

No. 608,513.

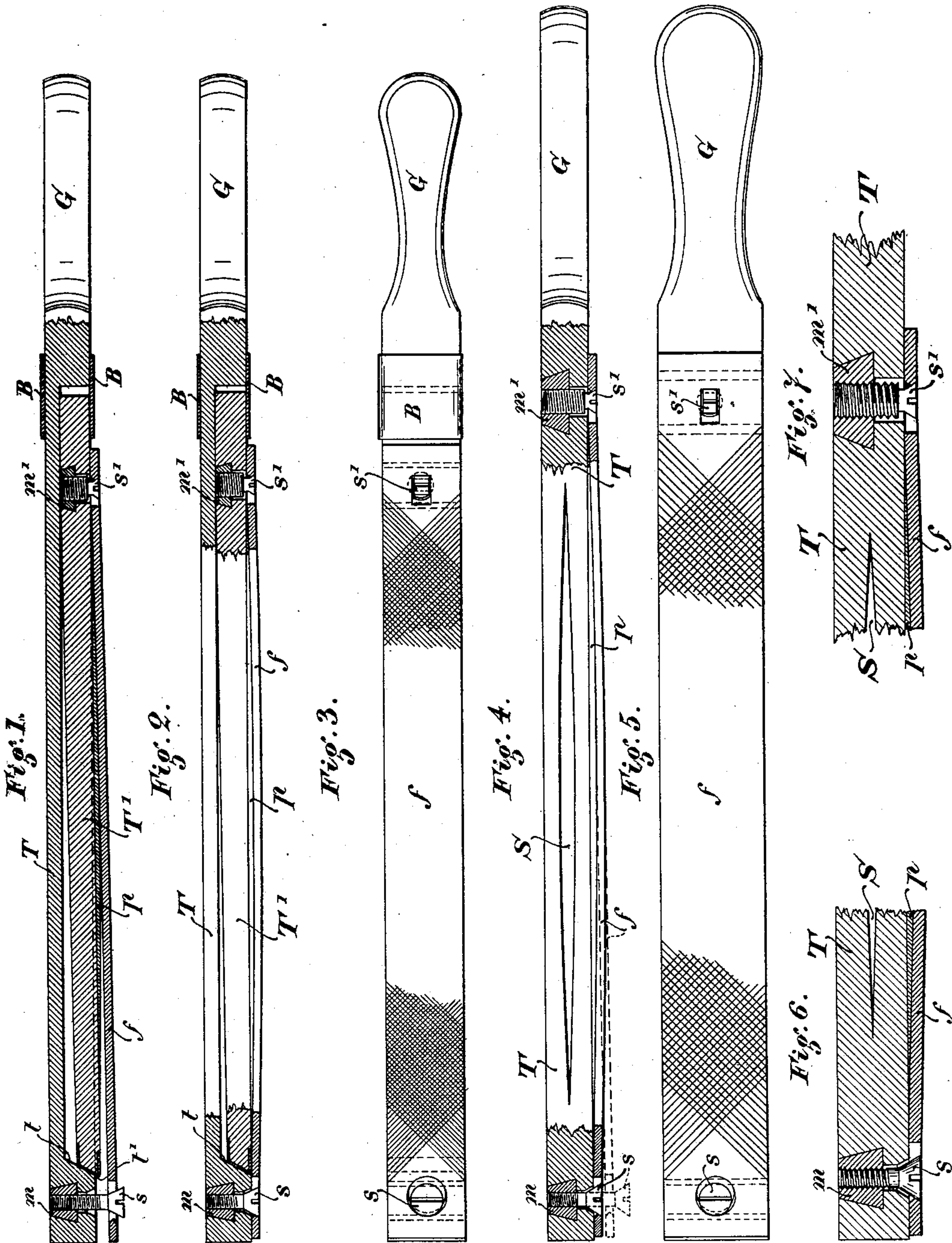
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H. FOCKE.

CARRIER FOR ABRASIVE HAND TOOLS, FILES, &c.

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(No Model.)



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UNITED STATES PATENT OFFICE.

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CARRIER FOR ABRASIVE HAND-TOOLS, FILES, &c.

SPECIFICATION forming part of Letters Patent No. 608,513, dated August 2, 1898.

Application filed November 10, 1897. Serial No. 658,077. (No model.) Patented in France August 31, 1896, No. 259,310; in Austria October 2, 1896, No. 3,873, and in Belgium October 7, 1896, No. 123,900.

To all whom it may concern:

Be it known that I, HANS FOCKE, manufacturer, a subject of the King of Saxony, residing at Radeberg, near Dresden, in the Kingdom of Saxony and Empire of Germany, have invented new and useful Improvements in Carriers for Abrasive Hand-Tools, such as Files, (for which I have obtained patents in Austria, No. 3,873, dated October 2, 1896; in France, No. 259,310, dated August 31, 1896, and in Belgium, No. 123,900, dated October 7, 1896,) of which the following is a specification.

Since machine-tools have attained their present degree of perfection, and more particularly cutting-machines, slotting-machines, and shaping-machines, the requirements for these hand-tools, which are known generally as "files," have completely changed. Heavy rough work, which was previously carried out by means of twelve to fourteen pound "arm-files," or, as regards well-formed castings, with "straw-packed" or German files, is now effected, owing to the division of labor rendered necessary by the present methods of machine manufacture, almost exclusively by means of machine-tools, and the file is at the present time a tool which at the most serves for fitting purposes. Workmen decidedly object to using heavy files, and machines perform the work of shaping the outlines both more exactly and cheaper than it can be done by hand.

The object of this invention is to take into account this change in the conditions without thereby rendering the tool in any wise less serviceable, and the advantages which it presents will be evident when the fact is stated that the cost of the files does not amount to more than a fractional part of the present price, while the weight of a complete assortment of files is not greater than that of a single file of average weight as hitherto made. This change is effected by making one and the same carrier serve for holding files of all cuts, while the device for fixing the files in the carrier is adaptable to files of the most diverse thickness, without it being necessary to separate such fastening device from the carriers, as has hitherto been the case.

An important point to be considered in effecting a solution of this problem is the fact

that the file-blades when in use must be held in tension to as great an extent as possible. In the selection of the fastening device and of the shape for the carrier it is therefore necessary to insure that tension acting in opposite directions shall be set up at each of the points of attachment of the file-blades.

In the accompanying drawings is shown in what manner blades which have been cut so as to form files are fastened to their carrier and also the manner in which these carriers are formed.

Figure 1 represents a longitudinal section of my improved carrier, showing the file before being adjusted in position; Fig. 2, a view showing the file in position; Fig. 3, a plan view of Fig. 2, and Figs. 4 to 7 illustrate a modified form of the file-carrier.

In Fig. 1 a file-carrier made of wood is shown, which consists of part T, connected with or preferably formed in one piece with the handle G, and of a second bar-shaped part T', arranged in such a manner as to be movable in the direction of the length of the part T, to which it is united by means of a suitably-bent metal band B. The immovable part T is provided at its strengthened forward end with a metal part *m*, which serves as a nut for the fastening-screw *s*, a similar nut *m'* being provided for the reception of the second screw *s'* in the rear end of the movable part T' of the file-carrier—that is to say, the end adjacent to the handle. The screw *s'* is screwed more or less deeply into the nut *m'*, according to the thickness of the file-blade to be held. The forward and beveled extremity of the movable part T' of the carrier bears against a correspondingly-inclined surface *t* of the fixed portion of the carrier. There may advantageously be fixed upon the part T' an intermediate layer *p*, formed thicker at its longitudinal middle point than at its extremities, and which is usually of some softer material than the file-carrier—such as paste-board or soft wood, for example—its purpose being to impart to the surface of the file the customary curvature, at the same time forming a soft bedding for the cut-up rear side of the file-blade.

In order to fix upon the carrier a file-blade cut upon both faces, it is placed so that the ta-

pering hole provided in its foremost end is over
 the head of the partially-screwed-in fasten-
 ing-screw *s*, which head is somewhat smaller
 in diameter than the hole, whereupon the bar
 5 *T'* of the carrier, with the second fastening-
 screw *s'*, is pressed against the screw *s* until
 the square head of the screw *s'* is able to en-
 ter a corresponding slot in the rear end of the
 file-blade, Fig. 1. Thereupon the screw *s* is
 10 screwed in, pressing together the two parts
T and *T'*, and owing to the wedge action of
 the beveled surfaces *t* and *t'* the file-blade *f*
 is drawn against the file-handle *G* by the screw
s'. The wedge action which is brought about
 15 by the screwing in of the conical head of the
 screw *s* in the tapering hole in the file-blade,
 which is now eccentric to such head, presses
 the blade in the opposite direction, so that it
 is held in tension when in its fixed position.
 20 (See Figs. 2 and 3.) When the file is in use,
 a further and self-induced tension is set up in
 the file-blade *f* as the pressure of the work
 against the file-blade still further presses the
 parts *T* and *T'* together, thereby separating
 25 the screw *s'* from the screw *s*.

If it should so happen that in any file-blades
 the fixing-openings are not separated one
 from the other by exactly the right distance,
 or if the position of the fastening-screws, ow-
 30 ing to shrinkage of the wood, for example,
 should become somewhat inexact, the dis-
 placement of the beveled surfaces *t* and *t'* one
 against the other, and consequently the ten-
 sion of the file-blade, may be increased by the
 35 simple expedient of placing strips of paper or
 the like upon the intermediate layer *p*. In
 cases in which such subsequent stretching of
 the file-blade is not required the carrier *T*
 may, as shown in Fig. 4, be formed in one
 40 piece and only such wedging action be em-
 ployed for stretching the file-blade as is af-
 forded by screwing in the conical head of the
 screw *s* in the eccentrically-placed and taper-
 ing hole in the file-blade. For the larger
 45 kinds of file the carrier may advantageously
 be formed with a slot *S* passing right through
 it in order to impart a certain degree of elas-
 ticity to the tool.

Fig. 5 represents a plan view of the upper
 50 surface of the file-blade, showing at the right-
 hand side thereof the manner in which the
 blade is held upon the carrier. Upon the
 left-hand side, below the slotted, elongated,
 and tapering hole for the reception of the
 55 screw *s*, the nut for the same is shown eccen-
 trically.

The devices for fixing the file-blades are
 shown in Figs. 6 and 7 drawn to a larger
 scale, and they are specially designed to en-
 60 able file-blades of different thicknesses to be
 securely held in tension by means of pre-
 cisely the same fastening devices, while the
 heads of the fastening-screws do not project.

All that is necessary in order that the work-
 65 man may change a file-blade is to turn the
 screw *s*, Fig. 6, in the dovetail-shaped metal
 part *m*, which is let into the file-carrier to

press back the file-blade upon the rectan-
 gular head *s'*, Fig. 4, and raise it, so that ow-
 70 ing to the amount of play thus obtained the
 blade may also become free at *s*. By a re-
 versal of this manipulation a fresh file-blade
 may be inserted and fixed.

Instead of a wooden carrier the whole file-
 carrier may be made of papier-mâché, or where
 75 a very light weight is not required it may be
 of malleable cast metal. Instead of forming
 the file carrier and handle in one piece the
 carrier may of course be formed, like files of
 the old pattern, with a tang of wrought-iron
 80 or malleable cast metal.

What I claim as my invention, and wish to
 secure by Letters Patent, is—

1. The combination of a file-carrier having
 a threaded screw-hole at one of its ends, a
 85 file provided at its corresponding end with a
 plain screw-hole having a conical recess to
 enlarge the same, a screw having a conical
 head to secure the file to the carrier at the
 said end, and means for securing the file at
 90 its opposite end, said screw-hole in the car-
 rier being more distant from the point of at-
 tachment of the opposite end than the said
 conical recess, substantially as and for the
 purposes hereinbefore set forth. 95

2. The combination of a file-carrier pro-
 vided with means for giving the file the proper
 curvature and elasticity, said file-carrier hav-
 ing a threaded screw-hole at one of its ends,
 a file provided at its corresponding end with
 100 a plain screw-hole having a conical recess to
 enlarge the same, a screw having a conical
 head to secure the file to the carrier at the
 said end, and means for securing the file at
 105 its opposite end, said screw-hole in the car-
 rier being more distant from the point of at-
 tachment of the opposite end than the said
 conical recess, substantially as and for the
 purposes hereinbefore set forth.

3. The combination of a file-carrier having
 110 an inwardly-sloping shoulder and a threaded
 screw-hole at one of its ends, a movable bar
 one end of which is in contact with said slop-
 ing shoulder, a file provided at its correspond-
 ing end with a plain screw-hole having a con-
 115 ical recess to enlarge the same, a screw hav-
 ing a conical head to secure the file to the
 carrier at said end, and means for securing
 the file at its opposite end, substantially as
 and for the purposes hereinbefore set forth. 120

4. The combination of a file-carrier having
 a sloping shoulder and a threaded screw-hole
 at one end, a movable bar having a sloping
 shoulder adapted to contact with the first-
 mentioned sloping shoulder, a file having at
 125 its corresponding end a plain screw-hole hav-
 ing a conical recess to enlarge the same, a
 screw having a conical head to secure the file
 to the carrier at said end, and means for se-
 curing the file at its opposite end, substan-
 130 tially as and for the purposes hereinbefore
 set forth.

5. The combination of a file-carrier, having
 a sloping shoulder and a threaded screw-hole

at one end, a movable bar having a sloping
shoulder adapted to contact with said first-
named sloping shoulder, a file having at its
corresponding end a plain screw-hole having
5 a conical recess to enlarge the same, strips or
layers intermediate of the movable bar and
the file proper, a screw having a conical head
to secure the file to the carrier at said end,
and means for securing the file at its oppo-

site end, substantially as and for the pur- 10
poses hereinbefore set forth.

In testimony whereof I have hereunto set
my hand in the presence of two subscribing
witnesses.

HANS FOCKE.

Witnesses:

HERNANDO DE SOTO,
PAUL ARRAS.