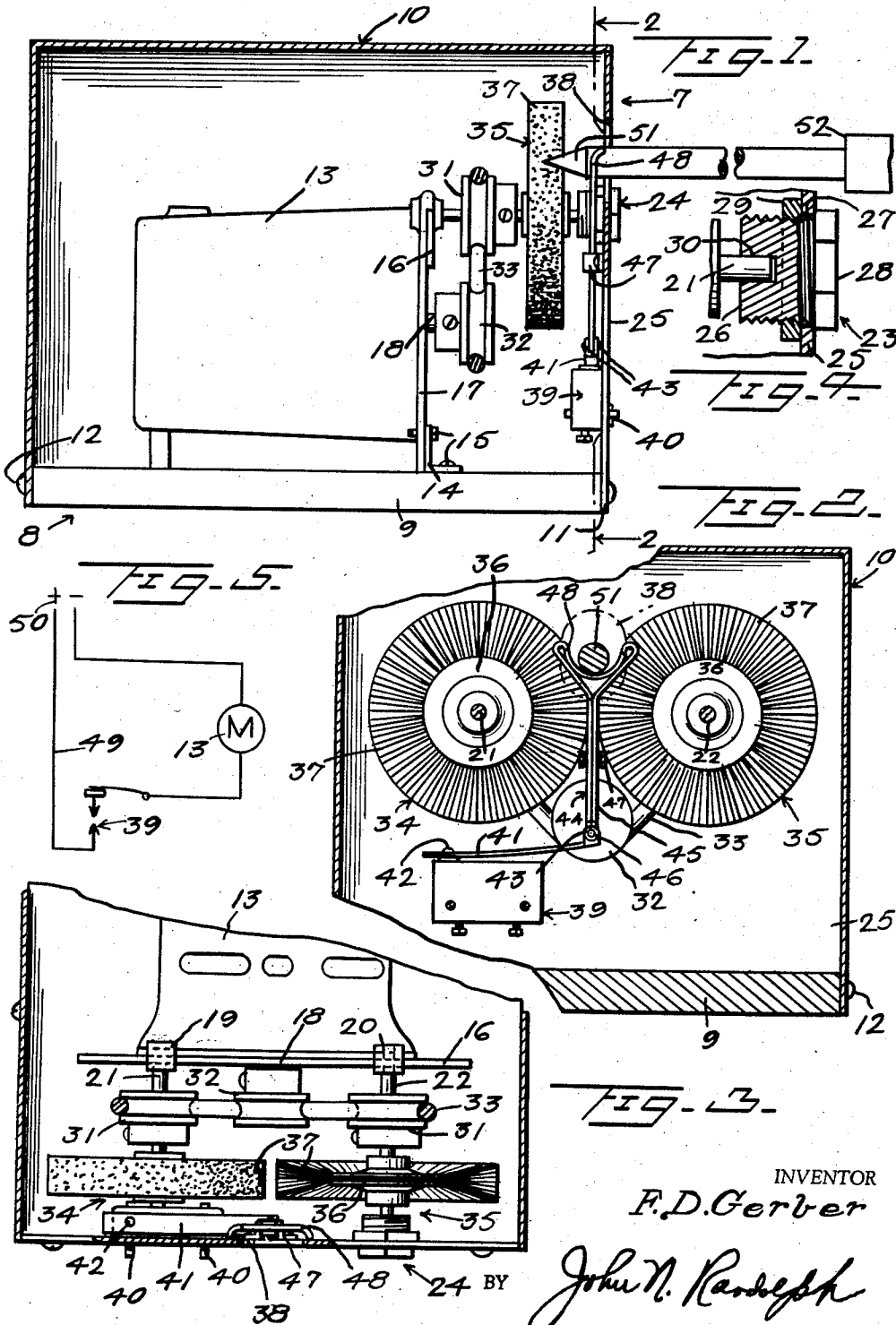


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ELECTRICALLY DRIVEN CLEANING DEVICE WITH
WORK SUPPORTING SWITCH ACTUATOR
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ELECTRICALLY DRIVEN CLEANING DEVICE WITH WORK SUPPORTING SWITCH ACTUATOR

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1 Claim. (Cl. 15—21)

This invention relates to a novel device of simple construction for cleaning the tips of soldering irons or tapered pointed ends of other elements or instruments and including rotary driven brushes between which the tip to be cleaned is positioned, for accomplishing the cleaning operation.

More particularly, it is an aim of the present invention to provide a novel actuating unit which is operated in response to movement of a tip to be cleaned to a position to be engaged by the brushes to effect operation of a power source by means of which the brushes are driven, and which power source is rendered inoperative by removal of the tip from the cleaner.

Still a further object of the invention is to provide a tip cleaner of extremely simple construction and which is capable of functioning efficiently for quickly cleaning metal tips or pointed ends of soldering irons and other instruments.

Various other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawing, illustrating a presently preferred embodiment thereof, and wherein:

Figure 1 is a longitudinal sectional view, partly in side elevation, showing the soldering iron tip cleaner;

Figure 2 is a fragmentary transverse vertical sectional view, taken substantially along a plane as indicated by the line 2—2 of Figure 1;

Figure 3 is a fragmentary top plan view, partly in horizontal section and partly broken away;

Figure 4 is an enlarged vertical sectional view illustrating a part of the cleaner, and

Figure 5 is a diagrammatic view of the electric circuit of the cleaner motor.

Referring more specifically to the drawing, the soldering iron tip cleaner in its entirety is designated generally 7 and includes a casing, designated generally 8, composed of a relatively thick base 9 and a hood 10. The hood 10 has an open bottom 11 which fits snugly around the marginal edges of the base 9 and is detachably secured thereto as by screw fastenings 12. An electric motor 13, constituting the prime mover of the cleaner 7, is disposed in the casing 8 and rests on the base 9. The motor 13 is secured immovably to the base 9 by means of angle brackets 14, only one of which is shown, which are secured by fastenings 15 to the base 9 and to the casing of the motor 13.

A plate 16 extends across and is secured to the upper portion of the front wall 17 of the motor casing and is disposed above the armature shaft 18 of said motor, which extends outwardly through the front wall 17. The plate 16 supports the two forwardly opening bearing sockets 19 and 20 which are longitudinally spaced relative to one another with respect to the plate 16, and which are transversely spaced relative to the axis of the motor 13, so that the bearing sockets 19 and 20 are disposed above and laterally spaced from the armature shaft 18, as best seen in Figure 3.

Corresponding ends of a pair of shafts 21 and 22 are

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journalled in the bearings 19 and 20. Such shafts 21 and 22 extend forwardly from said bearings and have their forward ends journalled in bearing sockets 23 and 24, respectively, which are detachably mounted in the front wall 25 of the hood 10. Each bearing socket 23 and 24 includes an externally threaded body 26 which extends inwardly through an opening 27 of the wall 25 and which has an enlarged outer end forming a head 28, which bears against the outer side of the wall 25 around the opening 27 thereof. A nut 29 threadedly engages the body 26 and is tightened against the inner side of the wall 25 to hold the bearing socket secured to the hood 10. Each body member 26 has a rearwardly opening socket 30 in which the forward end of the shaft 21 or 22 is journalled.

Belt pulleys 31 are secured to the shafts 21 and 22 and in the same vertical plane as the belt pulley 32 which is secured to the armature shaft 18. An endless belt 33 is trained around said belt pulleys 31 and 32 for driving the shafts 21 and 22 from the motor shaft 18.

Rotary brushes 34 and 35 are mounted on and fixed to the shafts 21 and 22, respectively, between the belt pulleys 31 and the front bearings 23 and 24. Each rotary brush includes a hub 36 which is fixed to the shaft thereof and a mass of wire bristles 37 which are anchored in the hub 36 and which radiate therefrom and completely surround the hub.

The front wall 25 is provided with a vertically elongated opening 38 which is disposed between the upper portions of the brushes 34 and 35. An electric switch 39 is secured by fastenings 40 to the inner side of the lower portion of the wall 25 and is provided with a leaf spring element 41 which is secured at 42 near one end thereof to a part of the switch 39 and which has an unsecured free end disposed beneath the opening 38 and provided with a pair of spaced upstanding ears 43. The switch 39 constitutes a normally opened switch and is moved to a circuit closing position by downward movement of the free end of the switch element 41, which element 41 is normally spring biased upwardly to its position as illustrated in Figures 1 and 2.

A switch actuator 44 is preferably formed of a strand of wire which is bent upon itself to form a rod portion 45 having a lower end which is pivotally connected at 46 to the ears 43 and which extends upwardly from the resilient element 41 slidably through a guide 47, which is secured to the inner side of the front wall 25 below the opening 38. The upper end of the actuator 44 forms an upwardly opening bifurcated or forked portion 48 which is disposed on the inner side of and in alignment with the opening 38.

As illustrated diagrammatically in Figure 5, the electric switch 39 is interposed in one conductor 49 of the electric circuit by means of which the motor 13 is connected to a source of electric current 50. The switch 39 normally maintains the motor 13 deenergized.

The tip 51 of a soldering iron 52 is adapted to be inserted through the opening 38 above the bifurcated portion 48 to position the tapered end of the tip between upper portions of the peripheries of the brushes 34 and 35. A downward displacement of the soldering iron tip 51 to cause the tapered end thereof to be contacted by the peripheries of the two brushes 34 and 35 will result in the tip 51 exerting a downward force on the fork portion 48 to move the actuator 44 downwardly and thus spring the resilient element 41 downwardly for causing the switch 39 to assume a circuit closing position so that the motor 13 is thus energized for driving the rotary brushes 34 and 35 which then function to clean, by scraping and abrading, the soldering iron tip 51. The tip 51 may be rotated and rocked while in engagement with the fork portion 48 to effect a complete

cleaning thereof by the brushes 34 and 35. When the soldering iron tip 51 is thereafter removed from the cleaner 7 the resiliency of the switch element 41 will cause said element to resume its position of Figure 2 so that the switch 39 will resume a circuit interrupting position for de-energizing the motor 13, and so that the actuator 44 will be lifted and supported in an elevated position by said switch element 41.

It will be understood that the current source 50 may constitute an ordinary domestic electrical outlet. It will also be understood that the cleaner 7 is adapted for cleaning various other items in addition to soldering iron tips and which may be cleaned by the abrading action of the wire bristles 37.

Various modifications and changes are contemplated and may be resorted to, without departing from the function or scope of the invention as hereinafter defined by the appended claim.

I claim as my invention:

A soldering iron tip cleaner comprising a housing, an electric motor mounted in the housing, a pair of circular brushes driven by the electric motor, journal means supporting the brushes within the housing and substantially coplanar with portions of the brush peripheries in close

adjacency to one another, said housing having a wall provided with an opening disposed adjacent said peripheral portions of the brushes and adapted to loosely accommodate a part of a soldering iron, a normally open electric switch for the motor supported by said wall beneath the opening and having a downwardly displaceable part for closing the switch, a switch actuator having a lower end connected to said switch part, means slidably connecting the switch actuator to said wall, and said switch actuator having an upwardly opening bifurcated upper end disposed between said opening and said brush portions and adapted to provide a rest for the soldering iron when the soldering iron tip is in engagement with said brush portions and whereby the switch actuator is displaced downwardly to effect closing of the electric switch.

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