

No. 749,179.

PATENTED JAN. 12, 1904.

L. C. FORWOOD.

APPARATUS FOR GRINDING OR POLISHING METALS.

APPLICATION FILED DEC. 1, 1902.

NO MODEL.

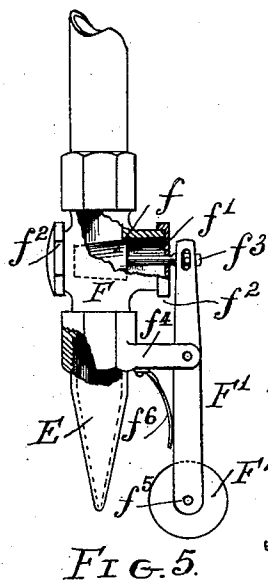


FIG. 5.

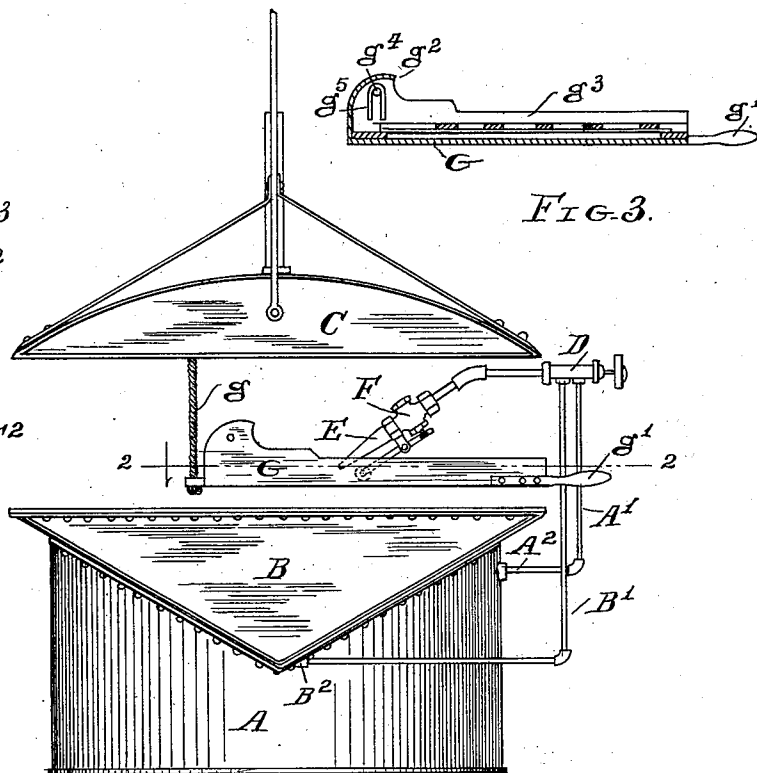


FIG. 1.

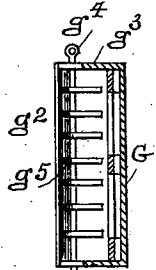


FIG. 4.

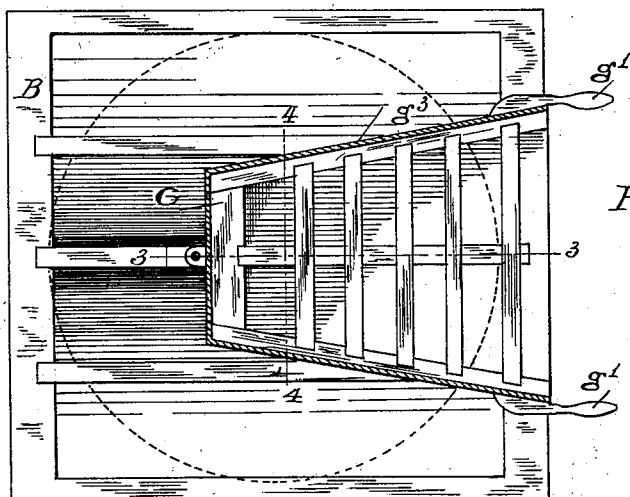


FIG. 2.

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UNITED STATES PATENT OFFICE.

LORIN C. FORWOOD, OF DECATUR, ILLINOIS.

APPARATUS FOR GRINDING OR POLISHING METALS.

SPECIFICATION forming part of Letters Patent No. 749,179, dated January 12, 1904.

Application filed December 1, 1902. Serial No. 133,512. (No model.)

To all whom it may concern:

Be it known that I, LORIN C. FORWOOD, a citizen of the United States, residing at Decatur, in the county of Macon and State of Illinois, have invented certain new and useful Improvements in Apparatus for Grinding or Polishing Metals by Means of a Sand-Blast, of which the following is a specification.

My invention relates to means for controlling the delivery of sand employed in the operation of grinding or polishing.

The purpose of my present invention is to provide a nozzle and its valve so constructed and arranged that the operation of the valve may be controlled by means of a cradle on which the article to be ground or polished is supported, and to provide in connection with the cradle means for extracting from the sand issuing from the nozzle slivers of iron or other metallic particles, which if not removed would impair the effectiveness of the sand-blast.

My invention consists in the novel features of construction and combinations of parts shown in the annexed drawings, to which reference is hereby made, and hereinafter particularly described and finally recited in the claims.

Referring to the drawings, Figure 1 is an elevation of an apparatus embodying my invention. Fig. 2 is a horizontal section on the line 2 2 of Fig. 1. Fig. 3 is a vertical section through the cradle on the line 3 3 of Fig. 2. Fig. 4 is a vertical section through the cradle on the line 4 4 of Fig. 2, and Fig. 5 is an enlarged detached side elevation and sectional view of the valve and appurtenances.

The air-reservoir A, of sheet metal, is adapted to contain air under pressure. A sand-box B, of any suitable material and of any suitable form, is placed in convenient position relative to the air-reservoir. A hood C is suitably supported above the sand-box and is provided with outlet-pipes adapted to carry off the dust raised during the operation of the apparatus. A pipe A' is connected with the air-reservoir by suitable connection A². A pipe B' is connected with the sand-box by a suitable connection B². The upper ends of the pipes A' and B' are connected with a suitable mixing-valve D.

Air under pressure passes through the pipe A' into the valve D and produces a vacuum in the pipe B', which causes sand to rise through the pipe B' into the valve, and the sand and air are mixed within the valve and are thence ejected through the nozzle, as hereinafter described.

The nozzle E is detachably connected with the nozzle-valve F.

A cylindrical plug *f* is slidable in a transverse way *f'*. The ends of the way *f'* are covered by caps *f*², and the stem *f*³ projects through one of the caps.

The lever F' is fulcrumed on a lug *f*⁴, and the upper end of the lever is flexibly connected with the stem *f*³. Near the lower end of the lever is a wheel F², arranged to turn on a stud or pin *f*⁵. A spring *f*⁶ is secured to the valve and the free end of the spring engages with the lower part of the lever F'. When the lower arm of the lever is pressed toward the nozzle, the spring is compressed and the upper arm of the lever slides the plug *f* outward, so as to open the valve. When the valve is open, the sand driven by the compressed air with which it is mixed in the mixing-valve is rapidly and violently expelled through the nozzle against the article to be operated upon. When the pressure against the lower arm of the lever is removed, the spring reacts to throw the lever and cause it to slide the plug inward, so as to close the valve.

A cradle G is suspended above the sand-box by a flexible support *g*, so that the cradle may oscillate freely. Handles *g'* serve to manipulate the cradle. The bottom of the cradle is slotted or perforated, and beneath the slotted bottom is a box adapted to contain sand. An upwardly-curved hood *g*² prevents sand from being blown out of the front end of cradle, and side boards *g*³ prevent sand from being blown sidewise from the cradle. A removable rod *g*⁴ extends transversely across the cradle under the hood *g*², and a series of magnets *g*⁵ are mounted thereon. The magnets are in such position on the cradle that the mixed air and sand impinging on the article operated upon will be deflected up against the magnets and the metallic particles in the sand will be attracted by and will adhere to

the magnets, thereby extracting from the sand metallic particles which if not removed would interfere with the successful use of the sand-blast for the purpose set forth.

5 By reason of the construction shown and described the magnets when loaded with iron particles may be easily removed, cleansed, and replaced in the cradle.

10 In practical use of the apparatus the article to be operated upon is placed on the slatted bottom of the cradle in such position that when the cradle is raised the face of the wheel F² will engage with the surface to be operated upon and the quantity of sand used in the operation may be effectively controlled by raising or lowering the cradle, so as to open or close the valve to such extent as may be most advantageous for the operation in hand.

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

20 1. In an apparatus of the class described, the combination of an air-reservoir, a sand-box, a mixing-valve communicating with said air-

reservoir and sand-box, a nozzle-valve communicating with said mixing-valve and provided with a valve-operating device, and a cradle mounted to engage with the valve-operating device of the nozzle-valve, as set forth.

2. In an apparatus of the class described the combination of a cradle, a nozzle-valve operative by means of said cradle, and means for supplying air under pressure, and sand, to said nozzle-valve, as set forth.

3. In an apparatus of the class described, the combination of a cradle, a nozzle-valve operative by said cradle, magnets mounted in said cradle in position to attract metallic particles deflected from the article operated upon and means for supplying to said nozzle-valve sand driven by compressed air, as set forth.

In witness whereof I have hereunto subscribed my name, at Decatur, Illinois, this 25th day of November, 1902.

LORIN C. FORWOOD.

Witnesses:

J. A. KEOWN,

H. T. KEOWN.