C. F. MOTZ.

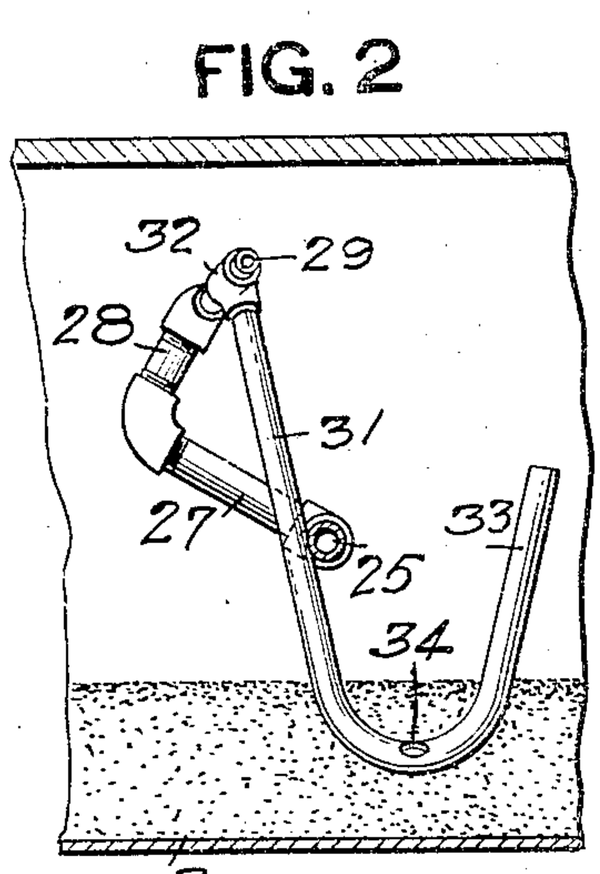
SAND BLAST MACHINE.

APPLICATION FILED NOV. 10, 1909.

955,469.

Patented Apr. 19, 1910.

FIG. 2



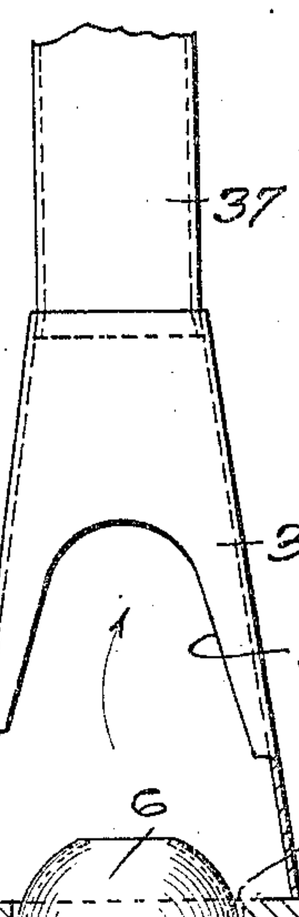
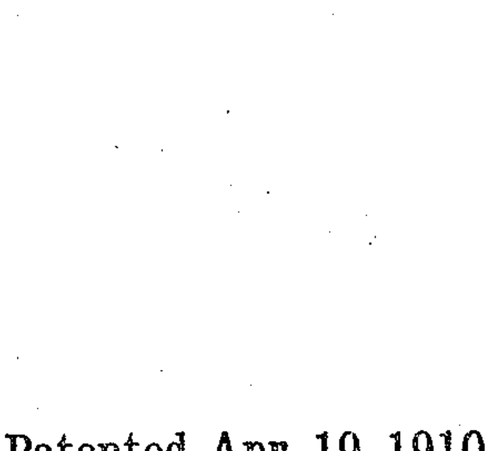


FIG. 3



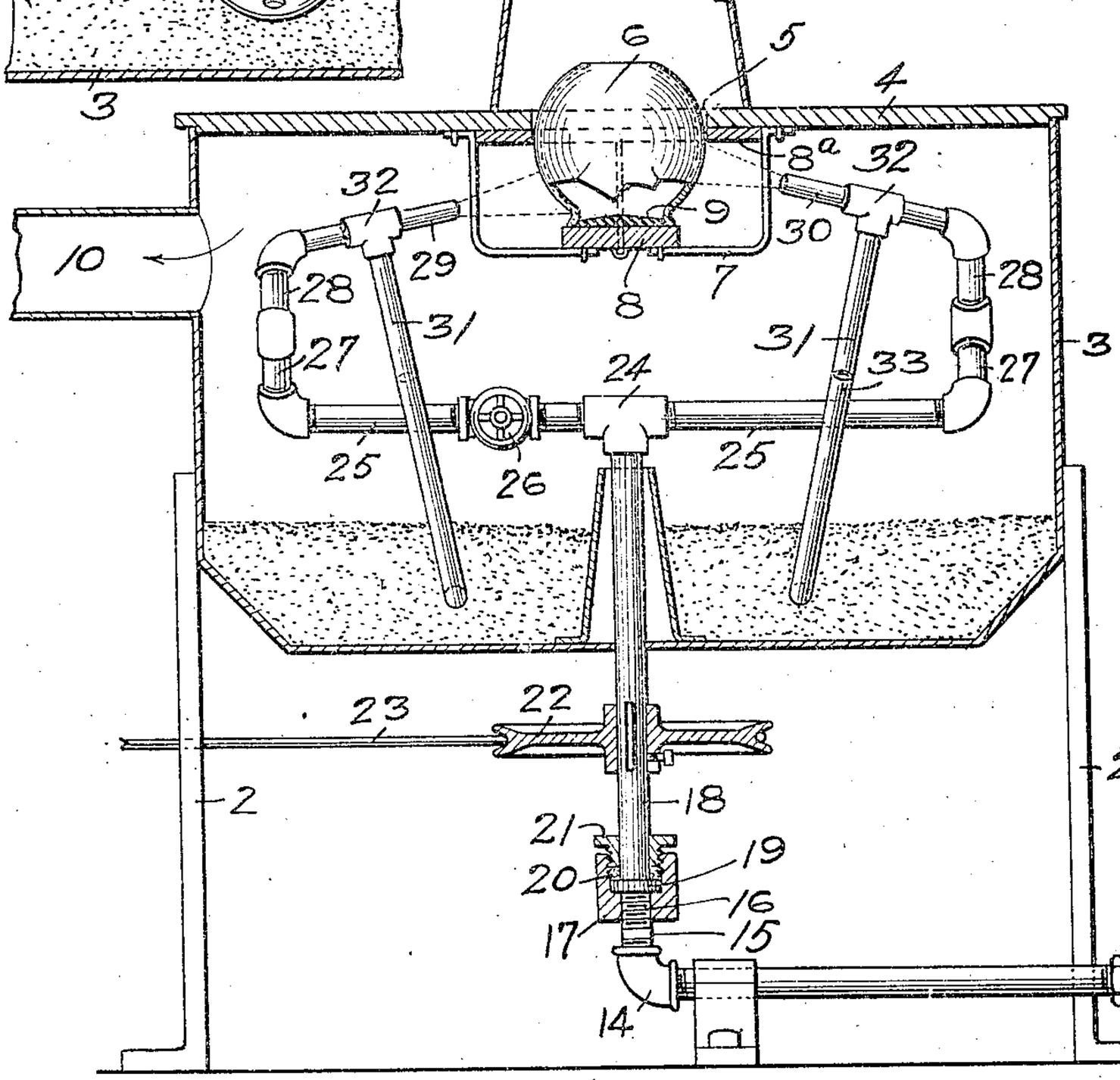


FIG. 1

WITNESSES.

J. R. Keller

Robert C. Totten

INVENTOR.

Charles F. Motz

By Kay & Totten

Attorneys.

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.

955,469. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed November 10, 1909. Serial No. 527,214.

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 provide a machine of this character in which the globe or other object to be operated upon is held in such position as to have the sand blast directed upon the part to be frosted in such a manner that the effect of the sand-blast will be produced uniformly over the surface operated upon, and at the same time to provide a machine in which the sand blasting is done with great rapidity so that the articles are introduced and withdrawn in rapid succession, the operation requiring no skill on the part of the operator, thereby greatly reducing the cost.

To these ends my invention comprises, generally stated, a suitable receptacle containing sand, a rotary-pipe, an air supply connected thereto, a sand-pipe connected to said rotary-pipe, said sand-pipe having an inlet for the sand, and connections between sand-pipe and the rotary-pipe, whereby the suction created by the rotary-pipe draws the sand up through said sand-pipe, and the same is discharged against the article held in suitable position to be acted on by the sand-blast.

In the drawings, Figure 1 is a vertical sectional elevation of my improved apparatus; Fig. 2 is a detail of the sand-pipe and its connection with the air-pipe; Fig. 3 is a view of an article sand blasted by my improved apparatus.

I have illustrated my invention in connection with the sand-blasting of a globe where it is desired to subject only a portion of the globe to the action of the sand-blast, the remaining part of the globe remaining transparent.

In the drawings the numeral 2 designates suitable standards or supports which support the receptacle 3. This receptacle 3 is provided with the cover 4 provided with the opening 5 for the insertion of the article to be operated on. As the article illustrated is a globe, this opening 4 is round and of a size within which the globe 6 fits snugly when introduced therein up to its point of greatest diameter. The cage 7 is secured to the face of the cover 4 and said cage carries the rubber block or cushion 8 upon which the globe 6 rests when inserted within the opening 5 for the sand-blast operation. The globe is centered upon the block 8 by means of the supplementary cushion 9. Surrounding the opening 5 on the inner face of the cover 4 is the ring 8^a which is formed of a hard metal adapted to withstand the action of the sand-blast. This ring defines a clear line around the globe and fits close to said globe so that when the sand-blast is directed against the same the line of demarcation between the frosted and clear portions of the globe is clear and distinct when the operation is completed. The receptacle 3 is provided with the outlet 10 for the escape of the dust, as hereinafter set forth.

The numeral 11 designates a supply-pipe leading from a suitable air-compressor or fan, the said pipe being provided with the valve 12 which is operated by suitable treadle 13 for controlling the supply of air to the apparatus. The pipe 11 is connected by the coupling 14 to the pipe 15. This pipe 15 is threaded as at 16 to receive the collar 17. A pipe 18 has the ring 19 which fits within the seat 20 in the collar 17 and a gland 21 is screwed to the collar 17, whereby the pipe 18 is swiveled so as to turn freely and yet communicate with the pipe 15 and the supply-pipe 11. Secured to the pipe 18 is the pulley 22 which is connected up by the belt 23 to suitable source of power to impart rotary movement to the pipe 18. The pipe 18 passes up through an opening in the bottom of the receptacle 3, and connected to the upper ends of the pipe 18 by the T-coupling 24 are the branch-pipes 25. One or both of said pipes 25 may be provided with valve 26. Connected to the ends of the branch pipes are the pipes 27, said pipes projecting at an angle from the pipes 25, and connected to the pipes 27 are the pipes 28. Connected to the pipes 28 are the nozzle-pipes 29 and 30, said pipes being adjusted at different angles with reference to each other so that the sand ejected from one pipe will operate upon one

portion of the article to be operated upon, and the sand from the other pipe on the other portion, thereby insuring the equal distribution of the sand and the uniform frosting of the article as fully hereinafter set forth. The sand-pipes 31 are connected to the nozzles 29 and 30 by means of the T-coupling 32, and said pipes communicate with the nozzles 29 and 30 at the point of attachment. The sand-pipes extend down into the sand contained within the receptacle 3 and said pipes are bent to form upwardly projecting portion 33. Orifices 34 are provided in the sand-pipes to admit the sand to the pipes when the suction is created during the operation of the machine. Open ended portions 33 of the pipes 31 project above the sand. A hood 35 normally rests upon the cover 4, said hood having the opening 36 for the convenient insertion of the globes or other articles to be treated within the opening 5 of the cover. This hood 35 is slidable up and down the pipe 37 to permit of the raising of the cover forward when desired to get at the material of the receptacle 3. The pipe 37 may be connected to any suitable exhaust for creating a suction so as to carry off any dust which rises for the opening 5 when the article is removed therefrom.

When my improved machine is in operation, the operator inserts a globe within the opening 5 of the cover 4, and said globe rests with its neck on the cushion 8, the portion of the globe to be acted on consisting in this instance of half of the globe, and the opening 5 being of a size for the globe to fit snugly therein to prevent its moving. With the globe resting in this position, the operator applies his foot to the treadle 13 and admits the air which passes up the pipe 11 up through the pipe 18 and into the branch pipes 25, whence it passes through the connections described to the nozzles 29. The suction created by this forced draft passing through the nozzles 29 acts to draw up the sand through the sand-pipes 31, and sand is discharged with great velocity against exposed portion of the globe and by the rotation of the pipe 18 the sand-blast is directed against all the exposed parts of the globe uniformly and evenly so that all parts of the globe are subjected to the same degree of sand-blast. Furthermore, by having the nozzles 29 and 30 arranged at different angles, all parts of the globe are acted upon alike and no part is allowed to escape the action of the blast.

The sand-blast operation is done with great rapidity, and the operator feeds the globes to the machine in quick succession so that the machine has a very large capacity, and as no skill on the part of the operator is required, the employment of unskilled labor is possible, thereby greatly reducing the expense. The dust rising from the operation of the machine is carried off by the pipes 10 and 37, so that injurious effects to the operator, due to the dust, is entirely removed.

What I claim is:

1. In a sand-blast machine, the combination of a suitable receptacle, a support therein for the article, a revoluble air-pipe having an outlet directed toward said article, and a sand-pipe communicating with said air-pipe.

2. In a sand-blast machine, the combination of a suitable receptacle, a support therein for the article, a revoluble branch-pipe having an outlet directed toward said article, means for supplying air thereto, and a sand-pipe communicating with said air-pipe.

3. In a sand-blast machine, the combination of a suitable receptacle, a support therein for the article, a revoluble double-branch pipe having an outlet directed toward said article, means for supplying air thereto, and a sand-pipe communicating with said air-pipe.

4. In a sand-blast machine, the combination of a suitable receptacle, a support therein for the article, a revoluble branch-pipe having two or more outlets directed toward said article at different points thereon, the one above the other, means for supplying air to said pipe, and sand-pipes communicating with said air-pipes.

5. In a sand-blast machine, the combination of a suitable receptacle, a support therein for the article, a revoluble air-pipe having an outlet directed toward said article, means for supplying air thereto, and a sand-pipe communicating with said air-pipe having a curved portion with an upwardly projecting vented end, the curved portion of said pipe having an orifice therein.

6. In a sand-blast machine, the combination of a suitable receptacle, having an opening in the top thereof to receive the article to be operated upon, a support within said receptacle for the article in line with said opening and supporting said article with a portion thereof extending outside said opening, and means for directing the sand-blast against the article supported thereby.

7. In a sand-blast machine, the combination of a suitable receptacle, having an opening in the top thereof for the insertion of the article to be treated, a support carried by said top, and supported from the inner face thereof, said support being in line with said opening and at such a distance from said top so that a portion of said article extends outside said opening, and means for directing the sand-blast against the article supported thereby.

8. In a sand-blast machine, the combination of a suitable receptacle, having an opening in the top thereof for the insertion of the article to be treated, a support supported from the inner face of said top at such a

distance from said top whereby the article extends outside said opening, a cushion carried by said support, said cushioned block being in line with the said opening, and means for directing the sand-blast against the article supported thereby.

9. In a sand-blast machine, the combination of a suitable receptacle having an opening therein for the insertion of the article to be treated, means for supporting the article with a portion of its outer surface exposed within said receptacle, the remaining portion of said article extending outside said opening and means for directing a sand-blast against the exposed portion of said article.

10. In a sand blast machine, the combination of a suitable receptacle having an opening therein for the insertion of the article to be treated, said article at some portion of its exterior surface forming a snug fit with said opening, means for supporting the article with a portion of its outer surface exposed within said receptacle, the remaining portion extending without said opening, and means for directing a sand blast against the exposed portion of 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.