackets extending from the tender 3 so that when the connecting link 23 connected therewith is operated, the levers will be moved for causing links 19 and 20 to raise or lower the scoops. The pivotal pins which connect link 23 with bell crank lever 22, also connect link 24 with bell crank lever 22 so as to connect a piston rod 25 with link 23 in order that the scoops may be properly operated and operated simultaneously. The piston rod 25 is connected with the piston 26 mounted in a suitable cylinder 27 so that when steam pressure is allowed to pass through pipe 28 by the proper operation of valve 29, the piston 26 will be moved against the action of spring 30 for elevating the scoops. The valve 29 may be of any desired construction for turning on steam pressure to pipe 28 from the usual steam pressure line. This valve structure, however, must be provided with a port for permitting the pipe 28 to exhaust when the valve 29 is closed off so as to permit spring 30 to operate for lowering the scoops 17 and 18. It will be evident that the spring 30 could be used for raising the scoops and the steam pressure used for lowering the same against the action of the spring.

In operation, when a tender is going in either direction, and it is desired to take on some water, the valve 29 is operated for lowering the scoops when the same come to a point above trough 2. The movement of the scoops through the water will cause the same to be driven through either of the pipes 5 and 6 and to be finally discharged into tank 4. If, for any reason it is desired to discharge the upper strata of water in tank 4, one of the valves 9 or 10 is opened. This is very desirable where the water from the tender is used in the condenser or for cooling purposes in any desired structure. As for instance, when used in a steam condenser the water becomes heated and when in such condition will retard the condensing of the steam. To overcome this, the valves 9 and 10 are provided and the double scoop structure, so that cool water may be maintained in the tank 4 and the warm water discharged. It will be evident that the scoops may be worked together, or independently, and be operated manually or by power.

In some instances it has been found that the scoops which scoop up the water from the tank 4 will splash the water and thus waste the same, while not forcing the proper amount into the tank. To obviate these disadvantages, and to insure the proper taking in of the water, a pump in the form of a screw or propelling device 31 is provided in each of the pipes 5 and 6, designed to operate in opposite directions so that when water is being forced into tank 4 through pipe 6, water will be forced from the upper part of tank 4 through pipe 5 into the trough 2, provided the valve member 9 is open. The pump or screw 31 is provided with shafts 32 and 33 which have gear wheels secured to their upper ends and continually meshing so that the motor 34 connected to one of the shafts 32 or 33 will operate both shafts and consequently will simultaneously operate both of the screws 31, the same of course operating in opposite directions as just described. In providing these screws and the double arrangement of scoop, the same may be used for taking up water at any time and for any purpose, but the arrangement of the pipes 5 and 6, discharge nozzles 7 and 8, and the valves 9 and 10 is used to maintain as far as possible a cool fluid in tank 4, or at least in the bottom of tank 4, so that the same will be utilized for cooling purposes in the condenser for the engine, or for any other desired purpose. When it is desired to remove water from tank 4 for the engine, the same is preferably taken from the top strata of water, as the same is warmer than the lower strata, while water is taken from the lower strata when the same is designed to be used in a condenser for condensing the steam from the cylinders of the engine, or the turbine of the engine, in case a turbine is used. It will be evident that the cold water may be used for any purpose, the above being given merely as illustrations. It will be noted by the use of the pumps that water may be taken up from a tank 4 while the locomotive is running at either a slow speed or at very high speed with comparatively little waste of water, as there will be a sucking action on the water in addition to the usual force exerted through impact. It will also be noted that it will be possible to pump water not only from a tank 4 while the train is moving slowly, but when the train is standing still. It will be evident that a centrifugal or any other suitable pump may be used.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a scoop structure of the class described, a pair of pipes, a scoop connected with the bottom of each of said pipes extending in opposite directions, a tank for re-

ceiving water from one of said pipes, and means for directing water out of said tank to the other of said pipes and its scoop.

2. In a scoop structure of the class described, the combination with a tank, of a pair of pipes arranged with one end in said tank and one end projecting below said tank, the end of said pipe in said tank being bent over so as to extend toward the bottom of the tank, a discharge nozzle secured to each of said pipes at the end in said tank, each of said nozzles being tapered from a point contacting with the pipes to their discharge ends, a pivotally mounted scoop connected with the end of each of said pipes extending below said tank, and means for raising said scoops and means for lowering said scoops.

3. In a scoop structure of the class described, a pair of pivotally mounted scoops, means for raising said scoops, means for lowering said scoops, a discharge pipe connected with each of said scoops, a tank for receiving water from said discharge pipe, means connected with said discharge pipes for distributing water at the bottom of said tank, a valve structure arranged near the upper end of said pipes and the upper part of said tank, and manually operated means for opening and closing said valves.

4. In a scoop structure of the class described, a pair of pipes, a pump structure

arranged in each of said pipes, means for operating said pump structure, a scoop connected with the bottom of each of said pipes extending in opposite directions, a tank for receiving water from one of said pipes, and means for directing water out of said tank to the other of said pipes and their scoops, said pumps causing said water to positively move in the direction desired.

5. In a scoop structure of the class described, a pair of pipes, a scoop structure arranged at the lower end of each of said pipes, a pump arranged interiorly of each of said pipes, and means for actuating said pumps.

6. In a scoop structure of the class described, a pair of pipes, a scoop connected with the bottom of each of said pipes, a pump structure arranged in each of said pipes, said pump structure comprising a screw, and means for rotatably supporting said screw, and means connected with said pump structure for operating the same.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM B. SMITH.

Witnesses:

SUSANNA BRINTON,
GULIELMA SMITH.