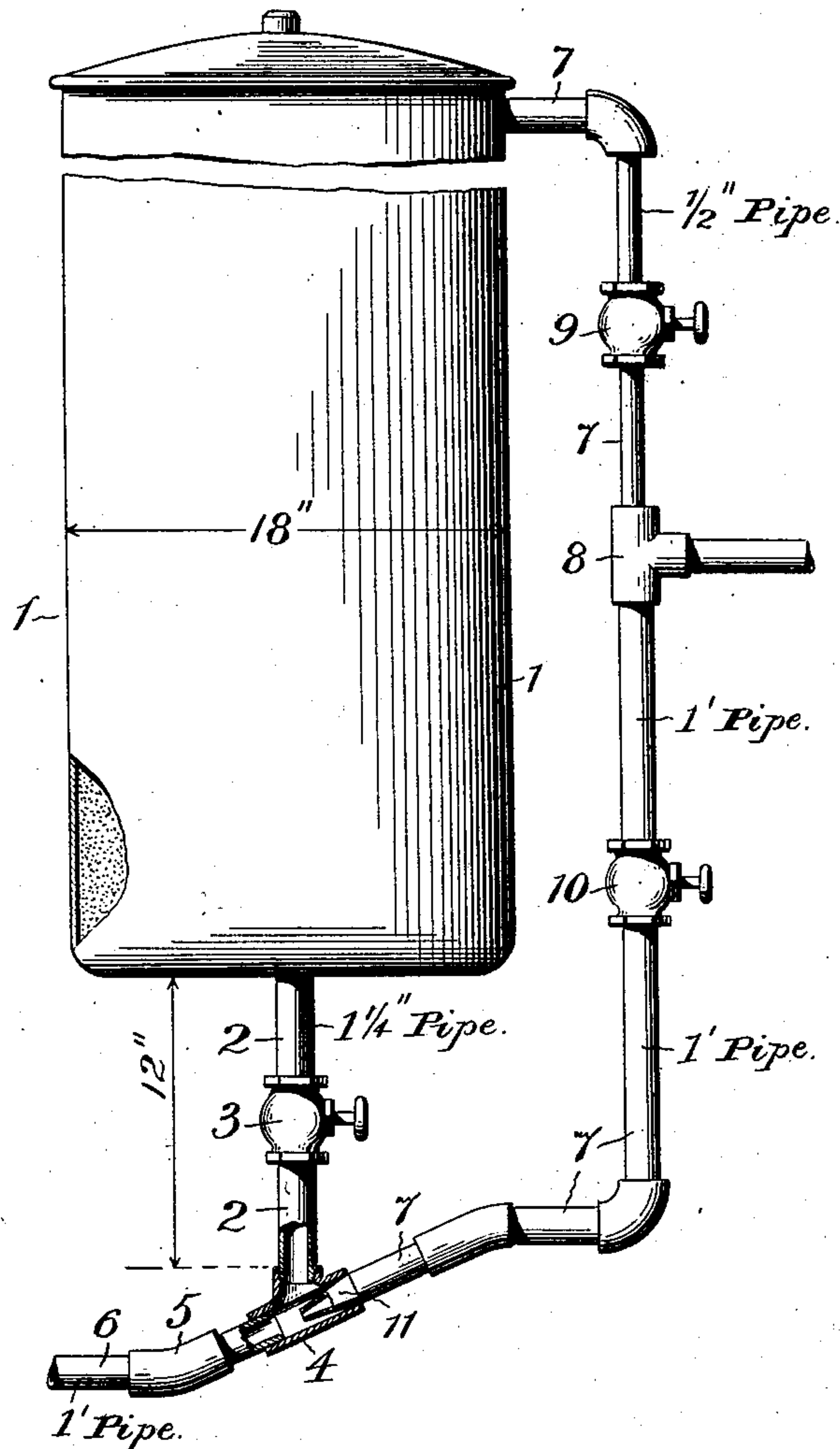


No. 747,396.

PATENTED DEC. 22, 1903.

N. FARNHAM.  
SAND BLAST APPARATUS.  
APPLICATION FILED APR. 10, 1903.

NO MODEL.



WITNESSES  
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## UNITED STATES PATENT OFFICE.

NEAL FARNHAM, OF CHICAGO, ILLINOIS.

## SAND-BLAST APPARATUS.

SPECIFICATION forming part of Letters Patent No. 747,396, dated December 22, 1903.

Application filed April 10, 1903. Serial No. 151,998. (No model.)

*To all whom it may concern:*

Be it known that I, NEAL FARNHAM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sand-Blast Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the figures of reference marked thereon, which forms a part of this specification.

My invention relates to a sand-blast apparatus; and it has for its object to produce such an apparatus in which the sand will pass from the reservoir or tank by gravity alone or by gravity aided by compressed air within the reservoir under regulation, the sand passing from the tank through a delivery-pipe leading to a blast-pipe provided with a blast nozzle or jet whose point of discharge is substantially beneath the discharge of the delivery-pipe into the blast-pipe, so as to prevent any backflow of air from the sand-carrying pipe or hose into the delivery-pipe and at the same time permitting the air-blast from the blast-nozzle to impact against the sand as it flows from the discharge-pipe, so as to drive it through the sand-carrying hose to the point of its application.

It has, further, for its purpose to provide a coupling between the vertical discharge-pipe leading from the sand-tank, the sand-carrying hose, and the air-blast-supply pipe, arranged so that the coupling will stand at an oblique angle to the longitudinal axis of the discharge-pipe, whereby the air-blast will be projected at an oblique angle across the discharge-mouth of the vertical discharge-pipe, the purpose of the first and second stated objects being to facilitate the freer passage of the sand from the tank through the discharge and into the sand-carrying hose and without clogging of the sand at either end of the discharge-pipe, which otherwise would be liable to occur by reason of back pressure of air in the discharge-pipe and condensation of moisture in the air-blast.

To the accomplishment of the foregoing and such other objects as may hereinafter ap-

pear the invention consists in the construction and in the arrangement of parts hereinafter particularly described and then sought to be clearly defined by the claims, reference being had to the accompanying drawing, forming a part hereof, and in which the figure is a side elevation of a sand-tank having my invention applied, a portion of the upper part of the tank being broken away.

In the drawing the numeral 1 designates a tank of any suitable configuration and dimensions designed to hold the sand. From the bottom of the tank leads a discharge-pipe 2, provided with suitable valves or valve 3 to regulate the flow of sand through the pipe. To the lower end of the discharge-pipe is attached a Y-coupling 4, which is inclined to the pipe 2 and, as shown, stands obliquely or at an angle of about forty-five degrees, more or less, to the longitudinal axis of the discharge-pipe. To one end of this coupling is attached, by a nipple 5 or otherwise, a sand-carrying hose 6 of any desired length to lead to the point of application of the sand-blast, which hose may be of pliable material or of rigid material provided with any desired number of flexible joints 6. To the other end of the coupling is connected an air-blast pipe 7, to which compressed air is supplied through a T or other coupling 8 from a suitable source of supply. The other end of the pipe 7 opens into the upper part of the tank 1, and said pipe is provided with a valve 9, by which the supply of air to the tank may be regulated or entirely cut off, and it is also provided with a valve 10, by which the supply of compressed air to the blast-nozzle may be controlled. At the point where the air-blast pipe 7 connects with the inclined coupling 4 it is provided with a nozzle or jet 11, which enters the coupling, so that its point of discharge will lie below the discharge-mouth of the discharge-pipe 2, leading from the tank, the best results being obtained when its point of discharge is about midway of the discharge-mouth of the discharge-pipe. By thus positioning the air-blast nozzle the air is projected across the mouth of the discharge-pipe 2 without the blast passing up into the discharge-pipe and at the same time creates a suction across the discharge-pipe and down through the same, so that the downflow of the sand through the



pipe is greatly facilitated. At the same time the force of the air-blast from the nozzle across the mouth of the discharge-pipe strikes the sand as it issues from the mouth of the pipe and propels it with velocity away from the pipe and through the carrying-hose and prevents any backflow or back pressure from the hose or coupling and into the discharge-pipe. If this back pressure were permitted, it would not only retard the downflow of the sand, but it would also result in the sand becoming moist from condensation of the compressed air, and thus the pipe would become clogged and the efficient working of the device interfered with. The inclination of the coupling at the lower end of the discharge-pipe also aids in the rapid flow of the sand from the mouth of the discharge-pipe, so as to aid in preventing backflow or back pressure of air.

By adjustment of the valve 9 more or less pressure of air may be admitted to the tank to assist the outflow of sand therefrom and its outflow regulated to a nicety, or the air may be entirely cut off from the tank.

The tank may be supported from the ground upon any suitable stand or otherwise supported.

I have indicated on the drawing the preferred dimensions of the parts; but they may be varied within reasonable limits.

Having described my invention and set forth its merits, what I claim is—

1. A sand-blast apparatus comprising the

tank, the discharge-pipe leading from it, the compressed-air-supply pipe, sand-carrying hose, and the air-blast nozzle having its point of discharge beneath the mouth of the discharge-pipe leading from the tank, substantially as described.

2. A sand-blast apparatus comprising the tank, the discharge-pipe leading from it, the inclined coupling at the lower end of the discharge-pipe, the compressed-air-supply pipe, the sand-carrying hose, and the air-blast nozzle entering the inclined coupling and having its point of discharge beneath the mouth of the discharge-pipe leading from the tank, substantially as described.

3. A sand-blast apparatus comprising the tank, the discharge-pipe leading from it, to the sand-carrying hose, the compressed-air-supply pipe opening into the upper part of the tank and having the upper and lower controlling-valves, the inclined coupling between the sand-carrying hose, the compressed-air-supply pipe and the discharge-pipe from the tank, and the air-blast nozzle having its point of discharge in the inclined coupling beneath the mouth of the discharge-pipe from the tank, substantially as described.

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

NEAL FARNHAM.

Witnesses:

W. G. HENDERSON,  
GEO. W. REA.