Dec. 15, 1959 J. P. DOLAN, SR 2,917,056

ABRASIVE ATTACHMENTS FOR ELECTRIC SHAVERS

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FIG. 1

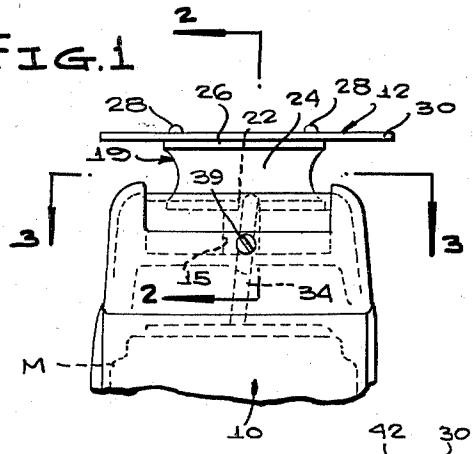


FIG. 2

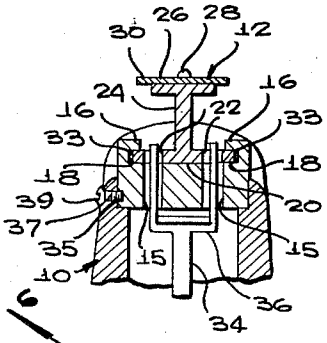


FIG. 3

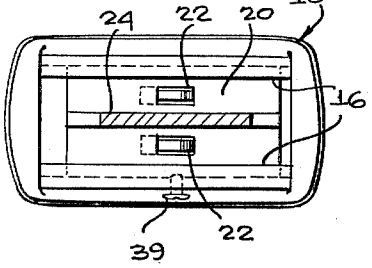
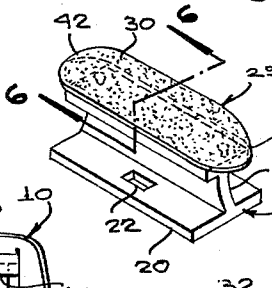


FIG. 5



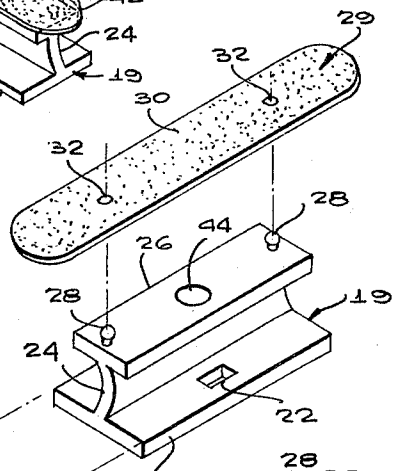
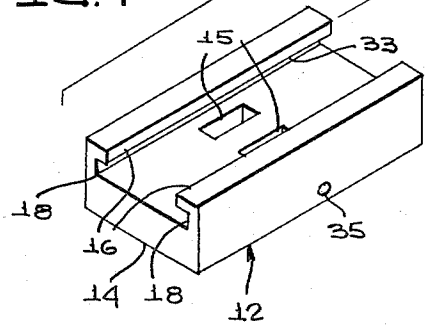


FIG. 4



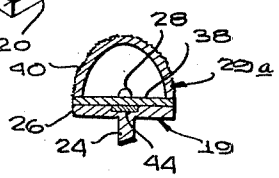


FIG. 6

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ABRASIVE ATTACHMENTS FOR ELECTRIC SHAVERS

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5 Claims. (Cl. 132—75.8)

This invention relates generally to attachments for electric shavers. More particularly, the invention has reference to devices that can be mounted upon an electric shaver in place of the usual shaving or cutting head, so as to be usable for the purpose of filing fingernails, removing corns or callouses, etc.

Ordinarily, an electric shaver has a single use, that is, its regular use in shaving. The main object of the present invention is to increase measurably the range of various uses of an electric shaver. To this end, there is provided, in accordance with the present invention, certain attachments, which can be incorporated in a complete set of attachments.

A more particular object is to provide an attachment for an electric shaver, which will comprise a nail file.

Another object is to provide a second attachment that will comprise a device for reducing or removing the hard, dry, dead tissue of callouses, corns, or thickened areas on the feet and hands.

Another object is to provide attachments as stated which can be swiftly interchanged with the conventional cutter head of an electric shaver.

Another object is to form the attachments in such a way that they will not place undue strain upon the motor of the shaver.

A further object is to permit the attachments to be used on electric shavers, without requiring any modification or redesign of said shavers.

A further object is to provide attachments as stated which can be manufactured at a very low cost, but which will nevertheless be rugged and of a high degree of efficiency.

Another object is to provide attachments as described, the abrasive members of which can be removed, so as to permit the same to be replaced readily when worn.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawing in which like reference characters designate like parts throughout the several views and wherein:

Figure 1 is an elevational view of the upper portion of an electric shaver equipped with a nail filing attachment according to the present invention;

Figure 2 is a transverse sectional view substantially on line 2—2 of Figure 1;

Figure 3 is a horizontal section substantially on line 3—3 of Figure 1;

Figure 4 is an enlarged, exploded perspective view of the attachment per se;

Figure 5 is a perspective view, the scale being reduced below that of Figure 4, of a modification designed for the removal of corns and the like; and

Figure 6 is a transverse sectional view on line 6—6 of Figure 5.

Referring to the drawing in detail, generally designated at 10 is a wholly conventional electric razor. As will be understood, there can be used any of various makes and sizes of electric razors. In each instance,

the electric razor has a removable cutting head, and in accordance with the present invention, there is provided an attachment which can be readily substituted for said cutting head.

The electric razor 10 may thus be equipped with an attachment 12 according to the present invention. The attachment 12 comprises three components, as will be readily seen from Figure 4.

One of these components is base 14 formed as a rectangular, flat, comparatively thick block which can be of molded plastic, aluminum, magnesium, or other light but strong material. At this point, it may be noted that the complete assembly of the components shown in Figure 4 would weigh no more than the metal cutting head, not shown, that is ordinarily a component of the electric razor 10. Therefore, there will be no more strain upon the motor M of the razor than that which is imposed thereon during reciprocation of the conventional shaving or cutting head of the razor.

In any event, in the illustrated embodiment of the invention, base 14 has intermediate its ends longitudinal, short, transversely aligned, parallel slots 15 extending through the full thickness of the base. Slots 15 are disposed inwardly from the confronting longitudinal flanges 16 of the base 14, which flanges are undercut over their full lengths as at 18 to receive the respective side edge portions of a support 19 for the abrasive element of the device.

Support 19 can also be a single piece of molded plastic, aluminum, etc., and includes a flat base plate 20, the side edge portions of which are engaged in the confronting longitudinal grooves defined by the undercut flanges 16. Intermediate the opposite ends of the plate 20, there are formed therein short, longitudinal slots 22, extending adjacent the respective longitudinal edges of the plate 20.

Integrally formed with the plate 20 and extending longitudinally and centrally thereof is an upstanding rib or web 24, integral along its top edge with a flat, rectangular top plate 26 the width of which, in a preferred embodiment, is slightly less than that of the base plate 20. Thus, the support 19 is of approximately I-shaped cross section, as will be noted in Figure 2, over its full length.

Integrally formed upon the ends of and projecting upwardly from the top plate 26 are small lugs 28 having spherically rounded heads.

The third component of the attachment comprises an abrasive means generally designated at 29. In the illustrated example, this comprises an elongated, flat emery board 30, having openings 32 into which the lugs 28 may snap so as to securely but removably connect the emery board to the top plate 26 in face-to face contact therewith.

The electric razor has the usual motion-translating means, that will convert rotary motion of the shaft of its motor into a high speed reciprocation of the cutter head. In the illustracted example, the motion-translating means includes an oscillating lever 34, having a bifurcation at its upper end defining fork arms 36 which extend through the registered slots 15, 22 (see Figure 2). Slots 15 are substantially larger than slots 22, so that the lever 34 can oscillate about its pivot axis without contacting the edges of the slots 15. At the same time, however, the fork arms engage in slots 22 sufficiently closely to cause high speed reciprocation of the support 19 within guide grooves 33 defined by the undercut flanges 16.

In use of the device, the ordinary cutting head is first removed from the electric razor. Then, the base is positioned in the upper end of the razor, being shaped to fit

the particular razor. The base is fixedly mounted in the upper end of the razor, through the provision of a set screw 39 extending through a smooth-walled opening 37 formed in the housing of the shaver, and engaging in a threaded recess 35 formed in one side wall of the base.

Accordingly, when the razor is placed in operation, the lever 34 will be oscillated or rocked at high speed. This will be translated into a straight-line reciprocating motion of the support 19, since the upper ends of the fork arms 36 engage comparatively snugly in the opening 22. They are, of course, still sufficiently loose within the openings or slots 22 to permit the upper ends of the fork arms to travel in arcuate paths while the support 19 travels in a straight-line path during its reciprocating movement.

The emery board can of course be removed when it becomes excessively worn and a new board can be snapped into place upon the lugs 28. On high speed reciprocation of the emery board, one can apply the same to one's fingernails or toe nails, in a manner to swiftly file or manicure the same. Of course, instead of an emery board, the abrasive element 29 could be a metal fingernail file, etc.

Further, buffer means could be employed, to smooth rough edges of the nails and impart a polish thereto after they have been filed down.

In Figures 5 and 6, there is shown a modified form. In this form, the only difference resides in the abrasive means, which has been designated 29*a*. Support 19 remains unchanged, as does the base 12.

In this form, the abrasive means 29*a* has a cross sectional shape shown to particular advantage in Figure 6. It will be seen that the abrasive means includes a flat bottom plate 38, and peripherally connected to the edge of the bottom plate is an abrasive element 40. Element 40 is transversely, upwardly bowed, and has tapered ends 42 as clearly seen in Figure 5. In other words, the ends of the abrasive element 40 are rounded off and are reduced progressively in thickness and width in a direction away from the intermediate portion of element 40.

The element 40 is exteriorly surfaced with a suitable abrasive, which can be of any of various types, and as will be noted, the element 40 is of shell-like formation, being of elongated, roughly elliptical or oblong shape. It is secured to the plate 38 by means of any suitable adhesive, and could be of plastic or of pressed paper coated with abrasive.

This form of the invention is used particularly for reducing or removing hard, dry, dead tissue of callouses, corns, or various other thickened areas on parts of the feet and hands. Full control over such removal is provided, and the removal of the tissue proceeds rapidly, on operation of the electric razor.

The plate 38 of course would have openings similar to the openings 32 to receive the lugs 28.

Various other abrasive means can be provided, of course, those shown being merely exemplary of such devices.

The plate 26, in a preferred embodiment, has a permanent magnet 44 embedded in its top surface. This can be of any desired configuration. It may be circular as shown, or alternatively, it could be square, oblong, etc. It is flush with the surface of plate 26, and has the function of preventing wobbling or tilting of a metal file plate or like object supported thereon.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be neceessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claims.

What is claimed is:

1. An abrasive attachment to be interchanged with the cutter head of an electric razor of the type including a housing, a motor, and an oscillating lever constituting part of a motion-translating driving connection between the motor and cutter head, said attachment comprising: a base adapted to be fixedly secured to the housing; a support slidably, reciprocably mounted on the base and adapted to be reciprocated by said lever; and abrasive means carried by said support, the support being of approximately I-shaped cross section, and including bottom and top plates and a web connecting said bottom and top plates, the bottom plate being engaged against the base, the top plate being in supporting relation to said abrasive means.

2. An abrasive attachment to be interchanged with the entire cutter head of an electric razor of the type including a housing, a motor, and an oscillating lever having a pair of fork arms and constituting a part of a motion-translating driving connection between the motor and cutter head, comprising: a base adapted to be fixedly secured to the housing and formed with a slide-way and with a pair of slots communicating with said slide-way and located in position to receive the respective fork arms; a support including a base part reciprocably engaged in said slide-way and formed with openings corresponding to and shorter in length than the slots for receiving the fork arms to effect reciprocation of the support, said support including a top part projecting out of the slide-way; abrasive means overlying the top part in contact therewith and formed with a roughened abrading surface; and means on the top part of the support separably engaging the abrasive means with the support for reciprocation conjointly therewith.

3. An abrasive attachment as in claim 2 wherein the base is formed with a flat top surface onto which said slots open and with a pair of longitudinal, undercut guide flanges projecting upwardly from said surface to cooperate therewith in providing the slide-way, said base part of the support being in the form of a flat plate lying in face-to-face contact with said top surface and having side edge portions engaging under said flanges, said openings extending through the plate adjacent the respective side edge portions thereof.

4. An abrasive attachment as in claim 3 wherein the top part of the support includes a top plate lying in a plane parallel to that of the first named plate, said top plate extending in contact with the abrasive means, said means for separably engaging the abrasive means with the support being mounted upon the top plate, and a longitudinally and centrally disposed, upstanding web rigidly connected between the first named plate and said top plate.

5. An abrasive attachment as in claim 4 wherein said means for separably engaging the abrasive means with the support includes a plurality of under-cut lugs projecting upwardly from and spaced longitudinally of the top plate, said abrasive means having openings proportioned for engagement of the lugs therein.

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