

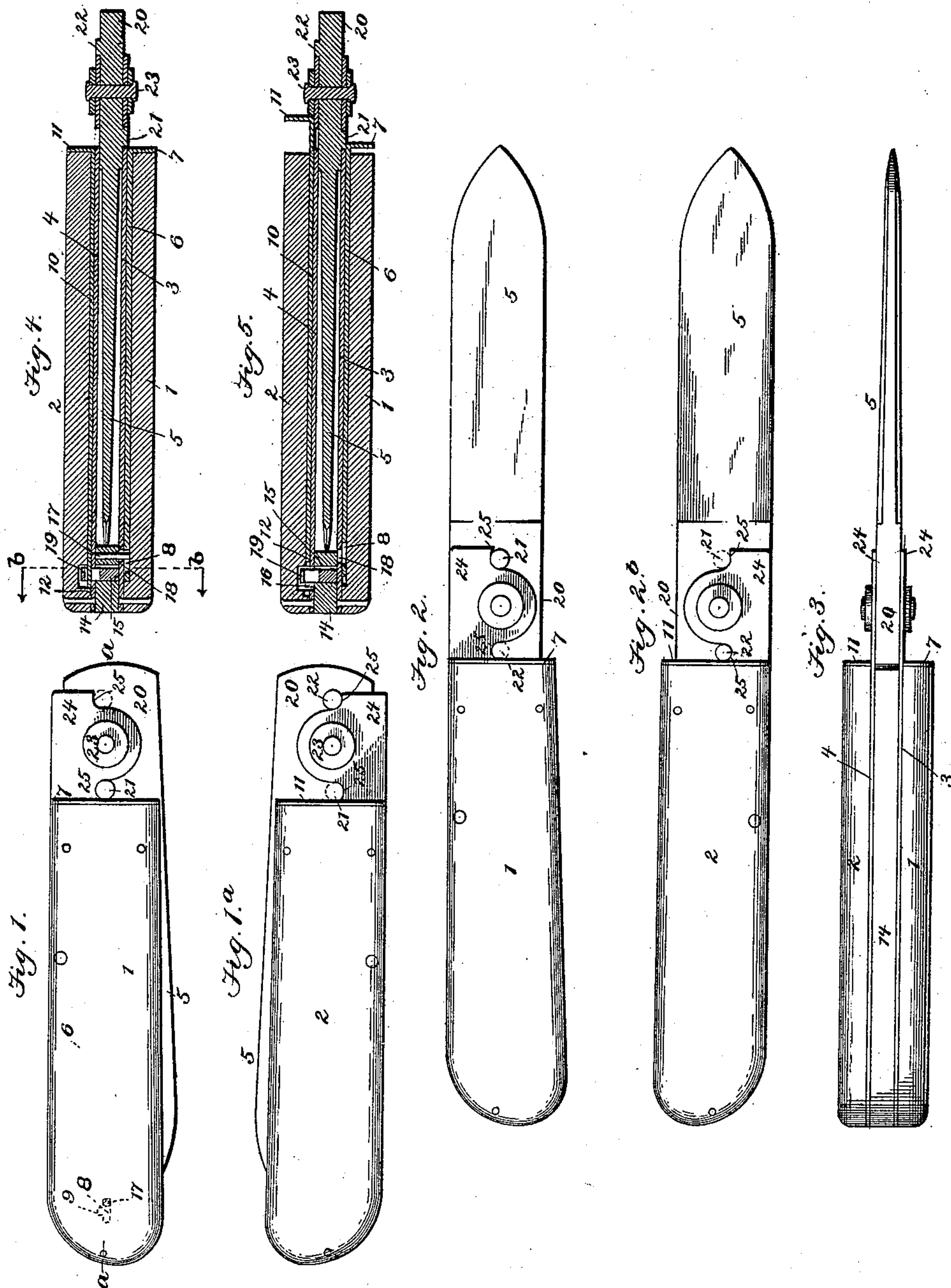
(No Model.)

2 Sheets—Sheet 1.

J. TOLLEFSON.
POCKET KNIFE.

No. 464,681.

Patented Dec. 8, 1891.



Witnesses
Philip F. Larner,
Howell Battle

Inventor
Jefferson Tollefson
By Johnson & Johnson
His Attorneys.

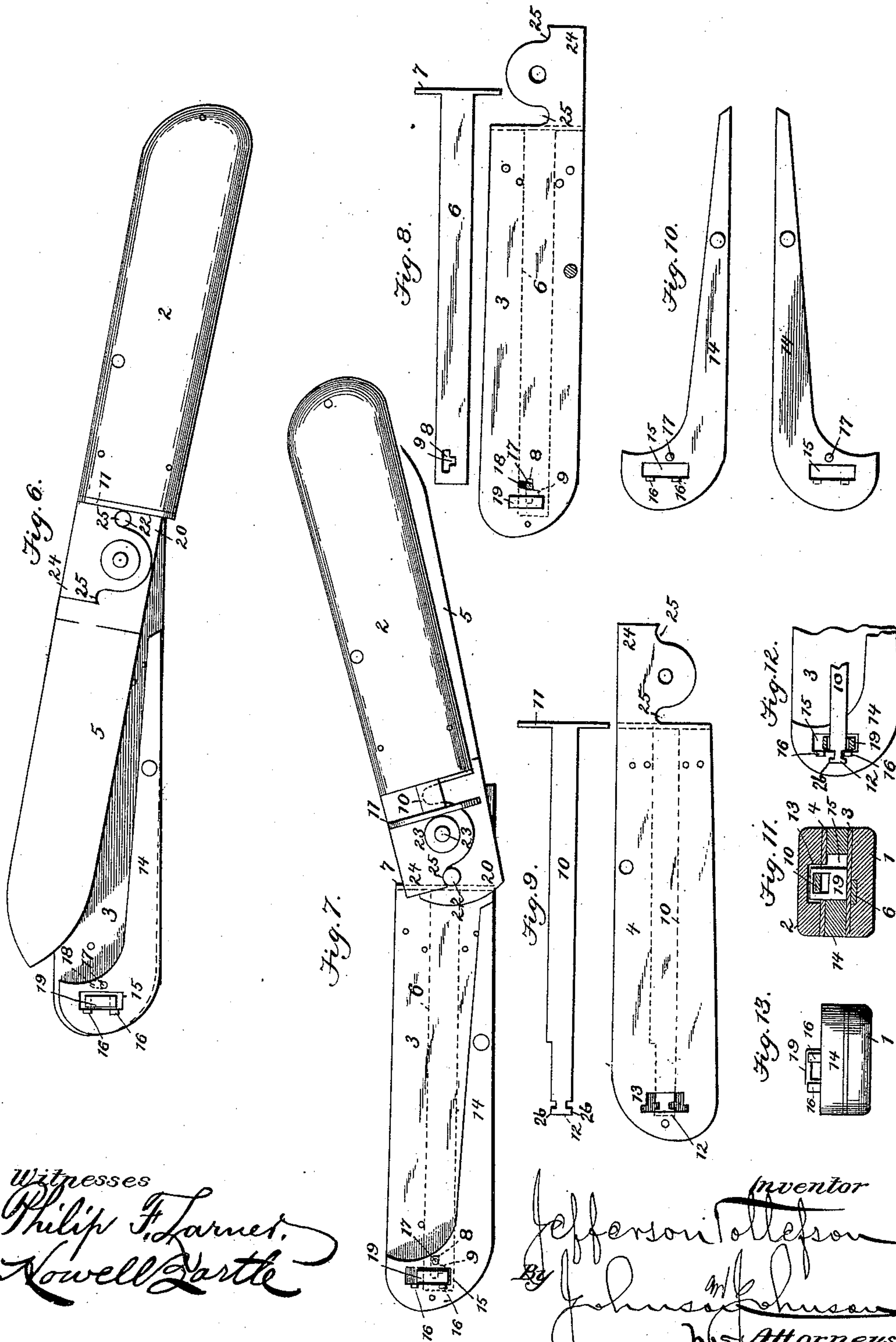
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UNITED STATES PATENT OFFICE.

JEFFERSON TOLLEFSON, OF ST. ANSGAR, IOWA.

POCKET-KNIFE.

SPECIFICATION forming part of Letters Patent No. 464,681, dated December 8, 1891.

Application filed August 11, 1891. Serial No. 402,359. (No model.)

To all whom it may concern:

Be it known that I, JEFFERSON TOLLEFSON, a citizen of the United States, residing at St. Ansgar, in the county of Mitchell and State of Iowa, have invented a new and useful Improvement in a Locking Pocket-Knife, of which the following is a specification.

I have produced a pocket-knife wherein the blade is both opened and closed by means of the handle side or sides thereof, wherein the blade is locked in its open and in its closed position to the handle, and wherein such locking provisions are difficult to ascertain by persons not acquainted with the concealed mechanism, and wherein the manipulation of such provisions for opening and for locking the blade open are reversed for closing and for locking the blade closed.

One of the objects of my invention is to dispense with the use of a back-spring or of any spring for securing the blade either in its open or in its closed position in the handle; and in such object I provide a substitute for such back-spring having, in connection with handle sides, the character of concealed locking devices arranged for manipulation by combination movements of handle parts which appear to be fixtures therewith, the key to which is a certain order and extent of such movements.

My invention consists of certain novel parts and combination of parts, the several features of which will be separately and specifically pointed out in the claims concluding this specification. Before specifying such claims I will describe the knife, which is illustrated in the annexed drawings, showing a structure embodying the several features of my said invention in combination and as applied to one form of device and that one which is at present preferred by me.

Referring to the drawings, Figure 1 is a side view of the knife closed and its blade locked. Fig. 1^a is a similar view of the opposite side. Fig. 2 is a similar view, the blade being open and locked. Fig. 2^b is a similar view of the opposite side. Fig. 3 is a back view of the same. Fig. 4 is a longitudinal section on the line *a* of Fig. 1, showing the devices which lock the blade and the handle in their locked position. Fig. 5 is a similar view, the devices

which lock the blade being in their unlocked position. Fig. 6 shows one side of the handle open and partially opening the blade. Fig. 7 shows a similar view, the handle being in the position when partially closing the blade. Fig. 8 is an inside view of one side of the handle, showing its locking-slide in full and in dotted lines. Fig. 9 is a similar view of the other side of the handle, showing its locking-slide in full and in dotted lines; and Fig. 10 shows the back-lever (on its two sides) that is pivoted to one side of the handle and forms an element of the locking devices, and Fig. 11 is a cross-section on the line *b* of Fig. 4. Fig. 12 is a detail showing the slide 10 in locking position with the keeper 19 and the lever 14; and Fig. 13 shows an end view of the handle part 1, the lever 14, and the lock for the slide.

In the drawings I have shown my invention as applied to what is known as a "jack-knife;" but it is obvious it may be applied to other forms and constructions of knives and to things other than knives, wherein a secret lock for a cover or lid or drawer would be desirable.

1 and 2 are the handle sides, which may be made of any suitable material, and each has a riveted inner side facing-plate 3 and 4, which extend beyond the handles at corresponding ends thereof, and to and between which projecting ends the knife-blade 5 is pivotally riveted so as to swing independently of and with the handle sides in opening and in closing the blade. Under the facing-plate 3 of the handle side 1 is fitted a slide-plate 6, having an end right-angle plate 7, which forms a facing for the end of said handle side, the other end of said slide 6 extending to the opposite end of the handle and has a longitudinal slot 8, one side whereof has a notch or intersecting slot 9, for a purpose to be presently stated.

Under the facing-plate 4 of the handle side 2 is fitted a slide-plate 10, which has a right-angled end plate 11, which forms a facing for the end of the handle side. The other end of said slide, extending to the opposite end of the handle, terminates in a T-shaped end 12, whereat the facing-plate 4 has a cross-slot 13, approximating in form the letter T and wider and longer than the T end of said slide, for a purpose to be presently stated.

In the position occupied by the back-spring of a pocket-knife I pivot a lever 14 near that end nearest the pivoted end of the blade, its other end conforming to and closing the space
 5 between the non-pivoted ends of the handle sides and having, preferably, a cross-slot 15, at one edge of which, preferably the outer edge, rises two spurs or projections 16 at or near the ends of the slot. That side of this
 10 lever which joins the facing-plate 3 has a pin 17 near its slot 15, which, passing into and through a slot 18 in said facing-plate 3, engages the slide-slot 8, while a keeper-like part 19, projecting from said plate, passes into and
 15 through the cross-slot 15 in the lever and into and through the cross-slot 13 of the facing-plate 4 for engagement with the T end 12 of the slide-plate 10, for a purpose and in a manner which I will presently explain.

20 The thickness of the lever 14 and of the shank 20 of the blade are equal to permit the handle side 2, not attached to the lever, to have a close joining on the latter when closed with it, as in Fig. 3. The shank 20 of the
 25 blade has two short studs, one 21 on one side and the other 22 on its other side, and arranged one on one side of the pivot-rivet 23 of the blade and one on the other side thereof in the length of the blade, and the pri-
 30 mary object of these studs is to engage, respectively, the projecting ends 24 of the facing-plates 3 and 4, which ends are for that purpose formed with stops or recesses 25, and thereby form a lock to hold the blade open when the
 35 handle sides are closed, as in Fig. 2, wherein the stud 21 prevents the blade from being turned back, and the stud 22 in Fig. 2^b prevents the blade from being closed. When the blade is closed, the positions of these
 40 studs are reversed, and the outer one 22 prevents the blade from being opened, as in Fig. 1^a, and for this purpose the ends of the facing-plates have identical stops or recesses 25 on opposite sides of the pivot-rivet. This
 45 construction adapts the stud 21 to limit the opening of the blade, as in Fig. 2, and to limit the closing of the blade, as in Fig. 1, and so serve as a stop to prevent its edge from contact with the back-lever, which would other-
 50 wise occur in closing the blade, as in Figs. 1^a and 7.

In the closed position of the knife the slide-plate 6, by its slotted engagement with the
 55 pin 17 of the lever, locks the latter in line with the back of the knife, as in Fig. 7, in which position the pin 17 will stand in the longitudinal part of the slot 8 at one side of the transverse slot 9 thereof, and the said slide 6 will be in its normal or closed position.
 60 (Seen in Fig. 1.) The other slide-plate 10 will, by its T-shaped end 12, be engaged with the slot of the keeper 19, and thereby lock the two handle sides together, because this keeper projects from the facing-plate 3 into the
 65 cross-slot 13 of the facing-plate 4 and across the path of said slide 10, so that its T end 12

stands within the keeper 19 and is locked in such position by the engagement of one of the spurs 16 of the lever with one of the arms
 70 26 of the T-shaped end of said slide, as shown in Fig. 12. For this purpose the arms 26 of the said T end extend through and beyond the keeper, so that the spurs 16 will stand between the keeper and the said T-
 75 arms, and the lever, being in its normal position, will lock the slide-plate 10 within the keeper, and thereby lock the handle side 2 to the handle side 1, and this locking function of the parts is identical whether the blade be
 80 opened or closed.

To open the knife, the slide 6 of the handle side 1 is slightly drawn out by applying the thumb-nail to the end facing-plate 7 of said slide. This movement brings the cross-
 85 slot 9 in the slide opposite to or coincident with the pin 17 of the lever 14; but if this slide is drawn a little too far or not far enough for such coincidence, then the further order in the movements is stopped. This slide being moved the exact distance, the lever is un-
 90 locked and its spurred end is free to be moved out, as in Fig. 6, because its pin 17 will then be in position to enter the said side slot. This movement of the lever, if within cer-
 95 tain limits, unlocks the slide 10 of the handle side 2; but if the lever is moved too far out or not far enough, then the further order in the movements is stopped, because unless the exact movement of the lever is made one or the other of its spurs 16 will catch
 100 on one or the other of the arms 26 of the T end of the slide 10 and bar its withdrawal from the keeper. The exact movement of the lever having been made, the passage or space between the spurs 16 will stand, so as
 105 to let the T end 12 of the slide pass between them and out of the keeper and thereby unlock the slide 10 and permit its handle-carrying part 2 to be raised to free it of the keeper 19. This movement of the lever is effected
 110 by applying pressure preferably to the back of the lever at its short end, next the pivot-rivet of the blade. The handle side 2 being thus unlocked is swung around on its pivot 23 away from the back through an arc of half
 115 a revolution, bringing the recess 25 in its facing-plate 4 against the stud 22 on the blade-shank, when, continuing the movement of the handle side to complete the circle, it acts like a lever to open the blade, bringing the
 120 stud 21 on its other side in the recess 25 of the other facing-plate 3, and the handle sides and blade in alignment and in position to be again engaged with the keeper, from which it had been unlocked, as in Fig. 2^b. The blade
 125 is then locked in its open position by pressing in the short end of the lever to bring the space or passage between its spurs exactly in alignment with the arms 26 of the T end of the slide 10, then pressing in and closing the
 130 latter to engage its end with the keeper 19; then pressing in the slotted end of the lever

to carry its spurs 16 behind the arms 26 of the T end of the said slide, and finally press in and close the slide 6 to carry its cross-slot 9 from opposite the pin 17 in the lever, and thereby lock the latter to its handle side.

To close the blade, draw out the slide 6, press in the short lever end and draw out the slide 10, raise the handle side 1 to disengage it from keeper 19, and swing it around from the back, bringing its recess 25 in engagement with the stud 22, which thereby carries the blade to its closed position with the handle, which latter is engaged with the keeper and locked by the same order of movements of the lever and the slides as in locking the blade in open position.

From the foregoing description it will be seen that the blade, by the location of its studs, is locked to the handle-side plates, so that the blade cannot be opened when closed or closed when open without first unlocking one of the handle sides; that the slide 6 locks and unlocks the lever; that the lever locks and unlocks the other slide 10, and that the latter locks and unlocks the handle sides, and it will be understood that in opening or in closing the blade the handle sides are both free to be swung independently of and with the blade. It will also be understood that the withdrawing movement of the slide 6 must be within a precise limit to effect its unlocking function, and that for this purpose the said slide 6 is free to be moved short of or beyond such limit, and thereby render it difficult to find the precise limit. It will also be observed that the movements of the lever must be within certain precise limits to effect both its locking and unlocking functions, and that for this purpose the said lever is free to be moved short of or beyond such limit and thereby render it difficult to find the precise limit to permit the slide 10 to be drawn out of its keeper to unlock the handle sides, and finally it must be observed that such precise adjustment of the lever is required to permit the said slide 10 to be engaged with its keeper to lock the handle sides.

Referring more particularly to the locking functions of the lever and of the slide 10, it will be seen that when the end 12 of the latter is engaged with the keeper and the handle side 2 is thereby prevented from being raised or from having any sidewise movement, because the width of the slide at this point is just sufficient to allow it to enter the keeper, while between this end 12 and the arms 26 of the T end the slide has the least width, and it is on each side of this narrow part that the spurs of the lever are free to be moved sidewise when the lever is unlocked. As the space between the spurs is equal to the opening in the keeper and a little greater than the width between the T-arms, the latter can be readily moved into and through said keeper when the space between the spurs and the keeper are exactly coincident. The move-

ment of the lever, however, in or out interrupts this coincidence so as to cause one or the other of the spurs to be intervened between the keeper and one or the other of the arms of the T end and thereby form a bar or obstruction to the withdrawal of the said slide. These movements of the lever are, therefore, intended to be of sufficient extent to cause the spurs to interrupt such coincidence and thereby make it difficult to move the lever to the exact extent to effect such coincidence. So in like manner is it made difficult to move the T-arms through the keeper, for in such movement of the slide its T-arms will abut against the spurs of the lever if they should be the least out of coincidence with the keeper-opening, so that the same device which forms a bar to the withdrawal of the slide in its unlocking functions forms also a bar to the closing of the said slide in its locking function.

I have stated that the lever has a cross-slot for engagement with the keeper; but it is obvious that the slot is not necessary.

Referring more particularly to the function of the slide 6, it will be seen that when in its closed position and when in its withdrawn position the lever-pin will be within the slot 8 and the lever thereby locked, and that it is between these limits that the slide must be moved to a point unseen to bring the lever-pin opposite to the intersecting slot to unlock the lever.

Without limiting myself to the precise construction and arrangement of parts, I claim—

1. In a pocket-knife, the combination, with the blade, of the handle sides pivoted thereto, a longitudinally-arranged slide device in each handle side, a keeper in one of said handle sides, a lever pivotally connected with that handle side on which is said keeper and having provision for adjustably engaging its slide device, and a laterally-adjustable spur device carried by said lever for locking and unlocking the slide of the keeper engaging handle side within said keeper in the way described.

2. In a pocket-knife, the combination, with the blade and the handle sides pivoted thereto, of a lever pivotally connected to one of said handle sides, forming the back of the knife, having spurs on one side and a pin on the other side, a slide 6 in said lever-connected handle side having a slot for engaging said lever-pin, and a slide 10 in the other handle side for engaging the keeper on the pivotally-connected handle side and the spurs of the lever, for operation substantially as described.

3. In a pocket-knife, the combination, with the blade and the handle sides pivotally connected therewith, of a lever 14, forming the back of the knife, pivotally connected to one side thereof, having a cross-slot 15 engaging a keeper 19 rising from this handle side, and having spurs 16 16 at or near said slot, a slide

6 in this handle side having slots 8 and 9 adapted to engage a pin 17 on said lever, and a slide 10 in the other handle side adapted to engage the said keeper and the said spurs on the lever, for operation in the way stated.

4. In a pocket-knife, the combination, with the blade and the handle sides pivotally connected thereto, of a lever 14, pivotally connected to one of said handle sides, having a cross-slot 15, supplemented by spurs 16 16 and engaging a keeper 19 rising from this handle side, the other handle side having a slot 13 coincident with and adapted to receive said keeper, and a slide 10, having a T end adapted to engage said keeper and the spurs of the lever, in the way and for the purpose stated.

5. In a pocket-knife, the following elements in combination: a blade, the handle sides pivoted thereto, a lock for the blade, a lever forming the back of the knife and pivotally connected to one of its handle sides, a locking and unlocking device for said lever carried by its pivotally-connected side, and a device carried by the other handle side for locking and unlocking it with the said lever

and its pivotally-connected handle sides, substantially as described.

6. In a pocket-knife, the combination, with the blade, of a handle side pivoted thereto, having a slide 6 longitudinally movable therein, and having a keeper 19 projecting from its inner side at the non-pivoted end, a lever 14, pivoted to said handle side, having spurs 16 16 or projections adapted to obstruct the opening in said keeper, a suitable connection between said lever and slide whereby said lever and spurs are controlled, a pivoted handle side having a slot 13 to receive said keeper, and a longitudinally-movable slide 10, having a head or end adapted to engage said keeper and obstruction when the lever is moved in one way and to be released when moved in the other way, for the purpose stated.

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

JEFFERSON TOLLEFSON.

Witnesses:

WILLIAM W. GETTS,
LEONARD ROSEL.