C. F. MOTZ.

SAND BLAST MACHINE.

APPLICATION FILED NOV. 10, 1909.

955,471.

Patented Apr. 19, 1910.

2 SHEETS—SHEET 1.

FIG. 1

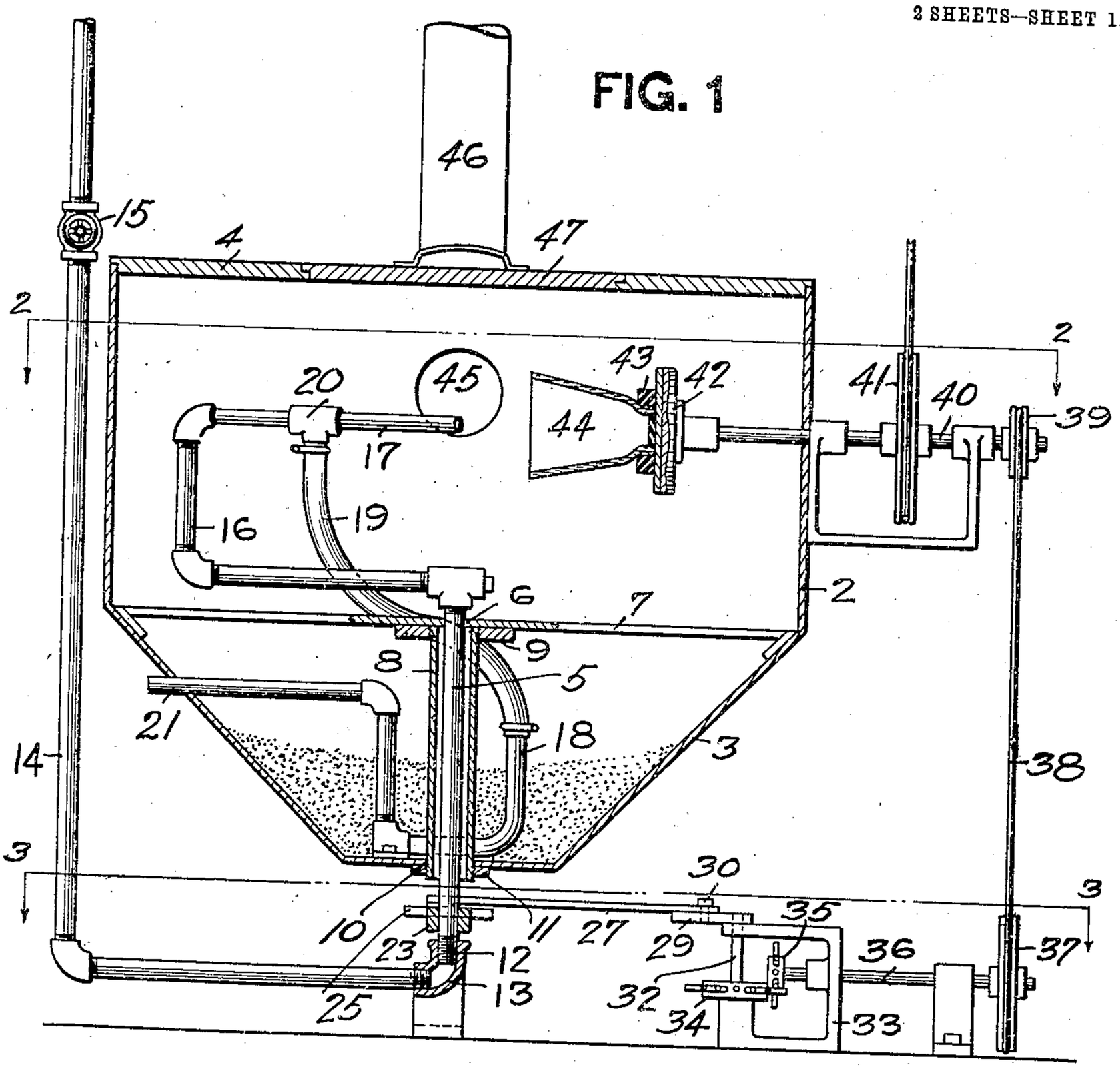
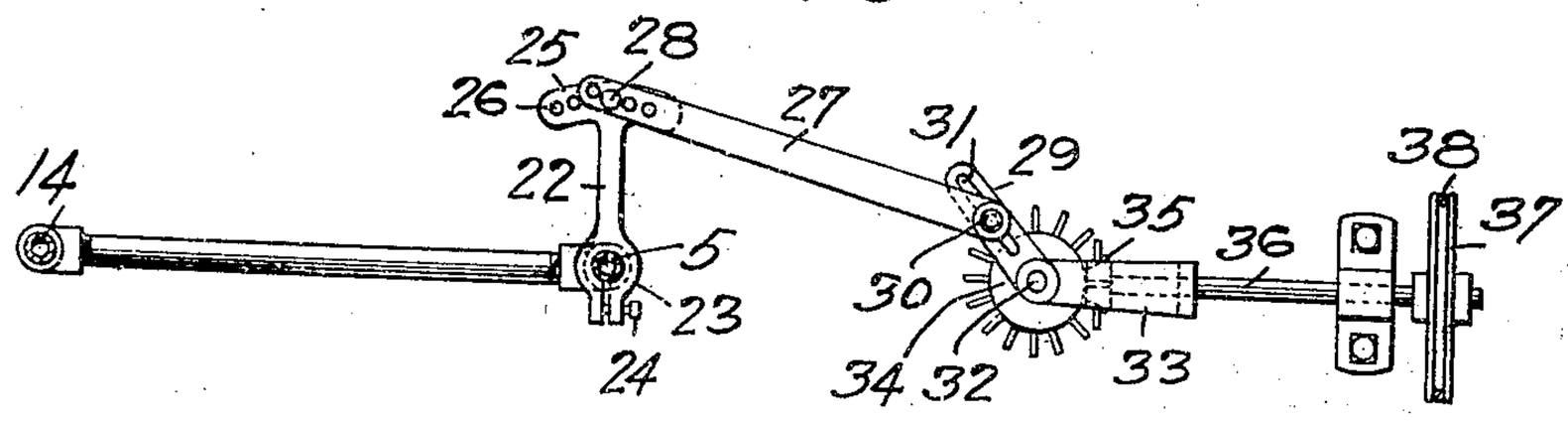


FIG. 3



WITNESSES.

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2 SHEETS—SHEET 2.

FIG. 2

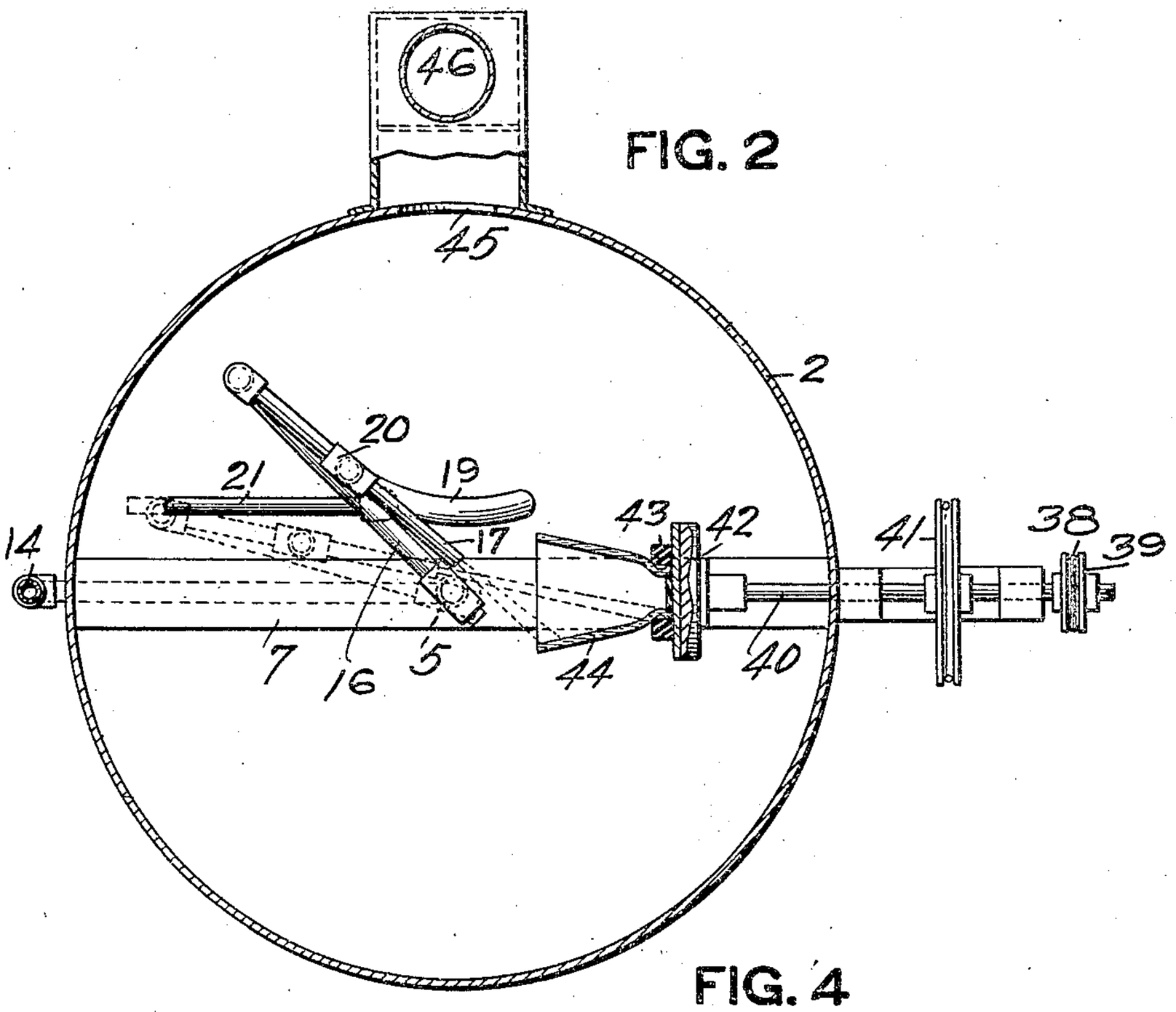
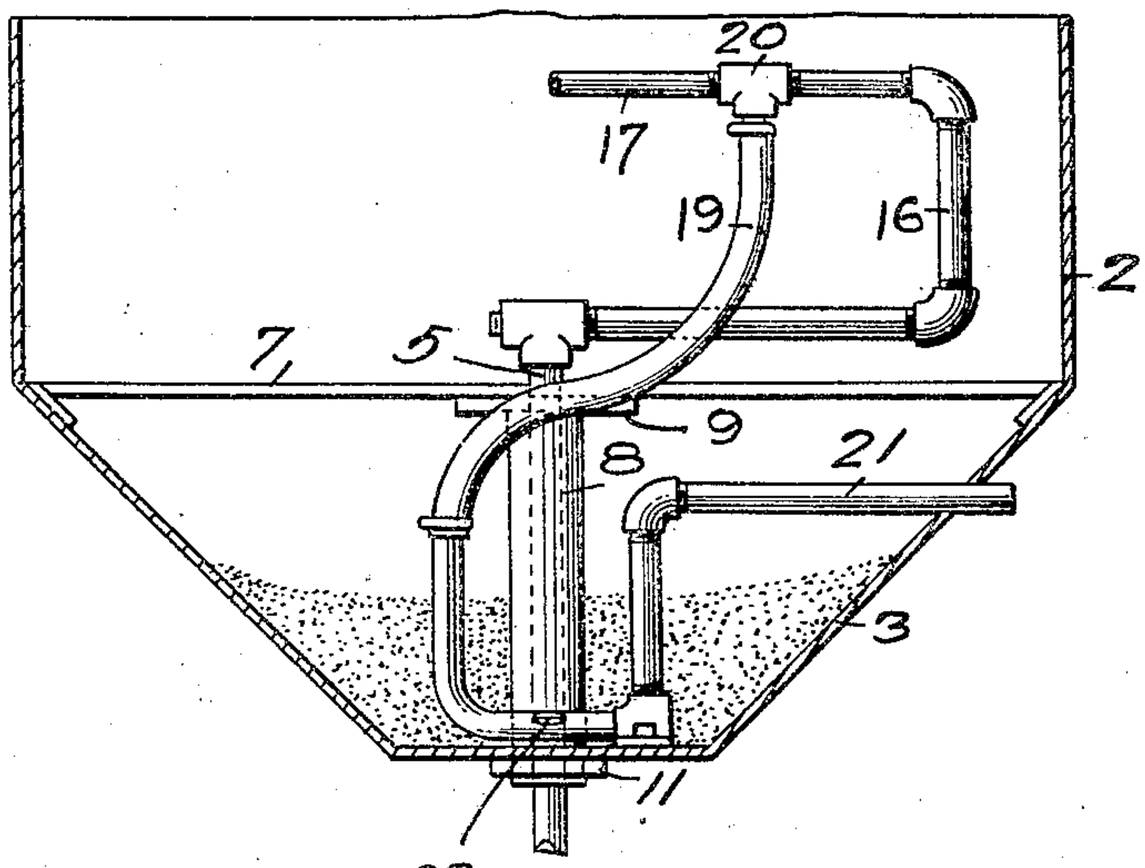


FIG. 4



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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.

955,471. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed November 10, 1909. Serial No. 527,216.

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 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.

The object of my invention is to improve machines of this character in such a way as to provide for wide variation in the adjustment so as to adapt the machine for the sand-blasting of ware of different shapes and sizes, so that all the parts to be frosted will be reached by the sand-blast, and a uniform frosting of the ware obtained.

To these ends my invention comprises, generally stated, a suitable receptacle containing sand, a rotary air-pipe, means for reversing the direction of rotation of said air-pipe, a sand-pipe connected to said air-pipe, and a rotary support for the article to be operated on in position to be acted on by the sand-blast.

In the drawings, Figure 1 is a sectional elevation of my improved machine; Fig. 2 is a cross section on the line (2—2) Fig. 1; Fig. 3 is a section on the line (3—3) Fig. 1; Fig. 4 is a detail of the sand-pipe and connections with the air-pipe.

In the drawings the numeral 2 designates a suitable receptacle having the conical-bottom 3 for the sand, and provided with a cover 4. The air-pipe 5 passes up through an opening in the bottom of the receptacle 2 and through the opening 6 in the cross-piece 7. To protect the pipe 5 and its bearings from the sand within the receptacle, I employ the sheath 8, which is threaded into the collar 9 on the cross-piece 7 at one end and the opposite end of the sheath passes through the opening 10 in the bottom 3, and the lock nut 11 engages the lower end of the said sheath to secure it in position.

The lower end of the pipe 5 is threaded as at 12, and engages the coupling 13. The supply-pipe 14 leading from a suitable air-compressor or fan is connected up to the coupling 13. This supply-pipe is provided with the valve 15.

At the upper end of the air-pipe is the L-section 16 to which the nozzle-pipe 17 is attached.

A sand-pipe 18 is connected by the hose or other flexible connection 19 with the T-coupling 20 which communicates with the nozzle-pipe 17. The sand-pipe 18 is substantially U-shaped in form and has the vent-pipe 21 communicating with the atmosphere. The sand-pipe 18 is further provided with the opening 22 which admits the sand to said pipe when the suction is created as hereinafter set forth.

The pipe 5 is to have a rotary movement imparted to it alternately in opposite directions, and to accomplish this, I connect said pipe up to suitable mechanism for accomplishing this result. Accordingly the arm 22 is connected by the split collar 23 thereon to the pipe 5 by means of the set screw 24. At the outer end of the arm 22 is the arc 25 with the openings 26 formed therein. A pitman 27 is connected by the pin 28 inserted within one of the openings 26 in the arm 22, and the opposite end of said pitman is connected to the crank-arm 29, the pin 30 engaging the slot 31 in said crank-arm. The crank-arm is connected to the shaft 32 mounted in the bearing 33. A pin-wheel 34 on the shaft 32 is engaged by the pin-wheel 35 on the shaft 36. The shaft 36 has the pulley 37 which is connected by the band 38 to the pulley 39 on the shaft 40. The shaft 40 has the pulley 41 which may be connected up by a belt to a suitable source of power. The shaft 40 carries the chuck 42, said chuck having the rubber or like elastic holder 43 to receive the end of the article to be operated on, such as the shade 44.

The receptacle 2 is provided with the outlet 45 which is connected up to the suction pipe 46 for carrying off the dust.

When my improved machine is in use, the operator removes the lid 47 and slips the shade 44 within the holder 43 of the chuck 42. The cover 47 is then replaced and the power is applied to operate the parts and the air is turned on in the pipe 14. The air passes up through the pipe 5 and is discharged from the nozzle-pipe 17, and the action of the air will create a suction in the sand-pipe 19 and the sand from the receptacle 3 will be drawn up through the pipe 18 and discharged from the nozzle 17 at high

velocity. The nozzle-pipe and the position of the shade to be operated on are so arranged with reference to each other, that the nozzle will be directed at a proper angle so as to discharge the sand onto the inner wall of the shade. A rotary movement is imparted to the shade from the shaft 40 and at the same time the pipe 5 is alternately rotated in opposite directions, so that the nozzle-pipe 17 has a movement such as indicated in dotted lines Fig. 2, whereby the blast is moved in the manner indicated by the arrows so as to discharge the sand at all points within the shade to give a uniform frosting to the shade and insure all parts being acted on alike by the sand-blast. The nozzle-pipe sweeps around in the arc of the circle and the pipe 5 rotates, or partially rotates, alternately in opposite directions by means of its threaded connection with the coupling 13. The flexible connections 19 between the nozzle-pipe and the sand-pipe 18 permits of the movement of the nozzle while connected up with the sand-pipe so that no strain is conveyed to sand-pipe 18.

In the above manner the operation of frosting is done with great rapidity and accuracy so as to produce uniformly frosted ware and all the operator is required to do is to feed the shades to the machine, the operation of frosting requiring no skill on the part of the operator, and one operator can feed several machines, feeding them in rotation.

What I claim is:

1. In a sand blast machine, the combination of a suitable receptacle for containing the sand, a rotary air pipe extending up within said receptacle and having an outlet projected toward the article, means for rotating said pipe, a sand pipe within 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 upon.

2. In a sand blast machine, the combination of a suitable receptacle for the sand, a rotary air pipe extending up within said receptacle and having an outlet projected toward the article to be operated on, means for rotating said pipe alternately in opposite directions, a sand pipe within said receptacle having an inlet for the sand and connected to said air pipe, and a support for the article to be operated on.

3. In a sand blast machine, the combination of a suitable receptacle for containing the sand, a rotary air pipe extending up within said receptacle and having an outlet projected toward the article to be operated on, means for rotating said air pipe alternately in opposite directions, a sand pipe within said receptacle having an inlet for the sand and connected to said air pipe, and a rotary support for the article to be operated on.

4. In a sand blast machine, the combination of a suitable receptacle for the sand, a rotary air pipe extending up within said receptacle, means for rotating said pipe, a U-shaped pipe connection at the upper end of said air pipe, and having an outlet projected toward the article to be operated upon, a sand pipe within said receptacle having an inlet for the sand and connected to the said U-shaped pipe connection, and a support for said article.

5. In a sand blast machine, the combination of a suitable receptacle for the sand having a central vertical passage-way leading up into the same, a rotary air pipe passing up through said passage-way, means for rotating said pipe, a U-shaped pipe connection connected to the upper end of said air pipe and having an outlet projected toward the article to be operated upon, a sand pipe in said receptacle having an inlet for the sand and connected to said U-shaped connection, and a support for said article.

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

CHARLES F. MOTZ.

Witnesses:
GEO. F. WEHR,
ERNEST FOGEL.