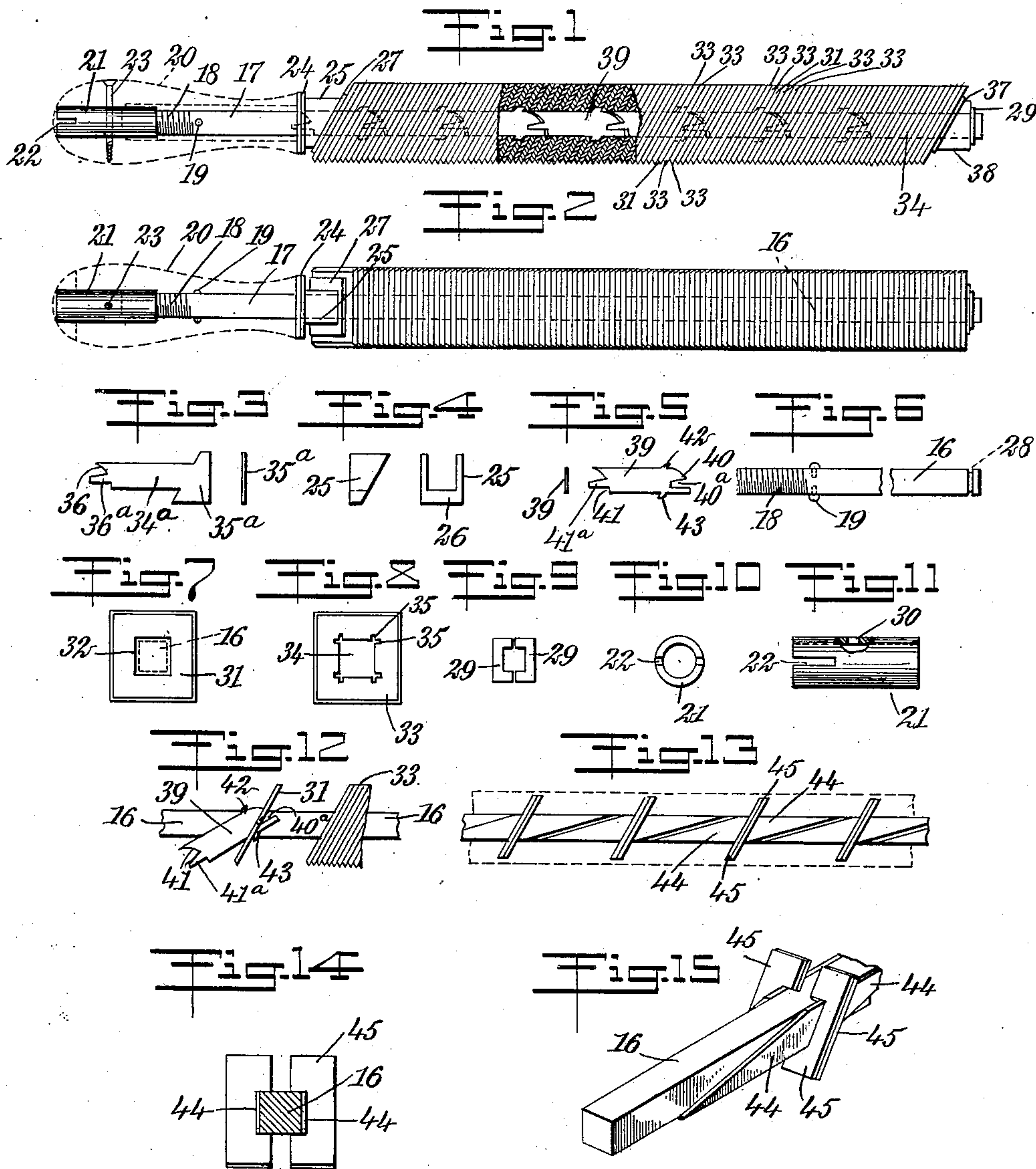


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PATENTED SEPT. 8, 1908.

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COMPOSITE FILE.

APPLICATION FILED JULY 30, 1907.



WITNESSES

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COMPOSITE FILE.

No. 898,352.

Specification of Letters Patent.

Patented Sept. 8, 1908.

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To all whom it may concern:

Be it known that I, HENRY GETAZ, a citizen of the Republic of Switzerland, and a resident of Schenectady, in the county of Schenectady and State of New York, have invented a new and Improved Composite File, of which the following is a full, clear, and exact description.

This invention is an improvement in files, relating to that class of files in which the teeth are composed of a series of cutting blades clamped together in an angular relation and adapted to be readily sharpened when dulled.

The object of the invention is to improve the files of this character generally, especially in the matter of providing for the deflection of the cutting blades in an effective manner.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the file when completely assembled and ready for use; Fig. 2 is a side elevation of the complete file shown in Fig. 1; Fig. 3 is a detail showing a plan and an end view of the deflector used at the end or point of the file; Fig. 4 is a detail showing a plan view and a front elevation of the angle washer for holding the angle blades at a proper degree of inclination; Fig. 5 is an end view and a plan view of one of the deflectors used for tightening the cutting blades and for holding the same in proper position upon the core; Fig. 6 is a fragmentary side elevation of the core showing at one of its ends (representing the point of the file) a channel used for holding a washer; Fig. 7 is a plan view of one of the cutting blades; Fig. 8 is a plan view of another kind of cutting blade, the two being used jointly, as indicated in Figs. 1 and 2; Fig. 9 is a plan view of the washers adapted to fit into the channel of the core; Fig. 10 is an enlarged plan view of the metallic sleeve forming part of the handle, this sleeve being provided with a slot whereby the handle may be turned by aid of a screw driver; Fig. 11 is an enlarged plan view, partly broken away, showing the sleeve appearing in Fig. 10, and also showing a hole through which a screw may be passed for the purpose of securing the sleeve rigidly into the handle; Fig. 12 is a plan view showing how the deflectors can be inserted between the core and the blades without removing the

blades from the core. Fig. 13 is a plan view showing deflectors of a different form than that indicated in Fig. 5 and showing further, in dotted lines, the space occupied by the cutting blades; Fig. 14 is an enlarged central section through the core showing thereupon deflectors of the kind indicated in Fig. 13; Fig. 15 is a perspective showing the arrangement upon the core of deflectors of the type indicated in Fig. 13, and also showing the construction of such deflectors.

A longitudinal rod 16, having substantially a square cross section, as indicated in Fig. 7, supports many of the outer parts of the file, and hence I designate it as the core. This core is provided with a cylindrical portion 17 threaded at 18 and provided upon its opposite sides with set screws 19 to prevent the cutting blades from slipping off the core when the handle 20 is removed for the purpose of transferring the deflectors from one side of the core to another side, in order to incline the blades differently so that every side of the cutting blade can be used alternatively for cutting and also be readily sharpened when dulled. Referring to the plan view of the completely assembled file shown in Fig. 1 and also in Fig. 2, it will be seen that when two of the four sides of the cutting blades are in position for cutting, another side of the assembly presents a flat surface, except for the inequalities caused by the wear of the blades at the cutting edge; now, when assembled in that position, a grindstone or other abrasive means, can readily be applied to the flat side of the assembly to restore the blades to their normal cutting shape. A sleeve 21 of metal is provided with a slot 22 and is threaded internally so as to fit over the threaded portion 18. The object of this threaded sleeve engaging the threaded portion of the core is to provide a means for drawing the core into the handle and thus clamping tightly every part of the tool together. A screw 23 extends entirely through the handle and through the sleeve 21 for the purpose of securing these parts rigidly together when screwed on the core. Abutting the handle 20 is a washer 24 and resting against this washer is an angle collar 25 having substantially the form of a wedge, as indicated in Fig. 4. A washer 27 is interposed between the collar 25 and the cutting blades. One end of the core 16 (representing the tip of the file) is provided with a channel 28 and fitting into this channel from opposite sides

thereof are a pair of U-shaped washers 29 (see Fig. 9) firmly driven in and thus secured in position.

The sleeve 21 is provided with oppositely disposed holes 30 for receiving the screw 23. The operative portion of the file is made up of cutting blades 31, 33, all of different shapes, each cutting blade having its outer edge beveled and having at its center an aperture through which the core may be threaded. In the cutting blades 31, shown in Fig. 7, the central opening is shown at 32 and is square in general outline. In the form of cutting blade shown in Fig. 8 the body portion appears at 33 and is provided with an aperture 34, almost square but provided with slots 35 extending beyond the general length of the aperture.

In building up the operating surface of the file, I use more of the cutting blades 31 than of the cutting blades 33 for reasons hereinafter explained. Near the end of the core 16 (representing the tip of the file) I use a pair of deflectors 34^a each provided at one end with a substantially triangular head 35^a and at the other end with a concave edge 36 of arcuate conformity, and a tongue 36^a.

Fitting the heads 35^a is a washer 37. An angle collar 38, similar to the angle collar 25, encircles the core 16 and this collar is in contact with the U-shaped washers 29 shown in Fig. 9. Deflectors 39 are provided, each having at one end an arcuate convex edge 40 and a slot 40^a, and at the other end an arcuate concave edge 41 and a tongue 41^a.

It will be apparent that by securing the deflectors at different sides of the core, said deflectors act to incline the cutting blades in four different positions, so that the four sides of the file can be sharpened and used for cutting.

In placing the cutting blades 31, 33 upon the core, a pair of the deflectors 34^a is arranged upon opposite sides of the core near the tip of the file (see the right of Fig. 1) and then pairs of the deflectors 39 are successively placed on opposite sides of the core, the tongues 36^a of the deflectors 34^a entering the slots 40^a of the first pair of deflectors 39, and the concave edges of said deflectors 34^a fitting upon the convex edges 40 of said first pair of deflectors 39. When the succeeding deflectors 39 are placed in position, the tongue 41^a of one deflector engages the slot 40^a of another deflector. This feature is for the purpose of affording a better resistance to the tendency that the cutting blades have, when pressed together, of taking a position perpendicular to the axis of the core.

As indicated in Fig. 12 the cutting blades 33 (see Fig. 8) are closely associated with the spurs 42, 43 and so arranged that when the parts are in position the spurs 42, 43 extend into opposite portions of slots 35 (see dotted lines in Fig. 1). The purpose of this arrangement is to enable the deflectors 39 to secure the blades 31 firmly in position at a proper angle and yet avoid the necessity for skips or voids in consequence of the space occupied by the spurs 42.

With the parts in position as indicated in Fig. 1, the spurs 42 are pressed toward the right and the spurs 43 are pressed to the left. At points adjacent to the spurs 42, 43 there are two cutting blades 33, one cutting blade 31 and two other cutting blades 33 for each pair of the spurs 42, 43.

In the construction shown in Fig. 13 I use deflectors 44 each provided with a spacing blade 45 integral therewith. The deflectors 44 are each of triangular form and so proportioned that when fitted upon opposite sides of the core 16 they constitute practically continuous surfaces.

In the form shown in Figs. 13, 14, 15, however, the spacing plate 45 makes voids or spaces intermediate the cutting blades.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The combination of a core, cutting blades mounted thereupon, and deflector plates disposed at intervals along said core for the purpose of holding said cutting blades at a proper angle relatively to said core, each of said deflector plates being provided at one of its ends with a slot, and at its other end with a tongue for the purpose of engaging adjacent deflector plates.

2. A file provided with a core, a series of cutting blades mounted upon said core, deflecting plates disposed adjacent to said core and provided with teeth for holding said cutting blades at a proper angle relatively to said core, said deflecting blades each being provided at its ends with interlocking surfaces for engaging mating surfaces of adjacent deflecting plates, and other cutting blades encircling said core and filling voids between said first mentioned cutting blades.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY GETAZ.

Witnesses:

CHESTER G. FULLERTON,
PAUL SUSSAN.