

919,417.

FIG. 1.

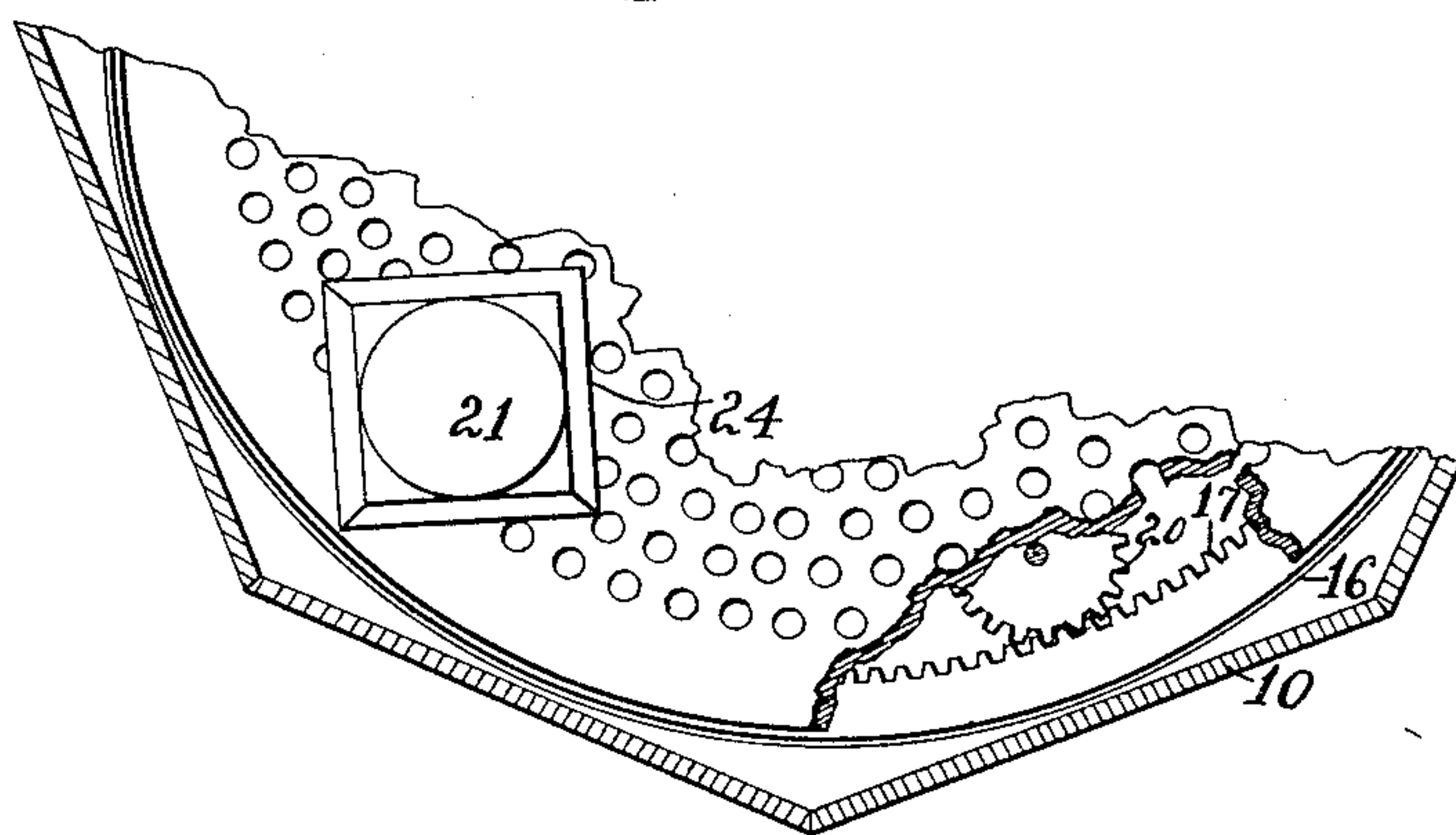


FIG. 2.

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UNITED STATES PATENT OFFICE.

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CLEANING AND POLISHING APPARATUS.

No. 919,417.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SAMUEL C. CARROLL, a citizen of the United States, residing at Dallas, Texas, have invented certain new and useful Improvements in Cleaning and Polishing Apparatus, of which the following is a specification.

My invention relates to an improved apparatus for cleaning and polishing portable articles of various kinds and shapes in an expeditious manner by the use of a sand blast.

The object of the invention is to provide an apparatus by which a considerable number of articles may be subjected to the action of the sand blast within a closed space so that the attendance of an operator in proximity to the article during the polishing operation is unnecessary.

I have also aimed to provide a construction by which all parts of the article to be cleaned or polished will be presented automatically to the action of the sand blast.

With these and other objects in view, the invention includes the features of construction and arrangement and combination of parts hereinafter described and particularly set forth in the appended claims.

An apparatus constructed in accordance with my invention is illustrated in the accompanying drawings, in which,—

Figure 1 is a sectional elevation, and Fig. 2 is a plan view of the table with parts broken away.

Referring by reference characters to these drawings, the numeral 10 designates a room or chamber which is closed with the exception of such openings as are hereinafter described, and is designed to contain the articles which are to be cleaned or polished. Within this chamber is located a rotating table 11, which is mounted upon a vertical shaft 12, which is designed to be rotated from a suitable source of power through any desired form of intervening driving connections, a convenient form being beveled gear wheels 13 and 14 and drive shaft 15. Within the room or chamber 10 and directly beneath the rotating table 11 is an annular flange 16 provided with an internal rack 17, the latter being secured rigidly in place in any suitable manner, as for instance by bolting the flange or portions thereof to the floor, as indicated at 18.

In the table are journaled a plurality of vertically disposed shafts 19 which carry

at their lower ends planet gear wheels 20, which are designed to mesh with the stationary rack 17, so that as the table is rotated the planet gears will be rotated by their engagement with the stationary rack, thereby imparting rotary motion to the vertical shafts 19. Upon the upper ends of the shafts 19 are located supporting pedestals or platforms 21 which are connected to the shafts by ball and socket joints 22, which joints are so arranged that the pedestal is free to rock in all directions, but is compelled to rotate with its supporting shaft. Each pedestal, however, is normally held in a horizontal position by means of springs 23 interposed between the pedestal and the table 11 or a raised part 24 thereon, which part 24 may form an additional bearing for the shaft 19. At one side of the room and at a suitable height is located a sand blast nozzle 25, which is designed to project a sand blast horizontally across the room.

It will readily be seen that as the table rotates the articles such for instance as bath tubs, chairs, and other articles of furniture, or indeed any articles, which it is desired to subject to the cleaning and polishing action of the sand blast and which have been previously placed upon the supporting pedestals 21, will be carried around with the table, and at the same time have a rotary motion upon their own axes imparted thereto. The result will be that the articles will be brought successively past the sand blast and will be constantly rotated so as to present every portion to the action of the blast. Further, by reason of the pedestal being flexibly mounted as before described, the article will rock or incline to one side under the action of the blast and thus the lower or under parts of the articles will be subjected to the blast.

While various forms of sand blast apparatus might be employed without departing from the spirit of my invention, I have found that shown in the drawings to be a very convenient and desirable form. In this the nozzle 25 is elongated in a vertical direction as shown and with it is connected a pipe 26 to which is connected an injector 27. This comprises a three-way coupling, one branch arm of which is connected to the pipe 26, while another receives the nozzle 28 or an air supply pipe 29 which connects with any suitable source of compressed air supply, such for instance as an air compressor or pump shown conventionally at 30. A suit-

able cut off valve 31 may be provided in the pipe 29. With the third branch 27^a of the three way coupling is connected the sand feed. This comprises a pair of hoppers 32 and 33, the former of which is the main hopper and is connected by pipe 34 with the branch 27^a, a suitable cut off valve 35 being provided by which the feed of the sand from the hopper 32 may be cut off if desired. From the hopper 33 a feed pipe 36 also leads to the branch 27^a, which is likewise provided with a cut off valve as shown at 37. In order to remove the sand from the chamber, the supporting table 11 is made perforated or of skeleton form so that the sand after having acted upon the articles carried by the pedestals will drop through the table 11 and upon the floor of the chamber, which as shown is formed inclined. Down this incline it will tend to work its way into the lower portion of the floor and will be swept by the broom or brush 38 into the opening 39, which leads to the hopper 40. At the lower end this hopper 40 communicates with an injector 41, which is supplied with air from any suitable source of supply by which injector the sand is forced up the pipe 42 to be used over again. This pipe may have a branch 43 communicating with the upper portion of the injector nozzle 25, another branch 44 leading to the hopper 32 and a third branch or portion 45 leading to the hopper 33, each of these branches being provided with suitable cut off valves as shown. To relieve the chamber of excess of compressed air and dust it is provided with a relief pipe 46 which connects with the three way coupling 47, one branch of which turns downwardly into a hopper 33 for the deposit of the heavier particles carried by the air, while the other branch turns upwardly for the discharge into the outer air. A suitable glass covered window 48 is provided by which the process may be watched from the exterior of the room.

It will be understood that while I have spoken of this apparatus as designed to subject articles to the action of a sand blast, by sand I refer to any polishing agent.

Having thus described my invention, what I claim is:—

1. An apparatus for subjecting articles to a cleaning and polishing blast, comprising a closed chamber, a suitable nozzle therein for directing a polishing blast into the chamber, a rotary table or carrier within the chamber with means for operating it, a support for an article carried by the table, and means for

rotating said support upon its own axis as the table rotates, substantially as described.

2. An apparatus for subjecting articles to a cleaning and polishing blast, comprising a closed chamber, a suitable nozzle therein for directing a polishing blast into the chamber, a rotary table or carrier within the table with means for operating it, a support for an article carried by the table, and means for rotating said support upon its own axis as the table rotates, and for causing it to rock or oscillate during its rotation, substantially as described.

3. In combination, a closed chamber or compartment, a rotary table therein, a plurality of vertical shafts journaled in said table, a stationary rack carried within said chamber, planet gears carried by said shafts, and meshing with said rack, pedestals or supports carried by said shaft above the table, and means for causing a blast of polishing material to pass horizontally above the table, substantially as described.

4. In combination, a closed chamber, a rotary table therein, a plurality of vertical shafts carried by said table, means for causing said shafts to revolve as the table rotates, supporting pedestals mounted to oscillate upon the upper ends of the shafts, and means for directing a blast of polishing material within the chamber, substantially as described.

5. In combination, a closed chamber, having an inclined bottom, a rotary table or carrier within said chamber, a plurality of pedestals supported by said table, means for causing them to revolve on their own axes during the rotation of the table and a sweeper carried by the table and acting upon said inclined surface, and means for causing a polishing blast to be delivered within said room, substantially as described.

6. In combination, a chamber having a conical bottom, a blast nozzle therein, means for causing a plurality of articles to be successively passed in front of said nozzle, an outlet for the polishing material from a low part of the floor of said chamber, and a rotary sweeper for sweeping the deposited polishing material from the floor into said outlet, substantially as described.

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

SAMUEL C. CARROLL.

Witnesses:

J. M. AVERY,
C. H. READ.