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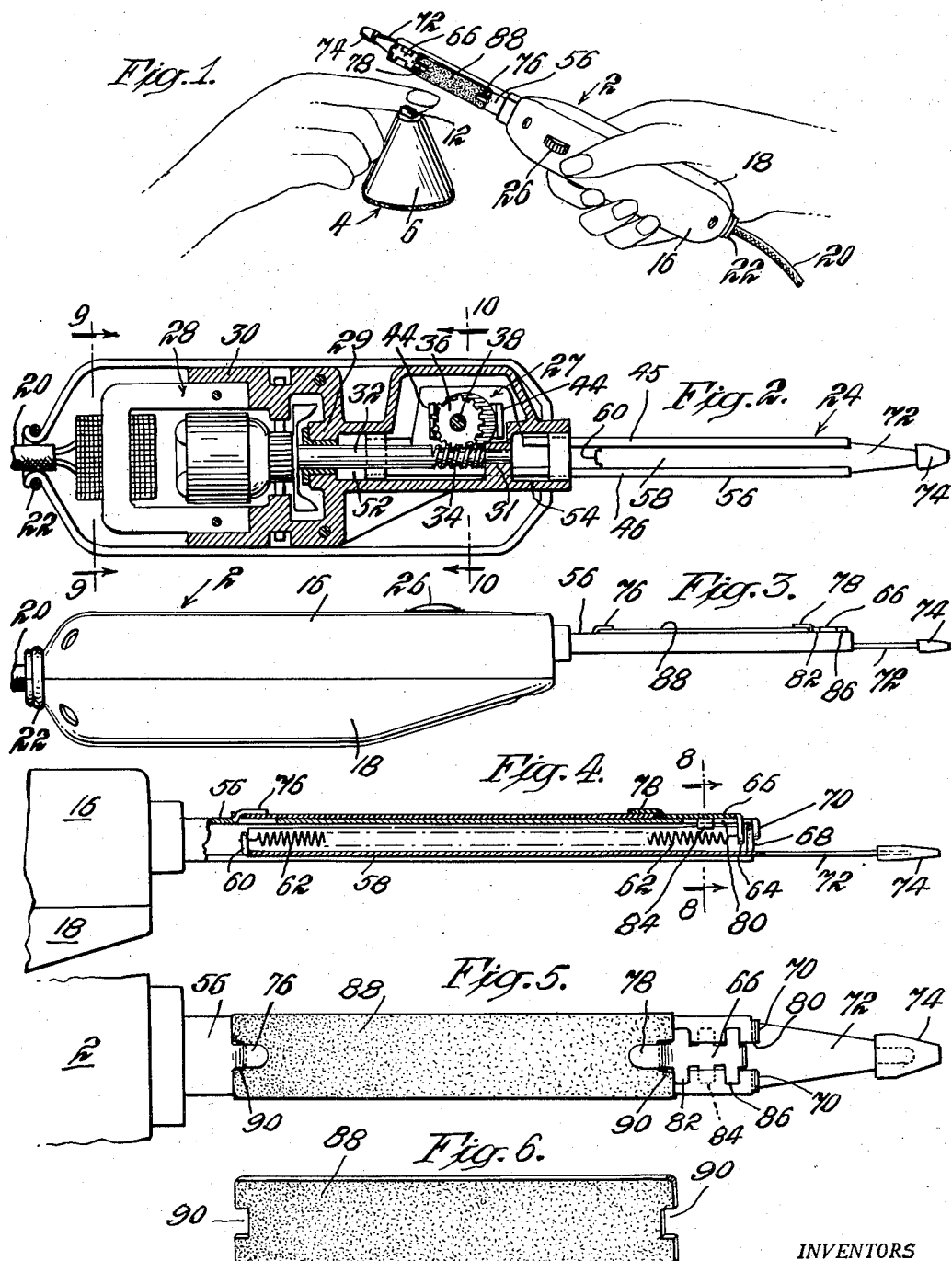
J. W. TONE ET AL

2,880,737

MANICURING DEVICE

Filed April 27, 1956

2 Sheets-Sheet 1



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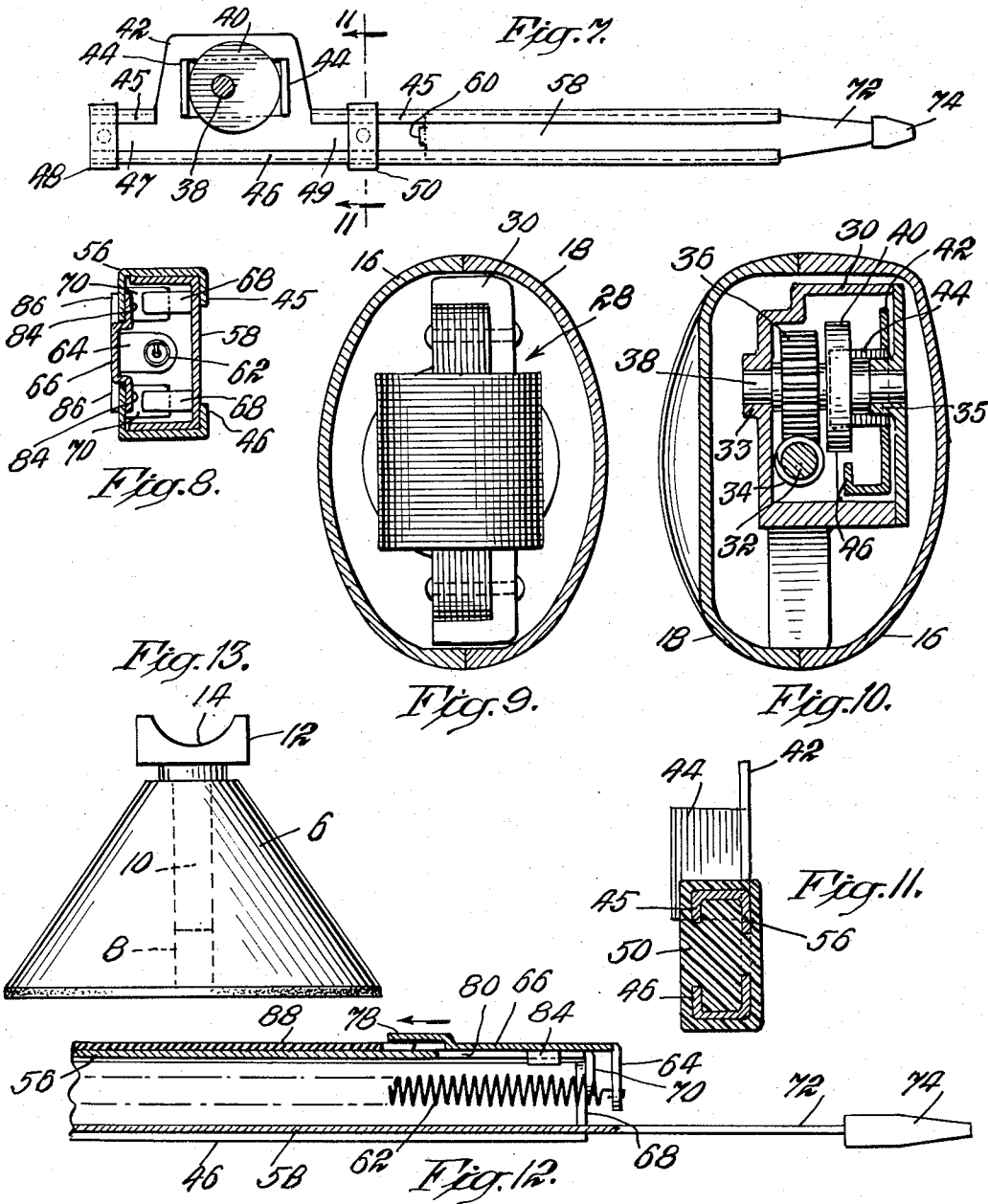
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MANICURING DEVICE

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6 Claims. (Cl. 132—73.6)

This invention relates to electric manicuring devices and the like, and more in particular to an electric motor unit which is adapted to perform certain operations such as filing and manicuring finger nails.

An object of this invention is to provide an improved tool construction. A further object is to provide an improved manicuring device. A further object is to provide devices of the above character which are simple in construction, inexpensive to manufacture and maintain, light in weight and adaptable for varying conditions of operation and use. These and other objects will be in part obvious and in part pointed out below.

In the drawings:

Figure 1 is a perspective view of one embodiment of the invention;

Figure 2 is a longitudinal section of the unit of Figure 3;

Figure 3 is a side elevation of the tool of Figure 1;

Figure 4 is an enlarged view of the right-hand portion of Figure 3 with parts broken away;

Figure 5 is a top view of the structure of Figure 4;

Figure 6 is a view of the emery board used on the tool;

Figure 7 is a fragmentary view of the oscillating and cam assembly;

Figure 8 is a sectional view on the line 8—8 of Figure 4;

Figures 9 and 10 are sectional views respectively on the lines 9—9 and 10—10 of Figure 2;

Figure 11 is an enlarged sectional view on the line 11—11 of Figure 7;

Figure 12 is an enlarged view of the right-hand portion of Figure 4; and,

Figure 13 is a side elevation of the finger supporting device of Figure 1.

Referring to Figure 1 of the drawings, a manicuring tool 2 is supported in the right-hand of an operator while a finger being manicured is being rested in a finger-supporting unit 4. The construction of unit 4 is shown best in Figure 13 and comprises a solid somewhat conical base 6 which has a vertical central bore 8 in which the spindle 10 of a cradle 12 is positioned. Cradle 12 presents a somewhat semi-cylindrical supporting surface 14 upon which the finger rests, and the cradle may then be rotated so as to turn the finger around the vertical axis of the cradle. It has been found that this materially simplifies the manicuring operation because the operator can hold the tool somewhat stationary and turn the finger in the cradle during the manicuring operations.

Referring again to Figure 1, tool 2 has a casing construction formed by shells 16 and 18. An electric wire 20 for the supply current extends into and is clamped in an opening in the end of the shell at 22. Projecting from the opposite end of the shell is the oscillating unit 24 which is oscillated longitudinally in a manner discussed more fully below (see also Figure 2) by a motor 28 and gear cam assembly 27. A control switch 26 may be moved by the operator to turn the motor off and on. Motor 28 is rigidly mounted in an internal frame con-

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struction 30 and has a shaft 32 journaled in bearings 29 and 31, as shown. Shaft 32 extends to the gear-cam assembly 27 which has a worm gear 34 which drives a gear 36 at considerably reduced speed, and the gear is keyed to its shaft 38 (see also Figure 10). The shaft is journaled at its ends in bearings 33 and 35 integral with the frame construction 30.

Shaft 38 also has keyed to it a cam 40 (see Figure 7) and, mounted at the side of the cam is a cam follower portion 42 of the oscillating unit 24. Cam follower portion 42 has a pair of integral flanges 44 which extend along opposite sides of the cam so that the cam is movably received between them. Oscillating unit 24 has a pair of reinforcing flanges 45 and 46 which form channels 47 and 49. When operating, the unit is slidably mounted by a pair of plastic slides 48 and 50 (see Figure 11) which are molded around these channels so as to be rigidly attached to the unit. As shown in Figure 2, these slides are positioned in a pair of slideways 52 and 54 in the frame construction 30. Hence, when the motor is operated, shaft 32 turns gear 34 which turns gear 36, shaft 38 and cam 40. The rotation of the cam operates through the flanges 44 to oscillate the unit 24 back and forth, and the full throw of the cam unit is guided and supported by the slides 48 and 50. That is, in Figure 2, the unit 24 is shown at the extreme right-hand end of an oscillation and it has been projected to that position by the flange 44 on the right-hand side of the cam. However, it is held from moving beyond this position by the similar flange 44 on the left-hand side of the cam (see also Figure 7). As the cam continues to move, the slides hold the oscillating unit in exact alignment, and the cam pushes against the flange 44 at the left so that the unit moves to the left. At the end of this movement, the cam continues and moves the unit back to the position of Figure 2.

The projecting end of unit 24 is formed by a pair of nesting channels or shells 56 and 58. The outer shell 56 is an extension of channel 49 and is integral with the cam follower portion 42. Referring to Figure 4, at the left-hand end of shell 58, there is an integral tab 60 to which a tension spring 62 is attached. The opposite end of this spring is attached to a similar tab 64 which extends from a slide 66 mounted upon the right-hand end of shell 56. At the right-hand end of shell 58, there are two tabs 68 (see also Figure 8) which extend into inter-engaging relationship with similar tabs 70 upon shell 56. That is, when the elements are positioned as shown in Figure 4, spring 62 urges shell 58 to the right, but the shell is held by the inter-engagement of tabs 68 and 70.

Shell 58 has an extension 72 at the right which carries at its end a rubber cuticle pusher or tab 74. During the use of this tool, the operator moves the pusher or tab 74 against the cuticle so that the oscillating movement tends to push the cuticle back. However, as shown best in Figure 4, the shell 58 is not positively driven to the right, but is merely urged to the right by the spring 62. Hence, the force of movement of the cuticle pusher or tab is only that of the force of spring 62. Therefore, as unit 24 moves to the right, it moves the shell 58 with it except where the pusher or tab 74 encounters an obstruction such as the cuticle, in which case the movement of the shell 58 is restrained and is under the urging action of spring 62.

At the left-hand end of shell 56, there is a tab 76 which is punched out from the plane of the shell wall, but is generally parallel thereto. Slide 66 has a similar tab 78, and the slide is slidably mounted in a slot 80 and is held in position by three pairs of tabs 82, 84, and 86. Tabs 82 and 86 extend above the top of shell

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56, and tabs 84 extend beneath the top wall of this shell. The slide is then urged to the left to the position shown in Figures 4 and 5 by spring 62 which has been discussed above. Positioned beneath tabs 76 and 78 is an emery board or nail board 88, shown best in Figure 6. Board 88 has a pair of slots 90 in its ends, into which the tabs 76 and 78 are snugly received. When a board 88 is to be replaced, slide 66 is moved to the right to the position shown in Figure 12, so that the adjacent end of the board 88 may be lifted, and the board then withdrawn from under tab 76 (Figure 4). The new board is replaced by a reverse operation.

The operation of the motor to produce the oscillation of unit 24 has been discussed above. When the operator desires to file a nail, the finger is placed in the cradle, as illustrated in Figure 1, and the finger may be rotated through an arc, with the oscillating emery board held against the portion of the nail which is to be filed. Similarly, when the cuticle is to be pushed back, the pusher or tab 74 is moved against the cuticle, with the finger held in the cradle and moved as indicated. It is thus seen that a tool is provided which is versatile in use and which, in fact, may be adapted for various functions and modes of operation. The tool is light in weight, sturdy, and it has certain stability by virtue of the rotation of the motor and its shaft longitudinally of the tool.

As many possible embodiments may be made of the mechanical features of the above invention and as the art herein described might be varied in various parts, all without departing from the scope of the invention, it is to be understood that all matter hereinabove set forth, or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

We claim:

1. In a tool of the character described for performing manicuring operations, the combination of, a shell and frame construction of generally longitudinal dimensions, a motor enclosed within said shell and frame construction and having its shaft extending substantially longitudinally thereof, an oscillating unit operatively con-

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nected to said motor and including a pair of nested shells which are resiliently held together and a cuticle pusher mounted upon one of said shells.

2. Apparatus as described in claim 1, wherein said shells have inter-engaging tabs which limit the movement of the shells, and a tension spring which urges said tabs together against each other.

3. Apparatus as described in claim 2, wherein one of said shells includes a pair of tabs to receive an emery board therebetween, one of said tabs being fixed and the other being movable for replacing the emery board.

4. In a tool of the character described, the combination of, a shell, a frame within said shell, a motor mounted within said frame and having a driven shaft, a gear reduction unit including a gear fixed to said shaft and a driven gear, a cam connected to said driven gear, a cam follower slidably mounted to be oscillated by rotation of said cam, and a projecting unit connected to said cam follower and adapted to be oscillated therewith, said projecting unit including a longitudinal member and a sliding member mounted thereon and resiliently connected thereto.

5. A tool as described in claim 4, wherein said sliding member is telescopically connected with said longitudinal member and has a cuticle pusher mounted therein, and a tension spring providing the resilient connection between said longitudinal member and said sliding member.

6. A tool as described in claim 5, which includes a sliding holding member mounted upon said longitudinal member at the end remote from said cam follower, said spring being mechanically connected to said longitudinal member by means of said holding member.

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