

C. F. MOTZ.  
SAND BLAST MACHINE.  
APPLICATION FILED NOV. 10, 1909.

955,470.

Patented Apr. 19, 1910.  
2 SHEETS—SHEET 1.

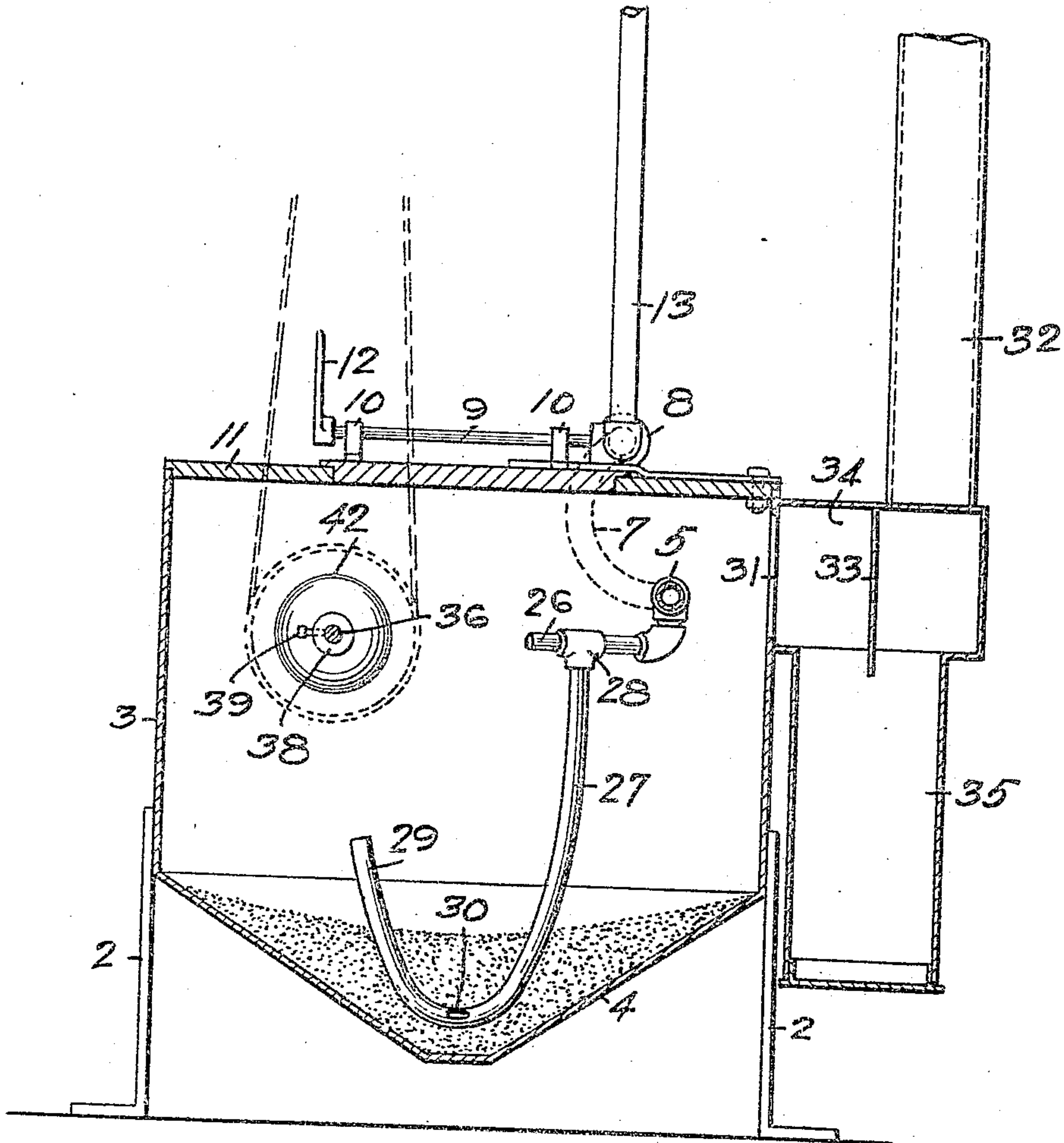


FIG. 1

WITNESSES.

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INVENTOR.

Charles F. Motz  
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2 SHEETS—SHEET 2.

FIG. 2

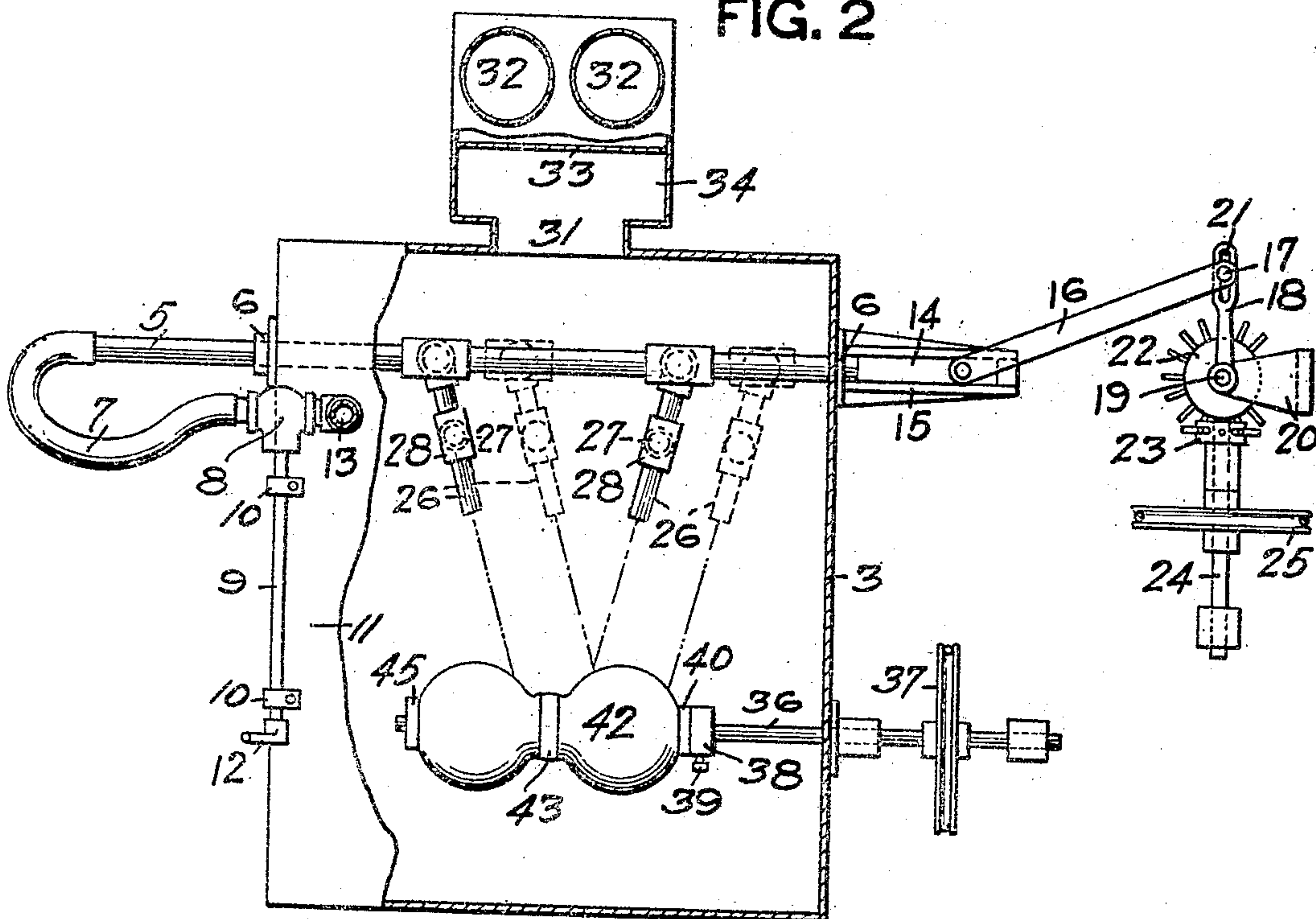
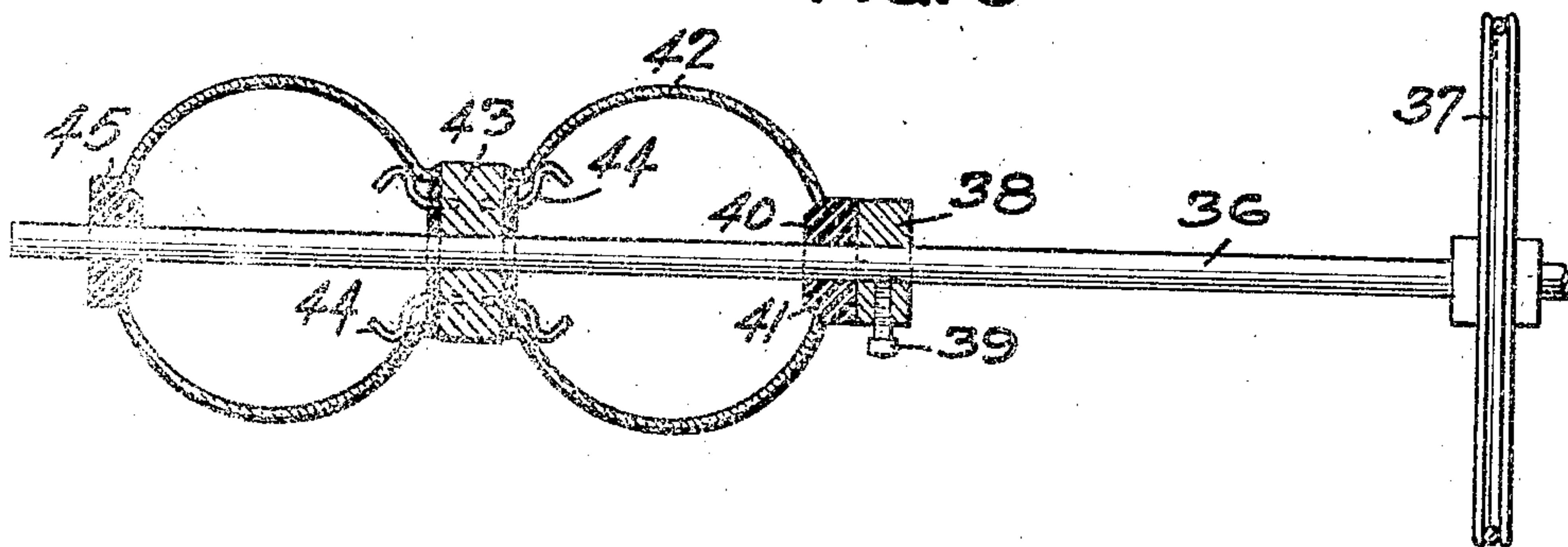


FIG. 3



WITNESSES.

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# UNITED STATES PATENT OFFICE.

CHARLES F. MOTZ, OF MOON TOWNSHIP, BEAVER COUNTY, PENNSYLVANIA, ASSIGNOR,  
BY MESNE ASSIGNMENTS, TO EMPIRE GLOBE COMPANY, OF NEW YORK, N. Y., A  
CORPORATION OF NEW JERSEY.

## SAND-BLAST MACHINE.

955,470.

Specification of Letters Patent.

Patented Apr. 19, 1910.

Application filed November 10, 1909. Serial No. 527,215.

*To all whom it may concern:*

Be it known that I, CHARLES F. MOTZ, a resident of Moon township, in the county of Beaver and State of Pennsylvania, have  
5 invented a new and useful Improvement in Sand-Blast Machines; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to sand-blast machines.  
10

The object of my invention is to provide a machine of this character in which the apparatus employed is simple in construction and by means of which the objects  
15 to be sand-blasted or frosted may be done in rapid succession and so exposed to the action of the sand equally at all portions as to be uniformly frosted throughout.

To these ends my invention comprises,  
20 generally stated, a suitable receptacle for containing the sand, an air-pipe, means for reciprocating the same, a sand-pipe connected to said air-pipe, a rotary support for the article to be operated on and means for  
25 directing the sand-blast against said article.

In the accompanying drawings, Figure 1 is a sectional elevation of my improved machine; Fig. 2 is a plan view partly broken away; and Fig. 3 is an enlarged view of the  
30 support for the article to be operated on.

In the drawings, the numeral 2 designates suitable standards which support the receptacle 3 having the conical bottom 4. A pipe 5 is adapted to reciprocate in bearing 6, in the receptacle 3, and to one end of said pipe is connected the flexible coupling 7 which is connected up to the valve 8. This valve 8 is of any suitable construction and is operated by the rod 9 which  
40 is adapted to turn in bearings 10 on the cover 11 of the receptacle. The outer end of the rod 10 has the handle 12 for convenience of the operator. An air-supply pipe 13 is connected up to the valve 8, said  
45 supply pipe being connected to a suitable air-compressor or fan. The opposite end of the pipe 5 is connected up in any suitable manner to the cross-head 14 which is adapted to reciprocate in the guide 15. A pitman  
50 16 is connected up to the cross-head and said pitman is connected up by the pin 17 to arm 18 on the shaft 19 journaled in the bracket 20. The arm 18 has the slot 21 with which the pin 17 engages. The pin-wheel

22 is secured to the shaft 19 and said pin-wheel 55 is engaged by the pin-wheel 23 on the shaft 24 mounted in suitable bearings. The pulley 25 on the shaft 24 may be connected to any suitable source of power. In this manner reciprocating movement is imparted  
60 to the pipe 5.

Connected to the pipe 5 are the nozzles 26 which may be connected to said pipe so as to extend therefrom at any desired angle.

Sand-pipes 27 are connected to the nozzles 26 by the coupling 28, and said sand-pipes 65 communicate with said nozzles. These sand-pipes 27 extend down into the sand at the bottom of the receptacle and have the upwardly extending portions 29 which project above the sand and form vents. The  
70 pipes 29 are further provided with the openings 30 by means of which the sand is admitted to said pipes.

The receptacle 3 is provided with the opening 31 through which the dust caused by the sand-blast operation passes, and the suction-pipes 32 are provided for carrying off this dust, said suction-pipes being connected to a suitable exhaust. In order to  
80 prevent the waste of the sand and the drawing-off of the same through the exhaust pipes 32, I employ baffle 33 in the passage 34 leading to the pipes 32, and the box 35 is provided to hold and retain the sand which  
85 strikes the baffle plate 33 and is deflected downwardly therefrom. The box 35 has a removable bottom so that the sand collected in said box may be removed from time to time to be returned to the receptacle 3.  
90

A shaft 36 is mounted on suitable bearings in the receptacle 3 and said shaft is provided with the pulley 37 which may be connected up to any suitable source of power. A collar 38 is connected to the shaft 36 by  
95 set-screw 39. Abutting against the collar 38 is the cushion 40 of rubber or other suitable material having the tapering portion 41 adapted to enter the opening in the end of the globe 42 or other article to be operated  
100 on. Where two globes are to be operated on at the same time, the first globe is slipped over the end of the shaft 36 until it engages the cushion 40, said globe being connected to the block 43 with the spring-clips 44 engaging the inner face of said globe. The  
105 second globe is then slipped over the shaft 36 and is forced over the spring-clips 44, to



be engaged thereby and supported concentric to the shaft 36. A cushion 45 of rubber or other suitable material is then slipped on the shaft 36 and engages the opening at the upper end of the second globe, all as clearly illustrated in Fig. 3.

In sand-blasting with my improved machine, the globes or other articles to be frosted are mounted on the shaft 36 in the manner above described, and the power to rotate the shaft 36 as well as to reciprocate the pipe 5 is applied whereupon the globes 42 are rotated and the nozzles 26 move to and fro. The operator now opens the valve 8 with his hand upon the handle 12 and air is admitted to the pipe 5 through the flexible connection 7. This forced draft passing out through the nozzles 26 creates suction in the sand-pipes 27 and the sand is drawn up into the said pipes through the openings 30 and discharged with high velocity from the nozzles 26 which direct it against the outer face of the globes 42. The reciprocating movement of the pipe 5 causes the nozzles to traverse the globes lengthwise thereof, the blasting being directed to all parts of the globe, while at the same time the rotation of the globes exposes all portions of the globes to the action of the blast. The globes are allowed to remain exposed to the blast for a sufficient length of time to frost the entire outer surface of the globes uniformly, whereupon the operator cuts off the air supply by the valve 8, and the cover of the receptacle is raised and the globes removed, it only being necessary to remove the cushion 45 to remove the globes. In this manner I provide a machine in which the articles to be operated on are exposed to the sand-blast in a manner which insures the frosting of the globes uniformly throughout and at the same time I provide a machine in which the work is done with great rapidity, so that the globes may be fed to the machine in quick

succession while at the same time one operator can attend to several machines feeding them in rotation.

What I claim is:

1. In a sand-blast machine, combination of a suitable receptacle for the sand, a movable air-pipe, means for reciprocating same, a sand-pipe in said receptacle having an opening for the admission of the sand and connected to said air-pipe, and a support for the article to be operated on. 50

2. In a sand-blast machine, combination of a suitable receptacle for the sand, a movable air-pipe, means for reciprocating same, a sand-pipe in said receptacle having an opening for the admission of the sand and connected to said air-pipe, and a rotary support for the article to be operated on. 55

3. In a sand-blast machine, combination of a suitable receptacle for the sand, a movable air-pipe, means for reciprocating same, a plurality of converging nozzles connected to said air-pipe, a sand-pipe in said receptacle having an opening for the admission of the sand and connected to said air-pipe, and a rotary support for the article to be operated on. 60

4. In a sand-blast machine, combination of a suitable receptacle for the sand, a movable air-pipe, an air-supply pipe, flexible connections between said supply-pipe and said air-pipe, means for reciprocating said air-pipe, a sand-pipe in said receptacle having an opening for the admission of the sand connected to said air-pipe, and a support for the article to be operated on in line with the discharge outlet of said air-pipe. 65

In testimony whereof, I the said CHARLES F. MOTZ have hereunto set my hand.

CHARLES F. MOTZ.

Witnesses:

GEO. F. WEHR,  
ERNEST FOGEL.