Nov. 14, 1944. J. F. LINDEN 2,362,491

FILE

Filed June 1, 1942

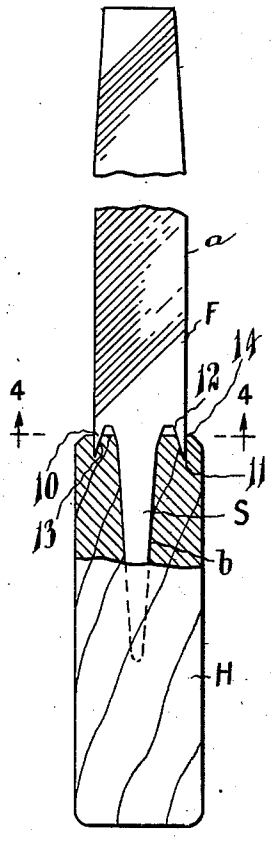


Fig. 1.

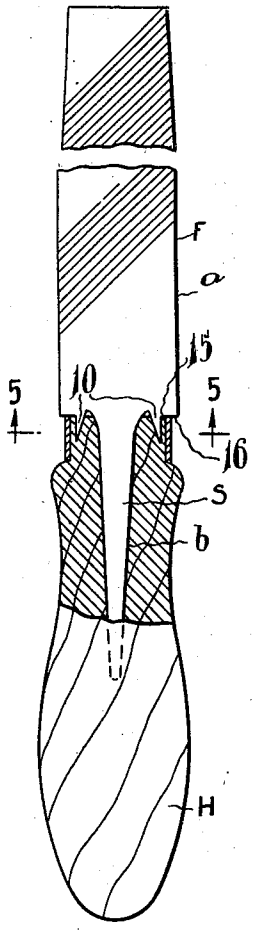


Fig. 2.

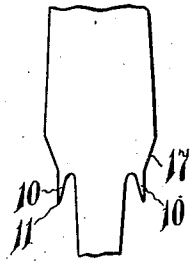


Fig. 3.

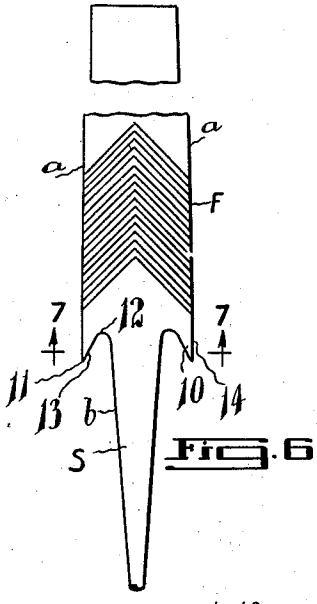


Fig. 6.

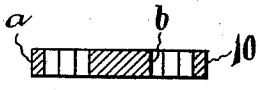


Fig. 4.

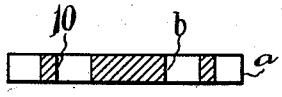


Fig. 5.

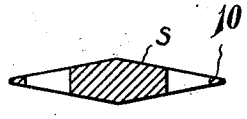


Fig. 7.

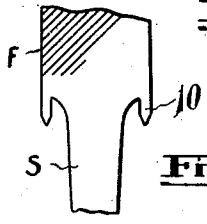


Fig. 8.

Inventor
J. F. Linden
by George P. Mackie

ATTY.

Patented Nov. 14, 1944

2,362,491

UNITED STATES PATENT OFFICE

2,362,491

FILE

John F. Linden, Belmont, Ontario, Canada

Application June 1, 1942, Serial No. 445,321

10 Claims. (Cl. 29—78)

The present invention relates to files, and particularly to that type of file having an elongated cross section and having a central integral tang or shank adapted to be projected into an attachable handle in fixed relation to the file.

In mounting a handle on a file of this type, it is rather difficult to obtain a satisfactory stable connection of the handle with the file. The shank, due to its narrowness relative to the handle, does not provide a sufficiently effective gripping surface contacting with the interior of the handle, which results in an unstable and insecure relation between the file and handle, which may soon permit the handle and shank to rock relative to one another, and also permit the handle and shank to rotate relative to one another particularly when pressure is exerted on the file during use. This relative movement between the file shank and handle is very inconvenient and is high objectionable as it interferes materially with the rapid and efficient use of the file.

An important object of my invention, therefore, is to devise effective means for securing and maintaining the file and handle in fixed relation to one another during long and hard usage of the file.

Another important object is to provide effective means without the need of a ferrule to protect the handle from splitting when the file shank, is closely or forcibly engaged with the handle for the operation of the file. Still another important object of the invention is to fulfill these objectives set forth without resorting to complicated forms so that the invention may be carried into effect without the handicap of high cost of manufacture.

It is to be noted that files are in a particular class of hand tools in the respect that they are generally marketed without a manipulating handle, and under actual conditions the user of the file usually applies the handle which is often simply made by forming a piece of wood, which in many cases may be soft wood, into a suitable shape, and by pressure and rotation of the file tang or shank relative to the handle, cuts away wooden shavings from the interior of the handle, therewith forming an axial recess for reception of the file tang or shank. When the file in conventional manner is properly joined with the handle by means of the central connecting shank, the handle end of the file body is in close proximity to the end of the handle. This proximity presents a convenient opportunity for providing a file of elongated cross-section with novel supplementary handle securing means in the form of rearwardly, projecting miniature handle engaging members, integral with the body and flanking the central shank, which handle engaging members have the purpose of preventing relative rotation of the file and handle, but have the further important purpose of engaging the end of the handle between them thus preventing the splitting of the handle when the file shank is driven to its final position in the handle.

The improved construction is hereinafter more fully described and illustrated in the accompanying drawing in which—

Fig. 1 is a side elevation of a file with a wooden handle, the latter being partly broken away;

Fig. 2 is a similar view of a file with a wooden handle having a metal ferrule, said handle also being partly broken away;

Fig. 3 a partial elevation of a modified form of file;

Fig. 4 an enlarged cross section on the line 4—4 in Fig. 1;

Fig. 5 an enlarged cross section on the line 5—5 in Fig. 2;

Fig. 6 a side elevation of a diamond-shaped file;

Fig. 7 an enlarged cross section on the line 7—7 in Fig. 6; and

Fig. 8 a partial elevation of a file having a modified form of securing prongs.

In the drawing like characters of reference indicate corresponding parts in the different figures.

Referring to the drawing, F indicates the abrasive metal body of the file, S the shank and H the handle; *a* the side edges of the file body and *b* the side edges of the shank.

Referring particularly to Figs. 1 and 4, it will be noted that the metal body is provided with rearwardly disposed extensions 10, one at each side of the shank S and lying in the plane of the shank and file body. These extensions 10 are, for convenience of reference, hereinafter referred to as gripping prongs or handle engaging prongs.

The outer edge 14 of each prong is shown as a continuation of the marginal edge *a* of the file body, while its inner edge 13 is arranged at an acute angle to said outer edge but also to the adjacent edge of the shank, and merges with the file body at 12. It will be seen, therefore, that each prong terminates in an acute angled point or end 11.

These gripping or handle engaging prongs 10, which comprise the main feature of the invention, provide, in conjunction with the conventional shank S, effective means for securing the file and handle in a stable and securedly fixed relation to each other.

The invention is put into effect by joining the file and handle in a usual manner and forcibly embedding the prong members 10 in the end of the wooden handle to a depth sufficient to ensure a firm engagement between the file and handle.

It will be apparent that when the gripping prongs 10 are arranged at the edges of the file body as shown in Fig. 1, the prongs might be spaced too far apart in a wide file for the prong members to be properly embedded within the confines of the handle, or would otherwise require a handle of too large diameter for comfortable operation of the file.

In wide files, therefore, the prongs will preferably be arranged as shown in Fig. 2. In this form the outer edges of the prongs are not in alinement or flush with the marginal edges *a* of the file body, but join the file body at point 15 on a line intermediate the marginal edge *a* and the shank. It will also be noted in Fig. 2 that the short angular stretches of the rearwardly terminating edge portions 16 are located at a distance rearwardly beyond the junctions 12 formed by the inner edge surfaces of the prong members 10 and the base of the shank joining the file body, and thus these short edge portions 16 can be closely engaged with the peripheral extremities of the end of the handle without obstruction of the edge surfaces at junctions 12. This arrangement, therefore, provides additional means for connecting the file and handle in close engagement and stable assembly.

In wide files, instead of forming the abrupt shoulders 16 as in Fig. 2, I may taper the side edges of the rear end of the file body as shown in Fig. 3 to form the inclined surfaces 17; thus providing for a reduction of the prong spacing as described in connection with said Fig. 2.

While it is preferable that the prongs be of the general shape shown in Figs. 1 to 6, it will be apparent that other shapes are possible. An example of one of such shapes is shown in Fig. 8, the body of each prong being formed with substantially parallel sides, both sides being levelled off adjacent the end to form a point for the prong.

The shape of prong shown in Figs. 1 to 6 is preferred. By providing the straight outer side 14, there is little, if any, tendency to cause the handle to split when driving the shank and prongs into the handle, while the inclined inner surfaces 13 act as wedges which tend to compress the intervening wood against the shank and thus increase the resistance to withdrawal of the shank from the handle. This shape of prongs is also preferred for the reason that the inclined inner side edges are adapted to form grooves in the side surfaces of the handle, adjacent the end of the latter by compression of the wood, the prong members being properly embedded in the thus formed grooves. This result can be attained also if the outer side edges of the prongs are flush with, or slightly projecting from the side surfaces of the handle.

It is to be noted that the shank of the file for practical reasons of manufacture is of rectangular cross-section, with the body of the shank gradually increasing in width toward the base joining the file body. Consequently when the base and the adjacent area of the shank is comparatively wide in relation to the side section or thickness of the shank the outward wedging pressure and strain on the handle is exerted from the side edges of the shank, and not from the face surfaces.

The location and form of the gripping prongs 10, as described, is therefore adapted to resist and counteract the outwardly exerted wedging pressure of the side edges by the opposite inner side edges of the prong members which exerts an inward pressure on the intervening wood and side edges of the shank. The hazard of splitting the handle when no ferrule is used is materially reduced, and the firm hold effected by the prong member against pivotal or rotating movement of the file relative to the handle obviate any need for driving wedges into the axial recess of the handle against the longitudinal surfaces of the shank in an effort to obtain a fixed position of the file relative to the handle.

It is to be understood that while the present drawing illustrates the preferred forms of the invention, it is not intended that the appended claims shall be limited to the precise forms shown, the claims being intended to cover any forms and modifications which fall within the broad scope of the invention.

What I claim as my invention is:

1. A file comprising an abrasive body having projecting integrally from one end thereof and in the longitudinal plane of the body a centrally positioned shank, and a pair of rearwardly extending miniature handle-engaging prongs arranged one at each side of the shank, and in spaced relation thereto, said prongs being integral with the body.

2. A file comprising an abrasive body having projecting integrally from one end thereof and in the longitudinal plane of the body a centrally positioned shank, and a pair of miniature handle-engaging prongs, arranged one at each side of the shank and in spaced relation thereto, said prongs being integral with the body, said shank and prongs having their bases arranged in substantially the same transverse plane.

3. A file comprising an abrasive body having projecting integrally from one end thereof and in the longitudinal plane of the body a centrally positioned shank, and a pair of miniature handle-engaging prongs arranged one at each side of the shank, and in spaced relation thereto, said prongs being integral with the body and each of said prongs terminating rearwardly with an acute angled point.

4. A file comprising an abrasive body having projecting integrally from one end thereof and in the longitudinal plane of the body a centrally positioned shank, and a pair of miniature handle-engaging prongs arranged one at each side of the shank, each of said prongs being integral with the body and extending rearwardly the shank end thereof and each terminating with an acute angled point.

5. A file comprising an abrasive body having projecting integrally from one end thereof and in the longitudinal plane of the body a centrally positioned shank, and a pair of handle-engaging prongs flanking the shank, said prongs being integral with the body and each of said prongs being of a miniature length relative to the length of the shank, and the width of the shank adjacent its base greater than the width of the base of either of said prongs.

6. A file comprising an abrasive body having projecting integrally from one end thereof and in the longitudinal plane of the body a centrally positioned shank, and a pair of handle-engaging prongs flanking the shank, each of said prongs being integral with the body; the length and width of the central shank being greater than the length and width of either of the prongs.

7. A file comprising an abrasive body of elongated cross-section having projecting in the longitudinal plane from one end thereof a pair of spaced handle-engaging prongs and an intermediate shank, said prongs and shank being integral with the body and the shank of greater length than the prongs, said file having a rearwardly terminating body portion of gradually reduced width in a direction rearwardly and merging with the said handle-engaging prongs.

8. A file comprising an abrasive body having projecting from one end thereof in the longitudinal plane of the body a pair of spaced handle-engaging prongs and an intermediate shank, sand prongs and shank being integral with the body and the shank of greater length than the prongs, the side edge of each prong nearest the shank being inclined from the body in a direction away from the shank.

9. A file comprising an abrasive body having projecting from one end thereof in the longitudinal plane of the body a pair of spaced handle-engaging prongs and an intermediate shank, said prongs and shank being integral with the body and the shank of greater length than the prongs, said shank being of gradually reduced width in a direction away from the body, the side edge of the prong nearest the shank being inclined from the body in a direction away from the shank.

10. A file comprising an abrasive body having projecting from one end thereof in the longitudinal plane of the body a pair of spaced handle-engaging prongs and an intermediate shank, said prongs and shank being integral with the body and the shank of greater length than the prongs, each prong having its outer edge extending substantially parallel to the center line of the body and the inner edge inclined from said center line in a direction away from the body.

JOHN F. LINDEN.