

No. 731,812.

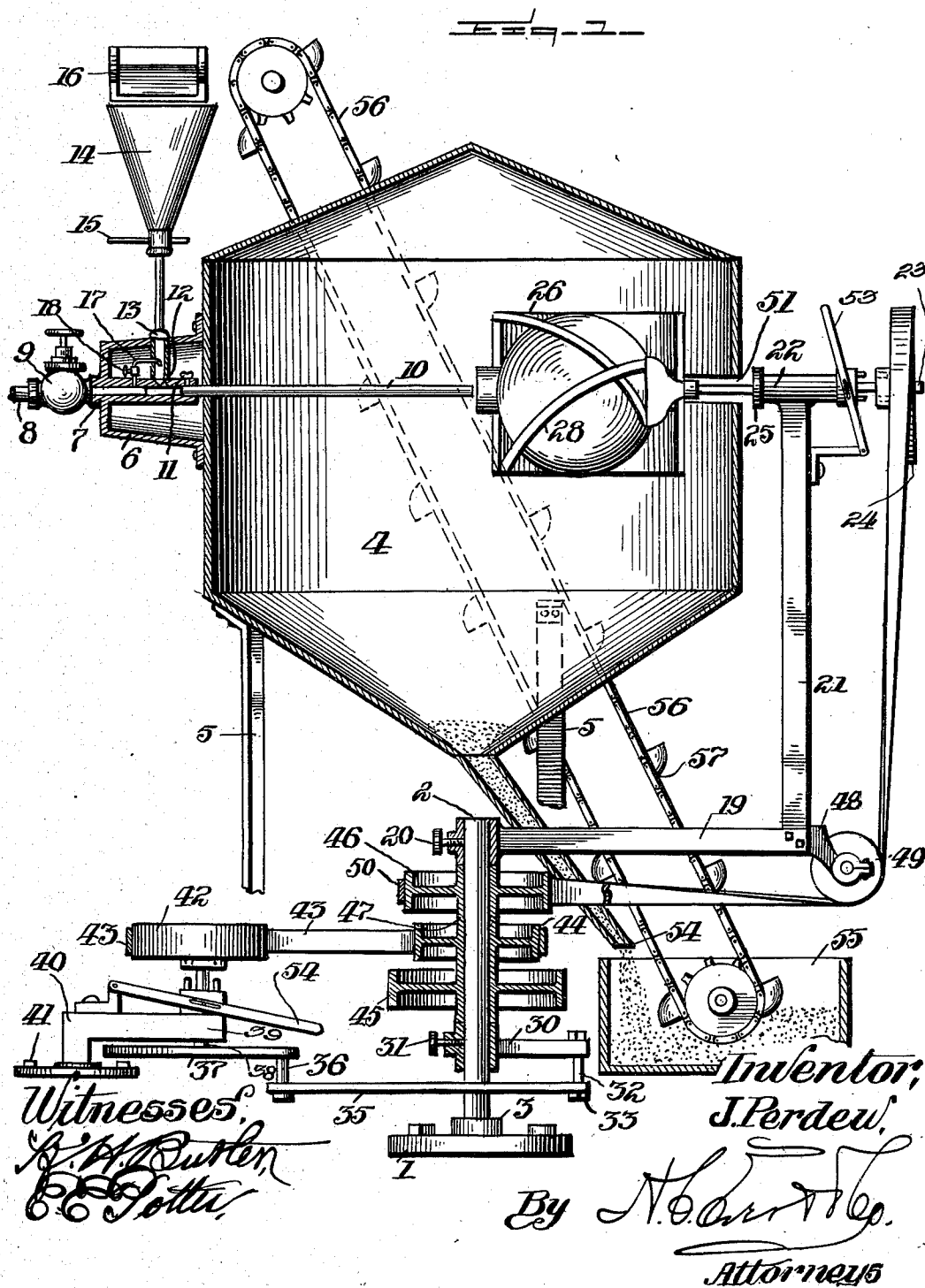
PATENTED JUNE 23, 1903.

J. PERDEW.
SAND BLAST.

APPLICATION FILED JUNE 4, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



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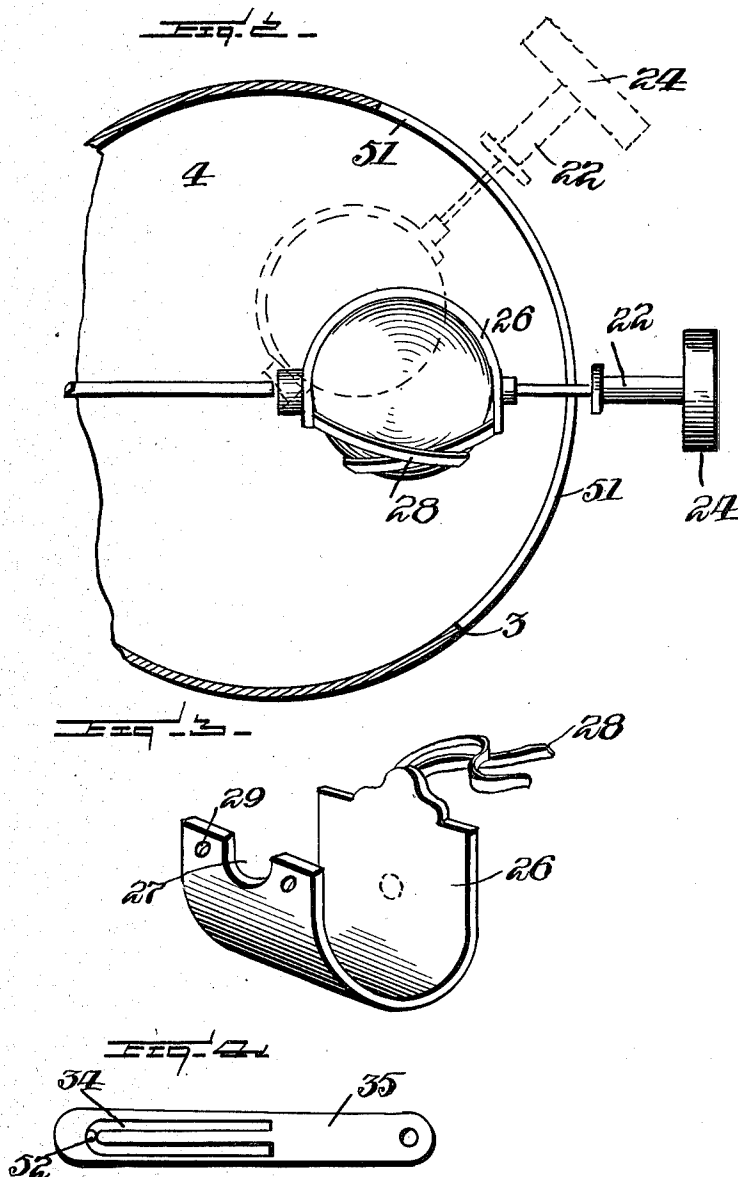
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UNITED STATES PATENT OFFICE.

JOHN PERDEW, OF MONACA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO HARVEY STRONG, OF CORAOPOLIS, PENNSYLVANIA.

SAND-BLAST.

SPECIFICATION forming part of Letters Patent No. 731,812, dated June 23, 1903.

Application filed June 4, 1902. Serial No. 110,223. (No model.)

To all whom it may concern:

Be it known that I, JOHN PERDEW, a citizen of the United States of America, residing at Monaca, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Sand-Blasts, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in sand-blasts used for the purpose of smoothing the interior of glass bulbs, globes, and the like by injecting a quantity of sand actuated by compressed air and precipitating the sand against the various curvatures of the interior of the said bulb or globe in order to cut any extraneous matter which may have lodged within the globe or bulb during the blowing of the same. Further, I propose to employ novel means for automatically presenting the various interior sides of the globe or bulb at different angles to the precipitated sand in order that the entire interior of the glass bulb or globe may have its glazed surface rendered perfectly smooth and freed from any obstructions.

My invention further resides in the simplicity and economic features of construction, the comparative inexpense to manufacture, and the efficiency in operation, requiring comparatively little attendance of the operator.

With the above and other objects in view the invention consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described, and specifically pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate like parts throughout the several views, in which—

Figure 1 is a central vertical sectional view of my improved device in its operative position. Fig. 2 is a horizontal sectional view, partly broken away, showing the bulb as occupying various positions with relation to the blast of sand. Fig. 3 is a perspective view of the chuck or work-holder. Fig. 4 is a side elevation of the connecting-rod.

Mounted for free rotation in the base 1 is a

vertical shaft 2, journaled within a collar 3, carried by the base. Of course it will be understood that this base is rigidly affixed to the floor or other support upon which the machine is mounted. Mounted above this vertical shaft is a body 4, which for all practical purposes is supported by the standards 5, these standards serving to secure the body in a rigid position. Upon its one side this body carries an auxiliary chamber 6, through the end of which extends a pipe 7, communicating with the pipe 8, which leads to any suitable source of air-supply, (not illustrated in the drawings,) the regulation of the latter, however, being effected by means of the valve 9, carried by the pipe 8. The pipe 7 at its forward end carries a pipe 10, secured as at 11, the free end of this pipe 10 extending within the body 1, preferably to a point in proximity to the center of said body. The pipe 7 is provided with a downwardly-inclined port 12, communicating with the pipe 13, carried by the pipe 7, located directly above said port, the pipe 13 being extended upwardly and carrying a sand-hopper 14, whose inlet to the pipe 13 is controlled by means of a slide 15. The hopper has located directly above it a trough 16, the purpose of which will be hereinafter fully set forth. For the purpose of accelerating the motion of the sand during its passage from the hopper into the pipe 10 I provide a pilot or by-pass 17, the lower end of which communicates with the pipe 7, and the upper end of which extends within the pipe 13 and has its nozzle bent downwardly at a slight incline in order to so direct the current of air which, as will be understood, enters the lower end of this pilot or by-pass, where it communicates with the blast of air coming from the pipe 8, the regulation of this by-pass or pilot being effected by means of a valve 18, located intermediate its ends. At the upper end of the vertical shaft 2 is rigidly mounted an arm 19, adapted for oscillatory movement in a horizontal plane, the arm being rigidly secured to the shaft 2 by means of a set-screw 20 or by keying the same to said shaft, this arm at its outer end merging into a vertical upright arm 21, carrying a bearing 22 at its upper end. A shaft 23 is mounted in this

bearing at its outer end and carries a pulley 24 and a collar 25 to limit any lateral movement of said shaft. Rigidly mounted upon this shaft, as well as removably so, is a chuck or work-holder 26, bent into a semicircular form to more readily adapt it to secure a better hold upon the globe or bulb whose interior is to be freed from obstructions, this chuck or work-holder having a seat 27 in its one end for the purpose of receiving the neck of the bulb or globe and at its other end carrying fastening means 28, preferably consisting of straps, which may be drawn taut across the outer surface of the bulb or globe and secured to the opposite side of the chuck or work-holder, which may be passed through the apertures 29, whereby the ends of the straps may be secured. In this latter respect, however, I desire to call attention to the fact that various means may be employed for securing the bulb or globe within the chuck or work-holder, such as varying contours of the globe or bulb may of necessity require. Thus the chuck or work-holder is so positioned that the neck thereof will at all times be located in juxtaposition to the free end of the sand-blast pipe 10 in order that irrespective of the arc travel imparted to the work-holder or chuck this neck will at all times register with the sand-blast pipe and permit the contents of the latter to freely enter and be hurled against the interior of said bulb or globe.

In order to impart an arc-like movement to the chuck or work-holder carrying the article whose glazed interior is to be smoothed, I impart a rotary movement to the freely-revoluble shaft 2 by means comprising an arm 30, rigidly secured to the shaft 2 by means of a set-screw 31, the arm at its free end carrying a pin 32, rigidly secured thereto, the outer end of the pin being headed, as at 33, and playing within a continuous slot 34 in the form of a U, said slot being formed within the connecting-arm 35 and whose other end is connected to the pin 36, carried by the wheel or disk 37, the pin 36 being eccentrically mounted upon the wheel or disk 37. This wheel or disk is mounted on a shaft 38, secured within the vertical bearing 39, supported by the L-shaped arm 40, in turn rigidly mounted upon the base 41, the other end of this shaft 38 carrying a pulley 42, over which passes the belt 43, communicating motion to the said pulley 42 from the driven pulley 44.

45 designates a driven pulley which may be actuated from any suitable source of power, (not shown in the drawings,) this pulley, as well as pulley 44 and pulley 46, having a common hub 47, whereby these pulleys all move in unison. At the lower end of the arm 19 and 21 a bracket 48 depends, carrying an idler 49, over which passes belt 50, communicating motion from the pulley 46 to the pulley 24. The body 4 is provided with an arc-shaped slot

51, lying in a horizontal plane and through which passes the shaft 23 on the chuck or work-holder.

Motion being imparted to the pulley 45, the pulleys 44 and 46 will rotate therewith, the former conveying motion to the pulley 42, which in turn will revolve the wheel or disk 37, thereby actuating the connecting rod or arm 35, the latter communicating motion to the arm 30 and revolving the shaft 2 in an arc-like plane. This movement is effected by the peculiar manner of constructing the slot 24 in the arm 35, the wheel or disk upon completing half a revolution finding the headed end 33 of the pin 32 at the point indicated by 52, at which time the wheel 37 in completing its revolution will cause the pin 32 to travel along the lower portion of the slot, reaching the end of the latter after having completed the full revolution. The wheel upon starting on the second revolution will throw the pin 32 to the position 52 upon the completion of the half-revolution, and in this manner it will be noted that an oscillatory movement will be imparted to the arm 30, which in turn communicates a like movement to the arm 19, rigidly secured to the upper end of the shaft 2, and from thence the chuck or work-holder revolving the same about the free end of the sand-blast pipe 10 as an axis of revolution. It will be noted that this movement will continue unceasingly until power is shut off from the driven wheel 45, and this may be effected by means of the clutch 53 or the clutch 54, the construction of either being of a common form. Any sand which may have found its way into the interior of the globe or bulb will descend into the tapering bottom of the body 4, and from thence be conveyed by the outlet-pipe 54 into the receptacle 55, and from there conveyed upwardly by means of the conveyor 56, comprising the bucketed chain 57, conveying the sand upwardly into the trough 16, from whence it will again enter the hopper 14 and there be conveyed into the sand-blast pipe by means as heretofore mentioned. The form of conveyor may vary, since this is not of vital importance, and I have merely illustrated one in common usage which has been to all intents and purposes found to serve the purpose.

While the above illustrates the most practical embodiment of my invention, still I have found it necessary, in order to effect a complete disclosure of my invention, to employ certain details of construction and combinations of parts which, however, may vary and may be combined in numerous relations without departing from the general spirit and scope of my invention.

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

1. In a device of the character described, the combination of a body portion having sand-blast pipe arranged on the interior there-

of with a suitable source of sand connected to said pipe, a means for actuating the sand, a work-holder within said body supporting means for the same, means carried thereby for rotating the work-holder, means for oscillating the work-holder, and means for operating simultaneously said oscillating and rotating means, substantially as described.

2. In a device of the character described, the combination of a body, a sand-blast pipe, extending on the interior thereof, means for supplying sand to said pipe, a compressed-air means for actuating the sand, a work-holder on the interior of the body portion, means for supporting the same in alinement with the sand-blast pipe, means carried thereby for rotating said holder about the free end of the sand-blast pipe as an axis of revolution, means for continuously oscillating the work-holder in an arc-like plane, and means for simultaneously operating the oscillating and rotating means of the work-holder, substantially as described.

3. In a device of the type set forth, the combination with a suitably-supported body, a sand-blast pipe extending on the interior thereof and connected to a suitable source of sand with means for injecting sand through said pipe, a vertical shaft carrying a rigid L-shaped arm, with a work-holder rotatably mounted on the upper end of said arm and extending within the body in alinement with said sand-blast pipe, a means for imparting a continuous oscillatory movement to said shaft, and a means for continuously rotating said work-holder, substantially as described.

4. In a device of the type set forth, the combination of a suitably-supported body having a sand-blast pipe arranged on the interior thereof with means for conveying the sand to said pipe and means for injecting the sand through said pipe, a work-holder on the interior of said body, means for continuously rotating said work-holder, and a means connected to said last-named means for moving

said work-holder in an arc-like plane, substantially as described.

5. In a device of the character described, the combination with a body, a sand-blast pipe therein, means for supplying sand to said blast-pipe, means for forcing the sand through the blast-pipe, connections between the blast-pipe and sand-supplying means for accelerating the feeding of the sand to the blast-pipe, a work-holder within the body, supporting means for the same, means thereon for rotating the work-holder, means for oscillating said holder, and means for simultaneously operating the oscillating and rotating means, substantially as described.

6. A device of the type set forth, consisting of a sand-blast pipe, with means for actuating the sand through the pipe, a work-holder with means for supporting the same, means on said means for rotating the work-holder, means for continuously oscillating the work-holder in an arc-like plane, and means for simultaneously operating both of said last-named means.

7. A device of the type set forth, consisting of a body, a sand-blast pipe, with means for actuating the sand therethrough, supporting means on the exterior of the body, a work-holder on said supporting means extending within said body, means for oscillating the work-holder, and means on the supporting means for rotating the work-holder.

8. A device of the type set forth, consisting of a body, a sand-blast pipe, supporting means carrying a chuck-holder extending on the interior of the body, means carried on the supporting means for rotating the chuck-holder, and means for oscillating said supporting means in an arc-like plane.

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

JOHN PERDEW.

Witnesses:

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H. C. SIMPSON.