No. 791,176. PATENTED MAY 30, 1905.

F. W. BREIDSTER.

SAND BLAST REGULATOR.

APPLICATION FILED SEPT. 16, 1903.

2 SHEETS—SHEET 1.

Fig. 1.

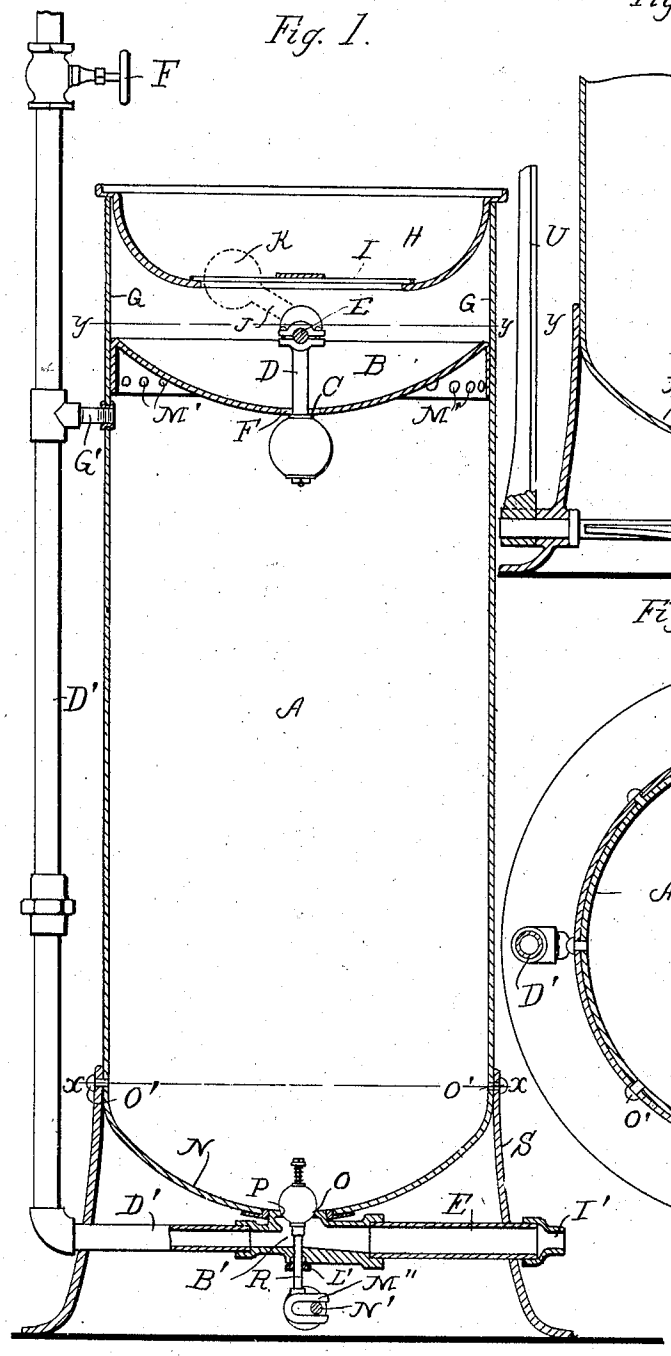



Fig. 2.

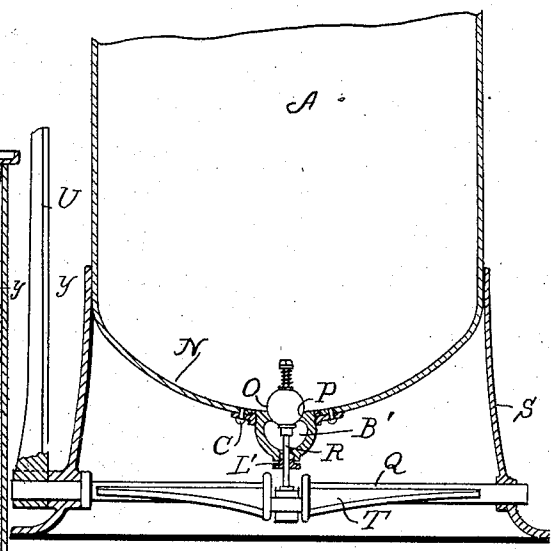
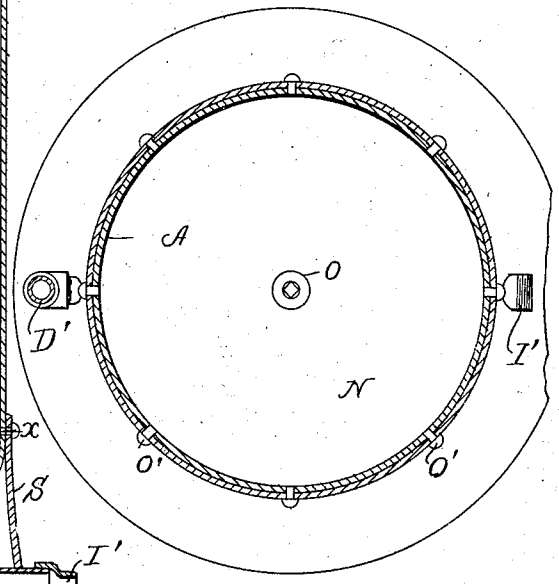



Fig. 3.




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2 SHEETS—SHEET 2.

Fig. 4.

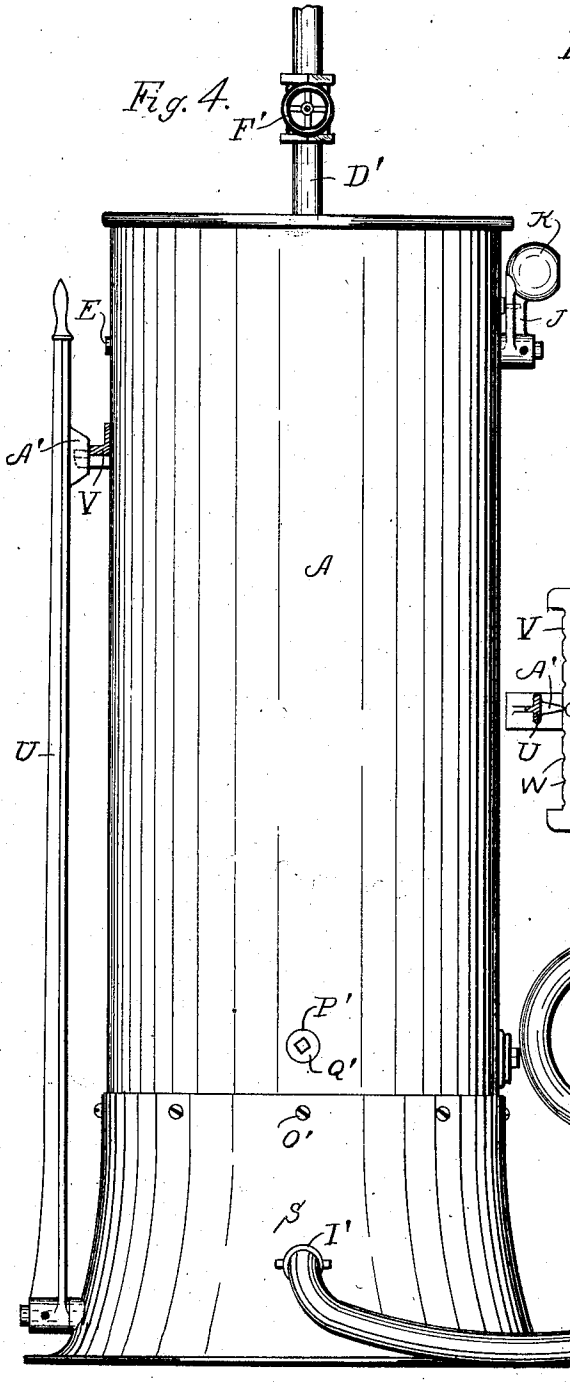



Fig. 5.

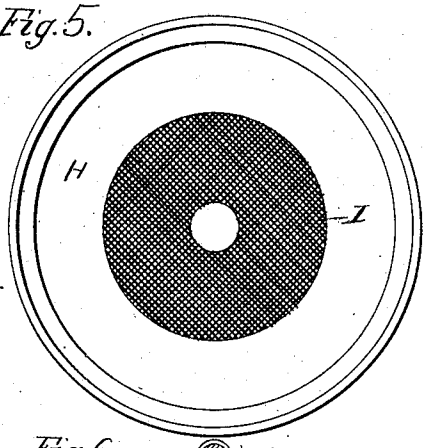
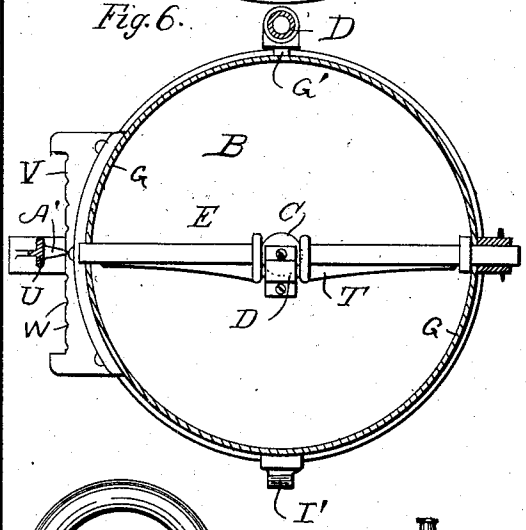
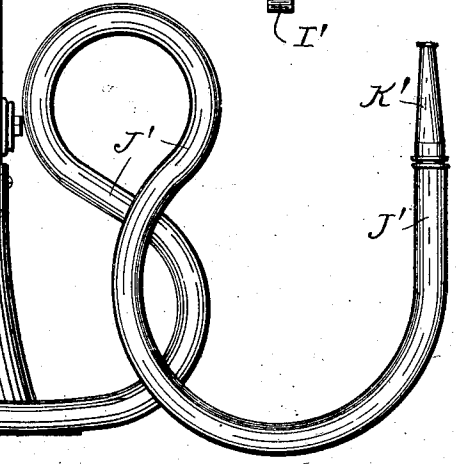



Fig. 6.




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No. 791,176. Patented May 30, 1905.

# UNITED STATES PATENT OFFICE.

FRED W. BREIDSTER, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO JOSEPH SHAVER, OF MILWAUKEE, WISCONSIN.

## SAND-BLAST REGULATOR.

SPECIFICATION forming part of Letters Patent No. 791,176, dated May 30, 1905.

Application filed September 16, 1903. Serial No. 173,401.

*To all whom it may concern:*

Be it known that I, FRED W. BREIDSTER, a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Sand-Blast Regulators, of which the following is a specification.

My invention relates to improvements in sand-blast apparatus; and it pertains to the construction of the sand-receiving reservoir, the mechanism for controlling the admission of sand to the reservoir, the device for screening and spreading the sand as it is deposited in the reservoir, the mechanism for simultaneously controlling the admission of air both above and below the sand in the reservoir, and the means employed for regulating the escape of sand from the reservoir to the discharge-nozzle.

The construction of my invention is explained by reference to the accompanying drawings, in which—

Figure 1 represents a vertical section thereof. Fig. 2 represents a vertical section of the lower end of the reservoir drawn at right angles to that shown in Fig. 1. Fig. 3 represents a transverse section drawn on line *x x* of Fig. 1. Fig. 4 represents a front view. Fig. 5 is a top view, and Fig. 6 represents a cross-section drawn on line *y y* of Fig. 1.

Like parts are identified by the same reference-letters throughout the several views.

A represents an air-tight reservoir, in which the sand is stored preparatory to use. The reservoir A is provided at its upper end with a concavo-convex air-tight head B, which head is in turn provided with the inwardly-opening valve C. The valve C is suspended from above the head B by the valve-stem D and crank-shaft E. The crank-shaft E is located outside of the reservoir proper and is connected with the valve C through the valve-port F by said valve-stem D. The crank-shaft E is supported at its respective ends in the vertical walls G of the reservoir, which walls G extend above the head B and serve to support a sand-receiving receptacle H. The sand-receiving receptacle H is provided with a screen I, through which refuse matter is screened from the sand as it is deposited in the reservoir. The receptacle H may be removed from the reservoir when desirous to discharge any refuse matter therefrom that may be screened from the sand. The crank-shaft E is provided on one of its protruding ends with an operating-lever J, to the outer end of which is connected a weight K, which serves to counterbalance the valve C and connecting parts and hold said valve in its closed position. The head B is secured to the walls G of the reservoir by a plurality of rivets M′ or other equivalent means. The lower end of the reservoir A is provided with a concave bottom or end piece N, converging downwardly and outwardly, so that the sand therein will flow of its own gravity toward the center of the reservoir, at which point the escape-valve O is located in the valve-seat P. The valve O is operated by the crank-shaft Q, with which it is connected by the valve-stem R. Attention is called to the fact that both of the sand-controlling valves C and O are located within the reservoir and adapted to close with the pressure from within, while the crank-shafts through which they are actuated are both located upon the exterior of the reservoir, and motion is communicated from said cranks to said valves through their respective valve-seats, whereby both of said valves are forced toward their seats by internal pressure. The crank-shaft O is supported at its respective ends from the walls of the reservoir-base S, as shown in Fig. 2, and both of said crank-shafts are provided upon their lower sides with strengthening-flanges T. The crank-shaft Q is provided with an actuating-lever U, which lever is connected at its lower ends to one of the protruding ends of said shaft, while the upper end of said lever U is retained at any desirable point of adjustment by the rack-bar V. The bar V is provided with a plurality of notches or recesses W for the reception of a vertical retaining-flange A′.

The valve-seat P is formed in connection with a sand-receiving chamber B′, which chamber is secured to the bottom of the reservoir A. The chamber P is connected on one side with

an air-inlet duct D′ and upon its opposite side with an air-outlet duct E′. The air-inlet duct D′ is connected with an air-reservoir or source of supply (not shown) and is provided with an air-controlling hand-valve F′.

G′ is a branch air-duct communicating from the duct E′ to the reservoir A above the sand therein.

The duct E′ is provided with a hose connection I′.

J′ represents the hose, and K′ the nozzle through which the sand is conducted from the reservoir A under pressure to the place of discharge.

The chamber B′ is provided with a stuffing-box L′, through which the valve-stem operates. The lower end of the valve-stem R is provided with a U-shaped bearing M″ for the reception of the crank N′ of the lower crank-shaft. The base S is preferably made flaring at its lower end and is connected at its upper end to the reservoir A by a plurality of rivets or screws O′.

P′ is a hand-opening or screw-threaded aperture, through which the interior of the reservoir may be reached when desirous to stir up the sand in case it becomes clogged above the outlet-valve. The aperture P′ is provided with a screw-threaded plug or stopper Q′, by which it is closed.

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

1. In a sand-blast apparatus, the combination of an air-tight reservoir provided at its respective ends with permanently-affixed concavo-convex heads converging downwardly at their centers; sand-controlling valves centrally located in both of said heads; a removable sand-receiving receptacle located above the upper head; a screen located in said removable receptacle; a sand-receiving chamber located below the lower head; one of said sand-controlling valves being adapted to close the passage between said sand-reservoir and said lower sand-receiving chamber; means for operating both of said sand-controlling valves through their seats from the exterior; air-ducts communicating from the sources of supply with the said sand-reservoir and sand-receiving chamber located below said reservoir and a discharge-duct communicating from said lower sand-receiving chamber with a discharge-nozzle, substantially as set forth.

2. In a sand-blast apparatus the combination of an air-tight reservoir having concavo-convex heads converging downwardly at their centers; sand-controlling valves centrally located in said heads within said sand-reservoir; a horizontally-arranged crank-shaft located above and outside of the upper head and inlet-valve supported at its respective ends from the vertical walls of said reservoir; an operating-lever connected with the protruding end of said crank-shaft; a valve-stem connected at one end to the crank of said shaft and at its opposite end with the inlet sand-controlling valve; a crank-shaft located below the outlet sand-controlling valve and exterior to the lower head and supported at its respective ends in the vertical walls of the base of said reservoir; a valve-stem connected at one end to the crank at the center of said crank-shaft and at its opposite end with the outlet sand-controlling valve; an operating-lever connected at its lower end to said last-named crank-shaft and means for regulating the movement of said operating-lever; a sand-receiving chamber located below the lower head of said sand-reservoir and provided with a sand-controlling valve; an air-duct communicating from the source of supply both with the sand-receiving chamber below the discharge-valve and with said sand-reservoir and a discharge-duct communicating from the lower sand-receiving chamber with the discharge-nozzle, substantially as, and for the purpose specified.

3. In a sand-blast apparatus, the combination of an air-tight reservoir having concavo-convex heads converging downwardly at their centers; sand-controlling valves centrally located in said heads; a removable sand-receiving receptacle located above the inlet sand-controlling valve provided with a screen through which the sand passes preparatory to entering said reservoir; means for operating said inlet and outlet sand-controlling valves from the exterior through their respective valve-seats and means for simultaneously controlling the admission of air to the sand-reservoir and to the sand-chamber from which the sand is discharged from the sand-reservoir, substantially as, and for the purpose specified.

4. In a sand-blast apparatus of the class described, the combination with the lower end of the sand-reservoir of a supporting-base; a crank-shaft supported at its respective ends to the wall of said base; a horizontally-arranged duct centrally connected with the discharge-valve and supported at its respective ends in the walls of said base at right angles to said crank-shaft; an operating-lever rigidly connected at its lower end to the protruding end of said crank-shaft; a rack-bar V rigidly affixed to the vertical walls of said sand-reservoir provided with notches for the engagement with the upper end of said lever and index characters to designate the proper place of adjustment of said lever against said rack-bar, all substantially as, and for the purpose specified.

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

FRED W. BREIDSTER.

Witnesses:
JAS. B. ERWIN,
N. Z. TANGHER.