

(No Model.)

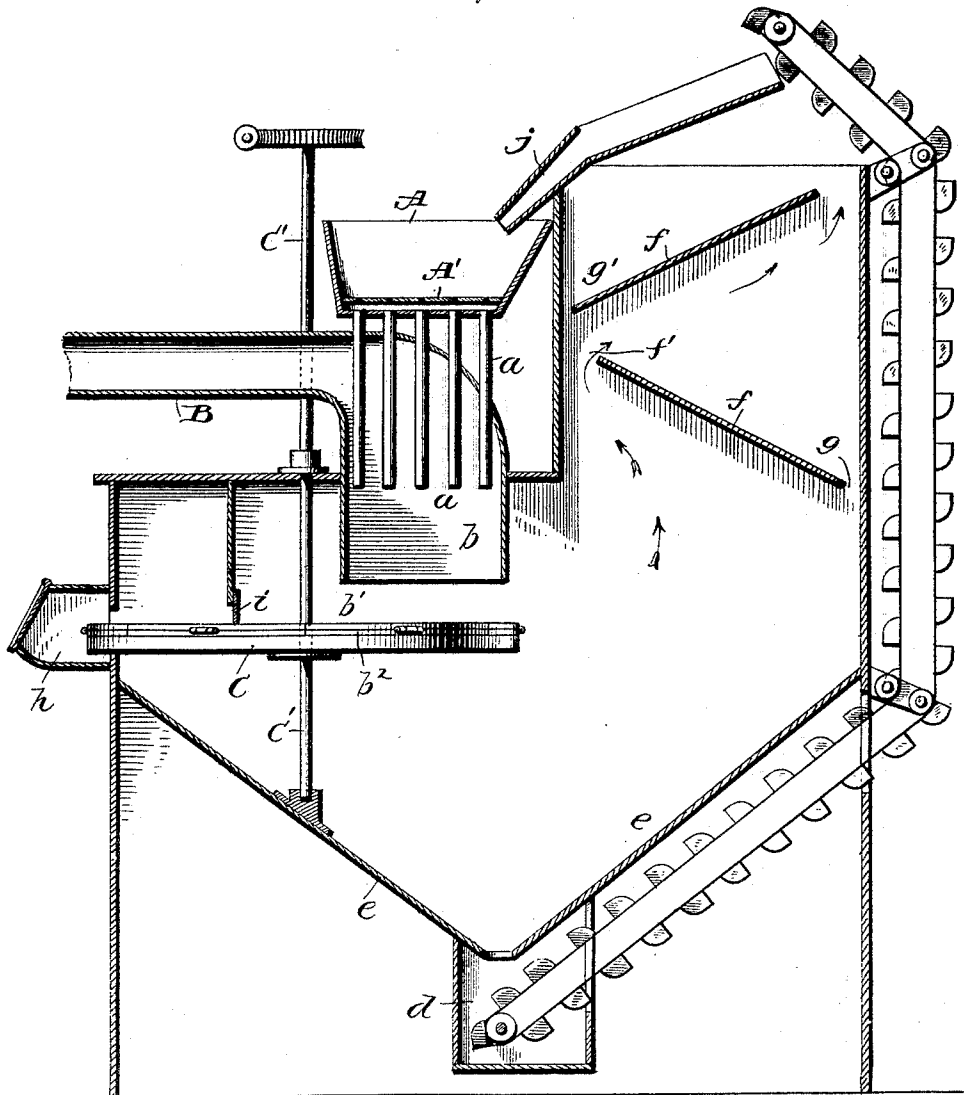
2 Sheets—Sheet 1.

S. B. ESHLEMAN.
MACHINE FOR POLISHING BUTTONS.

No. 497,714.

Patented May 16, 1893.

Fig. 1.



Witnesses
B. Williams
A. L. Hough

Inventor
Samuel B. Eshleman
By Franklin H. Hough
his atty.

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Fig. 2.

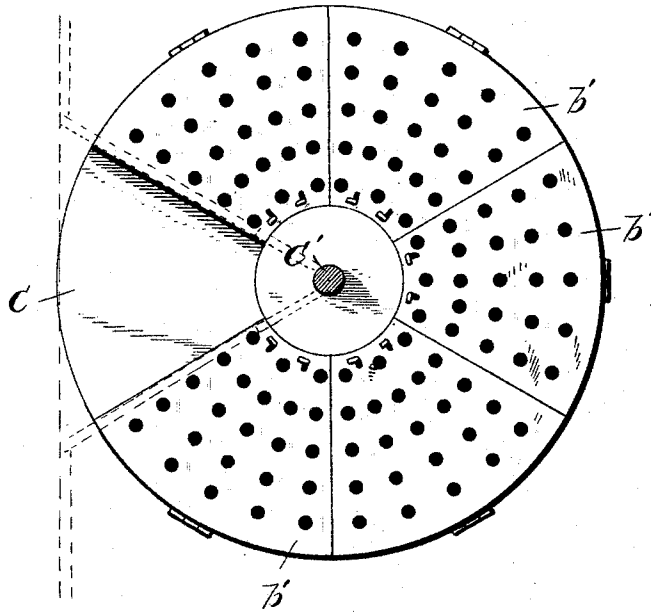


Fig. 3.

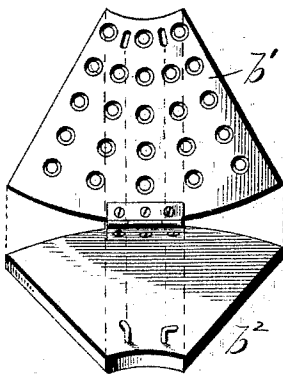


Fig. 4.

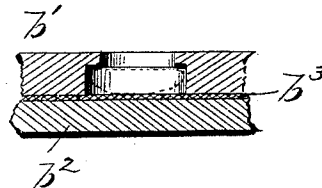
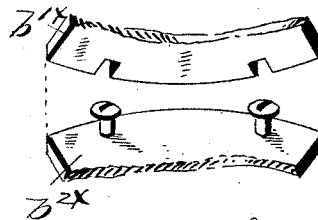


Fig. 5.



Witnesses
G. Williamson.
A. L. Hough.

Inventor
Samuel B. Eshleman,
by Franklin A. Hough,
his atty.

UNITED STATES PATENT OFFICE.

SAMUEL B. ESHLEMAN, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE M. B. SHANTZ COMPANY, OF SAME PLACE.

MACHINE FOR POLISHING BUTTONS.

SPECIFICATION forming part of Letters Patent No. 497,714, dated May 16, 1893.

Application filed January 3, 1893. Serial No. 457,500. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL B. ESHLEMAN, a subject of the Queen of Great Britain, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Machines for Polishing Buttons; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in machines for polishing, dressing or engraving hard or solid substances by means of jets or streams of sand and it relates more particularly to a machine suitable for the application of sand for the purpose of dressing or finishing buttons, during the process of manufacture.

In the process of manufacturing buttons of pearl or vegetable ivory, so called, after the button has been polished upon the outer or upper face, it is frequently desirable to reduce the polish upon a portion of the surface, and especially to reduce the polish and restore a dull finish to the center of the button, leaving polished rims, and my invention consists of a machine designed among others, for the purpose of applying the ordinary sand-blast to that portion of the surface of the button designed to be dressed or finished, or to that portion of the surface upon which it is desired to reduce the polish and produce a dull finish.

The invention consists in the peculiar combination, and in the novel arrangement and adaptation of parts, all as more fully herein-after described, shown in the accompanying drawings, and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which with the letters of reference marked thereon form a part of this specification, and in which drawings—

Figure 1, is a vertical section of a machine embodying my improvements. Fig. 2, is a top plan view of the revolving table. Fig. 3, is a view of the under surface of the button mold and the upper surface of the segmental

block shown open. Fig. 4, is an enlarged detail sectional view of the same. Fig. 5 shows a modification.

Reference now being had to the details of the drawings by letter, A designates a hopper or receptacle for sand from which extend downward a number of parallel tubes *a*, *a*. Above the upper ends of said tubes is placed a false bottom *A'*, having a number of openings corresponding to and registering with the openings in the tubes. Said openings are of less diameter than the tubes, for a reason to appear. The tubes *a* pass into the vertical extension *b* of the air or steam supply pipe B.

Below the tubes *a* is a horizontal, circular, rotary table C, mounted on a shaft C'. Said table is adapted to receive and support upon its upper side a number of removable segment shaped button-holders, each composed of two plates *b'* and *b''* of similar size and shape. The plate *b'* is preferably of metal and is provided with a number of shouldered openings or circular perforations to receive and hold the buttons, while *b''* is preferably of wood and operates when placed against the face of the latter to confine the buttons in said recesses or cavities. When placed upon the revolving table, the perforated plate *b'* is uppermost so that the sand can be discharged upon the buttons on the exposed central portions thereof. It will be noted that the table C is of such diameter that the sand is discharged only upon one side of the shaft C'. Below the table C is a reservoir or receptacle *d* into which the sand after being used, is conveyed by the downwardly and inwardly converging walls *e*, *e*.

In the upper part of the casing, through which the air or steam makes its exit, I provide several reversely inclined partitions *f*, having a function to be hereinafter set forth.

In using the machine, the receptacle A is filled with sand which passes to the tubes *a*, *a*, through the perforations in the false bottom *A'*. These perforations being slightly smaller than the diameter of the tubes, prevent the clogging of the same, as any substance which will pass through the perforations in the false bottom, will pass through the relatively larger tubes *a*, and moreover, by the use of the false bottom, the receptacle A

can be conveniently cleaned of any foreign substances which may be in the sand or other material used, and thus a steady flow of sand through each of the tubes will be secured. I

5 have found that a diameter of five sixteenths of an inch for the tubes, secures good results, and I have also found that a series or battery of ten arranged in rectangular form, connected with the receptacle A, secures good results. I have also found that tubes of four-
10 teen inches in length extending to within a distance of ten inches from the revolving table, produce satisfactory results, but the air pipe C, should extend to within three or four
15 inches of the table.

From the tubes *a* the sand falls upon one or more of the segments of the revolving table C, after having received the impact of the air or steam from B, and not in a jet or stream,
20 but in an evenly distributed shower. Preferably I impart motion to the shaft C' by means of a worm-wheel at its upper end, and if the velocity imparted to the revolving table is one revolution in from seven to eight minutes, good results are obtained. I have found
25 that if the interior diameter of the supply pipe B is about five and one fourth inches, or thereabout, in conjunction with the other dimensions above stated, and with an ordinary blower of sufficient capacity to impart the desired force, good results are secured. The buttons to be dressed, finished or ground, are placed in the perforations in the plate *b'*. The size of the perforations may be regulated
30 by the size of the buttons to be finished or dressed, and the perforations are shouldered as before described, to temporarily retain the buttons in position until secured by the fastening of the imperforate segment *b*².

40 I have found that the best construction for the plate *b'* is of brass or other metal that will readily withstand the friction of the sand blast, and if the upper surface of *b'* is covered with sheet tin and the tin then perforated to correspond with the perforations in the plate *b'*, the tin will protect it, and when the tin cover is worn off another may be substituted at slight expense. Preferably the plates *b'* and *b*² are hinged together and when
50 the buttons are in position in the perforations in the mold, and temporarily retained in position by the shoulder surrounding the perforations, the block segment is thrown over and upon the buttons and keyed in position. 55 For the purpose of maintaining the pressure upon the under surface of the plate *b'*, the upper surface of the segment *b*² is slightly padded with felt or cotton cloth, or any other suitable substance *b*³ so that when it is drawn into its place, upon the plate *b'*, the button is held firmly. The plate *b*² having been fastened to the other plate *b'* and the buttons in place, they may then be turned upright and the holder is ready to be placed upon the revolving table C.
65

Instead of a hinge connecting *b'* and *b*², as

shown, they may be constructed as shown in Fig. 5, the part *b'*^x being slotted for receiving the heads of two machine screws connected with *b'*.

70 The plate *b*^{2x} being detachable from the plate *b'*^x, the latter may be used with plates of different sized perforations corresponding to the size of the buttons to be polished.

I have found that a diameter of two feet
75 for the table C, having in view my other sizes and dimensions, secures practical results, and I divide the surface of B, into preferably six segments as shown, so that C carries six holders. Of course I do not limit myself to this
80 size of the table, and this number of segments, and the revolution of the table may be governed in accordance with the amount of dressing or finish to be performed upon the buttons.

85 For the removal and replacing of button-holders upon the table C, an opening *h* covered by a sliding door, is provided in the inclosing casing. The sand falls upon the holders at the point of the table farthest from the opening *h* so that there is but little tendency for it to pass out when the door is opened, but to obviate such tendency I provide a strip of leather, or rubber *i* fastened to a board or partition connected with the machine casing,
90 in position to brush or bear upon the table, or the holders thereon, as the table revolves, at a point far enough from the periphery as not to interfere with the placing and removal of the holders upon and from the table. 100 Egress of sand may also be prevented as indicated in dotted lines, Fig. 2 by providing two vertical partitions extending radially from the center of the table outward, and bearing each on its lower edge a brush or rubber or leather. The divergence of said partitions should correspond to the angle of the segmental holders to enable the latter to be placed upon or removed from the table C. After falling upon the button-holder at the
110 points beneath the tubes *a*, the sand falls from the revolving table C and a portion of it will then be guided to the reservoir *d* which is under merely atmospheric pressure. The force of the compressed air however will carry
115 much sand upward in the direction of the partitions or shelves *f* which I provide in order to prevent the escape of the sand. The sides of these shelves are fastened to two sides of the casing. They are inclined at an angle of
120 about forty five degrees. Much of the sand upon striking the bottom of the first shelf will fall into the reservoir *d*, while any that may pass through the opening *f'* will strike the second shelf and rebound upon the first
125 shelf and fall by gravity through the opening *g*. If by the force of the air current any sand passes above the second shelf, it will fall upon that shelf and pass through the opening *g'*. I have found that two shelves will be
13 sufficient, in view of my other dimensions, to prevent the escape of the sand with the air

which finds a free outlet after passing beyond the second shelf; though of course more shelves may be employed, if desired.

I have found it convenient to employ elevator buckets dipping into the reservoir *d*, by which the sand is carried to a point above the receptacle A and fed into the last named receptacle through the pipe *j*, and thus the same sand is continuously used, there being but slight waste.

An operator places the holders upon the revolving table C until the table is full, and at each revolution a holder is ready to be taken from the table and another put in its place, or, if desired, each segment of the table, or each holder may be allowed to pass twice or oftener beneath the shower of sand, in order to secure greater finish or dressing.

I have found it expedient to insert a pin or a series of pins in holes drilled in the shaft C', which by striking a spring, ring a bell at each full revolution, thereby informing the operator that a mold is to be taken from the revolving table.

Although I have specified the sizes of parts it is to be understood that I do not limit myself thereto as there may be variations in this particular as well as others which will not involve departure from my invention.

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

1. In a sand-blast machine, in combination with a two-part holder for buttons, of a revolving table to support and move the same through the blast, substantially as described. 35

2. In a sand-blast machine, in combination with a movable table, of a number of two-part holders detachably placed thereon, substantially as described. 40

3. In a sand-blast machine, the combination of the sand tubes *a*, and air supply tube B into which they extend, with the revolving table C carrying the buttons to be dressed or finished beneath the blast of sand and the removable segmental holders, each formed of two parts hinged together, substantially as described. 45

4. In a sand-blast machine, in combination with the blast and the sand feeding devices, the two-part holders and the oppositely inclined partitions to intercept sand passing from the machine. 50

5. In a holder for use in sand-blast machines, in combination, the plate having shouldered perforations, and the plate to cover the larger ends of the perforations and the interposed pad. 55

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

SAMUEL B. ESHLEMAN.

Witnesses:

MYRON T. BLY,
M. B. SHANTZ.