Aug. 5, 1924. 1,504,048

W. JORGENSEN

SAND BLAST MACHINE

Filed July 14, 1923 2 Sheets-Sheet 1

Fig. 1.

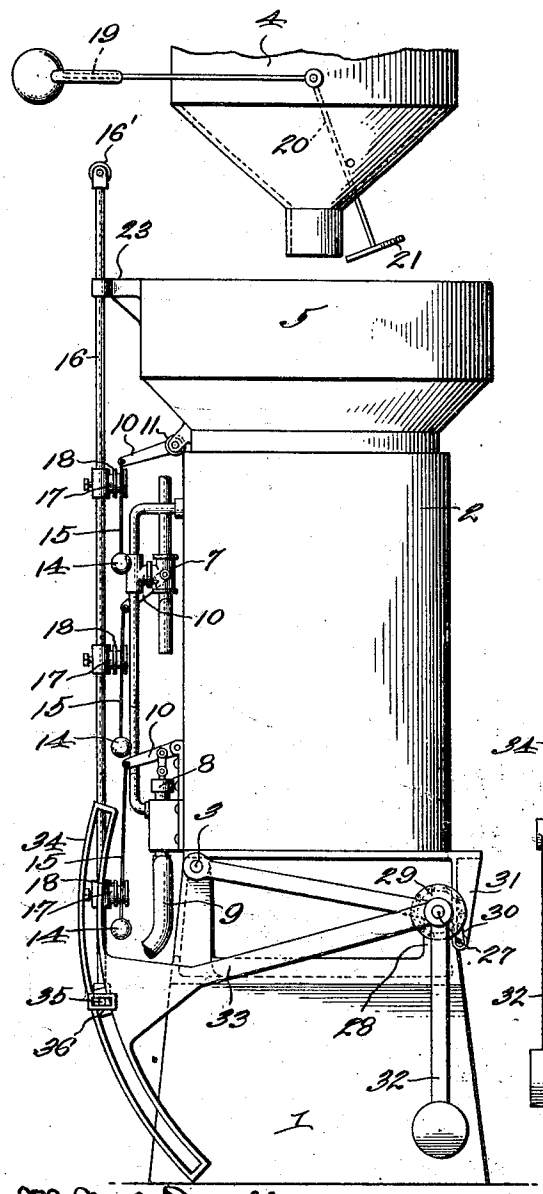
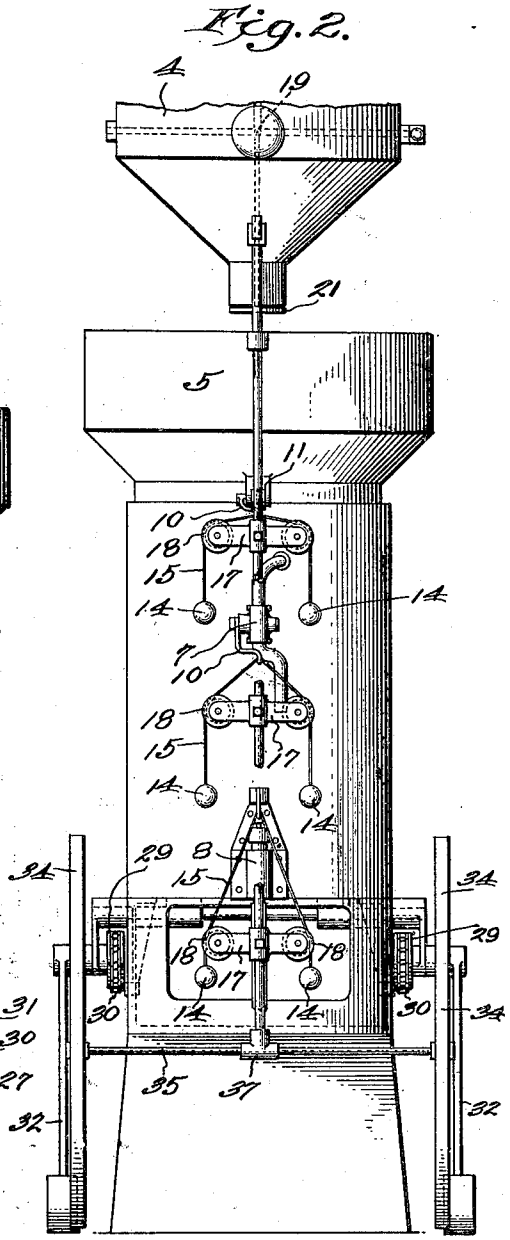


Fig. 2.



W. Jorgensen, INVENTOR

BY Victor J. Evans ATTORNEY

W. Mar. Burrell

WITNESS

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Fig. 3.

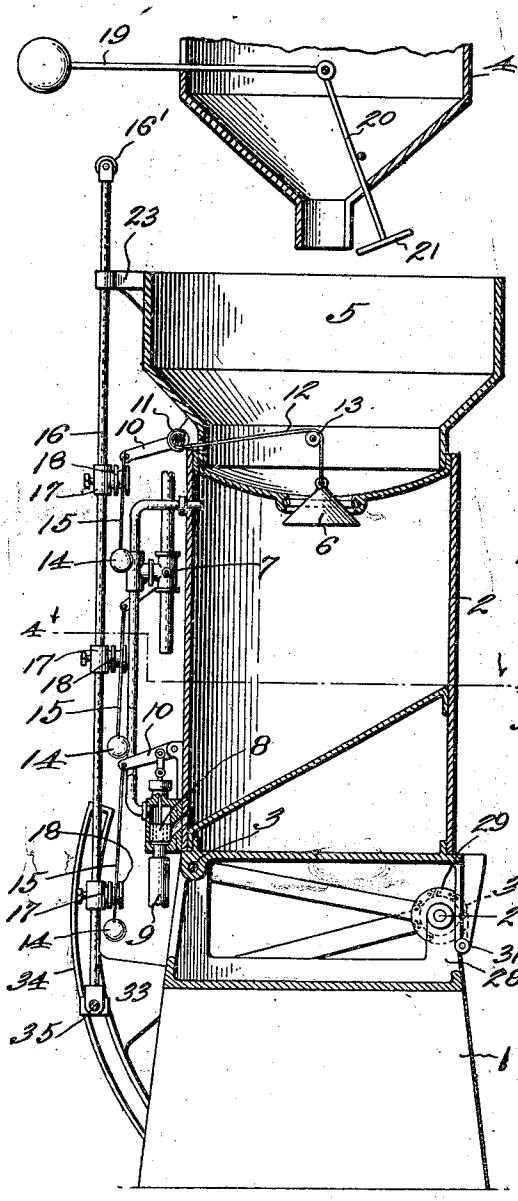


Fig. 5.

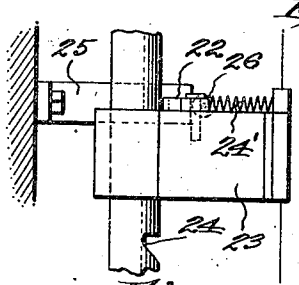


Fig. 4.

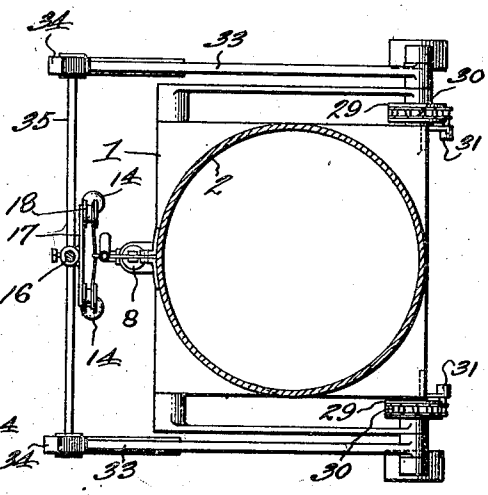
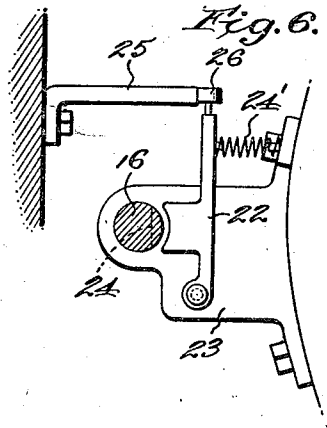


Fig. 6.



W. Jorgensen,
INVENTOR

BY Victor J. Evans
ATTORNEY

W. Mac. Duvall.
WITNESSES

Patented Aug. 5, 1924. 1,504,048

UNITED STATES PATENT OFFICE.

WESLEY JORGENSEN, OF HAGERSTOWN, MARYLAND.

SAND-BLAST MACHINE.

Application filed July 14, 1923. Serial No. 651,682.

To all whom it may concern:

Be it known that I, WESLEY JORGENSEN, a citizen of the United States, residing at Hagerstown, in the county of Washington and State of Maryland, have invented new and useful Improvements in Sand-Blast Machines, of which the following is a specification.

This invention relates to a sand blast machine, the general object of the invention being to provide means for controlling the valves of the machine by means of the weight of the sand therein so that after a certain amount of sand has entered the machine the large sand valve will be closed and the air valves and small sand valve will be opened, and then when the machine is almost empty, the operation will be reversed so that the machine will again be filled with sand.

Another object of the invention is to permit the valve to be operated by hand whenever desired.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is an elevation of the invention.

Figure 2 is a view taken at right angles to Figure 1.

Figure 3 is a longitudinal sectional view.

Figure 4 is a section on line 4—4 of Figure 3.

Figure 5 is a detail view of the means for holding the valve operating rod in raised position.

Figure 6 is a horizontal sectional view showing such means.

In these views 1 indicates a support, 2, the tank which is pivoted to the support at 3 in such a manner that it tends to assume a tilted position on the support and 4 indicates the sand hopper which is arranged to deliver sand into the hopper 5 which is fastened to the top of the tank. 6 indicates the sand controlling valve which controls the flow of sand from the hopper 5 into the tank. 7 indicates the valve for controlling the air blast into the tank and 8 indicates the exhaust valve for controlling the discharge of sand from the tank. The valve 7 is a three-way valve so that in one position it will permit the air to exhaust from the tank and in another position will permit the air to flow into the tank and into the valve 8 so as to facilitate the flow of sand through the discharge pipe 9. Each valve is provided with an actuating arm 10, the arm of the valve 6 being connected with a roller 11 to which is fastened a cable 12 which is also fastened to the valve 6, the cable passing over a guiding pulley 13. The parts are so arranged that when the arm 10 is moved upwardly the cable will be shortened by being wrapped around the roller and thus the valve 6 will be raised to close the sand opening. By means of the arms 10 the valves can be actuated by hand and they are held in lowered position with the valves shut by means of the weights 14 which are connected with the arms by the flexible members 15. A vertically movable rod 16 carries the cross heads 17 in which the pulleys 18 are journaled and the flexible members 15 pass over these pulleys so that by raising the rod 16 the valves are opened by the cross heads moving above the arms of the valves and causing the members 15 to raise the arms 10. When the rod 16 nears the end of its upward stroke, a roller 16′ thereon will engage a weighted arm 19 which is connected to the stem 20 of a valve 21 which controls the flow of sand from the hopper 4 into the hopper 5. Thus when the rod 16 is in its highest position the valve 21 will close the discharge opening of the hopper 4 and prevent further flow of sand into the hopper 5. The rod 16 is held in its raised position by means of a latch 22 which is pivoted to a part 23 on the hopper 5, this part acting as a guide for the rod 16. The latch 22 engages a notch 24 in the rod, as soon as the notch comes opposite the latch, as a spring 24′ moves the latch forwardly. When the tank 2 is in upright position, however, the latch is prevented from engaging the notch by reason of the fact that a bracket 25, secured to any suitable support, will engage a roller 26 on the latch 22 and thus force the latch away from the rod. A shaft 27 is journaled in the uprights 28 of the base and said shaft carries a pair of sprocket wheels 29 which are connected by the chains 30 with the projections 31 on the bottom of the tank so that the movement of the tank will be communicated

to the shaft and vice versa. Weighted arms 32 are connected with the shaft 27 in such a manner that they will hold the parts with the tank in vertical position as long as the tank is empty but as soon as the tank is filled the weight thereof with its contents will overcome the action of the weights on the arms so that the tank will assume a tilted position and as it moves downwardly it will rotate the shaft 27 through means of the chains and sprocket wheels. A pair of levers 33 are also connected with the shaft 27 so that they will be moved when the shaft is rotated and each lever carries a slotted arc-shaped part 34. A rod 35 has blocks 36 at its ends which engage the slots in the parts 34 and said rod is connected by the coupling 37 with the lower end of the rod 16 so that the movement of the lever 33 will be communicated to the rod 16 when an end of each of the parts 34 strikes the blocks.

From the foregoing it will be seen that when the tank 2 is empty the weighted arms 32 will raise it to a vertical position and the rod 16 will be in such a position that the valve 6 will be opened, the air valve 7 will be in exhaust position and the valve 8 in closed position. Sand will thus flow from the hopper 5, which is being filled from the hopper 4, into the tank to fill the same. Under the weight of the sand the tank will tilt, thus raising the levers 33 and as soon as the ends of the parts 34 engage the blocks 36 the rod 16 will start to move upwardly. This upward movement of rod 16 will cause its upper cross head to close the valve 6, then open the air valve 7 so as to admit air into the tank and then the valve 8 will be opened so that sand will flow from the tank into the discharge hose 9. The continued upward movement of the rod 16 will close the valve 21 so as to cut off the supply of sand from the hopper 4 into the hopper 5 and the rod will be held in its raised position by the latch 22 engaging the notch 24. As the tank is being emptied it will become lighter so that the weighted arms 32 will gradually move the tank back to its vertical position and just before it reaches its vertical position the roller 26 on the latch 22 will strike the bracket 25 so that the latch will be moved out of engagement with the notch 24, permitting the rod 16 to drop and thus open the valve 6 and close the valves 7 and 8. The valve 21 will also be opened by means of the weighted arm 19 so that the tank will be again filled with sand. Thus the action of the device is automatic and the tank is kept filled with sand. The air blast valve and the discharge valve will close when the sand in the tank reaches a low level and sand will be permitted to flow into the tank. Then when the tank is filled the sand valve will be closed and the air and discharge valves opened.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:—

1. A sand blast apparatus comprising a tank, having a sand supply valve and an air blast valve and movable part actuated by the weight of the sand in the tank and means actuated by said part for closing the sand supply valve and opening the air blast valve when the weight of the sand reaches a certain degree and for opening the supply valve and closing the the air blast when the tank is almost empty.

2. In a sand blast apparatus including a movable tank having sand and air controlling valves, a lever lifted by the downward movement of the tank, a rod, means for reciprocating the rod by the movement of the lever and means carried by the rod for actuating the sand supply valve and the air blast valve of the apparatus.

3. In a sand blast apparatus including a movable tank having sand and air controlling valves, a pivoted lever raised by the downward movement of the tank, a rod, a pin and slot connection between the rod and lever and means carried by the rod for controlling the valves of the apparatus when said rod is moved.

4. In a sand blast apparatus including a movable tank having sand and air controlling valves, a pivoted lever raised by the downward movement of the tank, a rod, a pin and slot connection between the rod and lever, means carried by the rod for controlling the valves of the apparatus when said rod is moved, such means consisting of an arm connected with each valve and a weight connected with the rod and adapted to move the arm when the rod reaches a certain position.

5. In a sand blast apparatus including a movable tank, its controlling valves, a hopper above the tank and a gate for the hopper, a pivoted lever actuated by the movement of the tank, a rod, a pin and slot connection between the rod and lever, means carried by the rod for actuating the valves of the apparatus and means for actuating the gate of the hopper by said rod.

In testimony whereof I affix my signature.

WESLEY JORGENSEN.