No. 837,075. PATENTED NOV. 27, 1906.

I. KINNEY.

KNIFE.

APPLICATION FILED JULY 31, 1905.

Fig. 4.

Fig. 1.

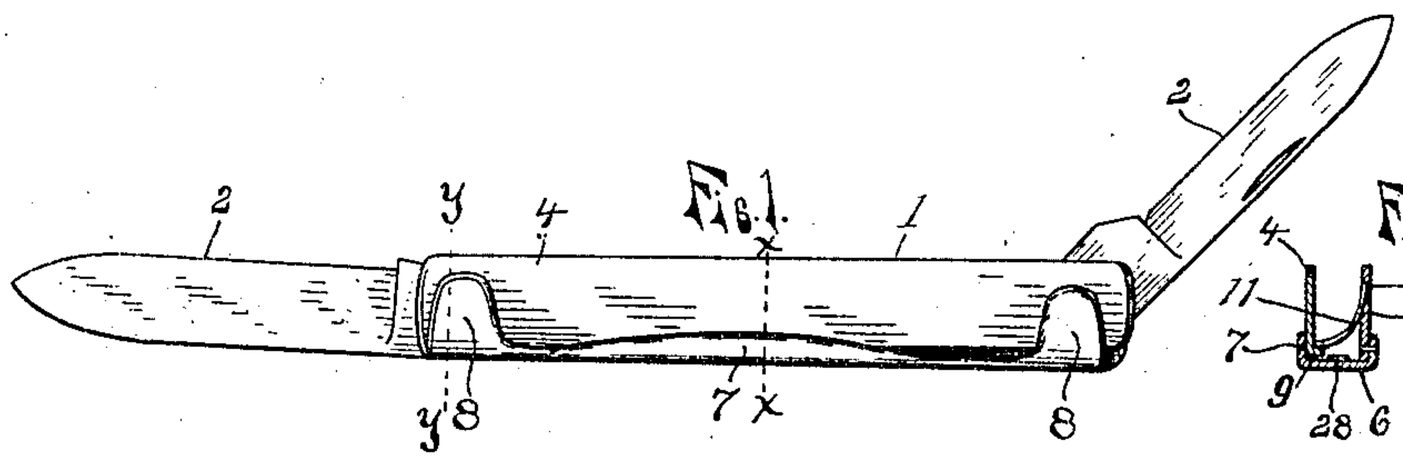


Fig. 3.

Fig. 2.

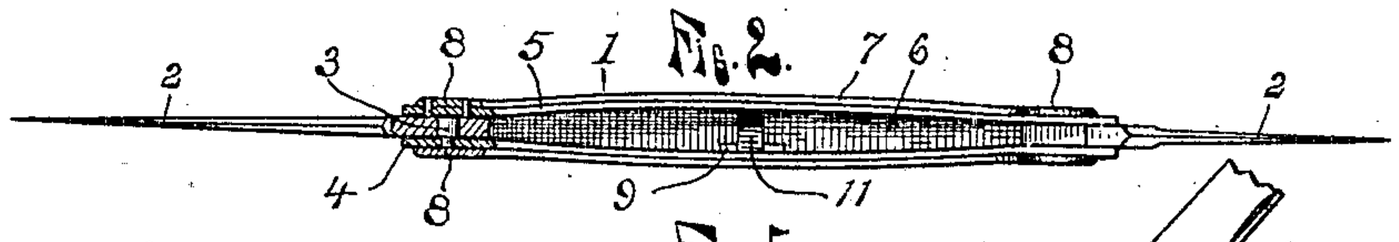


Fig. 5.

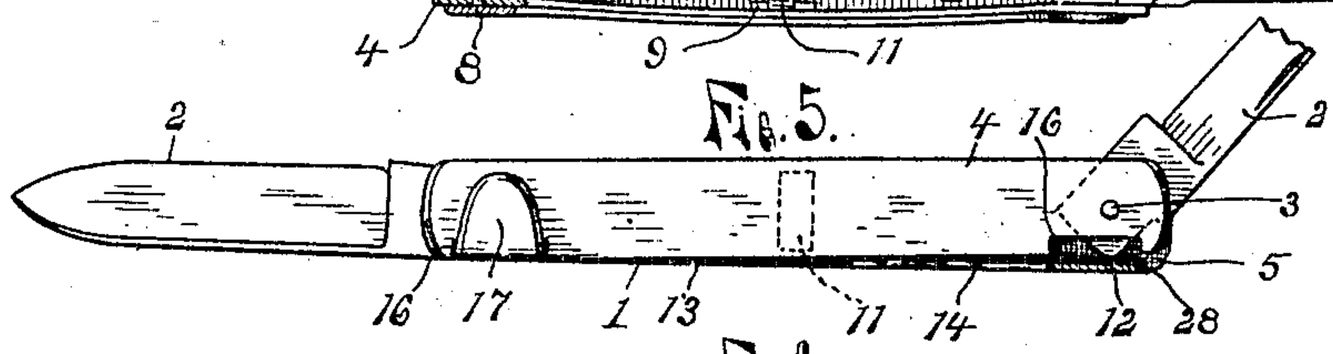


Fig. 6.

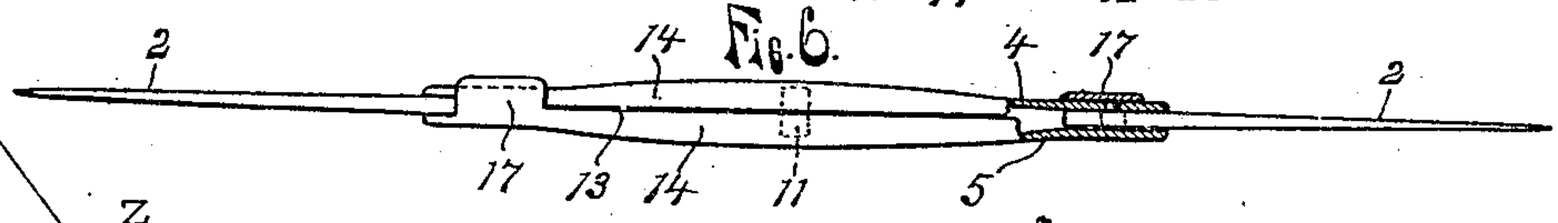


Fig. 7.

Fig. 8.

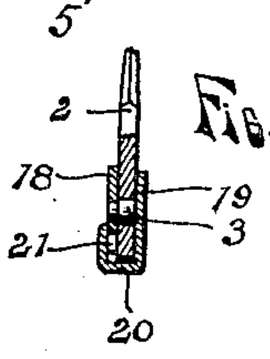


Fig. 9.

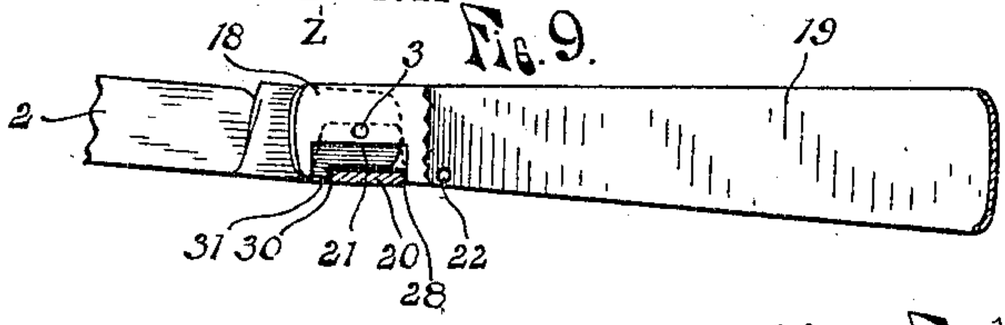


Fig. 10.

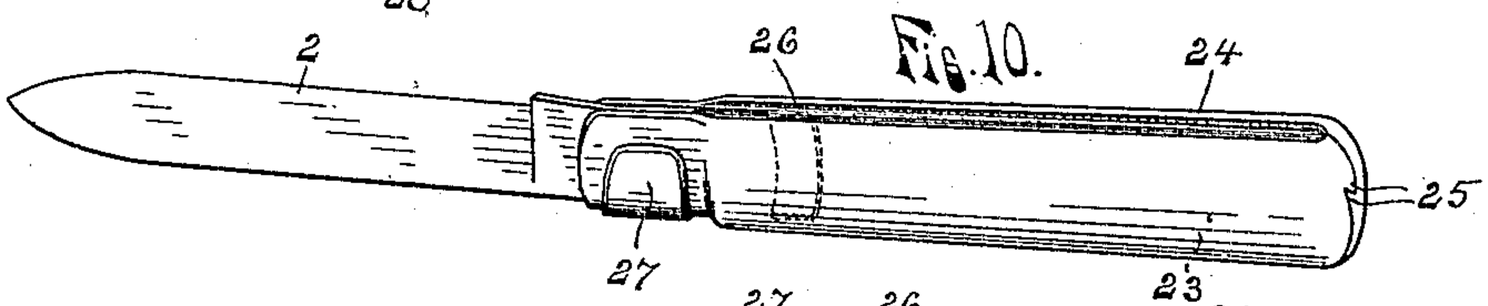
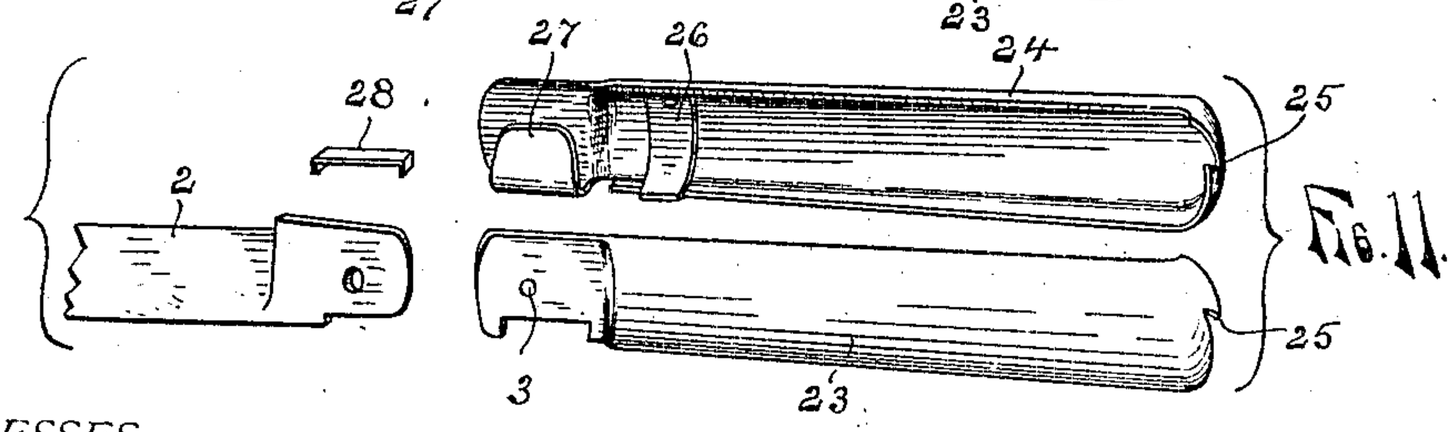


Fig. 11.



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ISRAEL KINNEY, OF PARIS, ONTARIO, CANADA, ASSIGNOR OF ONE-HALF TO DETROIT SAW & TOOL WORKS, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

KNIFE.

No. 837,075. Specification of Letters Patent. Patented Nov. 27, 1906.

Application filed July 31, 1905. Serial No. 271,907.

To all whom it may concern:

Be it known that I, ISRAEL KINNEY, a subject of the King of Great Britain, residing at Paris, in the county of Brant and Province of Ontario, Canada, have invented certain new and useful Improvements in Knives, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in knives, and more especially to improvements in the construction of the knife shown and described in my Letters Patent of the United States for improvements in pocket or other knives, No. 758,142, and dated April 26, 1904.

The object of this invention is to provide a very cheap stamped-metal handle having a minimum number of parts and so constructed that the blade may be quickly and easily detached yet is rigidly held when in place against lateral play, making a very strong and durable construction suitable for surgical and other knives where interchangeable blades are desirable.

It is also an object of the invention to so construct the handle as to form a seamless back and prevent the handle from being spread by the action of the spring therein when a separate spring is used.

To this end the invention consists in pivoting the blade upon a pin carried by one side of the handle, which side is held in place with the blade against the opposite side to prevent its slipping from the pin by an extended portion formed integral with said opposite side and extending across the back into engagement with the outer surface of said side carrying the pin.

The invention also consists in so forming the side carrying the pin that it may be readily disengaged from between the extended portion and the side with which said portion is integrally formed to permit the blade to be slipped from said pin, and, further, in providing certain other new and useful features in the construction, arrangement, and combination of parts, all as hereinafter more fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a double-ended knife embodying the invention; Fig. 2, an edge view of the same with parts broken away; Fig. 3, a transverse section on the line *x x* of Fig. 1; Fig. 4, a similar section on the line *y y* of Fig. 1 and showing a modification of the construction. Fig. 5 is a side elevation of a modified construction and showing one of the fingers or lugs broken away. Fig. 6 is a plan view of the back edge of the same with parts in section. Fig. 7 is a side elevation of a single-bladed knife embodying the simplest form of construction; Fig. 8, a section of the same on the line *z z* of Fig. 7; Fig. 9, a sectional side elevation of the same. Fig. 10 is a perspective view of a knife embodying a still further modified construction, and Fig. 11 a perspective view of the parts of the same disconnected.

The construction illustrated in the first four figures of the drawings shows a handle 1 made in two parts stamped from sheet metal or otherwise suitably formed and blades 2 pivotally attached to said handle by securing a stud or pin 3 to the inner side of the part or side 4 of the handle at each end to engage holes in said blades, said pins projecting a distance equal to or less than the thickness of the tang of the blade, so as not to extend beyond the opposite face of said tang.

The side 5 of the handle is formed with a laterally-extending portion bent to form a solid back 6 for the handle, which at its free edge is turned up a short distance, forming a rib 7, and is also formed with upwardly-turned lugs or fingers 8, one at each end, said rib and fingers being adapted to engage the outer surface of the handle side 4 when said side is placed between the inner face of the fingers and the inner face of said side 5 with its edge engaging the back 6. Intermediate the ends of the handle the side 4 is formed with an inwardly-extending lug 9, and a notch 10 is formed in the opposite side 5 near its edge to receive one end of a flat spring 11, the opposite end of which rests on said lug and exerts a force to hold said side 4 in place with its lower edge pressed firmly against the back and its outer surface against the fingers 8. The space between the fingers and the side 5 is just sufficient to permit the placing between of the side 4 with the blades in place upon the pins 3, and therefore when said side is so placed and held by the spring 11 the blades are prevented from slipping from said pins, but may be readily detached by disengaging the spring.

The tangs of the blades are each formed in the usual manner with a projecting cam or

shoulder 12, and this shoulder when the blade is turned on its pivot engages the back 6 and lifts the side 4, upon which the blade is pivoted, away from the back against the action of the spring 11. Said spring thus exerts a force to hold the blades in their open or closed positions and at the same time to hold the parts of the knife together. The fingers 8 cover the blade-pivots and being formed integral with or riveted to the side 5 prevent the sides from spreading at their ends, preventing lateral play of the blades and greatly strengthening and stiffening the pivots. By making the back a part of the side 5 and forming the same with the rib 7 to engage the outer surface of the side 4 the spreading of the handle intermediate its ends by the force of the spring is prevented and the same made rigid and strong, the rib at the same time forming an ornamental finish.

As shown in Figs. 2 and 3, the back 6 may be formed of a separate piece with ribs 7 and fingers 8 integral with each edge and the back made a part of the side 5 by riveting the fingers and rib at that edge to said side, thus giving both sides the same ornamental appearance. If desired, however, the side 5, back, ribs, and fingers may be stamped from a single sheet of metal, as shown in Fig. 4, the metal of the side 5 being pressed in the dies to give the appearance of the rib and fingers.

The construction shown in Figs. 5 and 6 is the same as that described, except that the back 13 of the handle is divided longitudinally along its center line, an inwardly-turned flange or portion 14 on the side 5 forming one half of said back and a similar flange 15 on the side 4 forming the other half, the lower edge of said side 4 being notched or cut away at 16 near each end to receive the fingers 17, formed integral with said flange 14 and extending across the back and bent upward into engagement with the outer surface of the side 4.

A one-bladed knife embodying the same principle of construction is shown in Figs. 7, 8, and 9. In this construction the handle is formed of a strip of metal bent in the form of a loop or U-shaped, the sides 18 and 19 being connected at the butt-end of the handle. The blade 2 is pivoted upon a stud or pin 3, carried by the side 18 of the handle, the same as in the other constructions described, and its cam-shoulder engages a finger 20, formed integral with the side 19 and extending across the back of the handle and bent upward to engage the outer surface of the side 18 and hold the same from springing away from said side 19, the tendency of the same being to do so on account of the spring action of the U-shaped handle. In the side 18 opposite said finger a notch 21 is cut, which is wider than the width of said fingers, but does not extend inward quite as far as the finger extends upward against said side, and a small hole 22 is provided in the side 19 near the lower edge thereof and adjacent to said finger. When the blade is opened or closed, its cam-shoulder, engaging the finger on the handle side 19, lifts the end of the side 18, upon which the blade is pivoted, out of contact with said finger at its lower edge, putting a torsional strain upon the U-shaped handle, and thus the blade is held in the position to which it is turned by the resistance of the handle to such torsional movement. When the blade is turned to the position shown in Fig. 7, the inner edge of the notch will be very near the upper end of the finger, as shown in dotted lines, and therefore by inserting a suitable tool in the hole 22 and forcing said end still farther upward the finger will pass through the notch and said end be disengaged therefrom, thus permitting the blade to be slipped from its pivot-pin. In this construction the minimum number of parts are employed, no separate spring is required, and the blade may be quickly and easily detached, thus making a very cheap and efficient device.

In Figs. 10 and 11 is shown a one-bladed knife embodying a number of features contained in the other constructions and coöperating in the same manner. The handle is made in halves 23 and 24, formed concavo-convex, provided with meeting flanges at the back and with V-shaped projections 25 at their butt-ends, which are adapted to interlock when the halves are placed together. A flat spring 26 is riveted to the part 24 near its forward end and engaging the flange at the back of the part 23 holds said projections interlocked and also serves as a spring for the blade by holding the side 23 down upon the finger 27, formed integral with the side 24 and operating as described in the other constructions. The blade is quickly removed by separating the interlocking halves of the handle against the action of said spring and slipping the blade from its pin. It may be found desirable to form the handles of soft metal; but as the friction of the cam-shoulder of the blade engaging the soft metal would soon wear it out a wear-plate 28 of very thin hardened steel is placed within the handle upon the inner surface of the finger contacted by said shoulder and its ends turned down to engage the edges of said finger and hold the plate in place. Where the shoulders of the knives contact the back of the handle, as in Fig. 1, a wear-plate of a length to extend the whole length of the back is provided and its ends turned over the ends of said back. In one edge of the finger 20 at the back of the knife is cut a notch 30 to receive the shoulder 31, formed on the blade, and thus strengthen the knife against lateral movement of the blade.

Having thus fully described my invention, what I claim is—

1. In a knife, the combination of a handle

consisting of sides adapted to move relatively edgewise in parallel planes, a blade pivoted to one of said sides and adapted to move said sides relatively when turned upon its pivot, and a finger on one of said sides extending across the edge of the opposite side and thence into contact with the outer surface thereof to prevent the spreading apart of said sides.

2. In a knife, the combination of a handle consisting of sides adapted to move relatively edgewise in parallel planes, a blade pivoted to one of said sides and adapted to move said sides relatively when turned on its pivot, a finger on the opposite side extending across the back of the knife opposite said pivot and thence into contact with the outer surface of the side to which the blade is pivoted to be engaged by said blade and to hold said sides from spreading apart.

3. In a knife, the combination of a handle consisting of sides adapted to move relatively edgewise in parallel planes, a blade pivotally and detachably engaging one of said sides and adapted to move said sides rotatively when turned on its pivot, and a finger carried by the other side and engaging the outer surface of the side pivotally engaged by the blade to detachably hold said blade.

4. In a knife, the combination of a handle side, a finger carried by said side and extending transversely thereof at a distance therefrom, a handle side removably engaging the inner surface of said finger and movable laterally, a pivot-pin on the removable side, a blade pivoted on said pin between said sides and adapted to be disengaged from the pin when the removable side is detached, and means for yieldingly holding said removable side in contact with said finger.

5. In a knife, the combination of a handle side, a finger on one end of said side extending transversely thereof and parallel with its inner surface at a distance therefrom, a handle side adapted to engage at one end the inner surface of said finger and provided with a notch in one edge opposite said finger to permit the passage of said finger therethrough when said side is raised, yielding means adapted to resist the raising of said side relative to the finger, and a blade pivotally attached to said side and adapted to raise the same when turned on its pivot.

6. In a knife, the combination of a handle consisting of sides adapted to move relative to each other edgewise in parallel planes, a blade pivotally attached to one side, means on the opposite side adapted to be engaged by the blade when turned and move said sides relatively, and a wear-plate interposed between said means and blade to take the frictional wear.

7. In a knife, the combination of a handle consisting of independently-movable sides, blades pivotally attached to the ends of one of said sides, a back portion on one side extending across the back of the handle, fingers on the free edge of said back extending upward in contact with the outer surface of the side to which the blades are pivoted, a rib on said back engaging said surface, a lug on said side extending inward therefrom, and a spring engaging said lug at one end and the opposite side at its opposite end.

8. In a knife, the combination of a handle consisting of independently-movable sides, a pivot-pin on one of said sides at each end, a blade detachably engaging each of said pins, a back portion secured to the other side, a finger at each end of said back extending upward in contact with the outer surface of the side to which the blades are pivoted, a rib on said back also engaging said surface, a lug extending inward from one edge of the side to which the blades are pivoted intermediate the ends thereof, and a flat spring engaging said lug at one end and a notch in the opposite handle side to normally hold the side carrying the blades, in contact with said fingers and back.

In testimony whereof I affix my signature in presence of two witnesses.

ISRAEL KINNEY.

Witnesses:

OTTO F. BARTHEL,

THOS. G. LONGSTAFF.