Jan. 17, 1967 D. R. ADAMS 3,298,381

MANICURE IMPLEMENT

Filed Aug. 14, 1962

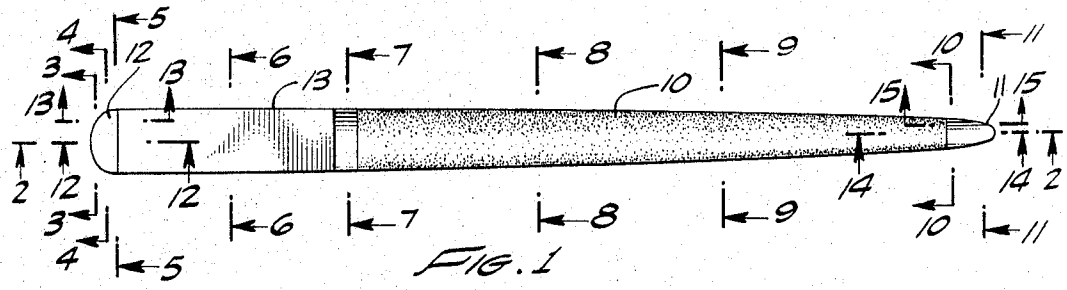


FIG. 1

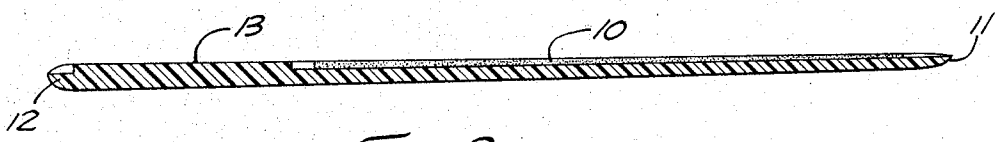


FIG. 2.



FIG. 3.



FIG. 4.



FIG. 5.

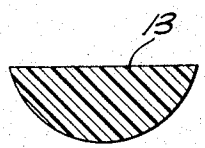


FIG. 6.

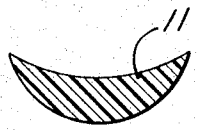


FIG. 7.

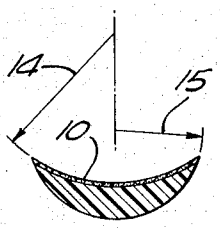


FIG. 8.



FIG. 9.



FIG. 10.



FIG. 11.

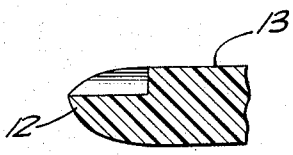


FIG. 12.

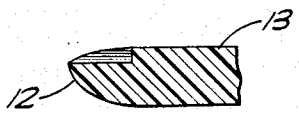


FIG. 13.



FIG. 14.



FIG. 15.

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MANICURE IMPLEMENT

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This invention relates to manicure implements and more particularly to an improvement in the type comprising an abrasive section, a nail cleaning section and a cuticle pushing section. Devices for dressing and cleaning and trimming nails by abrasive and other mechanical action are old indeed, but in spite of much effort in this field, a truly satisfactory implement has heretofore not been achieved. It is desirable to provide a device which can be used for dressing and abrading nails and cuticles, which permits controlled operations even at those portions where the nail joins the associated skin without damage to the latter. Common emery boards are deficient in this respect since their edges are relatively broad and the portions thereof immediately adjacent to the abrasive coating are not always smooth.

An object of the present invention is to provide a manicure device which comprises an abrasive surface nail cleaning portion, and a cuticle pushing portion, all derived from the same cross-sectional shape, and which, because of the cooperation of the cross-sectional shape with the several elements involved offers great advantages in practical use.

Another object of the invention is to provide a device of the type described which is capable of ready and simple manufacture.

Other objects of the invention will appear as the description thereof proceeds.

In the drawings, FIGURE 1 is a plan view of a device in accordance with my invention, and occasionally may hereinfater be referred to as a horizontal view.

FIGURE 2 is a sectional view taken as shown by the arrows in FIGURE 1 and occasionally may hereinafter be referred to as a side view.

FIGURES 2 through 11 inclusive are transverse cross-sections taken as shown by the arrows in FIGURE 1.

FIGURES 12 through 15 inclusive are fragmentary sectional views of the two ends of the device shown in FIGURE 1, taken where shown by the arrows therein.

Generally speaking, and in accordance with an illustrative embodiment of my invention, I provide a base member which is essentially longitudinal and which may be constructed of any suitable material, such as plastic, hard rubber, metal, bone, ivory and the like, which contains a center portion which is intermediate between two end portions. The top surface of this center portion is abrasive. Referring to the drawings, **10** designates the central portion, **11** designates the first end portion, and **12** designates the second end portion. As will be seen from the drawings, the cross-section taken throughout between end portions and throughout the central portion is essentially crescent-shaped, so that relatively acute cusps are provided at the outer edges thereof. It will be apparent from this description and the drawings that the top side of the central portion is concave; that the underside of the central portion is convex; and that these two sides meet to form an acute dihedral angle, which in cross section presents the relatively acute cusps already mentioned. Moreover, as will be seen from the figures, the central portion is tapered, so that when viewed either from a horizontal aspect or a side aspect the shape is such that it gradually decreases in size as one proceeds from the second end portion to the first end portion.

It will be apparent from the description thus far, and from perusal of the drawings, that the central portion presents a concavity or trough-like top side, as well as an

arcuate and indeed convex underside, the radius of curvature of which increases somewhat as one proceeds from the narrow end to the wider end of the central portion. This concavity or trough-like top side I provide with an abrasive coating, which may be accomplished in any of many ways. For example, I may coat the concavity with a suitable adhesive and then dust a layer of abrasive granules directly on the adhesive. In some cases, the plastic material of the base member itself may serve as a bonding adhesive. Thus, when the base member consists of polystyrene, I may coat the concavity with a solvent such as xylene, so as to partially dissolve and soften the upper layer of the polystyrene, and then dust a granular abrasive, such as for example 100 mesh aluminum oxide, therein, and allow the xylene to evaporate, whereupon the aluminum oxide particles will be bonded to the base member and form an abrasive coating throughout the trough. Or, I may apply, using a suitable adhesive such as animal glue or collodion, a piece of emery cloth or sand paper or like coated abrasive in flexible sheet form, to the concavity or trough, trimming edges of the abrasive sheet thus applied so that it coincides with the limits of the trough. Of particular usefulness is coated abrasive in sheet form in which the sheet backing is poly(ethylene glycol terphthalate), which is commercially available under the trade names of Mylar and Cronar. Such coated sheet abrasives are commercially available, and may readily be bonded to a plastic, metal, or other type of base member by the employment of adhesives well-known to those acquainted with polyester sheet films of the type just described.

As will be further apparent from the above description and from the drawings, the abrasive coating terminates laterally along the acute dihedral angles formed by the junction of the concave top side and convex underside. It may indeed be described as terminating in a "featheredge."

As has already been stated hereinabove, I construct the base member of a material such as plastic, metal, bone, ivory, and the like. These, of course, have smooth surfaces, as distinguished from an abrasive surface. Accordingly, it will be clear that the acute dihedral angle or "featheredge" already described is formed from an abrasive-topped concave surface meeting a smooth convex surface. This may be readily understood from the drawings, in particular from the cross-sections of FIGURES 8 and 9.

Further elements of the invention comprise the shaping of the two end portions of the inventive device. As is apparent from the drawings, the larger end portion, which may for convenience be termed the second end portion, presents a rounded and indeed for all practical purposes a semicircular shape when viewed from above, as seen for example in the left-hand portion of FIGURE 1. At the same time, the material of the base member is cut away to present a round shape as seen in the section in FIGURE 2, which appears in greater detail in FIGURES 12 and 13. The effect of the two roundings combined with the crescent-shaped transverse cross-section results in a relatively sharp semicircular edge which is particularly well-adapted for pushing back the cuticle. By inclining the angle at which this second or pushing end is applied to the cuticle, a considerable length of the arc of this relatively sharp edge may be caused to coincide with the curved surface of the nail.

In the same fashion as has been described in connection with the second end portion, the first end portion is curved in both aspects, the top aspect of which may be seen at the right of FIGURE 1, which appears in section at the right end of FIGURE 2 and in an enlarged detail in FIGURE 14. An additional section taken as shown by the arrows in FIGURE 1 appears as FIGURE 15. It will

be appreciated that since this first end portion is considerably smaller than the second end portion already described, all of the radii of curvature are smaller and this results in the relatively sharper end portoin being especially well-adapted to the task of cleaning nails.

It is not necessary to carry the abrasive topped central portion **10** all the way to both end portions **11** and **12**; but indeed I prefer to leave a portion of the base member intermediate between this central portion **10** and the second end portion **12** as a handle portion **13**, which may be given any desired shape, a simple flat shape being shown in the figures.

A further advantage of the shape relationships described is that the abrasive surface may be drawn past a fingernail with the angle of contact being approximately 90 degrees, so that imperfections in the shape of the exposed fingernail may be smoothed out. Otherwise stated, the concave shape of the abrasive surface is very well-adapted to rounding the fingernail as well as abrading them at preselected points.

A further advantage conveyed by the base member which has been described is that the crescent-shaped transverse cross-section is capable of giving considerable stiffness combined with a relatively small volume of base material. The shape thus has a high stiffness-to-weight ratio, which is desirable in use since the overall device is light in weight; and is also highly desirable from a manufacturing standpoint since economies are thus effected in the consumption of the base material for a given number of manicure implements. It may be added that the shape is aesthetically pleasing as well.

As a specific example of a device which not only comes within the purview of my invention but also is well-adapted for simple manufacture and convenient use, I give the following details: A manicure implement is made in accordance with the drawings, in which the maximum length as seen in FIGURES 1 and 2 is six and three-quarters inches, with all other dimensions to scale as shown. The base member is made of commercial poly-(methyl methacrylate). The abrasive portion is formed of a piece of coated abrasive sheeting in which the abrasive is 120 mesh alumina on a poly(ethylene glycol terephthalate) sheet of 2 mils thickness, this being a standard article of commerce readily obtainable in the United States, the adhesive whereby the abrasive coated sheeting is added to the base member being a 30% by weight solution of poly(ethylene glycol terephthalate) in 70% by weight of a solvent consisting of equal parts by weight of methyl ethyl ketone and dioxane.

I have found that when the configuration of the manicure implement is such that the crescent-shaped section, when taken at the midpoint of the length of the implement, has a concave radius of curvature of between about 5 percent and about 6 percent, and the convex radius of curvature has a value between about 3 percent and about 4½ percent of the said length of the implement, an especially useful implement is obtained. The concave and convex radii of curvature are shown in FIGURE 8 as **14** and **15** respectively.

It will be understood that the term "overlaid" as used in the claims which follow in connection with layer of abrasive material is to be understood as referring to any construction which results in a granular abrasive surface on the portion in question. Several methods of accomplishing this have been set forth, and the term of course includes a layer of mixed abrasive granules in a matrix of the material of the base member, especially when the latter is formed of plastic substance.

While my invention has been described in terms of and with the aid of specific embodiments, it will be apparent that numerous variations in detail, material, and dimensions and the like are possible within the broad scope of the invention as set forth in the claims which follow:

Having described the invention, I claim:

1. A manicure implement consisting essentially of a longitudinal base member of smooth material having a central portion having a concave top side and a convex underside, a first end portion and a second end portion, the cross-sections of all three said portions being essentially crescent shaped, said cross-section decreasing in size but having essentially similar shape from said second end portion to said first end portion, said central portion being overlaid with a layer of granular abrasive particles on the concave top side of said central portion extending to the lateral boundaries of said concave top side so as to terminate along an acute dihedral angle formed by the junction of said top side with said underside, the extremity of said end portions being rounded when viewed in a horizontal plane and also being rounded when viewed from the side, so as to present an essentially acute edge around the perimeter of each of said end portions.

2. A manicure implement in accordance with claim **1** wherein said crescent-shaped section taken at the midpoint of the length of said implement has a concave radius of curvature of between about 5% and about 6%, and a convex radius of curvature of between about 3% and about 3½%, of said length.

3. The implement in accordance with claim **1** in which a length of said base member adjacent to said second end portion is left free of abrasive, whereby a handle section is thereby provided.

References Cited by the Examiner

UNITED STATES PATENTS

331,869	12/1885	Curley	132—75.6
916,630	3/1909	Timmons	132—76.2 XR
979,398	12/1910	Dow	132—76.4
1,367,975	2/1921	Ivory	132—76.2
1,604,685	10/1926	Everitt	132—75.6
1,852,667	4/1932	Neel	132—76.4 X
1,888,218	11/1932	Bynum	132—76.5
2,233,438	3/1941	Troya	132—76.4
2,450,207	9/1948	Silverman	132—76.4

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