

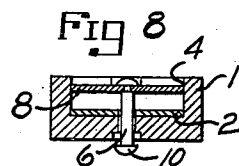
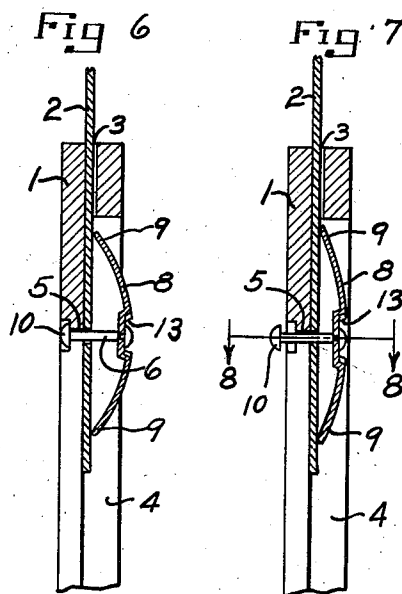
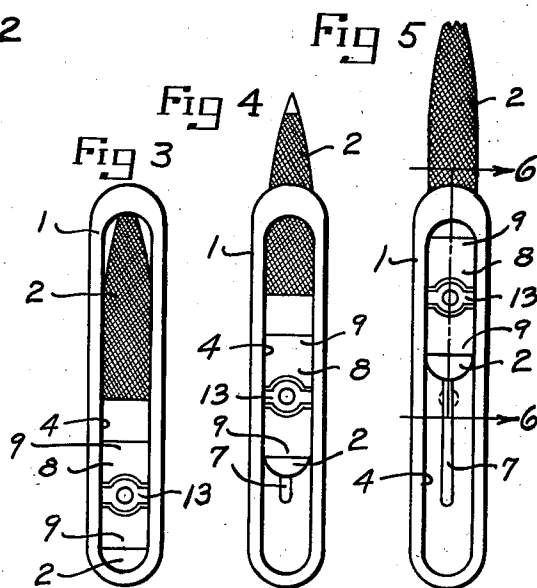
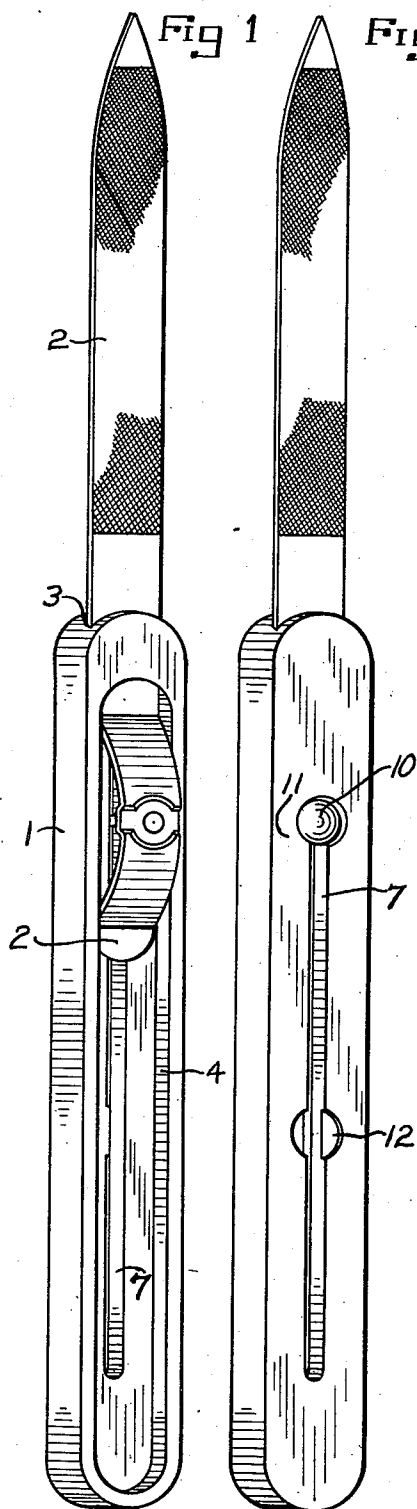
May 26, 1942.

R. J. RICKENBACHER
ADJUSTABLE RETRACTABLE TOOL

2,284,168

Filed May 3, 1939

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 9

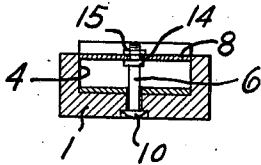


Fig. 10

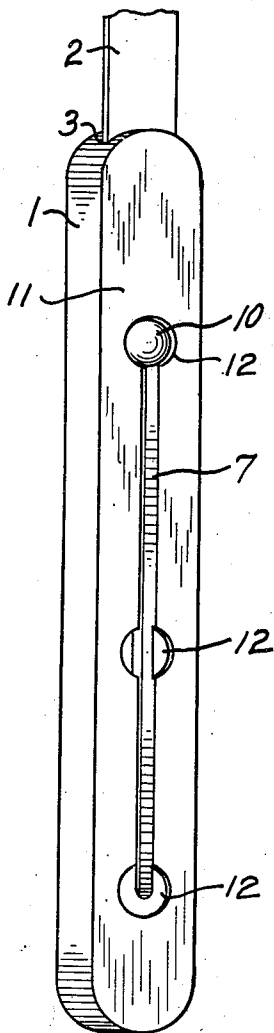


Fig. 11

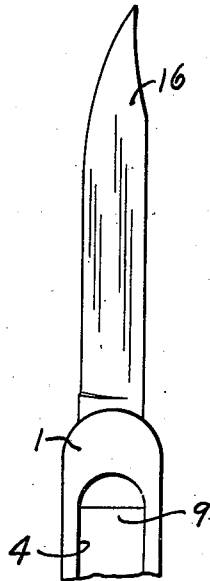


Fig. 12

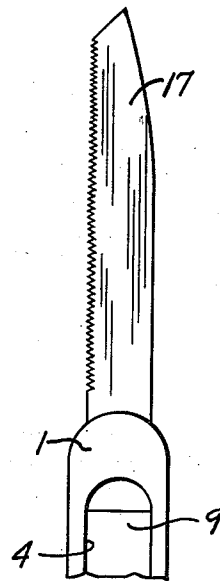


Fig. 13

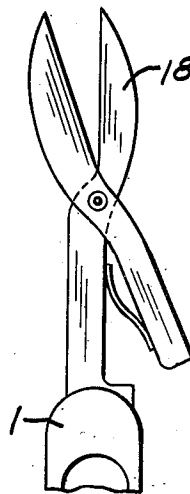


Fig. 15

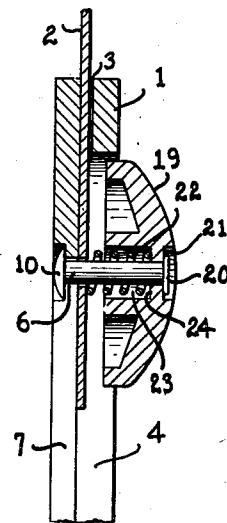
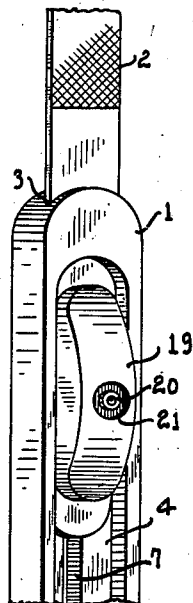


Fig. 14



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UNITED STATES PATENT OFFICE

2,284,168

ADJUSTABLE RETRACTABLE TOOL

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Application May 3, 1939, Serial No. 271,543

7 Claims. (Cl. 30-162)

My invention relates to tools, instruments, and the like. More particularly the invention concerns an improvement in devices such as nail files, knives, awls, scissors, saws, keys, and the like hand operated tools wherein the device is retractably sheathed in the handle of the tool.

An object of this invention is to provide a tool or instrument of the type aforesaid, wherein the tool is retractable longitudinally of the handle or sheath of the tool in which it is fastened when not in use. This not only protects the tool and working surfaces thereof, but where the tool is carried in the pocket of clothing, fabric, or when packaged or otherwise covered, the sharp surfaces of the tool or instrument are prevented from contacting the adjacent covering and damaging the same.

Another object of this invention is to provide a unitary constructed tool wherein the working tool member is arranged to be positively engaged and forced out of or retracted into the handle or sheath portion thereof.

Another object is to provide an improved device of this character wherein the working blade or tool may be extended to one or more positions and locked against movement after so positioning.

Another object is to provide a hand tool of pleasing appearance and in which can be interchangeably mounted different kinds of tool blades, as desired.

Still another object is to provide an instrument comprising a working tool member which can be readily manipulated by the hand to unlock the blade and move it into position for use, and whereby the instrument is automatically locked in position upon release of pressure against the tool blade moving member.

A further object is to provide a retractable tool of improved construction wherein a spring pressed button, attached to the tool blade and slidably retained in the sheath-like handle, forms the means for moving and holding the tool blade firmly in any desired position.

In the accompanying drawings:

Figure 1 is an enlarged pictorial view of a nail file embodying my invention, wherein the file blade is unsheathed and in position for use;

Figure 2 is a similar view looking from the opposite side of the device;

Figures 3, 4 and 5 are plan views of a retractable sheathed nail file, showing the different positions in which the file blade may be fastened;

Figure 6 is an enlarged detail sectional view taken on the line 6-6 of Figure 5;

Figure 7 is a similar detail sectional view as Figure 6, showing the manner of unlocking the blade preparatory to moving it to a different position;

Figure 8 is a cross sectional view taken on the line 8-8 of Figure 7;

Figure 9 is a similar cross sectional view as shown in Figure 8, illustrating a modification wherein the working tool member is detachable from the handle member;

Figure 10 is a pictorial view of a portion of the handle member shown in Figures 1 and 2, wherein a positive locking means is provided for retaining the working tool in retracted position in the handle;

Figures 11, 12 and 13 illustrate the various types of instruments or working tools which are adapted for use with this invention;

Figure 14 is a pictorial view of a fragmentary portion of a tool made according to my invention wherein a spring pressed button member is employed for positioning the tool blade;

Figure 15 is a vertical section view of the form shown in Figure 14, illustrating the particular arrangement of the parts of this improved construction.

Referring to the drawings in detail, the numeral 1 designates the tool handle or sheath portion of the device, which may be made of synthetic plastic materials, synthetic resin, shell, bone, glass, ivory, wood, metal, or any other suitable material.

The working tool member 2 is secured to the handle 1 so as to be reciprocable forward and backward through an opening 3 formed in one end of the handle portion 1. This opening will be of sufficient size and shape to accommodate the working tool means. The rear portion of the tool 2 is slidably mounted in the groove 4 formed longitudinally of the handle 1, as shown in Figures 1 and 2.

Adjacent the end of the tool member 2 is an aperture 5 through which a bolt, screws, riveting or suitable fastening means 6 passes and which extends through the handle being engaged in the slot 7 formed in the central bottom part of the groove 4. The width of the slot 7 is such as to snugly fit the body of the member 6. On one end of the member 6 is fastened a resilient means 8 in the shape of a bow wherein the outer ends 9 engage the tool blade 2, as shown in Figures 6 and 7.

At the opposite end of the member 6 is pro-

vided a head member 10. The under side of the head member engages the outer surface 11 of the handle or sheath 1 adjacent the longitudinal slot 7. Countersunk portions 12 of a size and shape to fit the head 10 are formed at different places along the surface 11 adjacent the groove 7. This provides a means of locking the working tool member in different positions. Alternatively head locking means may be provided at the extremities of the slot 7 and at the middle, as shown in Figure 10, or only at one end and intermediate the ends, as illustrated in Figures 1 and 2. It will be appreciated that the positioning of the head retaining depressions 12 may be varied as desired.

To enhance the manipulation of the tool the face of the spring member 8 is preferably provided with a central transverse countersunk portion 13 to which the fastening means 6 is suitably attached as by force fitting or riveting, as shown in Figures 6 and 7.

In Figure 9 the fastening means 6 is removably attached to the member 8 by means of the collar 14 and nut 15 threaded onto the end of the member 6. This construction permits the interchanging of various working tools, such as illustrated in Figures 11, 12 and 13. In these figures the knife blade 16, saw 17 and scissors 18 are adapted to be formed or otherwise mounted on a suitable extension member which may be interchangeably attached to the fastening means 6 so as to be retractable into the handle 1, as illustrated in Figure 3.

It will be observed that reciprocation of the tool blade is accomplished by applying pressure to the spring member 8 to disengage the head member 10 so that it can be moved along the longitudinal slot 7 to the desired position where upon releasing the pressure from the spring member 8 the fastening means 6 will be drawn to one side so that the head member 10 will engage in the locking slot 12 so as to lock the tool blade in that position.

In the tool construction illustrated in Figures 14 and 15 the spring member 8 (Figures 6 and 7) is replaced by a button 19 which is suitably fastened to the end of the bolt member 6 by riveting or upsetting the end of the bolt thereover as at 20 (Figure 15).

The button 19 may be formed of any desired material such as wood, metal, resin or the like. Preferably it is formed of a moldable plastic composition which can be readily shaped to any desired form and hardened.

The member 19 is preferably provided with a countersunk portion 21 for accommodating the expanded upset bolt end portion 20. A compression spring 22 is disposed around the bolt between the tool blade 2 and the button 19. The spring is extended into a cylindrical cavity 23 formed in the central body portion of the button 19 and abuts against the outer wall portion 24, as illustrated in Figure 15. Spring 22 yieldably maintains the tool blade 2 and slidable bolt 6 firmly to the handle. By varying the tension in the spring member 22 the rigidity of the construction and ease of operation may be readily controlled.

It will be understood, of course, that this invention is not limited to the exact details of construction and operation since obvious modifications within the scope of this invention may be made by persons skilled in the art.

Having thus fully described my invention, 75

what I claim as new and desire to secure by Letters Patent is:

1. As an article of manufacture, a unitary working tool and tool-receiving handle therefor, said handle having a longitudinal groove on one side in which said tool is adapted to reciprocate, means comprising an elongated slot on the opposite side and of less width than said groove in communication with the groove, and pin means interlocked with said groove and slot and passing through the end portion of said working tool retained in the handle, and means comprising a button fastened to one end of said pin and slidably operable in said groove of the handle for adjustably positioning said working tool with respect to said handle.

2. As an article of manufacture, a unitary working tool and a tool-receiving handle therefor, said handle having a groove on one side extending longitudinally of said handle in which said tool is adapted to slide, slot means of less width than said groove in the opposite side of said handle and communicating with said groove, pin means positioned transversely of the longitudinal axis of said handle working in said groove and slot and extending through a portion of said tool for adjustably positioning the working tool with respect to said handle, said slot having spaced depressions for accommodating an integral head member on said pin means, and button means connected to the opposite end of said pin and yieldably retaining said pin and working tool firmly to said handle adapted to be engaged for reciprocating the working tool in said handle.

3. As an article of manufacture, a unitary working tool blade and tool receiving handle therefor, said handle comprising a longitudinal open groove in which said tool blade is adapted to reciprocate, means comprising a rod extending transversely through said handle and interlocked with said handle groove and tool blade for adjustably positioning said working tool blade with respect to the handle, means comprising a button connected to one end of said rod member and shaped to engage in said groove for moving said rod in different positions, and spring means for maintaining said pin and tool blade firmly to said handle.

4. As an article of manufacture, a longitudinally movable working tool blade member, a slotted handle associated therewith for forming a sheath for said tool, pin means reciprocable in said slot and interlocked with said handle and working tool, blade means comprising spaced depressions cooperating with one end of said pin for locking said pin means in different positions, spring means connected to said reciprocable pin means and engaging said working tool blade whereby said pin means can be shifted axially in said groove to move the end portion of said pin out of said depression when locked therein whereby said working tool blade is movable to a different position relative to said handle.

5. As an article of manufacture, a tool comprising a working blade and attached handle, said blade being retractable into said handle, a groove in the handle in which said blade is slidable, pin means interlocked with said groove and extending transversely of the longitudinal axis of said handle and passing through said blade for holding said blade in different positions relative to said handle, said blade positioning means comprising a button secured to said transverse extending means, and yieldable means for firmly

holding said blade in said groove and normally maintaining the button out of contact with said blade and said pin in locking engagement with said handle.

6. In a tool holder, a case open at one side, a manicure-tool fitted and slidably mounted in said case, said manicure-tool having an opening, said case adapted to hold said manicure-tool in various positions, said case formed with a guide slot, a plurality of retaining openings, and a guide opening, said guide slot of said case arranged to register with said opening of said manicure-tool to hold said manicure-tool in various positions and to limit the extent of the movement of said manicure-tool relative to said case, said retaining openings of said case arranged to register with said guide slot of said case and with said opening of said manicure-tool to hold said manicure-tool in various positions and to limit the extent of the movement of said manicure-tool relative to said case, said guide opening of said case having its wall adapted to retain and hold said manicure-tool in various positions relative to said case, a fastener movable and adapted to hold the part together, said fastener passing through either of said retaining openings and through said guide slot of said case and through said opening of said manicure-tool, said fastener having its head fitted for engagement with either of said retaining openings of said case, and a resilient retainer engaging with said fastener, said resilient retainer adapted for and capable of retaining all parts seated and under tension in any position permitting quick release and adjustment to hold said manicure-tool either withdrawn within said case or in its adjusted positions for use.

7. In a tool holder, a case open at one side, a manicure-tool fitted and slidably mounted in said case, said manicure-tool having an opening, said case adapted to hold said manicure-tool in various positions, said case formed with a guide slot, a plurality of retaining openings, and a guide opening, said guide slot of said case arranged to register with said opening of said manicure-tool to hold said manicure-tool in various positions and to limit the extent of the movement of said manicure-tool relative to said case, said retaining openings of said case arranged to register with said guide slot of said case and with said opening of said manicure-tool to hold said manicure-tool in various positions and to limit the extent of the movement of said manicure-tool relative to said case, said guide opening of said case having its wall adapted to retain and hold said manicure-tool in various positions relative to said case, a fastener movable and adapted to hold the parts together, said fastener passing through either of said retaining openings and through said guide slot of said case and through said opening of said manicure-tool, said fastener having its head fitted for engagement with either of said retaining openings of said case, and a retainer having its shank threaded on said fastener, said retainer adapted for and capable of retaining all parts locked against movement in any position permitting quick release and adjustment to lock and hold said manicure-tool either withdrawn within said case or in its adjusted positions for use.

ROBERT J. RICKENBACHER.