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H. HARRIS

2,389,665

ELECTRIC NAIL FILER

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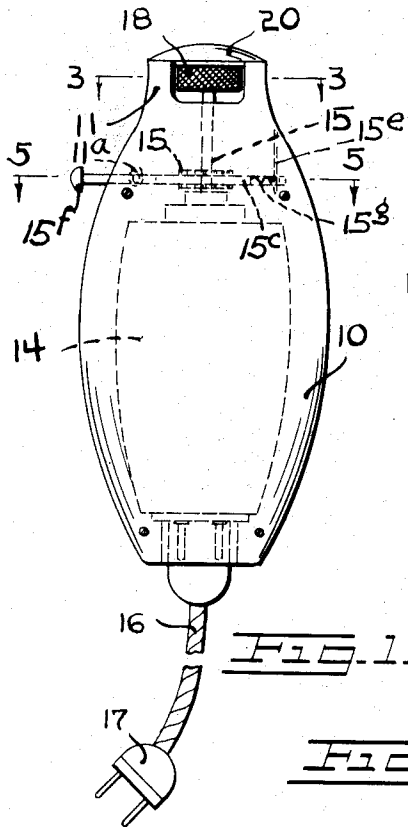


FIG-1.

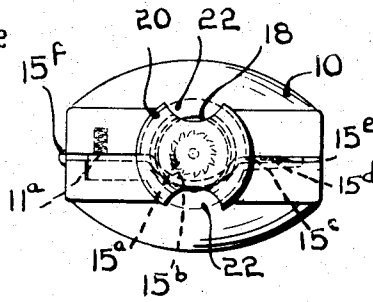


FIG-2.

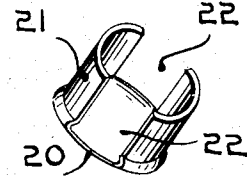


FIG-4.

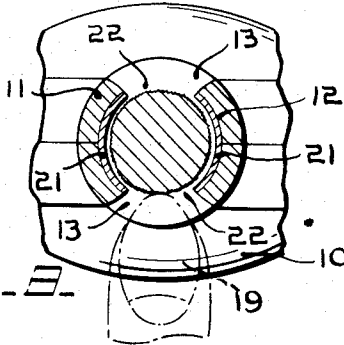


FIG-3.

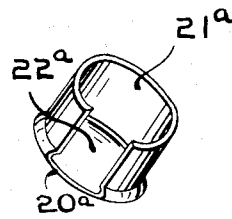


FIG-6.

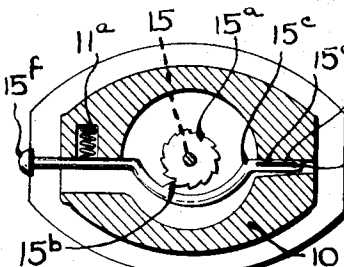


FIG-5.

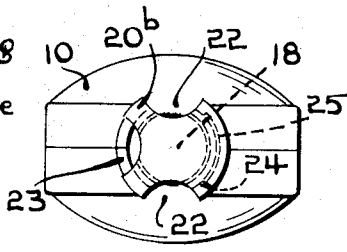


FIG-7.

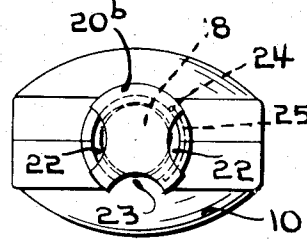


FIG-8.

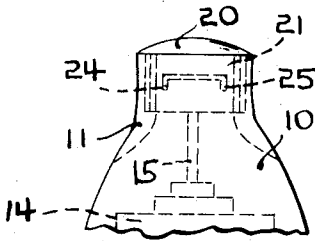


FIG-10.

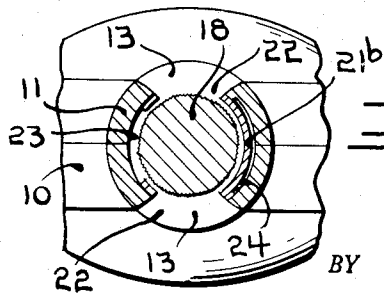


FIG-9.

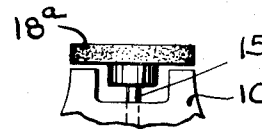


FIG-11.

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## UNITED STATES PATENT OFFICE

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## ELECTRIC NAIL FILER

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Application October 7, 1944, Serial No. 557,666

4 Claims. (Cl. 132-75.8)

This invention relates to new and useful improvements in an electric nail filer.

More specifically, the invention proposes the construction of an electric nail filer, characterized by a casing adapted to fit in the palm of one hand and enclosing an electric motor having a flange-like top enclosing a grinding wheel against which the finger nail is adapted to be engaged to be filed by the wheel.

Still another object of the invention proposes providing the flange-like top with a cylindrical opening within which a grinding wheel is disposed and which is extended from the front to the back of the flange forming open sides through which areas of the grinding wheel extends to the exterior of the flange.

Another object of the invention proposes the provision of a shell-like cover mounted on the flange-like top portion and having a cylindrical shaped skirt wall extending into and frictionally engaging the wall of the cylindrical opening and having open sides aligned with the open sides permitting a free extension of areas of the grinding wheel.

Another object of this invention proposes forming the skirt wall with a pair of diametrically opposed open sides normally aligned with the open sides of the cylindrical opening and a third open side normally hid within the flange-like top with a means for limiting turning of the cover to expose the third opened side and hide the pair of opposed sides within the flange, and cause only one side area of the grinding wheel to be exposed for engaging the finger nail thereagainst.

It is a further object of this invention to construct an electric nail filer which is simple and durable and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is an elevational view of an electric nail filer, constructed in accordance with this invention.

Fig. 2 is a plan view of Fig. 1.

Fig. 3 is an enlarged horizontal sectional view taken substantially on the line 3-3 of Fig. 1.

Fig. 4 is a perspective view of the shell-like cover for the electric nail filer.

Fig. 5 is an enlarged horizontal sectional view, taken on the line 5-5 of Fig. 1.

Fig. 6 is a perspective view of a cover member constructed according to another form of the invention.

Fig. 7 is a view similar to Fig. 1 but illustrating a modification of the invention.

Fig. 8 is a view similar to Fig. 7 but illustrating a shifted position of the parts.

Fig. 9 is a horizontal sectional view similar to Fig. 3 of the modification of the invention disclosed in Fig. 7.

Fig. 10 is a partial side elevational view of the modified form of the nail filer disclosed in Fig. 7.

Fig. 11 is a fragmentary elevational view, showing a buffer in place of the grinder wheel used in this device.

The electric nail filer, according to this invention, includes a casing 10 which is adapted to fit into the palm of one's hand. This casing 10 is formed with a flange-like top portion 11 formed with a cylindrical opening 12 extended inwards from its top end and extending from the front to the back of the flange forming open sides 13.

An electric motor 14 is mounted within the bottom portion of the casing 10 and has its driven shaft 15 extended coaxially into the cylindrical opening 12. An electrical cord 16 extends from the electric motor 14 at the bottom end of the casing 10 and is provided with a plug 17. The plug 17 is mounted on the free end of the electric cord 16 and is adapted to be inserted into a conventionally housed outlet for supplying the required current to operate the motor 14. A grinding wheel 18 is disposed within the cylindrical opening 12 and is removably attached to the extended shaft 15 to rotate thereof. This grinding wheel 18 has side areas extended out of the open sides 13 of the flange-like top 11 to have one's finger nail (illustrated by the dot and dash lines 19 in Fig. 3) engaged thereagainst for filing the nail.

A shell-like cover 20 extends across the open top of the flange like top portion 11 and has a cylindrically shaped skirt wall 21. This cylindrically shaped skirt wall 21 is frictionally extended into and engages the walls of the cylindrical opening 12 maintaining the cover 20 in position. The skirt wall 21 is further provided with diametrically opposed open sides 22 which are aligned with the open sides 13 of the cylindrical flange-like top portion 11 so as not to interfere with the projecting area of the grinding wheel 18.

A buffer wheel 18<sup>a</sup> may be interchanged with the grinding wheel 18 whenever desired, as illustrated in Fig. 11.

The electric nail filer is used in the following manner:

The casing 10 is gripped in the palm of the hand and the plug 17 is engaged into the house outlet to supply the required current to rotate the motor 14 and in turn rotates the grinding wheel 18. With the casing 10 still gripped in the palm of one hand the finger nails of the other hand are successively engaged against an exposed side of the grinding wheel 18 to file the nail.

After one hand has been completely filed the casing 10 is gripped in the other hand and used to file the nails of the hand first used to grip the casing.

The motor shaft 15 is provided with a ratchet wheel 15<sup>a</sup> adapted to be engaged by a starting tooth 15<sup>b</sup> projecting inwardly from a starting member 15<sup>c</sup>. This member 15<sup>c</sup> is formed with a slot 15<sup>d</sup> which houses a spring 15<sup>e</sup> and is engaged by a pivot pin 15<sup>f</sup>, at one end and a knob 15<sup>g</sup> at the other end.

A spring 11<sup>a</sup> tends to press the tooth 15<sup>b</sup> out of engagement from the ratchet wheel 15<sup>a</sup>. The shaft 15 may be rotated by pressing the knob 15<sup>g</sup> toward the casing 10.

In the modification shown in Fig. 6, the skirt wall 21<sup>a</sup> of the cover 20<sup>a</sup> is shown with only one open side 22<sup>a</sup>.

In the modification of the invention disclosed in Figs. 7 to 10 the construction of the nail file is similar to that previously described except that the skirt wall 21<sup>b</sup> of the cover 20<sup>b</sup> in addition to the opposed open sides 22 which are normally aligned with open sides of the cylindrical top portion 11 is also formed with a third open side 23 which is normally hid within the flange-like top 11. Means is provided for turning of the cover 20<sup>b</sup> to expose the third open side and hide the two open sides 22 within the flange 11.

This means comprises the projection 24 extending from the skirt wall 22 and which is engaged within an inverted U-shaped groove formed on the inside face of the cylindrical flange like top portion 11. Normally the cover is in the position shown in Fig. 7 with its diametrically opposed open sides 22 aligned with the open sides 13 with the flange 11. In this position it is possible to pull the cover outwards until the projection 24 strikes the top of the groove 25. In this position the cover 20 may be rotated to expose the open side 23 and hide the diametrically opposed open sides 22. This shifted position is illustrated in Fig. 8. In this new position the cap 20 may again be pressed downwards within the flange like top portion 11. In this latter position only one side of the grinding wheel 18 will be exposed while the diametrically opposite side of the grinding wheel 18 is covered by a diametrically opposed side of a skirt wall 21<sup>b</sup> of the cover 20<sup>b</sup>.

In other respects this form of the invention is similar to that previously shown and like reference numerals identify like parts in each of the several views.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I

claim as new and desire to secure by United States Letters Patent is:

1. A nail filer, comprising a casing adapted to fit into the palm of one's hand and having a flange-like top portion formed with a cylindrical opening extended inwards from its top end and extending from the front to the back of said flange forming open sides, a driven shaft extending coaxially of said cylindrical opening, a grinding wheel mounted on said shaft and located in said cylindrical opening and extending out of the open sides thereof, and a shell-like cover mounted on said flange-like top portion and having a cylindrically shaped skirt wall extending into and frictionally engaging the walls of said cylindrical opening and furthermore having open sides through which said grinding wheel extends.

2. A nail filer, comprising a casing adapted to fit into the palm of one's hand and having a flange-like top portion formed with a cylindrical opening extending inwards from its top end and extending from the front to the back of said flange forming open sides, a driven shaft extending coaxially of said cylindrical opening, a grinding wheel mounted on said shaft and located in said cylindrical opening and extending out of the open sides thereof, and a shell-like cover mounted on said flange-like top portion and having a cylindrically shaped skirt wall extending into and frictionally engaging the walls of said cylindrical opening, said skirt wall having a pair of diametrically opposed open sides normally aligned with the open sides of said cylindrical opening and a third open side normally hid within said flange-like top, and means for limiting turning of said cover, whereby it may be turned to expose said third open side and hide said pair of open sides within said flange.

3. A nail filer, comprising a casing adapted to fit into the palm of one's hand and having a flange-like top portion formed with a cylindrical opening extending inwards from its top end and extending from the front to the back of said flange forming open sides, a driven shaft extending coaxially of said cylindrical opening, a grinding wheel mounted on said shaft and located in said cylindrical opening and extending out of the open sides thereof, and a shell-like cover mounted on said flange-like top portion and having a cylindrically shaped skirt wall extending into and frictionally engaging the walls of said cylindrical opening, said skirt wall having a pair of diametrically opposed open sides normally aligned with the open sides of said cylindrical opening and a third open side normally hid within said flange-like top, and means for limiting turning of said cover, whereby it may be turned to expose said third open side and hide said pair of open sides within said flange, said means comprising a projection extending from said skirt wall and engaging an inverted U-shaped groove formed on one side of said flange-like top portion.

4. A nail filer, comprising a casing adapted to fit into the palm of one's hand and having a flange-like top portion formed with a cylindrical opening extending inwards from its top end and extending from the front to the back of said flange forming open sides, a driven shaft extending coaxially of said cylindrical opening, a grinding wheel mounted on said shaft and located in said cylindrical opening and extending out of the open sides thereof, and a shell-like cover mounted on said flange-like top portion and having a cylindrically shaped skirt wall ex-

tending into and frictionally engaging the walls of said cylindrical opening, said skirt wall having a pair of diametrically opposed open sides normally aligned with the open sides of said cylindrical opening and a third open side normally hid within said flange-like top, and means for limiting turning of said cover, whereby it may be

turned to expose said third open side and hide said pair of open sides within said flange, said third open side being formed on one side of said skirt wall at a point mid-way between said pair of diametrically opposed open sides.

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