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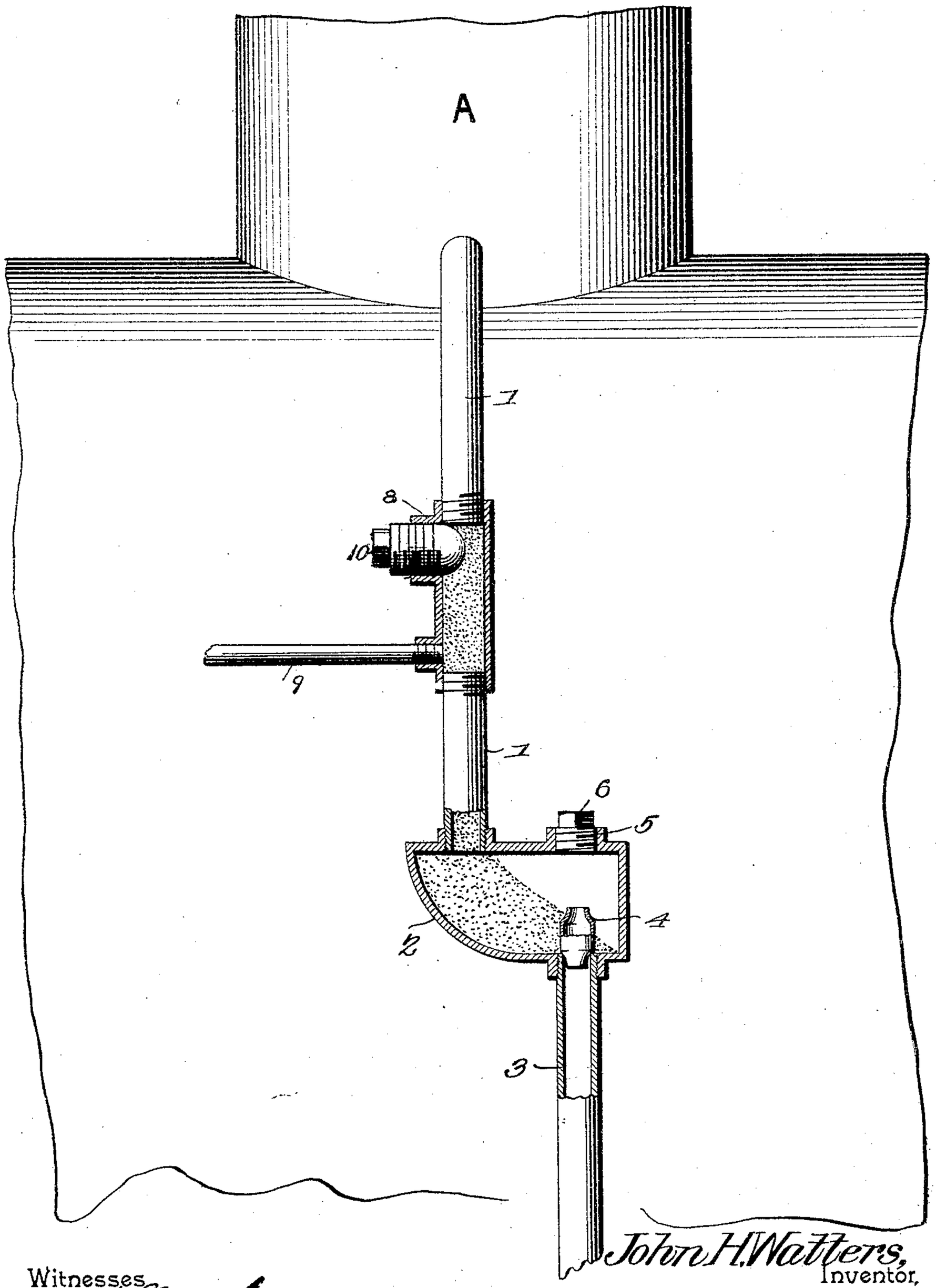
J. H. WATTERS.

TRACK SANDER.

APPLICATION FILED MAY 7, 1904.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN HENRY WATTERS, OF AUGUSTA, GEORGIA.

TRACK-SANDER.

SPECIFICATION forming part of Letters Patent No. 773,909, dated November 1, 1904.

Application filed May 7, 1904. Serial No. 206,924. (No model.)

To all whom it may concern:

Be it known that I, JOHN HENRY WATTERS, a citizen of the United States, residing at Augusta, in the county of Richmond and State of Georgia, have invented a new and useful Track-Sander, of which the following is a specification.

This invention relates to improvements in track-sanders, and has for its principal object to provide a track-sander of that type in which a trap is employed, with a means for creating a pressure in the delivery-pipe, which extends between the sand-box and trap.

A further object of the invention is to provide a track-sander in which the sand is subjected to pressure to cause its flow to the delivery end of the pipe.

A still further object of the invention is to provide means for regulating the quantity of sand discharged from the box to the track.

A still further object of the invention is to provide a sander which may be readily transformed from a pressure to a gravity feed by the engineer while on the road.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in the novel construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings there is shown a track-sander constructed in accordance with the invention, portions of the structure being broken away in order to more clearly illustrate the operation.

In track-sanding devices in use at the present time it is usual to permit the flow of sand by gravity from the box direct to the track, a controlling-valve being disposed in the bottom of the box and connected to an operating-handle within convenient reach of the engineer. Another form of sander in common use employs a trap in the delivery-pipe, and in said trap or a point adjacent thereto is placed a nozzle, through which a jet of air is discharged in order to carry the sand from the trap, and it has also been proposed to force the sand directly from the sand-box through the delivery-pipe by means of a jet of air delivered through a nozzle. All of these devices are more or less objectionable, those in which gravity alone is relied upon for the feed becoming clogged and those in which a jet of air is employed transforming the device into a sand-blast mechanism and the parts being very rapidly worn away.

In carrying out the present invention a trap is employed for the reception of the sand from the box and a quantity of sand will be retained in the box in readiness for use.

From the sand-box A leads a pipe 1, which discharges through a trap 2, that may be of any suitable shape and dimensions, but in the present instance is shown as provided with a slightly-curved bottom portion leading to a delivery-pipe 3, through which the sand falls to the track. In the upper end of the delivery-pipe is seated a removable tube having both of its ends contracted in order that either end may be placed in position in the mouth of the pipe, and said tube is simply held in position by gravity, or it may be fitted sufficiently tight to retain its place. Immediately above and in alinement with the tube is a threaded opening 5, into which is screwed a removable plug 6 for convenience in cleaning the trap from obstructions, and when the plug is taken out the tube-section may be readily removed and then replaced without the exercise of any special care, inasmuch as either end will fit within the upper end of the delivery-pipe.

The discharge-opening, when the tube-section is removed is within the angle of pile of the sand, so that should circumstances require the engineer may remove the tube 4 and transform the device into a gravity-feed sander.

Connected in the pipe 1 at a point above the trap is a coupling 8, to which is also connected an air-supply pipe 9, through which air is forced under pressure when the sander is in use. Into a threaded opening at one side of the coupling extends a valve-plug 10, which may be screwed in or out to vary the quantity

of sand delivered through the pipe in accordance with requirements or in accordance with the quality of the sand, some of which is more loamy than others and requires a larger opening than the finer and drier grades.

In the operation of the device the air-pressure is normally cut off and the sand will flow by gravity from the box and will fill the trap to a point determined by the angle of flow of the sand, but not to an extent sufficient to permit any of the sand to flow over the top of tube 4. If the engineer wishes to discharge sand onto the track, he permits air to flow under pressure to the pipe 9, and under this direct pressure the sand will be forced downward through the pipe 1 and a portion of the sand in the trap will be forced over the top of the delivery-tube 4 and will pass through the pipe 3 to the track. The sand in that portion of the pipe 1 above the air connection will be held from displacement by the sand in the bottom of the box and there will always be sufficient sand in the box to form the necessary backing for effecting the expulsion of the sand from the trap when air under pressure is admitted to the pipe 1, this being assisted of course by the frictional resistance to the flow above the air-inlet, as well as by the fact that the coupling 8 is placed nearer to the trap than to the sand-box. Should the air-pressure fail from any cause, the engineer may readily remove the tube 4 and transform the device into a gravity-feed sander. It is obvious that any obstructions, such as caked sand or gravel, in the pipe above the air-pipe may be cleared by temporarily plugging the outlet-pipe near the track and then forcing air under pressure through the pipe 9 in order to force the obstructions back into the main sand-box, the agitation of the sand loosening it and resulting in a more free and regular discharge.

Having thus described the invention, what is claimed is—

1. In a track-sander, a trap, a sand-supply pipe leading thereto, and means for introducing a volume of air under pressure into the body of sand held in said pipe at a point in advance of the entrance to the trap.

2. In a track-sander, a trap, a sand-supply pipe leading thereinto, and means for introducing a volume of air under pressure into the pipe at a point in advance of the connection of the latter with the trap, thereby to force sand through the pipe and trap.

3. In a track-sander, a trap, a supply-pipe leading thereto, means for introducing air under pressure to the supply-pipe, a discharge-pipe leading from the trap, and a removable tube arranged within the sand-trap and fitting within the mouth of said supply-pipe.

4. In a track-sander, a trap, a sand-inlet pipe leading from the sand-box to the trap, a sand-outlet pipe leading from the trap to the track and having its mouth arranged within the angle of pile of sand in the trap, a removable tube arranged in the mouth of the discharge-pipe and tending normally to prevent the flow of sand therethrough by gravity, and means for forcing sand under pressure through the inlet-pipe.

5. In a track-sander, a discharge-pipe leading from the sand-box, and a plug adjusted in said pipe and having a rounded end portion, said plug serving as a valve to regulate the flow of sand.

6. In a track-sander, a sand-box, a sand-trap, an inlet-pipe leading from the sand-box to the trap, a casing arranged in the inlet-pipe, an air-pressure-supply pipe coupled to the casing at a point near the trap, a removable adjustable plug also arranged in said casing and serving to adjust the available cross-sectional area of the pipe, and a discharge-pipe leading from the trap to the track.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN HENRY WATTERS.

Witnesses:
M. J. MURPHY,
THOS. J. POPE.