Sept. 22, 1936. E. B. PERRINE 2,055,219

FILE

Filed Dec. 13, 1935

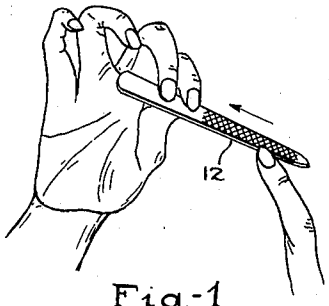


Fig.-1.

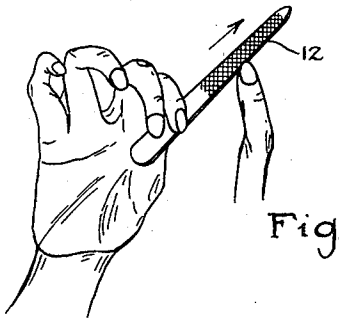


Fig.-2.

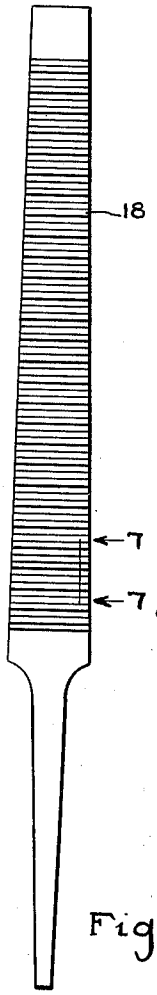


Fig.-3

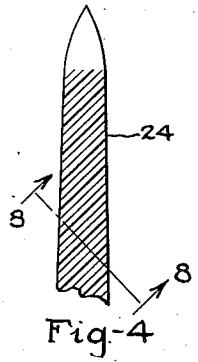


Fig.-4

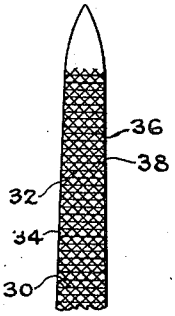


Fig.-6

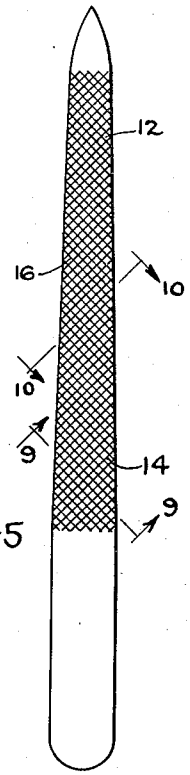


Fig.-5



Fig.-7.

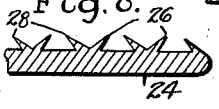


Fig.-8.



Fig.-9.

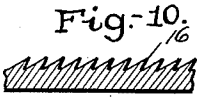


Fig.-10.

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UNITED STATES PATENT OFFICE

2,055,219

FILE

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Application December 13, 1935, Serial No. 54,238

5 Claims. (Cl. 132—73)

My invention relates to files. While intended more particularly for use on rounded or curved surfaces such as the ends of finger nails, the invention is not to be considered as restricted to such use. In carrying out the principle of my file, I construct the body member of the file with at least two sets of teeth with the teeth of one set inclined forwardly and the teeth of another set inclined backwardly and the teeth of the respective sets intermingled or the teeth of one set interspersed with the teeth of another set to provide cutting action for both forward and backward movement of the file. Among the objects of the invention are the provision of a file which will make a clean cut at all points of its forward and backward movement and which will cut more speedily than is the case with files now in use.

The novel features which I believe to be characteristic of my invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and method of operation, together with additional objects and advantages thereof will be best understood from the following description of specific embodiments when read in connection with the accompanying drawing in which

Figs. 1 and 2 are perspective views illustrating the use of one form of the invention.

Fig. 3 is a plan view of another form of the invention.

Fig. 4 is a fragmentary plan view of another form of the invention.

Fig. 5 is a plan view of the form of invention shown in Figs. 1 and 2.

Fig. 6 is a fragmentary plan view of another form of the invention.

Fig. 7 is a view in section on the line 7—7 of Fig. 3.

Fig. 8 is a view in section on an enlarged scale on the line 8—8 of Fig. 4.

Fig. 9 is a view in section on an enlarged scale on the line 9—9 of Fig. 5.

Fig. 10 is a view in section on an enlarged scale on the line 10—10 of Fig. 5.

Referring first more particularly to the form of invention shown in Figs. 1, 2 and 5, the numeral 12 designates the body member of a file shown for illustrative purposes as a nail file. In this form of the invention, the body member is provided with two sets of teeth crossing each other in oppositely disposed angular relation to the length of the file. One of these sets of teeth 14 is inclined forwardly as shown in Fig. 9 so as to have a cutting action for forward movement of the file. The other set of teeth 16 is inclined rearwardly as shown in Fig. 10 so as to have a cutting action for the rearward movement of the file. Fig. 1 illustrates the backward cutting action as embodied in a finger nail file while Fig. 2 illustrates the forward cutting action of the file. It will be noted that the file has a clean cutting action at both corners of the nail. This is not the case with nail files as at present constructed since such files have teeth inclined in forward direction only. The result with the present construction is that a clean cut is not made at the forward corner of the nail as will be apparent from Fig. 1, but instead a burr is left at this corner. In order to remove this burr, it is necessary to reverse the file which involves an awkward operation. This disadvantage is entirely obviated with the use of my file which cuts in both forward and backward direction at all points and requires no reversing of the file to obtain a clean cut. Furthermore, the cutting action is performed much quicker.

Figs. 3 and 7 illustrate the principle of my invention applied to an ordinary or metal file. The body member 18 of the file as shown in this form is provided with teeth extending perpendicular to the length of the file. There are two sets of teeth, one designated 20 which cut in forward movement of the file and the other designated 22 which cut in backward movement of the file. The teeth of the two sets respectively are shown in alternation so that the teeth are intermingled or the teeth of one set interspersed with the teeth of the other set which latter condition is present with all of the forms of the invention.

Figs. 4 and 8 illustrate a file in which all of the teeth have a parallel position and angularly disposed with relation to the length of the file. The body member 24 of the file has two sets of teeth, one designated 26 which cut in one direction and the other designated 28 which cut in the other direction.

Fig. 6 illustrates a file which combines the construction shown in Figs. 3 and 5, the body member 30 having teeth 32 and 34 corresponding to the teeth 20 and 22 shown in Fig. 7, and also having teeth 36 and 38 which correspond to the teeth 14 and 16 shown in Figs. 9 and 10.

The operation and advantages of my invention will be readily understood in connection with the foregoing description and the accompanying drawing and have already been set forth. It will be understood as a matter of course that both faces of the file may be provided with sets of teeth and that the arrange-

ment of the teeth on one face may be different from the arrangement on the other face. Although I have shown and described certain specific embodiments of my invention, I am fully aware that other embodiments are possible. My invention, therefore, is not to be restricted except insofar as is necessitated by the prior art and by the spirit of the following claims.

I claim:

1. A file comprising a body member having at least two sets of teeth with the teeth of one set inclined forwardly and the teeth of another set inclined backwardly and the teeth of the respective sets intermingled to provide cutting action for both forward and backward movement of the file.

2. A file comprising a body member having two sets of teeth with the teeth of one set interspersed with the teeth of the other set and the teeth of one set inclined forwardly and the teeth of the other set inclined backwardly to provide cutting action for both forward and backward movement of the file.

3. A file comprising a body member having two sets of teeth crossing each other with the teeth of one set inclined forwardly and the teeth of the other set inclined backwardly to provide cutting action for both forward and backward movement of the file.

4. A file comprising a body member having two sets of teeth arranged perpendicularly to the length of the file with the teeth of one set interspersed with the teeth of the other set and the teeth of one set inclined forwardly and the teeth of the other set inclined backwardly to provide cutting action for both forward and backward movement of the file.

5. A file comprising a body member having two sets of teeth arranged angularly with relation to the length of the file with the teeth of one set interpersed with the teeth of the other set and the teeth of one set inclined forwardly and the teeth of the other set inclined backwardly to provide cutting action for both forward and backward movement of the file.

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