UNITED STATES PATENT OFFICE.

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MACHINE FOR POLISHING PLUGS.


To all whom it may concern:

Be it known that I, DONALD MCDERMID, a citizen of the United States, residing in Irvington, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Machines for Polishing Plugs, of which the following is a specification.

My invention relates to machines for polishing plugs, such for instance, as telephone plugs, by aid of a buffing wheel; and includes means for presenting the plug to the surface of the wheel in such manner that the operator may at will present different portions of the plug to the operative action of the wheel.

Among the objects sought to be accomplished by my invention are the following: I. To mount the polishing wheel and the motor for actuating the same in a knock-down casing which is practically dust proof and so arranged that the plugs to be polished may be inserted and adjusted by hand while the movable parts remain enclosed. II. To support the plug holders upon a revoluble guiding plate, the latter being journaled in an axially bearing of large diameter in cross section, carried by one of the stationary end plates of the casing and adjustable relatively to the latter. III. To provide means for centering the revoluble plug holder relatively to the buffing wheel, and also to provide a window through which the operator can make observations as to the displacement of the plug holder relatively to the buffing wheel. IV. To provide improved plug holders having suitable form to prevent them from injuring the buffing wheel, said plug holders being adapted for use in connection with plugs of different sizes, and so arranged that the weight of one plug holder may balance the weight of another. V. To render the various plug holders adjustable relatively to the center of rotation of the revoluble guide plate, and also to render the adjustments of the different plug holders independent of each other. VI. To improve generally the structure of various parts used in connection with buffing wheels for the purpose of polishing plugs.

Reference is made to the accompanying drawing forming a part of this specification, and in which like letters indicate like parts.

Figure 1 is a plan view of my device, the casing being partly open and partly broken away. Fig. 2 is a detail view, showing in perspective one of the plug holders. Fig. 3 is a detail view, showing partly in elevation and partly broken away a partition and annular diaphragm carried thereby for separating the motor compartment from the lint chamber. Fig. 4 is a front elevation of the stationary end plate provided with its annular bearing, and the revoluble guide plate journaled upon said bearing and supported by said end plate. Fig. 5 is a section, on the line 5—5 of Fig. 6, looking in the direction of the arrow. Fig. 6 is a rear elevation of the construction shown in Fig. 4. Fig. 7 is a fragmentary cross section, showing the buffing wheel, the partition with its diaphragm, the revoluble plug holder and various other parts.

A bottom plate 8 serves as a base for the casing. A pair of side plates 9 and an end plate 10 are connected with the base 8 by hinges 11. A pair of top plates 12 are also connected by hinges to the side plates 9 and are adapted to fit together and also to fit upon the adjacent edge of the end plate 10 when the various parts of the casing are folded. The casing, adjacent its front end, is provided internally with a groove 13. A stationary plate 14 is adapted to be fitted into this groove so as to be held firmly in position when the casing is folded. The stationary plate 14 carries a bearing 15 having the form of a circular flange of considerable size, and which in this instance is integral with the plate 14. A closure plate 8° is provided for closing one end of the casing, and carries a number of dowel pins 8° which fit into holes 8°. Integrally mounted upon the plate 14 and radially disposed adjacent the corners thereof are four sleeves 16. Extending through the wall of each sleeve is a set screw 17 which engages a guiding screw 18, the latter being adjustable in the general direction of its own length.

A revoluble guiding disk is shown at 19 and is provided with a central opening 20 and with a pair of slots 21 located upon opposite sides of this opening. The disk 19 is further provided with a flange 22 integral with it and bounding its outer edge, this flange, as seen in cross section, extending laterally from the general plane of the disk, as may be understood from Fig. 7. The flange 22 is provided with a groove 22° of
annular form, and the inner ends of the guiding screws 18 extend into this groove. By adjusting the guiding screws 18 relatively to the sleeves 16, as above described, the revoluble disk 19 may be adjusted in its bearing.

The stationary plate 14 is provided with an annular flange 23 integral with it and engaging the adjacent surface of the disk 19, so as practically to form a part of the annular bearing for supporting said disk.

Two plug holders are shown at 24, 25. Each of these plug holders has substantially the form of a sleeve and is provided with a projecting portion 26, 27 having the proximate form of a semi-tube and provided internally with a shoulder 28 having a general semicircular form. Each of the two plug holders is likewise provided with a rounded surface 43 for preventing injury to the wheel, or undue wear upon the latter. Each plug holder is further provided with a threaded portion 29, and engaging the latter is a nut 30. A washer 31 is located between this nut and the adjacent body portion of the disk 19. The plug holders are of different diameters, so as to accommodate plugs of different sizes, as may be understood from Fig. 6, and are so arranged that when a plug is thrust into the holder it lodges against the shoulder 28, which thus serves as a limiting stop for preventing its excessive travel in the direction in which it is inserted.

A motor is shown at 32 and carries a revoluble shaft 33, the latter extending through a partition 34 and diaphragm 35. This diaphragm is held upon the partition 34 by fastenings 36, as may be understood from Fig. 3. The diaphragm 35 is provided with a central opening 37 through which the revoluble shaft 38 extends. A buffing wheel is shown at 39, and in this instance is built up of annular pieces of cloth or other fabric. This buffing wheel is provided with a hub 39 consisting of a metal sleeve provided with an annular flange 40 integral with it. Fitting upon one end of the hub 39 is a nut 41. A washer 42 is engaged by the nut 41, and presses against the buffing wheel 38 so as to hold the same firmly in position upon the hub 39. This hub fits detachably upon the shaft 33. As the parts are originally assembled, and afterward when, owing to accident, they are displaced relatively to each other, it may happen that when the buffing wheel 38 is mounted upon the shaft 33 and the end plate 19 placed in proximate position, as indicated in Fig. 7, the axis of the shaft 33 may not coincide with the axis of rotation of the revoluble guiding disk 19, as indicated by broken lines in Fig. 7. In this event the operator by, looking through the opening 20, can determine the amount and direction of relative displacement. This being done, the plate 14 may be adjusted, in the groove 18, so as to bring the parts affected into the proper axial alignment.

The lint chamber is shown at 45, and the motor chamber at 44, the latter being separated from the motor chamber by the partition 34 and diaphragm 35. The operation of my device is as follows: The parts being assembled and arranged as above described, and the revoluble guiding disk 19 being adjusted into axial alignment with the revoluble shaft carrying the buffing wheel, the device is ready for use. The operator now adjusts the plug holders relatively to the disk 19 and starts up the motor, the buffing wheel being thus rotated. The operator next grasps a plug to be polished, and holding the plug in his hand inserts it into one or the other of the plug holders. In doing this, he brings a part of the plug into engagement with the outer peripheral surface of the buffing wheel. He next holds the plug firmly to prevent it from rotating, and by moving it bodily around, or in other words, by using it as a handle, he turns the disk 19 to any desired extent. If he gives the disk 19 one complete rotation, he brings into engagement with the buffing wheel every peripheral part of the plug which occupies the same general plane as the buffing wheel. If he desires to polish the plug only upon one side, as is sometimes the case where the plug has already been polished, but the work was not thoroughly done, he inserts the plug and gives the disk 19 only a partial revolution. This brings into engagement with the buffing wheel such portion of the plug as the operator desires to be worked upon.

It will be noted that the two plug holders are diametrically opposite each other relatively to the center of the disk 19. The plug holders, therefore, balance each other. As each plug holder is almost constantly in engagement with the buffing wheel, the rounded edges 43 protect the wheel from undue abrasive action by the plug holder.

While the parts are in action, any lint thrown off by the buffing wheel is retained in the adjacent portion of the casing which thus serves the purpose of a lint chamber.

It will be noted that, owing to the form of the plug holders, the plug, while being operated upon by the buffing wheel, is not only effectively housed except where purposely exposed to the action of the wheel, but is also braced against radial displacement due to the working pressure of the buffing wheel.

I do not limit myself to the precise mechanism shown, as variations may be made therein without departing from the spirit of my invention.
Having thus described my invention, what I claim as new and desire to secure by Letters Patent is as follows:

1. In a machine for polishing plugs, the combination of a casing, a motor and a buffing wheel mounted within said casing, a partition located within said casing and disposed between said motor and said buffing wheel so that said buffing wheel is thus located within a lint chamber; a diaphragm carried by said partition and surrounding the motor shaft, a stationary guiding plate mounted within said casing and partially bounding said lint chamber, a revoluble guiding disk journaled upon said stationary guiding plate, and a plug holder carried by said revoluble guiding disk and having a portion extending into proximity to said buffing wheel.

2. In a machine for polishing plugs, the combination of a casing providing a lint chamber, a buffing wheel in said chamber, a guiding plate mounted within said casing and partially bounding said lint chamber, a revoluble guiding disk journaled upon said guiding plate, and a plug holder carried by said revoluble guiding disk and having a portion extending into proximity to said buffing wheel.

3. In a machine for polishing plugs, the combination of a casing providing a lint chamber, a buffing wheel in said chamber, a revoluble guiding disk partially bounding said lint chamber, and a plug holder carried by said revoluble guiding disk and having a portion extending into proximity to said buffing wheel.

4. A device of the character described, comprising a buffing wheel, a revoluble guiding plate provided with a plurality of slots extending in different directions from the center of said revoluble guiding plate, and plug holders carried by said plate and extending through said slots, said plug holders balancing each other.

5. In a device of the character described comprising a buffing wheel, a stationary plate disposed adjacent said buffing wheel and provided with a bearing of substantially annular form, a revoluble guiding plate engaging said bearing and provided with a plurality of slots extending in opposite directions from the center of said revoluble guiding plate, and a pair of plug holders carried by said plate and extending through said slots, said plug holders balancing each other.

6. A device of the character described comprising a stationary plate provided with an opening, a plurality of sleeves mounted upon said plate, adjusting members carried by said sleeves, a revoluble guiding disk mounted within said opening and engaged by said adjusting members, a plug holder carried by said revoluble guiding disk, and a buffing wheel located adjacent said revoluble guiding disk.

7. In a machine for polishing plugs, the combination of a buffing member, a revoluble guiding disk journaled adjacent said buffing member and adapted to be turned slowly by hand, and a plug holder carried by said disk and extending therethrough into proximity to said buffing member, said plug holder having its inner end cut away at one side to expose the plug laterally and provided with rounded edges at said cut-away portion where it is likely to be brought into engagement with the buffing member.

8. In a machine for polishing plugs, the combination of a buffing wheel, a revoluble guiding disk located adjacent said buffing wheel and mounted to be turned slowly by hand, a plug holder carried by said revoluble guiding disk and provided with a portion extending into proximity to said buffing wheel, said portion being provided internally with a shoulder against which a plug may be lodged.

9. A machine for polishing plugs comprising a movable buffing member, a revoluble guiding disk disposed adjacent said buffing member, and a plurality of plug holders carried by said disk and each extending toward said buffing member, each of said plug holders being provided with an opening, the opening in one plug holder being of greater diameter than the opening of the other plug holder.

10. In a machine for polishing plugs, the combination of a movable buffing member, a revoluble guiding disk disposed adjacent said buffing member and provided with a slot, and a plug holder having the form of a sleeve and extending through said slot, the inner end of said sleeve being cut away so as to expose the plug laterally.

11. In a machine for polishing plugs, the combination of a stationary supporting member provided with an opening and further provided with a plurality of radial sleeves disposed around said opening, adjusting bolts mounted within said sleeves, a revoluble guiding disk journaled in said supporting member and provided with a groove into which said adjusting bolts extend in order to facilitate the adjustment of said disk relatively to said supporting member, and a plug holder carried by said disk and extending therethrough.

12. A machine for polishing plugs, the combination of a revoluble driving shaft, a buffing wheel mounted upon said shaft and revoluble therewith, a revoluble guiding disk disposed parallel with said shaft and provided with a window substantially in axial alignment with said wheel, means for adjusting said revoluble guiding disk relatively to said wheel, and a plug holder carried by said revoluble guiding disk for the
purpose of holding a plug while the latter is being operated upon by said wheel.
13. In a machine for polishing plugs, the combination of a buffing wheel, a revoluble guiding disk disposed adjacent said wheel and provided with a slot, and a plug holder carried by said disk and extending through said slot, said plug holder having the form of a sleeve and provided with a semi-cylindrical extending portion having an interior shoulder against which a plug may be lodged.
14. In a machine for polishing plugs, the combination of a revoluble driving shaft, a buffing wheel mounted upon said shaft and revoluble therewith, a supporting member provided with an opening, a revoluble guiding disk mounted in said supporting member and provided with a window substantially in axial alinement with said wheel, means for adjusting said supporting member relatively to said wheel, and a plug holder carried by said revoluble guiding disk for the purpose of holding a plug while the latter is being operated upon by said wheel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DONALD McDERMID.

Witnesses:

JOHN COMERY,

E. S. QUACKENBUSH.

Copies of this patent may be obtained for five cents each, by addressing the “Commissioner of Patents, Washington, D.C.”