P. F. DUSHA & A. FEYK.

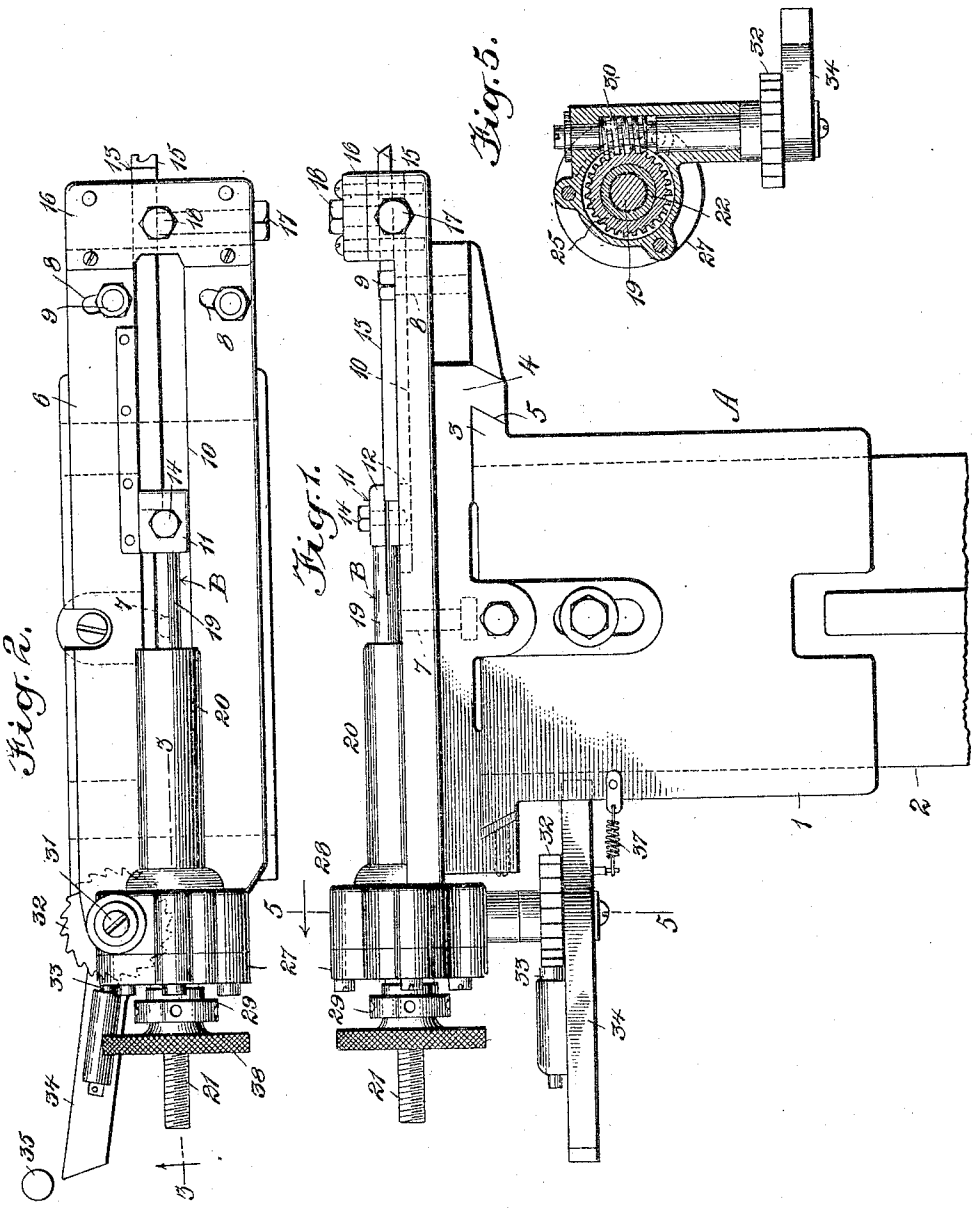
TOOL POST FOR PEARL BUTTON MACHINES.

APPLICATION FILED JULY 5, 1916.

1,210,153.

Patented Dec. 26, 1916.

2 SHEETS—SHEET 1.




WITNESSES

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Fig. 3.

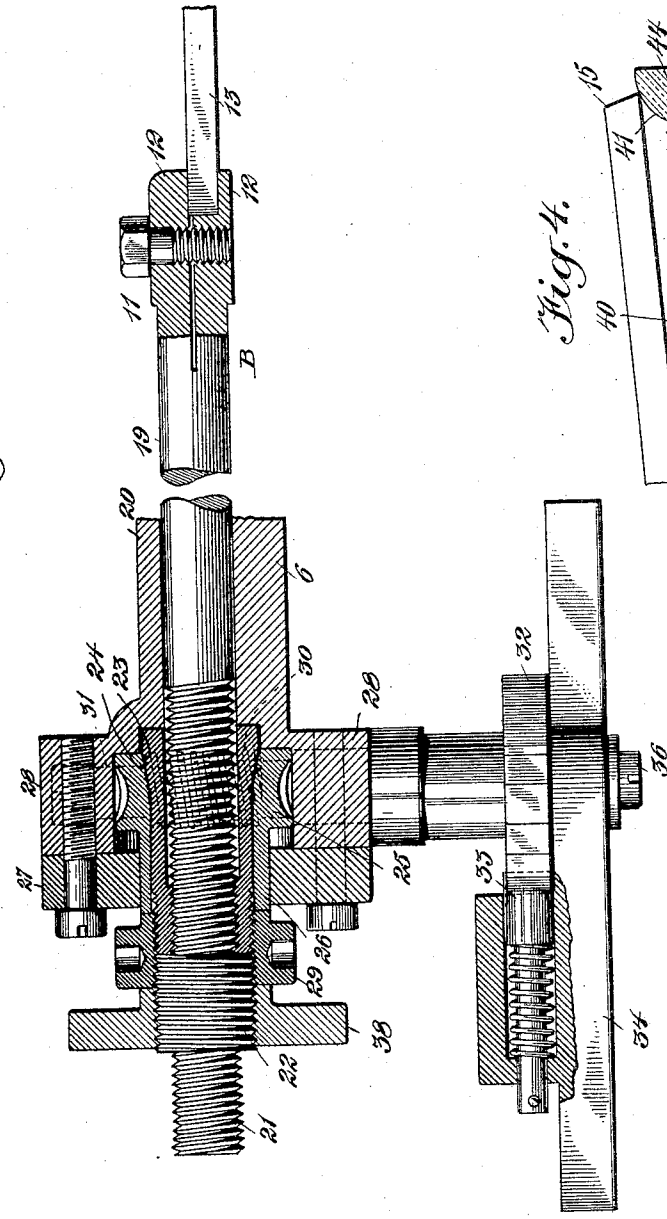
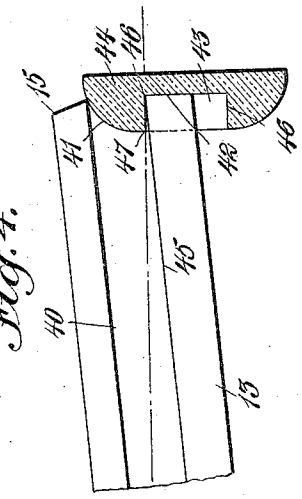



Fig. 4.




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# UNITED STATES PATENT OFFICE.

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## TOOL-POST FOR PEARL-BUTTON MACHINES.

1,210,153. Specification of Letters Patent. Patented Dec. 26, 1916.

Application filed July 5, 1916. Serial No. 107,547.

*To all whom it may concern:*

Be it known that we, PAUL F. DUSHA and ANTON FEYK, citizens of the United States, and residents of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Tool-Post for Pearl-Button Machines, of which the following is a full, clear, and exact description.

This invention relates to pearl button making machines and deals particularly with a tool post adapted for machines of that type by which the sockets or recesses are cut in the face of the buttons.

The invention has for its general objects to provide an improved tool post of such construction that a better cutting action on the buttons can be obtained so that a sharp edge can be produced between the wall of the socket and face of the button.

A more specific object of the invention is the provision of a tool post in which the tool bar plate can be adjusted at an angle to the line in which the tool feeds, so that a sufficient clearance is provided between the wall of the socket in the button and the longitudinal face of the tool, to prevent such longitudinal face of the tool from having a scraping action on the wall of the socket, which impairs the sharp edge between the socket and face of the button.

A further object of the invention is the provision of a novel means for intermittently feeding the tool bar forwardly to compensate for the grinding away of the tool, since the latter between operations on successive buttons is passed through a grinding or sharpening device.

With such objects in view, and others which will appear as the description proceeds, the invention comprises various novel features of construction and arrangement of parts which will be set forth with particularity in the following description and claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention and wherein similar characters of reference indicate corresponding parts in all the views, Figure 1 is a side view of the tool post; Fig. 2 is a plan view; Fig. 3 is an enlarged sectional view on the line 3—3, Fig. 2; Fig. 4 is a sectional view of a button, showing the action of the tool thereon; and Fig. 5 is a detail sectional view on the line 5—5, Fig. 1.

The tool post herein set forth is especially adapted for a pearl button machine of that type comprising a revolving carrier on which a plurality of tool posts are mounted to operate in connection with another revolving carrier for button-carrying chucks, so that during a part of each revolution of the carriers the buttons will be socketed or recessed, and during the remaining part of the revolution the button blanks will be inserted in the chucks and the socketed buttons ejected and also the cutters will be sharpened. As the present invention relates only to the tool post it has been deemed unnecessary to illustrate the button machine as a whole.

Referring to the drawing, A designates the standard of the post, which may be made of adjustably connected sections 1 and 2, the section 1 being provided at its upper end with a dovetail 3 on which is adjustable a slide 4 having a dovetail slot 5 to receive the dovetail 3, whereby the slide 4 is adjustable horizontally or transversely to the post A. Resting on the slide 4 is a tool bar guide plate 6 which is adapted to have a slight pivotal adjustment in a horizontal plane about a pivot 7 anchored in the slide 4, and extending upwardly through the plate 6. Adjacent one end of the plate 6 are arcuate slots 8 concentric with the pivot 7, and in these slots are bolts 9 which screw into the slide 4 to rigidly clamp the tool bar guide plate in any desired position of adjustment. This guide plate 6 has a longitudinal channel 10 forming a guideway for the tool bar B. This bar has a head 11 split longitudinally to form jaws 12 which are adapted to be closed on the tool or cutter 13 by a clamping screw 14 passing through the jaws and having a threaded connection with the lower one. The cutter or tool 13 is in the form of a bar and has one end clamped between the jaws 12 and extends longitudinally of the guideway 10, with the bevel extremity 15 projecting beyond the guide plate 6. A cap plate 16 is applied to the outer end of the plate 6 so as to overlie and engage the tool 13 to assist in rigidly holding the same. A screw 17 extends horizontally through the plate 6 from one side to the tool channel 10, and is adapted to engage the tool to slidably

hold the same against the wall of the channel opposite from that through which the screw 17 extends. A vertical screw 18 in the cap plate 16 also engages the tool so that it is impossible for the latter to yield or chatter. The tool bar has a stem portion or shank 19 which slides in a horizontal bearing 20 formed on the top of the plate 6 and serving to hold the guide bar slidably in place on the plate 6.

The tool bar is adapted to move intermittently in an axial direction to feed the tool 13 to compensate for the grinding away of the latter in the grinding device of the machine as the tool in each revolution of the carrier on which the tool post is mounted passes a grinding device as hereinbefore explained. For this purpose the shank 19 of the tool bar B is provided with a screw thread 21 with which engages an internally threaded sleeve 22. This sleeve has formed at one end a conical clutch surface 23 for engagement with a correspondingly shaped surface 24 formed in the worm wheel 25. This worm wheel 25 encircles the sleeve 22 and has a hub 26 journaled in the plate 27 of a gear housing 28 formed on the end of the plate 6 opposite from the tool. The sleeve 22 has an external thread with which engages a clamping nut 29 that bears against the hub 26 of the worm wheel, so that by turning the nut the worm wheel and sleeve are relatively moved so as to clutch or unclutch these parts by engaging or disengaging the surfaces 23 and 24.

Mounted in the gear housing is a worm 30 on a shaft 31 which is adapted to receive a partial rotation each time the tool post carrier of the machine makes a revolution. The shaft 31 is provided with a ratchet wheel 32 with which is adapted to engage a spring-pressed pawl 33 mounted on a dog or lever 34. This dog or lever 34 moves into engagement with an abutment indicated diagrammatically at 35, Fig. 2, so that as the tool post passes the abutment the dog 34 will wipe against the same and cause the dog to swing on its pivot 36, whereby the pawl 33 engaging the ratchet wheel 32 will move the latter with the dog 34 until the same passes by the abutment 35, when a spring 37 connected with the dog will return the same to normal position, it being understood that during its return movement the pawl 33 passes idly over the ratchet wheel 32. This turning of the ratchet wheel 32 by the pawl 33 gives a partial rotation to the worm shaft so that the worm wheel 25 and feed sleeve 22 are also partially turned, but since the sleeve 22 is prevented from having longitudinal movement, the turning thereof causes longitudinal movement of the tool bar. The feed of the tool bar is extremely slight, so that the tool will not be worn away too quickly. When it is desired to effect a quick adjustment of the tool bar, the clamping nut 29 is loosened or screwed away from the hub 26 of the worm wheel so that the latter will be unclutched from the sleeve 22. On this sleeve is threaded a handwheel 38 against which the nut 29 is frictionally engaged to enable the turning of this wheel 38 to turn the sleeve 22, which in turn will impart longitudinal motion to the tool bar for the quick setting thereof.

The tool 13 is of the same cross-sectional shape throughout its length, so that as it is ground down it will finish all the buttons uniformly. The tool is provided with a longitudinal channel 40 so shaped that when the bevel 15 is imparted to the tool, the cutting edge will be formed with a curved recess 41 and a projecting cutting tooth 42, whereby the socket 43 will be cut in the button 44. The button will rotate in a plane at ninety degrees to the line in which the tool feeds, but the tool itself is set at an acute angle to the line of feed of the button, and consequently the face 45 of the tool does not come into contact with the wall 46 of the socket or recess 43 of the button. In other words, it is only the edge 42 of the tool which is in contact with the socket 43. As a result of this the circular wall of the socket will be smoothly finished by the point 46 of the cutter, and a sharp edge 47 is thereby obtained between the wall of the recess and the convex face of the button. The angular disposition of the tool to the line of feed of the button is obtained by pivotally mounting the plate 6 on the tool post. It has been found that when the surface 45 of the tool is parallel with the line of feed of the button, it is impossible to obtain a sharp edge on the button at 47.

From the foregoing description taken in connection with the accompanying drawings, the advantages of the construction and method of operation will be readily understood by those skilled in the art to which the invention appertains, and while we have described the principle of operation, together with the device which we now consider to be the best embodiment thereof, we desire to have it understood that the device shown is merely illustrative and that such changes may be made when desired as fall within the scope of the appended claims.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:

1. A tool post comprising a supporting structure, a tool bar slidably mounted thereon and having a threaded portion, a sleeve having an internal threaded connection with the said threaded portion of the tool bar, a wheel surrounding the sleeve, there being surfaces on the wheel and sleeve for clutching the two together by relative longitudinal movement, means for moving the wheel

into and out of clutching engagement with the sleeve, means for intermittently turning the wheel, and a manually actuated element adapted to be connected with the sleeve when the wheel is unclutched therefrom for permitting the sleeve to be manually turned.

2. A tool post for a button machine comprising a support, a plate pivoted intermediate its ends on the support and having a longitudinal channel, means for clamping the plate on the support, a tool bar slidable in the channel and having means for gripping a tool, a cap plate extending across the channel and fastened to the first-mentioned plate and under which the tool is disposed, and adjustable means mounted on the plates for engaging the tool adjacent its cutting end.

3. A tool post comprising a supporting structure, a tool bar slidably mounted thereon and having a threaded portion, a sleeve having an internal threaded connection with the tool bar and also having an external thread, a gear wheel surrounding the sleeve, there being surfaces on the gear wheel and sleeve for clutching the two together by relative longitudinal movement, a jam nut threaded on the sleeve and engageable with the gear wheel for clutching and unclutching the latter with respect to the sleeve, an element meshing with the gear wheel for turning the same intermittently, and means for periodically operating the element.

4. A tool post comprising a supporting structure, a tool bar slidably mounted thereon and having a threaded portion, a sleeve having an internal threaded connection with the tool bar and also having an external thread, a gear wheel surrounding the sleeve, there being surfaces on the gear wheel and sleeve for clutching the two together by relative longitudinal movement, a jam nut threaded on the sleeve and engageable with the gear wheel for clutching and unclutching the latter with respect to the sleeve, an element meshing with the gear wheel for turning the same intermittently, and a ratchet and pawl mechanism for actuating the element at a certain point in the travel of the tool post.

5. A tool post comprising a supporting structure, a tool bar slidably mounted thereon and having a threaded portion, a sleeve having an internal threaded connection with the tool bar and also having an external thread, a gear wheel surrounding the sleeve, there being surfaces on the gear wheel and sleeve for clutching the two together by relative longitudinal movement, a jam nut threaded on the sleeve and engageable with the gear wheel for clutching and unclutching the latter with respect to the sleeve, an element meshing with the gear wheel for turning the same intermittently, means for periodically operating the element, and a handwheel loosely threaded on the sleeve and arranged to be clamped thereto by the said nut when the latter is released from clutching engagement with the gear wheel.

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