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DEVICE AND METHOD FOR TREATING FINGERNAILS

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**Fig. 1.**

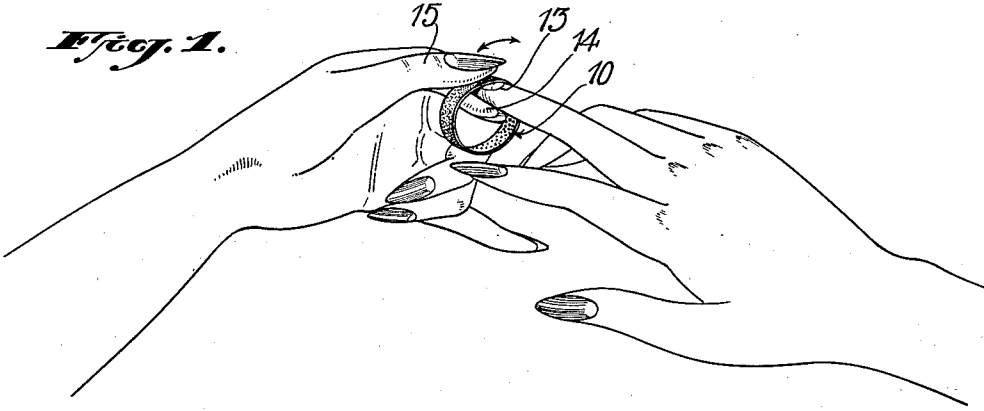


**Fig. 2.**

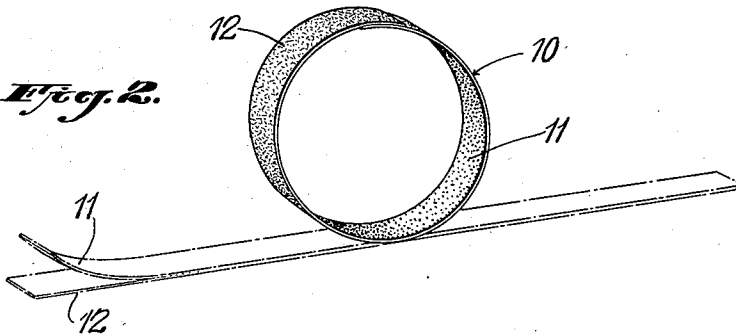


**Fig. 3.**

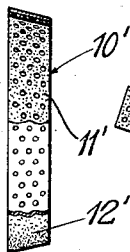


**Fig. 4.**

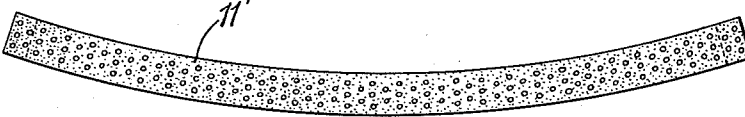


**Fig. 5.**

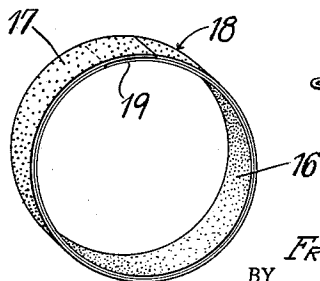


**Fig. 6.**



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## UNITED STATES PATENT OFFICE

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DEVICE AND METHOD FOR TREATING  
FINGERNAILS

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7 Claims. (Cl. 132-73)

This invention relates to devices and methods for treating fingernails and more especially to devices particularly adapted to remove the fine longitudinal ridge-like formations often occurring on the surfaces of fingernails, or to otherwise prepare the nails with a smooth velvety semi-polished surface to which colored finger nail polish compositions will tenaciously and uniformly adhere.

My invention in its preferred form involves provision and use of a narrow annular band of highly flexible fibrous material such as paper, the inside surface of which is coated with finely divided abrasive material. This annular band is preferably made of a diameter whereby with the device encircling the end of a user's finger, successive abrasive areas may be pressed against the nail surface and easily reciprocated transversely of the nail, that is, circumferentially of the device, by pressure applied through contact of the thumb or fingers of the user's other hand with the outer surface of the band. Preferably the outer surface of the band is also formed or provided with surface means for frictionally engaging the thumb or fingers of the user's other hand.

While the use of abrasive implements for abrading fingernails are of course well known, that is, for trimming the nail edges, such devices when properly made for such purpose are too rigid to conform to the curved surface areas of fingernails and the abrasive is too coarse, and therefore if such devices were used for the purpose of attempting to scour away the longitudinal ridges on the nail surfaces or to make such surfaces smooth, there would be merely a line contact between the device and the nail surface, with the result that the more or less cylindrical surface of the nail may be made even more irregular, rather than being made more smooth and uniformly curved. On the other hand, ordinary pieces or strips of abrasive paper are not adapted for treating the nail surfaces, as it would be necessary for the user in applying the paper to the finger of one hand, to try to grasp the flexible paper at two separate points with his other hand in an effort to hold the abrasive paper in proper contact under pressure, with the curved surface of the nail. Such manipulations are too difficult for practical use, and also, due to slippage of the paper, irregularly directed abraded lines would be formed on the nail surfaces. Attempts heretofore to use abrasives on the nail surfaces have in general also been such as to be unpleasant to the user. So far as I am aware, no simple or practical device capable of manip-

ulation by the user on his own nails, has heretofore been devised for the above indicated purposes of this invention.

Various further and more specific objects, features and advantages of the invention will clearly appear from the detailed description given below, taken in connection with the accompanying drawing forming a part of this specification and illustrating by way of example various preferred embodiments of the invention.

In the drawing,

Fig. 1 is a perspective view illustrating one example of the device according to my invention as well as showing the manner in which the same may be applied and manipulated by the user;

Fig. 2 is an enlarged view of a preferred form of the invention;

Fig. 3 is an enlarged side view partly in section, but an alternative form of the invention;

Fig. 4 is a developed view of the device of Fig. 3;

Fig. 5 is an enlarged view of another embodiment of the invention; and

Fig. 6 illustrates the manner in which the device of the invention may be folded or collapsed for ready carrying and for packaging for sale.

As shown in Fig. 2, the device may comprise a narrow annular band 10 of highly flexible fibrous material such as thin paper coated on its inner surface as at 11 with finely divided abrasive material. The abrasive material may comprise for example silicon carbide ground to a fineness generally known in the trade as size 400. In some cases it may be preferred to use somewhat finer material, for example, of a fineness known as 500, and in other cases somewhat coarser materials such as size 320 or size 400 mixed with some grains of size 320 may be used. If colored nail polish compositions are not to be applied to the nails, the finer sizes may be preferred for obtaining a more highly polished surface on the nails, whereas if nail polish compositions are to be subsequently used, the nails may be given a more velvety surface to which the composition will more firmly adhere, by using the coarser abrasives above mentioned. Abrasive materials other than silicon carbide, such as examples, so-called flint or garnet, may also be used. The abrasive particles may be secured to the inside of the band by well-known abrasive adhesives, preferably of the so-called waterproof varieties, although not necessarily so. The paper stock to which the abrasive is applied may for example comprise a relatively tough but thin and flexible

kraft paper, such for example as generally known commercially as "A" weight.

As further shown in Fig. 2, this paper band may have secured to its outer surface as by adhesive, a layer of thin suede paper 12 for providing good frictional engagement with the user's thumb or fingers.

The device of Fig. 2 is preferably applied and manipulated in a manner such as shown in Fig. 1. That is, an inside abrasive surface area is applied to the surface of a fingernail as at 13 which is to be made smooth or polished. The under side of the finger carrying this nail may be supported as by a finger 14 of the other hand. Thereupon the thumb 15 of the other hand may be applied to the outside surface of the band 10 at a point above the nail 13. Then it will be found that the user may conveniently reciprocate his thumb in the directions indicated by the arrows, with the result that an abrasive area of the band is reciprocated transversely of the nail 13, that is, circumferentially of the band. As shown, the band is preferably made relatively narrow with a width considerably less than the length of the fingernail so that the band may conveniently be brought successively into contact under firm pressure with all parts of the nail. Also as shown, the band is preferably made of a diameter such that it will easily encircle the two superimposed fingers and in somewhat spaced relation thereto, except for the area of abrasive contact.

This annular arrangement of the abrasive material provides an endless band which, since it encircles the two superposed fingers, cannot easily get out of proper alignment along the line of convenient reciprocation of the thumb, and since portions of the abrasive at each side of the nail 13 are connected together, by encircling the fingers, the band is easily kept in a general plane perpendicular to the fingers. Also due to the annular form of the abrasive band, it will be found that the various inside areas of the band may all be conveniently brought into engagement with the nail successively and uniformly under firm pressure into contact with all the cylindrical areas of the nail surface during the reciprocating action of the thumb, even without removing the fingers from the positions shown in Fig. 1. In view of these facts and the character of the abrasives above specified, the abrasive action, although rapid and effective, is very uniform and does not cause any noticeable abraded lines on the nail nor any discomfort to the user. The device may also be quickly shifted from one nail to the next.

In the form of the invention shown in Fig. 3, the paper band 10' bearing the abrasive coating 11' may be formed with numerous closely spaced fine perforations. These perforations will provide spaces or shallow pockets against the suede backing 12' for receiving abraded dust from the nail so that same will not accumulate so quickly between the abrasive grains and destroy their effectiveness. Also these perforations will serve to offer numerous small abrasive edges for more effective and rapid abrasive action on the nail.

As further shown in Figs. 3 and 4, the annular bands for this form of the invention may be so shaped that they will substantially conform to the peripheral surface of a segment of a cone. This will permit the device to conform more readily to the tapered end portions of the thumb or fingers of the user without necessitating enlargement of the diameter of the device to a

point where it would be more difficult to easily retain the same in alignment during use.

In the form of the invention shown in Fig. 5, both the inner surface 16 and the outer surface 17 of the paper band 18 may have abrasive material applied thereto. In this case the abrasive on the inner surface functions in the manner above described in connection with Fig. 2, whereas the abrasive on the outer surface will provide the means for firm frictional engagement with the thumb or fingers of the user's other hand. With this form of construction, if desired, the band may be made of such a diameter that it may readily be turned inside out for interchangeable uses of the inner and outer abrasive areas respectively. For instance, when the inner abrasive surface becomes too worn for further use, the device may be turned inside out, whereupon the former inner surface may still provide for effective frictional engagement and the former outer surface may be used to abrade the nail surfaces. Also if desired with the construction of Fig. 5, the inner and outer surfaces may be coated with abrasive grains of somewhat different sizes, whereby the coarser surface may be used for first quickly eliminating any outstanding ridges on the nail surfaces and then the device may be turned inside out so that the finer abrasive may be used to provide a more finished surface on the nail. As indicated in Fig. 5, the device may be composed of two abrasive bands secured by adhesive, back-to-back, with the ends overlapping as at 19, to give a smooth joint free of any bulging or excessive stiffness.

The device is adapted to be collapsed or folded in the manner indicated in Fig. 6 for ready carrying or for retail sales packaging.

With all of the above forms of the invention, the nail surfaces may be quickly given a smooth somewhat velvety finish, pleasant to the touch and free of the usual vertical ridges. The usual colored nail polish compositions will adhere more effectively and uniformly to the surfaces thus treated.

While the invention has been described in detail with respect to particular preferred examples, it will be understood by those skilled in the art after understanding the invention that various changes and modifications may be made without departing from the spirit and scope of the invention, and it is intended therefore in the appended claims to cover all such changes and modifications.

What is claimed as new and desired to be secured by Letters Patent is:

1. A device for removing longitudinal ridges from the surfaces of fingernails and for giving said surfaces a smooth finish, comprising a narrow continuous annular band of flexible fibrous sheet material having its inside surface coated with finely divided abrasive material secured by an adhesive, and its outer surface formed with means for frictionally engaging the user's thumb, said device being adapted for encircling the end of a user's finger, and to have its successive inside abrasive areas pressed against the nail surface and reciprocated transversely of the nail and circumferentially of the device, by contact with the thumb of the user's other hand.

2. A device for removing longitudinal ridges from the surfaces of fingernails, comprising a continuous narrow annular band of flexible fibrous sheet material having fixed on its inside surface a coating of finely divided abrasive material and its outside surface formed with means

for frictional engagement with a user's finger or thumb, said device being adapted for encircling the end of a user's finger, while successive inside abrasive areas thereof are pressed against the nail surface and reciprocated transversely of the nail and circumferentially of the device.

3. A device constructed and adapted for removing longitudinal ridges from the surfaces of fingernails, comprising a continuous annular band of flexible fibrous sheet material, the inside surfaces thereof having fixed thereon finely divided abrasive material, said annular band being of a diameter such that the same may encircle the end of the user's finger with an inside abrasive area in contact with the surface of the fingernail and with the remaining inside surfaces somewhat spaced from the finger whereby said finger may be supported by another finger while pressure for the abrasive action is being applied against the outside of said area, and said band being of a width less than the length of the fingernail.

4. A device for removing longitudinal ridges from the surfaces of fingernails and for giving said surfaces a smooth finish, comprising a continuous narrow annular flexible band of finely perforated paper, the inside surfaces thereof being coated with finely divided abrasive material, said device being adapted for encircling the end of a user's finger, while successive inside abrasive areas thereof are pressed against the nail surface and reciprocated transversely of the nail and circumferentially of the device.

5. A device for removing longitudinal ridges from the surfaces of fingernails and for giving said surfaces a smooth finish, comprising a narrow annular flexible paper band, the inside sur-

faces of which are coated with finely divided abrasive material, and a layer of flexible suede surfaced paper secured to the outer surface of said band for frictionally engaging the user's thumb or fingers, the device being adapted for encircling the end of a user's finger, while successive inside abrasive areas thereof are pressed against the nail surface and reciprocated transversely of the nail and circumferentially of the device, by contact with the thumb or fingers of the user's other hand.

6. A device for forming a smoothly abraded surface on fingernails, comprising a narrow annular flexible continuous paper band, the inside and outside surfaces having fixed thereon coatings of finely divided abrasive material, the device being constructed and adapted for encircling the end of a user's finger, while successive inside abrasive areas thereof are pressed against the nail surface and reciprocated transversely of the nail and while the outer abrasive areas offer frictional engagement for the thumb or fingers of the user's other hand, the band also being constructed and adapted for turning inside out for interchangeable use of the inner and outer abrasive areas.

7. The method of removing longitudinal ridges from the surfaces of fingernails, which comprises encircling the end of the user's finger with a continuous annular flexible band having a fine abrasive fixed on its inside surface and a frictional outer surface, and pressing successive areas of the band against the nail surface while reciprocating transversely of the nail and circumferentially of the device, by contact with the thumb or finger of the user's other hand.

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