Feb. 3, 1931. J. J. THACHER 1,790,731

BURNISHING DEVICE

Filed Feb. 16, 1927

Fig. 1.

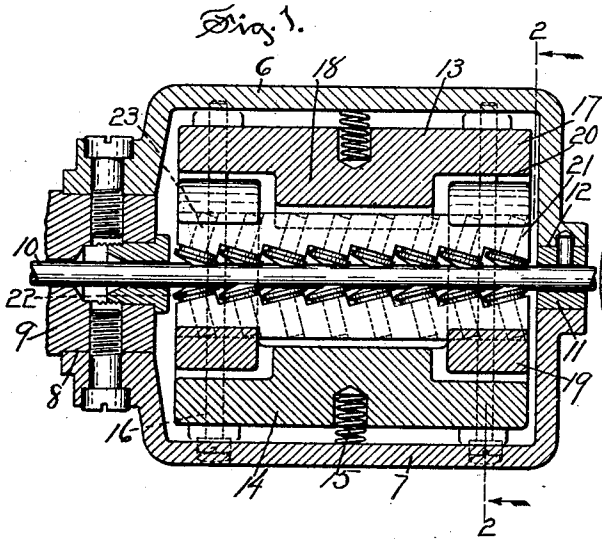


Fig. 2.

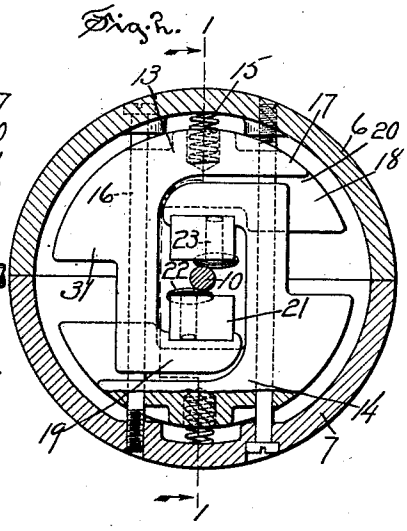


Fig. 3.

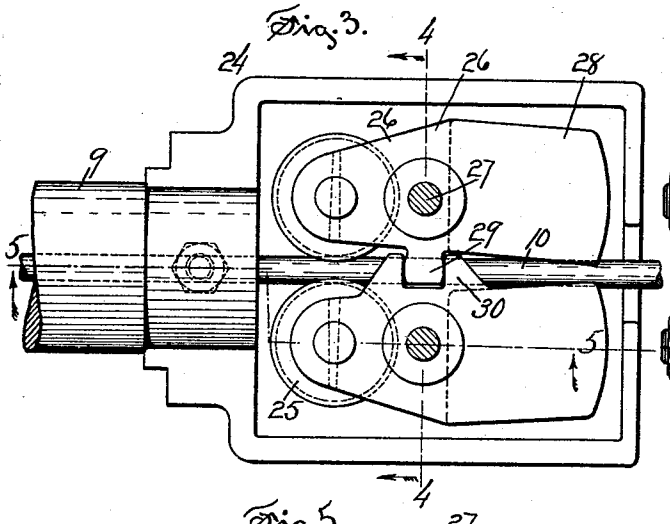


Fig. 4.

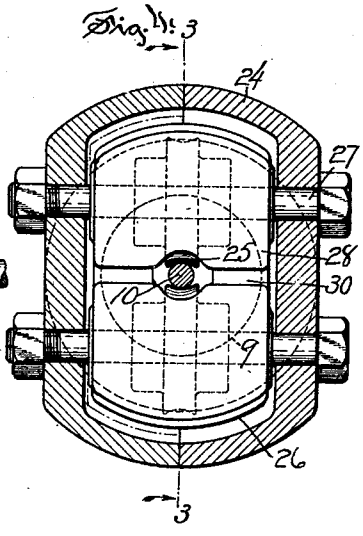
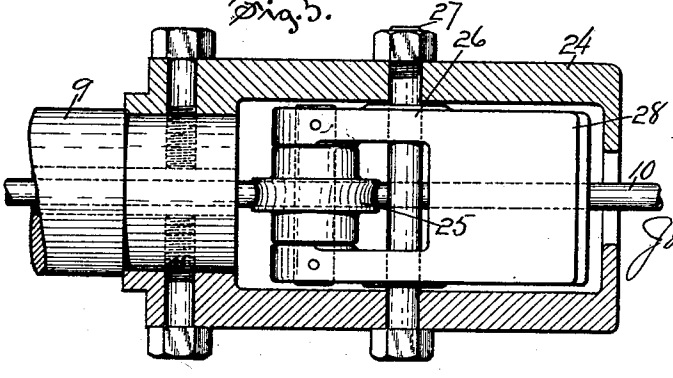


Fig. 5.



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UNITED STATES PATENT OFFICE

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BURNISHING DEVICE

Application filed February 16, 1927. Serial No. 168,685.

This invention relates to the class of devices for polishing strips or lengths of metal, and an object of the invention, among others, is the production of a burnishing device that shall be simple in construction and particularly efficient in operation.

One form of burnisher embodying the invention and in the construction and use of which the objects herein set out, as well as others, may be attained, is illustrated in the accompanying drawings, in which—

Figure 1 is a view in section through this improved burnishing device on a plane denoted by the dotted line 1—1 of Figure 2.

Figure 2 is a view in cross section through the same and on a plane denoted by the dotted line 2—2 of Figure 1.

Figure 3 is a view in section of a modified form of burnisher, and on a plane denoted by the dotted line 3—3 of Figure 4.

Figure 4 is a view in section on a plane denoted by the dotted line 4—4 of Figure 3.

Figure 5 is a view in section on a plane denoted by the dotted line 5—5 of Figure 3.

While this invention is not limited in its application to a machine for performing any specific operation, yet as it is readily applied to a machine for straightening wire I have illustrated in the drawings herein the burnisher as adapted for use in such a machine, in which drawings the numerals 6—7 indicate sections of the inclosing case of my improved burnisher, such case having at one end an opening 8 adapted to receive an arbor 9 common to wire straightening machines and through which arbor and case a wire 10 is moved in the straightening and burnishing operation. The wire 10 passes out of the case and through a bushing 11 secured in an opening 12 in this end of the case.

Burnisher supports 13—14 are yieldingly mounted within the case, one in each section 6 or 7, springs 15 projecting from recesses in each of the supports against the walls of the case forcing said supports toward each other. These supports are each slidably mounted at their opposite ends on guides 16, which guides are in the form of bolts that are also employed to secure the sections 6—7 together.

Each support is of generally C-shape in end view, as seen in Figure 2, and comprises lips 17 at each end through which the bolts 16 pass, the lengthwise central section of each support being thickened and constituting weights 18. Each section is also provided at its opposite ends with burnisher supporting lips 19 extending into recesses 20 created by the formation of the lips 17 and weights 18, and as shown in Figures 1 and 2 of the drawings.

Burnisher supporting bars 21 extend across and are secured to the lips 19 on each of the burnisher supports, and burnishers 22 are located in a line extending lengthwise of said bar, and as shown in Figure 1, the burnishers on each bar comprising a set, and the sets are preferably located on opposite sides of a plane passing longitudinally through the center of the wire and substantially parallel with a plane passing through the axes of a set of burnishers. These burnishers are preferably formed with front or polishing faces of cone shape and engage the articles between the centers and peripheries of the faces. Other forms of burnishers may be provided if desired. Each burnisher preferably has a shaft 23 projecting from its back face and located diagonally with respect to the wire, and as shown in Figure 1 of the drawings, said shafts being freely rotatable in the bars 21.

It will be noted from the description and illustration herein that as the case is rapidly rotated by means of the arbor 9 the weighted portions 18 of the burnisher supports will be thrown outwardly under centrifugal force thereby moving the burnisher supporting lips 19 located opposite the weights 18 toward the wire 10 and pressing the burnishers 22 into contact with the wire as said burnishers are revolved about the wire, and the burnishers being so located each makes contact with a portion of the wire not engaged by the other burnishers, with a result that a most efficient burnishing action is obtained.

In that form of the structure shown in

Figures 3 and 5 two burnishers are shown within the case 24, which case may be in sections as hereinbefore described with respect to the structure shown in Figures 1 and 2. These burnishers 25 are in the form of rollers located on opposite sides of the wire 10 and rotatably mounted on pivots 27 in the burnisher supports 26. Each of these supports has a weighted end 28 located opposite the burnisher roller 25 thereon so that as the weights are thrust outwardly by centrifugal force the rollers will be pressed into contact with the wire 10. Equalizers are located on each of the burnisher supports, the equalizer on one member comprising two pairs of lugs 30, one pair on each side of the wire 10 and the equalizer on the other member consistsing of two lugs 29 each located between the members of each pair of lugs 30. Each of the lugs 29 on one support is in engagement with a pair of lugs 30 on the other support so that as either support 26 is thrust outwardly the engagement of the lugs will cause a similar movement of the opposite lug, this independently of centrifugal action.

In that form of the device shown in Figures 1 and 2 each of the burnisher supports 13—14 are preferably formed with a projection 31 on that side opposite the weights 18, these projections 31 acting as counterbalances to equalize the weight of the supports on the guides 16 and thereby permit easy sliding movement of the supports on the guides.

The wire 10 being moved through the case comprising the sections 6—7, and the latter being rotated simultaneously with such movement to revolve the burnishers 22 about the wire, said burnishers will travel in a helical path along said wire, and the rate of rotation of said case and the rate of travel of said wire are preferably so proportioned that each burnisher will travel in a path different from that traveled by another burnisher and the burnishers are supplied in such numbers that these helical paths will, so far as appearance is concerned, touch each other and thereby substantially cover the entire surface of the wire, so that, to all appearances, an unbroken highly polished surface will be obtained along the whole length of the wire.

In accordance with the provisions of the patent statutes I have described the principles of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the device shown is only illustrative and that the invention may be carried out by other means and applied to uses other than those above set out.

I claim:—

1. A burnishing device including a rotatably mounted case, burnisher supports movably mounted in said case on opposite sides of the axial center thereof, burnisher shafts arranged in said supports diagonally to the axis of a wire passing through the case, and conically faced burnishers carried by said shafts to make contact with the wire passing through said case.

2. A burnishing device including a rotatably mounted case, burnisher supports movably mounted in the case on opposite sides of the axial center thereof, burnisher shafts mounted in said supports and inclined in the direction of travel of a wire through the case, and burnishers supported by said shaft.

3. A burnishing device including a rotatably mounted case, interfitting burnisher supports mounted for centrifugal movement in the case on opposite sides of the axial center thereof and each having a part located on the opposite sides of said axial center, and burnishers supported on said oppositely located parts to be moved centripetally into contact with a wire passing through said case.

4. A burnishing device including a rotatably mounted case, burnisher supports movably mounted in the case and each comprising a weighted portion and a burnisher supporting portion located on opposite sides of the axial center of the case, and burnishers rotatably mounted in said burnisher supporting portions.

5. A burnishing device including a rotatably mounted case, burnisher supports movably mounted in the case and each comprising a weighted portion and burnisher supporting portions, a burnishing supporting bar secured to said burnisher supporting portions, and burnishers rotatably mounted in said bars.

6. A burnishing device including a two part rotatably mounted case, bolts for securing the parts of the case together, burnisher supports slidably mounted on said bolts on opposite sides of the axial center of said case, and burnishers rotatably mounted in said supports and comprising sets located on opposite sides of said axial center.

7. A burnishing device including a rotatably mounted case, burnisher supports movably mounted in the case and each comprising a weighted portion and a burnisher supporting portion spaced apart to provide a recess, the burnisher supporting portion being located on the opposite side of the axial center of the case from the weighted portion and said burnisher supporting portion on one support being located in the recess in the other support.

8. A burnishing device including a rotatably mounted case, burnisher supports movably mounted in the case and each including a centrally located weighted portion and burnisher supporting lips located on opposite sides of said weighted portion and on the

opposite side of the axial opening through the case from said weighted portion, a burnisher supporting bar secured to said burnisher supporting lips, and burnishers rotatably mounted in sets on each of said bars.

9. A burnishing device including a case, means for supporting the objects to be burnished axially of the case, and a pair of burnisher disks mounted in said case with their front polishing faces toward said articles and their axes offset laterally from each other and extending crosswise of the case, said disks being positioned to engage the said object with said front polishing faces by portions adjacent to the peripheries of said faces.

10. A burnishing device including a case, means to support the article to be burnished axially of the case, a pair of burnisher disks mounted in said case with their axes offset laterally from each other and extending transverse to the case, said disks, having flat polishing faces positioned to engage the said object by portions of said faces between their axes and their peripheries, and means yieldably urging said disks into object engaging positions.

11. A burnishing device including a case, means to support the article to be burnished axially of the case, a pair of burnisher disks mounted in said casing with their axes offset laterally from each other and extending transverse the casing, said disks being positioned to engage the said object by portions adjacent their peripheries, holders for said disks, guides extending transversely of the casing to support the holders for movement toward and from each other, and means urging said holders toward each other.

12. A burnishing device including a case, movably mounted roller supports in the case at opposite sides of the longitudinal center thereof, a plurality of pairs of rollers journalled on the supports and centripetally shiftable in the case and between which rollers of each pair a wire rod is adapted to pass, the bearings for the rollers extending transversely of the axis of the wire rod that is passed through said case.

13. A burnishing device including a rotatably mounted casing, burnisher supports movably mounted in the case on opposite sides of the axial center thereof, burnishers mounted in said supports to make contacts with a wire passing through said case, and spring devices interposed between the case and supports for exerting a force at right angles to the longitudinal axis of the supports for yieldingly resisting centrifugal force on said supports to move them outwardly.

14. A burnishing device including a case, a set of rollers each comprising a conically shaped head, and means for rotatably supporting said rollers in said case with one side of the cone-shaped head parallel with the axis of a rod passed through said case and with the rotatable bearings for the rollers extending transversely to the longitudinal axis of the rod.

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