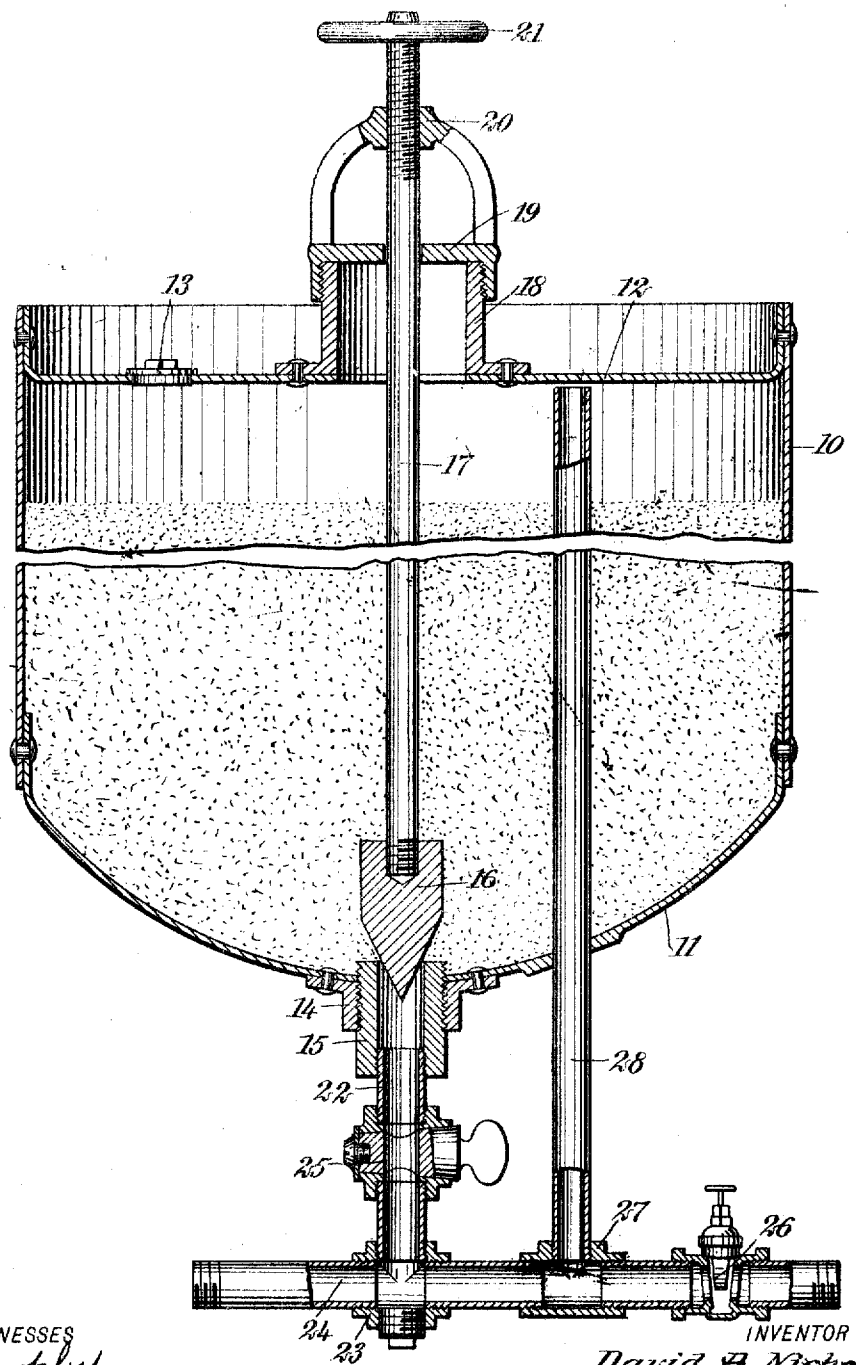
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SAND BLAST APPARATUS.

APPLICATION FILED APR. 22, 1908.

911,431. Patented Feb. 2, 1909.



WITNESSES

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SAND-BLAST APPARATUS.

No. 911,431. Specification of Letters Patent. Patented Feb. 2, 1909.

Application filed April 22, 1908. Serial No. 428,508.

To all whom it may concern:

Be it known that I, DAVID A. NICHOLS, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Sand-Blast Apparatus, of which the following is a full, clear, and exact description.

This invention relates to sand blast apparatus, and more particularly to apparatus of this kind including a sand container having a delivery pipe, means for regulating the flow of sand into the delivery pipe from the container, means for regulating the flow of sand through the pipe, and a pipe leading from the air blast supply pipe and extending upwardly through the container and discharging near the top of the same to equalize the pressure.

The object of the invention is to provide a simple, strong and efficient sand blast apparatus, in which the flow of sand from the container or reservoir to the air blast pipe can be regulated and controlled with exactness, and in which the flow of the sand from the container is assisted by the equalizing pressure pipe communicating with the air blast pipe and discharging within the container near the top of the same.

The invention consists in the construction and combination of parts, to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which the figure is a longitudinal section of my apparatus showing the container, the mechanism for regulating the flow of sand from the container, and the pressure equalizing pipe, parts of the structure being broken away.

Before proceeding to a more detailed explanation of my invention, it should be clearly understood that the feature of greatest importance lies in the means for regulating the flow of sand from the container or tank to the air blast pipe. With many of the apparatus now in use, it is almost impossible to throttle down closely the delivery pipe of the container, so that a small quantity only, of sand escapes from the container. Needless to say, the flow of material such as sand, through a valve, offers greater difficulty in regulation than does the flow of a liquid, which will continue to escape through even the smallest openings. If a sand valve be throttled down too closely, the sand will choke the valve and thereby interfere seriously, with the operation of the apparatus. I provide two valves for regulating the flow of sand from the container through the delivery pipe to the sand blast pipe, and in this way, render possible the exact regulation and control of the flow of the sand. The first valve is adapted to have less exact adjustment and is used for starting and stopping the flow. The second valve consists preferably of a round-way cock, and serves for the exact adjustment and control of the sand flowing through the delivery pipe. I am aware of the fact that it is old to introduce air under pressure into the sand container or reservoir to facilitate the removal or escape of the sand therefrom. I provide a pressure pipe, however, which extends upwardly through the tank and discharges inside and near the top thereof, thereby obviating the necessity of arranging the pressure pipe at the outside of the tank and having it enter at the top. The air blast supply pipe is preferably arranged under the tank, and therefore, my arrangement permits a simple and efficient construction.

Referring more particularly to the drawing, I provide a sand reservoir or container 10, which may be of any suitable form and preferably has a rounded or tapered bottom 11 and a depressed top 12. The container is best fashioned from sheet metal and has the parts riveted together. An opening in the top 12, provided with a suitable closure 13, serves for the introduction of sand into the container. A collar 14 interiorly threaded and substantially central with respect to the bottom, is secured to the latter by riveting or any other convenient means and surrounds an opening in the bottom. A suitably threaded sleeve 15 is arranged within the collar and projects into the container. A member or plug 16, either conical in form or having a conical part, is arranged to project into the sleeve and to close the same, thus constituting a valve therefor. A stem 17, having a threaded end secured in a correspondingly threaded recess of the member 16, extends longitudinally of the container and passes through a neck 18 thereof. The neck is mounted upon the top 12 and has a cover 19 through which the stem 17 projects. The cover is screwed or otherwise secured

upon the neck, and has a yoke 20 provided with a threaded opening engaging a correspondingly threaded part of the stem 17. The latter has a hand-wheel 21 by means of which it can be manipulated to advance the member 16 toward or away from the sleeve 15, to stop or start the flow of sand.

A sand delivery pipe 22 has a threaded end arranged within the lower correspondingly threaded end of the sleeve 15, and communicates with an air blast delivery pipe 24 by means of a union 23. The delivery pipe 22 intermediate its ends has a throttle 25, preferably a round-way cock.

The air blast pipe has a regulating and controlling throttle 26, and intermediate the latter and the delivery pipe 22, a union 27, which effects communication with a pressure equalizing pipe 28. The latter is upwardly disposed and extends through an opening in the bottom of the container to discharge within the latter near the top thereof.

As the sleeve 15 is cylindrical in form and the valve member 16 is conical, the annular space formed thereby, through which the sand must escape, has substantially no length, and the friction due to the escape of the sand through the valve is thereby materially diminished. It will be understood that the annular opening is formed by the upper inner edge of the sleeve and the conical member.

The throttles 25 and 26 may be of any suitable form adapted to the purpose, and consist, preferably, of round-way cocks or gate valves.

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

1. In sand blast apparatus, a sand container having a delivery pipe, an air blast supply pipe communicating with said delivery pipe, and valves for controlling the flow of sand and having different ranges of adjustment, said valves being located between said container and said air blast pipe.

2. In sand blast apparatus, an air blast supply pipe, a sand container having a downwardly disposed delivery pipe discharging into said air blast supply pipe, a valve at the entrance of said delivery pipe and including a conical member projecting into said delivery pipe and movable in the direction of its length, and a regulating valve intermediate said container and said air blast supply pipe and controlling the flow of sand through said delivery pipe.

3. In sand blast apparatus, a sand container having a delivery pipe at the bottom, an air blast supply pipe communicating with said delivery pipe, and a pressure pipe communicating with said air blast pipe and extending upwardly through said container and discharging near the top thereof.

4. In sand blast apparatus, an air blast supply pipe, a sand container above said air blast pipe and having a downwardly disposed delivery pipe discharging into said air blast supply pipe, a valve at the entrance of said delivery pipe and including a conical member projecting into said delivery pipe and movable in the direction of its length, a regulating valve intermediate said container and said air blast supply pipe and controlling the flow of sand through said delivery pipe, and a pressure pipe communicating with said air blast pipe and extending upwardly through said container and discharging therewithin near the top.

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

DAVID A. NICHOLS.

Witnesses:
JOHN K. BRACLUOGEL,
JOHN P. DAVIS.