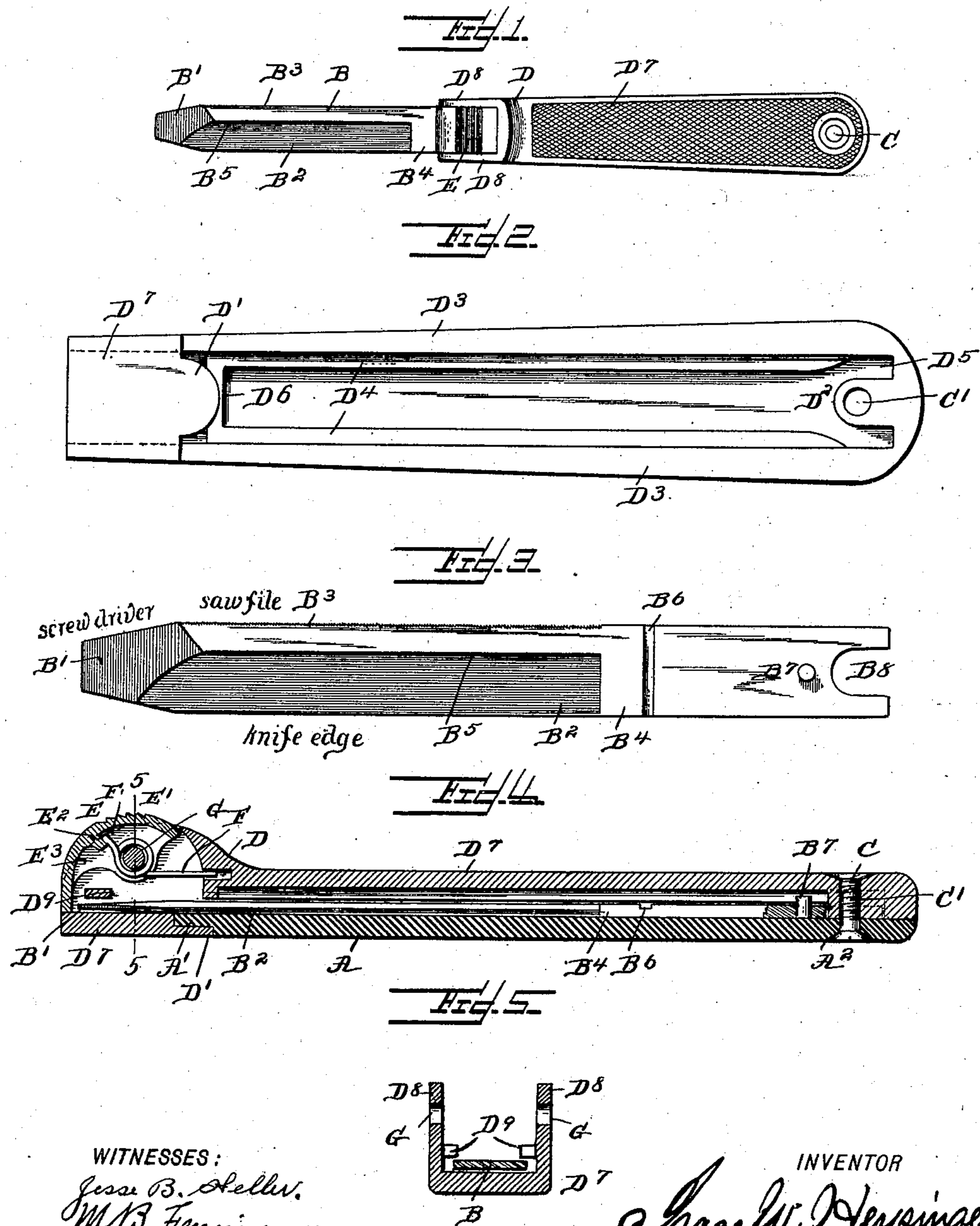


No. 708,639.

Patented Sept. 9, 1902.

I. W. HEYSINGER.  
TOOL FOR ELECTRICIANS.  
(Application filed Oct. 26, 1901.)

(No Model.)



# UNITED STATES PATENT OFFICE.

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## TOOL FOR ELECTRICIANS.

SPECIFICATION forming part of Letters Patent No. 708,639, dated September 9, 1902.

Application filed October 26, 1901. Serial No. 80,037. (No model.)

*To all whom it may concern:*

Be it known that I, ISAAC W. HEYSINGER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Tools for Electricians and the Like, of which the following is a specification, reference being had to the drawings which accompany and form a part of the same, in which—

Figure 1 is a face view of the tool embodying my invention, the blade being open for use. Fig. 2 is a view of the hollow handle, seen from beneath, while Fig. 1 is seen from above, the lower covering-plate having been removed to show the inside construction. Fig. 3 is a view of the blade detached from the handle and showing the saw-file on the back edge, the teeth set forward, the special blade with knife-edge on opposite side, and the beveled screw-driver point at the end. Fig. 4 is a longitudinal vertical section through the middle line, the blade shown in place within the handle and partly broken away at its rear end to show the inset stop-pin and the inside projection of the frame forward from the rear within the bifurcation of the shank of the blade; and Fig. 5 is a vertical cross-section along the line 5 5 of Fig. 4.

The lettering in all the figures is uniform.

The object of my invention is to produce a tool especially adapted for electricians and others in which a sharp bladed and edged implement can be used on ladders or the like for cutting and scraping insulations and for unscrewing and rescrewing up fixtures or the like or for other useful purposes, in which the blade is habitually concealed securely within the handle and from which it is instantaneously dropped out to its full length by turning its point down and drawing the thumb back over the rotary thumb-latch, the blade when projected being locked in place by the spring acting on said thumb-latch and in which the blade can be instantly withdrawn again into said handle by turning the point up and drawing back the rotating margin of said thumb-latch in like manner, these operations being performed entirely by one hand, whereby this tool, which otherwise from its character would be dangerous to use, in case of accident can be made ready for op-

eration or safely concealed in the handle by a single movement of one hand only, so that the operator can hold himself secure by one hand in elevated or difficult positions and operate and use this tool with the other. The facility being so great, the tool will be habitually used under such circumstances while one more difficult to open or close or one requiring both hands to operate it would not be employed, the chance of danger being preferably incurred.

Referring to the drawings, Fig. 1 shows the tool in external view complete and ready for use.

D is the cast framework of the handle, though it may be made of drop-forged or struck-up metal, if preferred, and in different parts brazed or soldered together or otherwise made into an integral construction. I prefer to cast it all in one piece, the under side being left open and closed by the scale or cover A. (Shown in Fig. 4.) At D<sup>7</sup>, Fig. 1, I show the top side checked or roughened to give a secure hold in the hand. In such case I also correspondingly check or roughen the detachable scale A beneath. I also sometimes cast or otherwise form the frame solid beneath and make the part D<sup>7</sup> detachable, through which I then introduce the blade B, or I form the whole frame solid outside and introduce the blade from the front or rear end, in the former case the stop D<sup>6</sup>, Fig. 2, and in the latter case the rear end D<sup>2</sup> D<sup>5</sup> being made detachable and held in place by a suitable screw or the like, as shown at A<sup>2</sup>, Fig. 4; but for ordinary use I prefer to make it in the form shown with A detachable to admit the blade, as thereby I facilitate the dressing out of the blade-slot when cast metal is used for the handle.

As shown in Fig. 4, the scale or slot-cover A is lipped at its forward end A', the lip engaging beneath the overhang D'. (See Figs. 2 and 4.) Other means of securing it in front may be used, if desired, so long as the travel of the blade is not interfered with. At its rear end is a screw-hole A<sup>2</sup> in this scale or cover, through which passes the shank of the screw C, the threaded part of which engages with the upper side of the frame at C, Figs. 1 and 4.

The rear end of the frame D, inside, I pre-

fer to prolong forward into a projection D<sup>2</sup>, Fig. 2, which is also perforated for the screw C, giving it a larger bearing, and when both scales D<sup>7</sup> and A are made detachable this hole C' in the projection D<sup>2</sup> serves to hold them secure against movement on the frame D. To accommodate this projection D<sup>2</sup>, I prefer to slot or bifurcate the rear end of the shank of the blade at B<sup>8</sup>, Fig. 3, the sides of which thus embrace the sides of the projection D<sup>2</sup>, allowing the blade B to have a larger shank and correspondingly making it more steady in the handle when projected against side strain or movement. When the blade is relatively short compared with the handle, I sometimes dispense with this bifurcation of the shank of the blade and inward projection of the frame D<sup>2</sup>, terminating the shank of the blade B just in rear of the stop-pin B<sup>7</sup>. This stop-pin B<sup>7</sup> may be struck up from the substance of the shank of the blade; but I prefer to set a pin in, as shown, as its position can be more readily gaged for the distance required, and it can be changed, if desired. As shown in Fig. 2, the blade and shank slide along a passage-way from end to end directly in contact with the covering-plate A (shown in Fig. 4) and guarded above by the side ribs D<sup>4</sup> D<sup>4</sup>. (Shown in Fig. 2.) At D<sup>6</sup>, Fig. 2, and shown clearly but not lettered in Fig. 4, is a stop across between the ribs D<sup>4</sup> and D<sup>4</sup>, between which the stop-pin B<sup>7</sup> travels when the blade is operated, and when the tool is held point downward the blade B will drop out until the movement is arrested by the impingement of the stop-pin B<sup>7</sup> against the stop-piece D<sup>6</sup>.

At B<sup>6</sup> is shown a cross-groove in the forward end of the shank of the blade B, and the relative depth of this cross-groove is shown at B<sup>6</sup> in Fig. 4. When the blade is dropped out, the forward edge of the latch E enters this cross-groove in the blade-shank and prevents its withdrawal into the handle until it has been raised therefrom.

At the forward end of the frame D the under side is crossed by the solid end piece D<sup>7</sup>, Figs. 2, 4, and 5, upon which the blade rests, and when projected which furnishes a firm bearing downward for the shank of the blade. Above this, at the sides thereof, as shown in Figs. 1, 4, and 5, are erected two ears, one at each side of D<sup>7</sup>, open upwardly, and between which is inserted the rotary thumb-latch E, which engages with the blade.

At D<sup>9</sup>, Figs. 4 and 5, are shown two small studs D<sup>9</sup> D<sup>9</sup>, one on each side, leaving a free passage-way beneath for the blade, as shown in Figs. 4 and 5, but preventing the same from being turned or twisted in the handle when the tool is used as a screw-driver or otherwise. Instead of these cast-on lugs D<sup>9</sup> D<sup>9</sup>, I sometimes prefer to insert a separate cross-pin, like that shown at G, Fig. 4, but in the same position as the lugs D<sup>9</sup> D<sup>9</sup>. At the upper side of the forward part of the frame D there is an upraise (see D, Fig. 4)

undercut in front and which guards the rear margin of the thumb-latch E and prevents accidental entrance of dirt to the blade-slot. This thumb-latch E, as shown in Fig. 4, is substantially in side view a segment of a circle, the front end, however, being made more tangential to act as a stop. At the sides, as shown in Fig. 4, are downwardly-projecting ears E<sup>3</sup>, which enter between the ears of the handle D<sup>8</sup> D<sup>8</sup>. The underside of the thumb-latch E is hollow between the ears E<sup>3</sup> E<sup>3</sup> to accommodate the spring F. The ears of the thumb-latch are perforated with rivet-holes, and the ears of the handle are correspondingly perforated at G G, Fig. 5, and a rivet G, Fig. 4, passed through the two ears of the handle and the two of the latch, permits the latter to revolve on the pivot G as the center of motion of the thumb-latch, which when drawn backward along its notched upper surface will lift its forward margin from contact with D<sup>7</sup>, and when the blade is projected will engage with the cross-groove thereof, B<sup>6</sup>. The coiled spring F is wound around the rivet G, as shown in Fig. 4, and its forward-projecting leg F' engages against the rear side of the cross-rib E<sup>2</sup> in the middle of the curved concavity inside E, as shown in Fig. 4, and its rear leg enters an orifice in the upraise D of the frame, as shown in Fig. 4, and the spring being under strain securely holds the thumb-latch closed when the blade is in the handle against the cross-piece D<sup>7</sup> and when the blade is projected within the cross-groove B<sup>6</sup> and upon the shanks of the blade itself. To operate it, the thumb is wiped back along the top surface of the thumb-latch with same pressure, when by engaging with the serrations or notches of the thumb-latch E E', Figs. 1 and 4, the latch is rotated and the blade-slot is opened, closing securely again as soon as the latch is released. The point of the blade B' engages immediately within the front margin of the latch, as shown in Fig. 4, when closed, so that end play is prevented, while when opened the spring F by its pressure prevents rattle of the blade in use. The blade B, with its various letters of designation, I prefer to make as follows: The shank B<sup>4</sup> extends back to the rear, where it is bifurcated, as shown at B<sup>8</sup>. In certain cases where the length of handle permits I do not bifurcate this end, but finish it square. The pin B<sup>7</sup> projects from its surface, as shown in Fig. 4, to form a stop-pin by its impingement against the stop D<sup>6</sup> of the frame, Fig. 2, when the blade has been dropped out. This stop-pin B<sup>7</sup> may project either above or below the shank or at one side, the stop of the frame being correspondingly adapted thereto, and it may be an inserted pin, as shown, or formed from the body of the shank itself, if preferred. Across the forward part of the shank is the cross-groove B<sup>6</sup>, Figs. 3 and 4, and in front of this is the blade portion proper. This terminates at the point in the screw-driver B', with sloped margins to take smaller screw-

heads than the body of the blade would permit. Along its rear edge is the saw-file B<sup>3</sup>, Fig. 3, having the cut of the teeth set forward so as to bite by a forward thrust of the tool. On the opposite side is the knife-edge B<sup>2</sup>, which is sharpened on a stone or wheel when required like an ordinary knife-blade. To enable this to be readily accomplished, the knife-blade portion has its beveled sides carried out along the screw-driver point without any offset, so that it can be sharpened on a stone or wheel of any width, just as would be the case with a simple knife-blade. At the shank end, between B<sup>2</sup> and B<sup>4</sup>, Fig. 3, is the ordinary shoulder where the blade bevel meets the sectionally rectangular shank. (See Fig. 5; see also near B<sup>4</sup>, Fig. 4.) While especially adapted for use with this handle, I do not restrict myself to the specific form or construction or the specific parts of the blade shown and described, but use such as may be best adapted for the special work to be done with this tool. For example, the saw-file edge may be dispensed with or otherwise placed, the screw-driver end may be dispensed with in certain cases and a point or hook be employed, or the knife-edge may be substituted by a saw or left as a part of the shank, if desired. I prefer, however, to employ the device as shown for the purposes to which it has been specifically adapted, and I do not rigidly confine myself to one detachable scale or blade-cover along the handle, but use two, if desired, or make the handle solid in its shell for the blade, if preferred; nor do I confine myself specifically to the means for securing said blade-slot covers to the handle or frame of the tool, but vary the above according to the special requirements of the case, as would be done by any mechanic skilled in the art without the exercise of invention and without departing from the principles of my invention as herein shown, described, and claimed.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The electrician's tool consisting of a blade provided with a double-beveled screw-driver point, a knife-edge along one margin thereof, and a saw-file on the opposite side, and a supporting-shank forming the rear end thereof provided with a cross-groove, in combination with a hollow handle, in which said blade and its shank are adapted to be longitudinally reciprocated, and a spring-latch to close said hollow handle when said blade is within the same, and close upon said blade when the same has been projected therefrom, and by engagement in said cross-groove prevent the withdrawal of said blade into said handle when said latch is held down thereupon, said reciprocation being produced by gravity when said handle is held upward to withdraw, or downward to project said blade therefrom, substantially as described.

2. A combined knife and screw-driver blade

having a supporting and guiding shank and a cross-groove in the same, a double-beveled screw-driver point and a double-beveled knife-blade edge along one margin of said blade, the beveled sides of said knife-blade continued along the sides of said screw-driver without obstruction against sharpening said knife-edge on a sharpener of any size, substantially as described.

3. A hollow tool-handle having an opening at one end, and closed at the opposite end and sides thereof, a spring thumb-latch guarding said opening, a passage within said handle for the longitudinal travel of a flat blade and shank, and a detachable blade-cover on one side of said flat blade, together with a screw at the rear end adapted to freely pass through said detachable blade-cover, and, be seated in the opposite blade-cover, so as to detachably secure the same together as a single construction, substantially as described.

4. In combination with a tool-blade, substantially as shown, and having a projecting stop-pin at the rear end of the shank thereof and a cross-groove in said shank, a hollow handle open at one end and closed at the other, said open end adjustably closed by a spring thumb-latch, an abutment in the fixed frame of said handle in rear of said latch adapted to engage with the stop-pin on said blade, and limit its projection from said handle when reciprocated therein, substantially as described.

5. In combination with a hollow tool-handle having a longitudinal passage open at one end through the same for the reciprocation of a tool-blade therein, and its projection therefrom, a spring thumb-latch operated at one end of said passage to close the same when said blade is withdrawn into said handle, and its edge adapted to enter a cross-groove in the shank of said blade when the same is projected, and lock the same in position, vertical ears between which said thumb-latch is supported and operated, a passage-way for said blade beneath said latch, and fixed lugs, D<sup>9</sup> D<sup>9</sup>, within said ears and above said blade-passage, to prevent said blade from being lifted from its place when projected, substantially as described.

6. In combination with a tool-blade substantially as described and provided with a cross-groove thereupon, the hollow handle having longitudinal passage-way for the reciprocation of said blade therein, and a thumb-latch provided with a lip and adapted to close the open end of said passage when said blade is retracted, and close upon said blade and engage with said cross-groove when the same is projected, and guards to limit the projection of said blade, the thumb-latch pivot G, and the coiled spring F F' around the same, one leg thereof adapted to engage with and be supported by the raised cross-rib, E<sup>2</sup>, on the under and concave side of said latch, and between the front and rear margins thereof, and the opposite leg, F, adapted to

engage with a support on the handle of said tool in rear of said latch, said spring adapted to close the open end of said hollow handle under spring tension, substantially as described.

7. In combination with a tool-blade adapted to be reciprocated in a hollow handle, and withdrawn within or partially projected from one end of the same, and having a rear supporting-shank and a cross-groove, the rear portion of said shank longitudinally bifurcated, a hollow handle adapted for the reciprocation of said blade, the flat side or sides thereof closed by blade-slot cover or covers, the projection, D<sup>2</sup>, at the rear end of said blade-slot adapted to enter said bifurcation, B<sup>8</sup>, and the screw hole or opening C' extended transversely through said projection, substantially as and for the purposes set forth.

8. In combination with the hollow tool-handle substantially as described, having blade-slot for the reciprocation of a flat blade adapted to be retracted within the same, or partially projected longitudinally therefrom, and blade-stops and locking-latch therefor and a blade provided with a cross-groove adapted to said latch, the blade-slot covers

adapted to the flat sides of said handle, one of which is fixed and the opposite one detachably secured thereto, substantially as and for the purposes described.

9. In combination with a sectionally-flat, hollow tool-handle, substantially as described, and a tool-blade substantially as described and provided with a cross-groove and shank, a knife, saw-file and screw-driver, integral therewith in a single construction, and adapted to be reciprocated by gravity within the same, and partially projected longitudinally therefrom, and means to adjust and control said projection and reciprocation, one or more detachable blade-slot covers provided with recessed end or ends adapted to engage upon the opposite flat sides of said blade-slot, and contiguous to said blade, substantially as described.

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

ISAAC W. HEYSINGER.

Witnesses:

M. B. FEMINGER,  
ANDREW V. GROUPE.