Dec. 18, 1928. 1,695,647

E. FURLER

FILE, RASP, OR LIKE TOOL

Filed Nov. 4, 1926

Fig. 1.

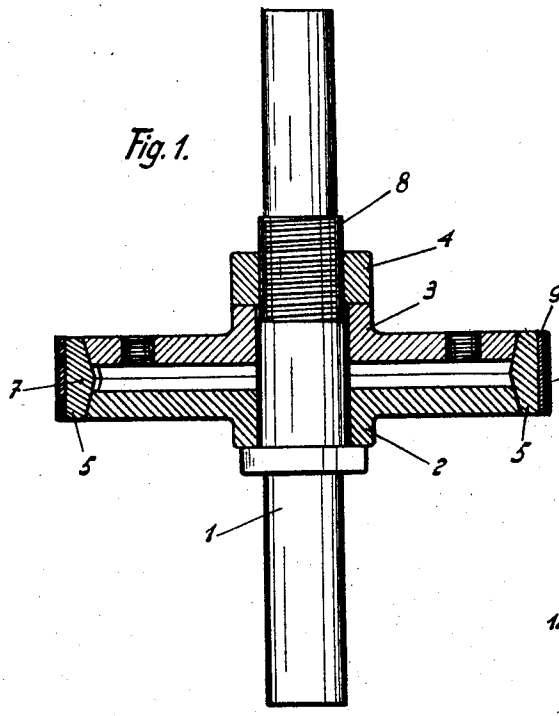


Fig. 3.

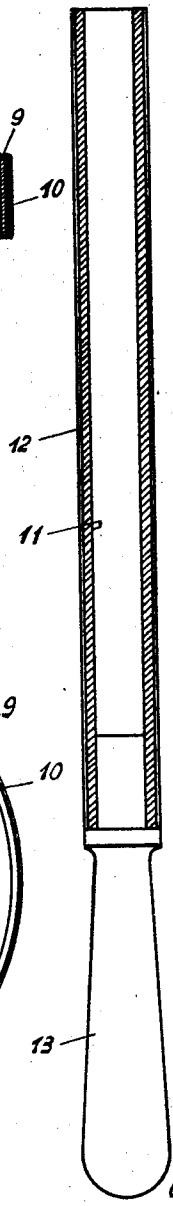
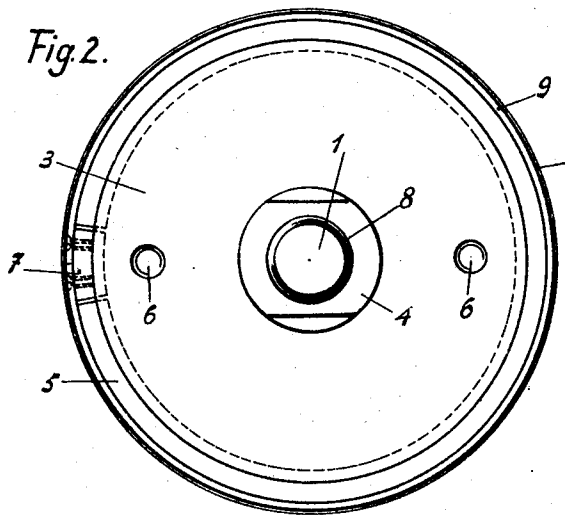


Fig. 2.



Inventor:
Emil Furler
by B. Singer, Atty

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UNITED STATES PATENT OFFICE.

EMIL FURLER, OF ZURICH, SWITZERLAND.

FILE, RASP, OR LIKE TOOL.

Application filed November 4, 1926, Serial No. 146,217, and in Switzerland November 15, 1925.

The present invention relates to files, rasps or like tools.

The files known up to now are made of high grade steel and as they consist wholly of this expensive material they are necessarily very costly. The files are moreover not only high in price but they are heavy.

The main object of the invention is to obviate the above said draw-backs and I attain this said object by cutting a thin walled soft iron piece in the manner as files or rasps are now usually cut and to harden it by a special hardening process whereupon the so formed file may be mounted on any suitable body, for instance on to the rim of a rotary disk, to a bar of wood or of metal and so on. The iron piece of which the file is made may be flat, or curved lengthwise or crosswise, it may be a tube of circular or any other cross-section.

The invention further consists of details of construction, which together with the features first mentioned, will be better understood by reference to the drawing.

In the drawing

Fig. 1 shows a rotary tool according to the invention in a section,

Fig. 2 is a face view thereof,

Fig. 3 shows as another tool according to this invention a tubular file in longitudinal section.

The tool according to Figs. 1 and 2 comprises two circular disks 2, 3 mounted on a shaft 1 and firmly held thereon by means of a nut 4 screwed on to a screw threaded portion 8 of the shaft 1 which nut 4 presses the disks on to a collar of shaft 1. The rims of the two disks 2, 3 are bevelled in opposite directions. On the two disks rests a split ring 5, the inner wall of which is bevelled to fit the rims of the disks 2, 3. Between the ends of the open ring 5 a short piece 7 is arranged having the same cross-section as the ring 5. To the said piece 7 the ends of a flexible, hardened for instance case hardened iron band-file 9 are fastened by means of countersunk screws. The file 9 is cut at 10 in the usual manner. By tightening the nut 4 the disks 2, 3 are brought nearer each other and they expand the ring 5 uniformly which is in any position concentric to the shaft 1. The band 9 is tightened by expanding the ring 5 and runs concentric to the axis of rotation. The band 5 is cut while it is flat and is hardened by a special hardening process. When hardened it is bent, fixed to the piece 7 and then brought on to the disks 2, 3.

As shown in Fig. 3 the tool may be made of a thin walled tube 11 of soft iron. The outer wall 12 is cut as a file or rasp and after this the tube is hardened by any of the well known hardening processes. At the one end of the tube 11 a handle 13 is arranged. The tube may be of circular, rectangular or polygonal cross-section.

The tube may be filled with metal such as lead and the handle may be fastened to the tube by means of said metal.

What I wish to secure by U. S. Letters Patent is:—

A tool of the class described comprising a file forming an open ring, an open ring on the periphery of which said file is arranged, a coupling piece between the ends of the open ring and to which the ends of the file are secured, a pair of discs on which said open ring is peripherally arranged, said discs being peripherally beveled in opposite directions and said ring being correspondingly beveled on its inner periphery so that movement of said discs toward each other causes said ring to be diametrically expanded, a shaft on which said discs are mounted and means coacting with the shafts to move the discs toward and from each other.

In witness whereof I affix my signature.

EMIL FURLER.