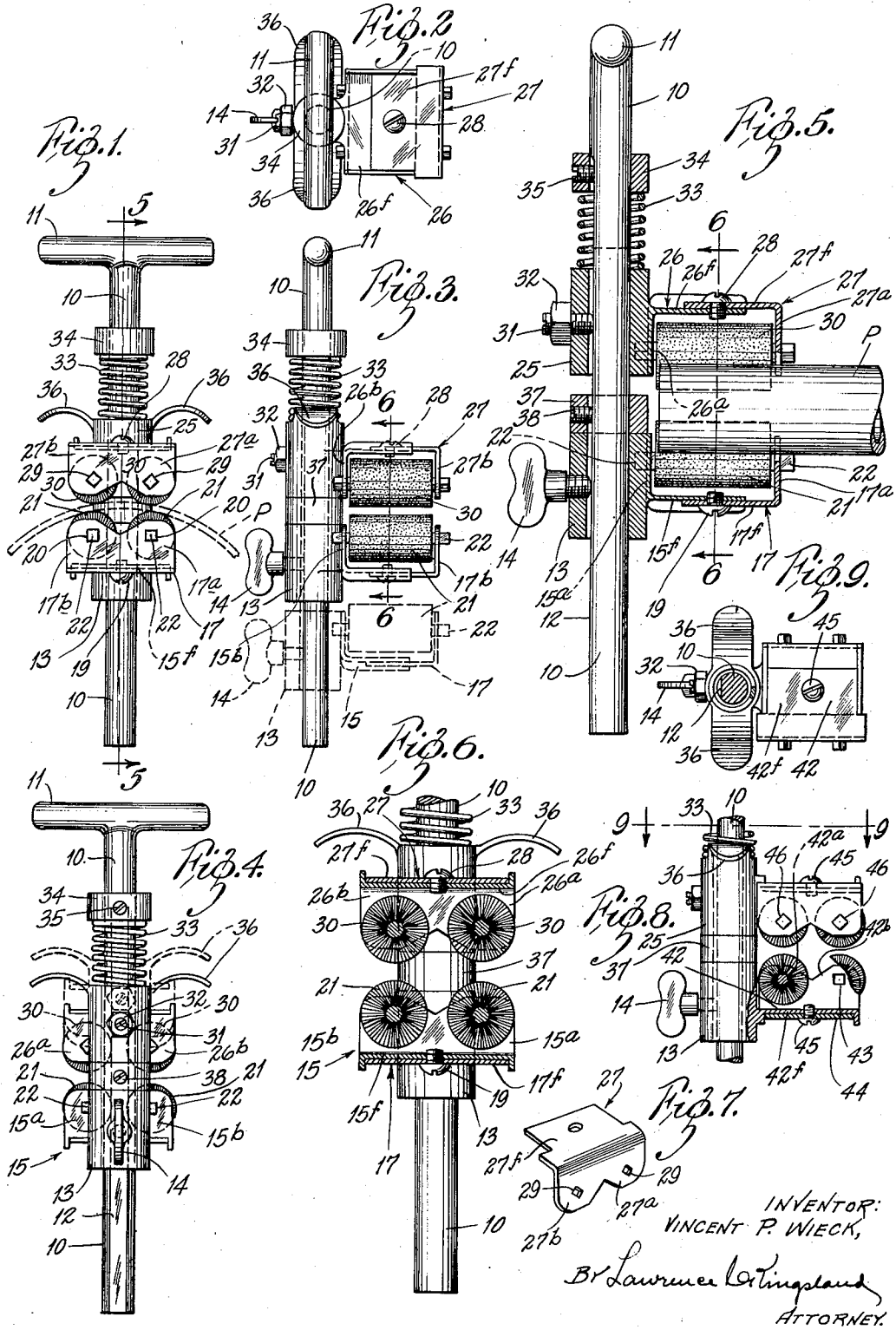
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POLISHING TOOL

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POLISHING TOOL

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6 Claims. (Cl. 15—104.03)

The present invention relates to a polishing tool especially adapted in the plumbers' and pipe fitters' trade for the polishing of portions of pipes.

Heretofore, it has been the practice to file off ferrules, pipes, and the like, that have to be soldered in order to get clean polished surfaces to which the solder will adhere. It is impractical to use abrasives, since the particles of the abrasive prevent adherence of the solder.

This practice of filing around pipes is one that involves the expenditure of considerable time and effort. By the use of the present invention, it has been found that a pipe fitter can save a substantial amount of time on each project.

The invention consists of a tool having opposed wire brushes clustered to receive a pipe to be polished and adjustable so that the tool may be employed with pipes of various sizes. The rotation of the tool relative to the pipe with which it is engaged causes the brushes to polish a section of the pipe in a very short time.

It is an object of the invention to provide a tool employing wire brushes arranged to receive a pipe and polish the same.

It is a further object of the invention to provide such a tool having a readily made adjustment to receive pipes of various sizes.

It is a further object of the invention to provide a tool adapted to operate upon extra large pipes.

It is a further object of the invention to provide for a displacement of the brushes so that they may be used about their entire peripheries whereby the maximum wear may be obtained.

In the drawing:

Fig. 1 is a top view of the tool;

Fig. 2 is a view from the upper end of Fig. 1;

Fig. 3 is a side view of the tool taken from the left of Fig. 1;

Fig. 4 is a bottom view of the tool;

Fig. 5 is a section on the line 5—5 of Fig. 1;

Fig. 6 is a section through the brushes on the line 6—6 of Fig. 5;

Fig. 7 is a perspective view of a brush-holding bracket;

Fig. 8 is a view partly broken away showing a different arrangement of the brushes; and,

Fig. 9 is a section of this modification on the line 9—9 of Fig. 8.

The tool includes a base rod 10 having a cross bar 11 at one end to provide a handle. The base rod is flattened at 12 on one side.

A first brush-holding slide 13 is mounted upon the rod 12, which it surrounds. A set screw 14 engages the flat portion 12 to secure the slide 13 in any adjusted position along the rod 12. The slide has an angular flanged plate 15 thereon consisting of a flanged section 15*f* extending outwardly therefrom, as shown in Fig. 5, and a winged section forming wings 15*a* and 15*b* secured along and extending laterally from the slide 13. An angular bracket element 17 has one section 17*f* engaging the section 15*f* of the flanged plate between the flanges thereof, and a winged section having wings 17*a* and 17*b* extending parallel and opposite to the wings 15*a* and 15*b*. The bracket 17 is secured to the plate 15 by a screw 19. Oppositely in the wings 15*a* and 17*a*, and in the wings 15*b* and 17*b*, are polygonal openings 20, here shown as squares, with the flat sides disposed toward the handle 11 of the base rod.

Cylindrical wire brushes 21 with stiff bristles have squared bristle-holding center shafts 22 complementary to the squared openings 20. These brushes are held in the squared openings in spaced relation, as shown in Fig. 1, and do not rotate. Obviously, they are inserted by being engaged at one of their ends in the openings in the wings 15*a* and 15*b* of the plate 15, after which the brackets 17 are slipped over them with their holes 20 over the opposite ends of the brushes, following which the screw 19 is engaged.

A second slide 25 surrounds the base rod 10 and has an angular flanged plate 26, the flanged portion 26*f* thereof extending outwardly from the slide, and with wings 26*a* and 26*b* extending along the slide similarly to the flanged plate 15 of the slide 13. An angular bracket 27 has a portion 27*f* secured between the flanges of the plate 26 by a screw 28, and wings 27*a* and 27*b* opposite the wings 26*a* and 26*b*. The wings of the bracket 27 and plate 26 have spaced polygonal openings 29 corresponding to the openings 20, but in this case with the corners disposed toward the handle 11. Wire brushes 30 are clamped by means of the bracket and plate. These brushes are located opposite to the brushes 21, as shown.

The slide 25 may be secured to the base rod 10 by a set screw 31 having a lock nut 32. Normally, however, the slide 25 is freely movable along the base rod, but is urged toward the slide 13 by a coil spring 33 engaging between the end of the slide 25 and a collar 34 located on the rod. This collar is fixed in position by a set screw 35 impinging against the flat side 12 of the rod 10. For the introduction of a pipe between the brushes of the slide 13 and those of the slide 25, the slide 25 is withdrawn against

the spring by means of handle elements 36 extending outwardly from the slide.

To limit the movement of the slide 25 under the influence of the spring 33, a collar 37 is located around the rod 10 between the two slides. Its position is fixed by a set screw 38.

In the modification of Figs. 8 and 9, the brushes are turned at right angles to the brushes shown in the other figures. In this case, the slide 13 has a flanged angular plate 42, the flanged portions 42*f* being attached thereto, and the winged portions 42*a* and 42*b* extending outwardly therefrom. The winged portions are provided with openings 43 to receive the center shafts of the brushes disposed with their flat sides upwardly. A bracket 44 is secured to the plate 42 by a screw 45. These brackets, like the brackets 17, have winged portions opposite the winged portions 42*a* and 42*b*. The slide 25 has its angular plate and bracket opposite those of the slide 13, but with its openings 46 disposed with corners toward the other slide.

In use, the slide 13 is adjusted along the rod 10 until the spacing between its brushes and the brushes on the slide 25 is somewhat less than the diameter of the pipe P to be polished. Thereafter, with the palm of the hand about the handle 11 and fingers engaged in the handles 36 on the slide 25, that slide is drawn toward the handle against its spring 33. The pipe P is inserted, as shown in Fig. 5, between the four brushes, and the handles 36 released. The pipe is held tightly between the cluster of brushes by action of the spring. Relative rotation thereafter between the tool and the brushes causes the brushes to scour off all dirt, oxides, and the like, from that portion of the pipe between them. It has been found that only a few rotations are sufficient to obtain a very good polished surface to which the solder will adhere. The wire brushes do not leave any adulterative deposits on the pipe which would resist the action of the solder.

When the device is to be used on pipes of larger diameter than the length of the rod 10 will permit to be inserted between the slides, the two slides may be brought together, as shown in Figs. 1 and 3, and the pipe inserted so that it completely surrounds the slide 13, as shown in dotted lines in Fig. 1. It then may be turned about its axis, which will be below the slide 13. This action polishes both the inside and the outside, which sometimes is desirable, but in no case is undesirable.

Where it is sought to polish a middle section of a pipe, this may be done by inserting the pipe crosswise of the brushes. While this is not as efficient an operation, it will suffice for this operation, because the same is required only rarely.

However, the modification of Figs. 8 and 9 will accommodate either a mid-section or an end section of a pipe, as is fairly obvious. In this modification, the slide rod 10 does not interfere with the insertion of the pipe between the clustered brushes, to any section along its length. The size of pipe that may be polished, however, is limited because the rod does restrict the insertion of the pipe in the manner shown in the dotted lines of Fig. 1. Such endwise insertion of a large pipe may be made until a pipe so inserted strikes the rod 10. The brushes, therefore, in this modification may desirably extend toward one side of the rod 10 a sufficient distance that the distance from their ends to the rod is as great as the average width of a section to be polished.

What is claimed is:

1. In a tool of the kind described, a base, a pair of oppositely spaced supporting means on said base, each supporting means having a regular polygonal opening therein, and relatively stiff brushes, one for each of said supporting means, said brushes having trunnion elements of a shape complementary to said openings, whereby they may be engaged in said openings for their support, the opening on one supporting means being disposed with a corner toward the middle of a side in the opposed opening of the other supporting means.

2. In a tool of the kind described, a portable elongated base, a support on said base and extending outwardly therefrom, a pair of relatively stiff brushes, means supporting the brushes to one side of and in spaced relation on said support, said means being adapted to prevent rotation of the brushes that would prevent their having scouring properties, said brushes presenting working surfaces extending in a direction transversely to the base and generally outwardly from said base, and means opposite said brushes presenting a working surface spaced from both of said brushes to provide a cluster between which an object to be polished is held in contact with the brushes, said support being shaped to provide a clear entry to the cluster for insertion of an article to be scoured.

3. In a tool of the kind described, a base, a first supporting means on said base, a pair of spaced brushes of relatively stiff material nonrotatably mounted on said supporting means, a second supporting means on said base, an additional pair of brushes on said second supporting means and disposed opposite said first pair, all of said brushes providing a cluster between which an object to be polished may be engaged, said supporting means being relatively adjustable on said base to vary the space between the supports and their respective brushes, and means for maintaining said brushes in their relatively adjusted positions.

4. In a tool of the kind described, a portable base, a first supporting means on said base and extending outwardly away therefrom, circular relatively stiff brush means on said supporting means with their axes extending outwardly from the base, and a second supporting means disposed opposite the first and having brush means on it disposed opposite the first brush means, said two supporting means being relatively adjustable toward and from each other and said brush means presenting working surfaces transversely to the base so as to receive a pipe to be polished either with its outer surfaces in contact with all the brush means or surrounding one of said supporting means with its outer surface in contact with one of said brush means and its inner surface in contact with the other.

5. In a tool of the kind described, a portable base having a slide portion thereon, a handle on the base, a first slide on the slide portion and adjustable therealong, means to secure the first slide in adjusted position, a second slide on the slide portion and movable toward and from the first, an abutment on the base, a spring engaging between the abutment and the second slide to urge it toward the first, means to limit the movement of the second slide, handle means on the second slide disposed relative to the handle on the base to allow the second slide to be

withdrawn from the first by grasping the two handles, and brush means on both slides.

6. In a tool of the kind described, a portable base having a handle and a slide-bar extending therefrom, a first abutment adapted to be adjustably secured along the slide-bar, a first slide on the bar, a spring between the first abutment and the slide, urging the slide away from the abutment, handle means on the first slide shaped to be engaged by the fingers while the palm of the hand engages the handle on the base, for drawing the slide against the spring, a second adjustable abutment on the bar to limit movement of the first slide under influence of the spring, a second slide adjustably mounted on the slide bar for movement toward or from the first, means to secure the second slide in adjusted position, and brush means oppositely disposed on the slides.

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