March 12, 1935. H. F. KEIL 1,994,428

WINDOW LOCK AND METHOD FOR MAKING THE SAME

Filed Aug. 11, 1931 3 Sheets-Sheet 1

Fig. 1.

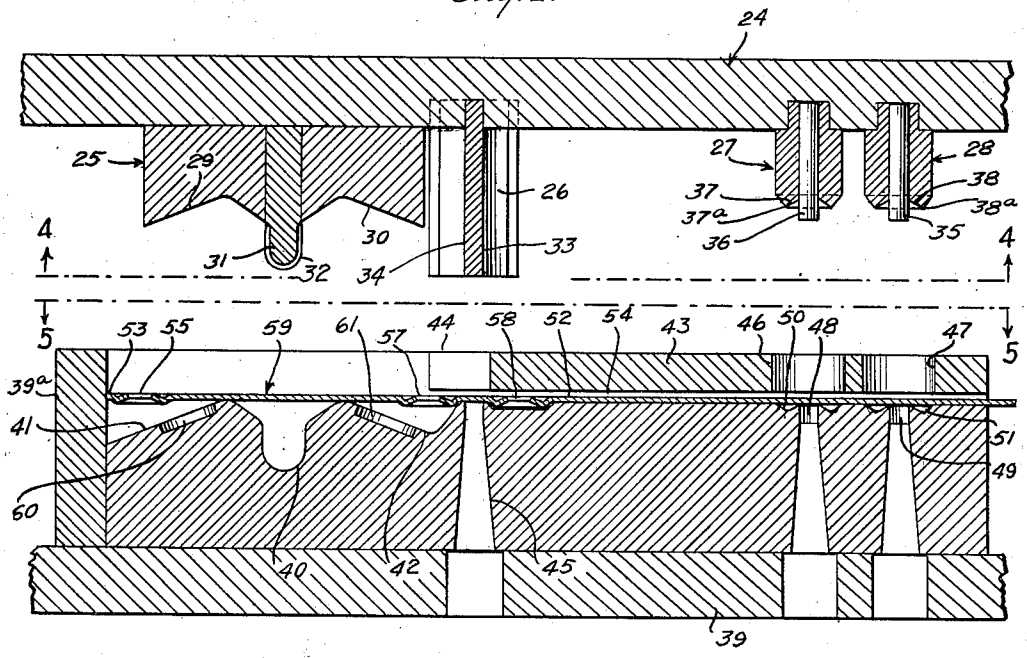
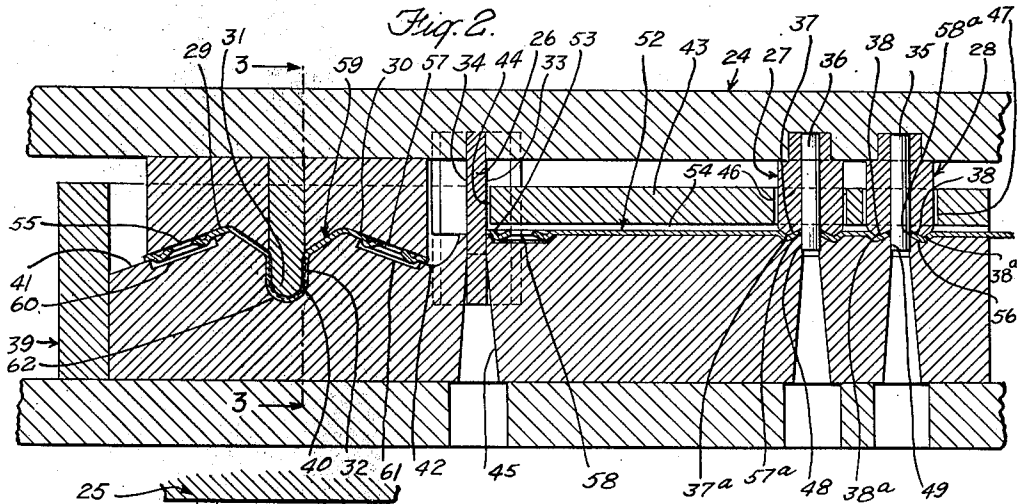


Fig. 2.



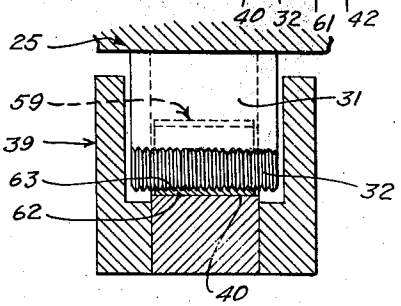


Fig. 3.

Henry F. Keil
INVENTOR

BY his ATTORNEYS
Janney, Blair Curtis

March 12, 1935. H. F. KEIL 1,994,428

WINDOW LOCK AND METHOD FOR MAKING THE SAME

Filed Aug. 11, 1931 3 Sheets-Sheet 2

Fig. 4.

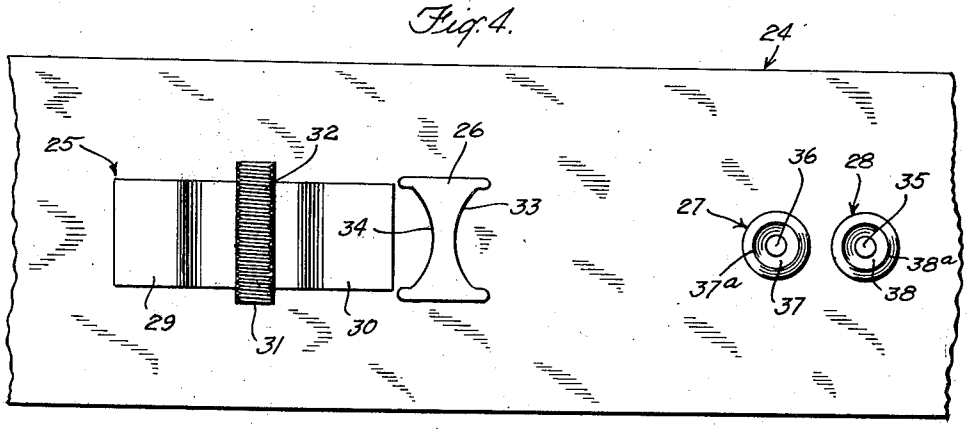


Fig. 5.

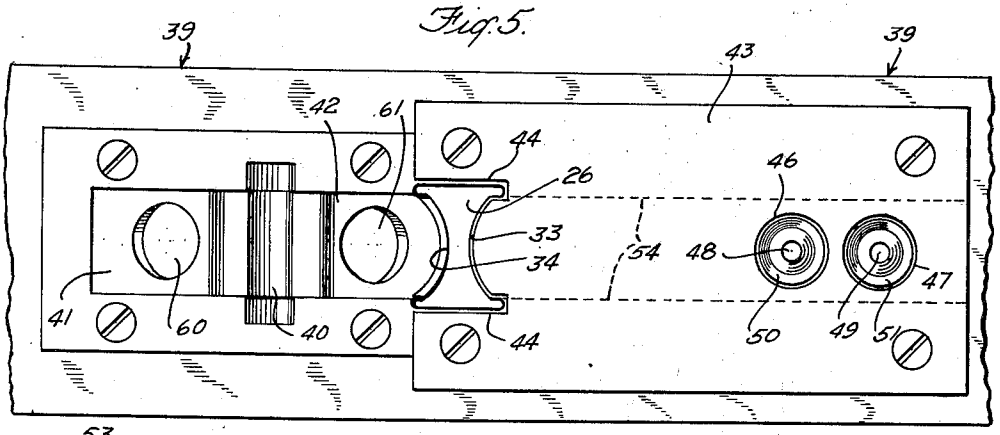


Fig. 6.

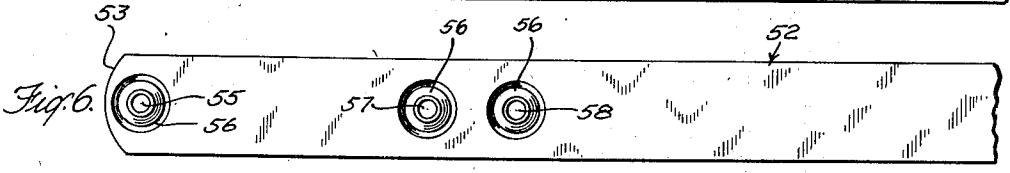
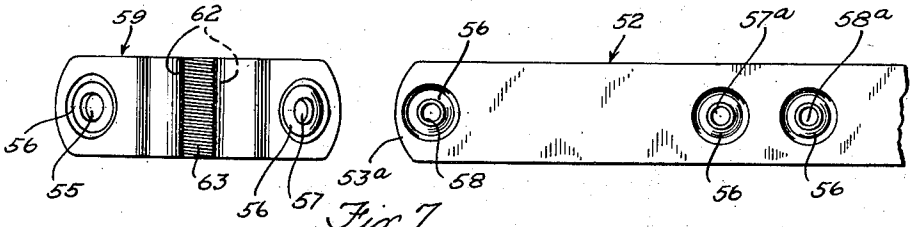


Fig. 7.



Henry F. Keil
INVENTOR

BY his ATTORNEYS
Janney, Blair & Curtis

March 12, 1935. H. F. KEIL 1,994,428

WINDOW LOCK AND METHOD FOR MAKING THE SAME

Filed Aug. 11, 1931 3 Sheets-Sheet 3

Fig. 8.

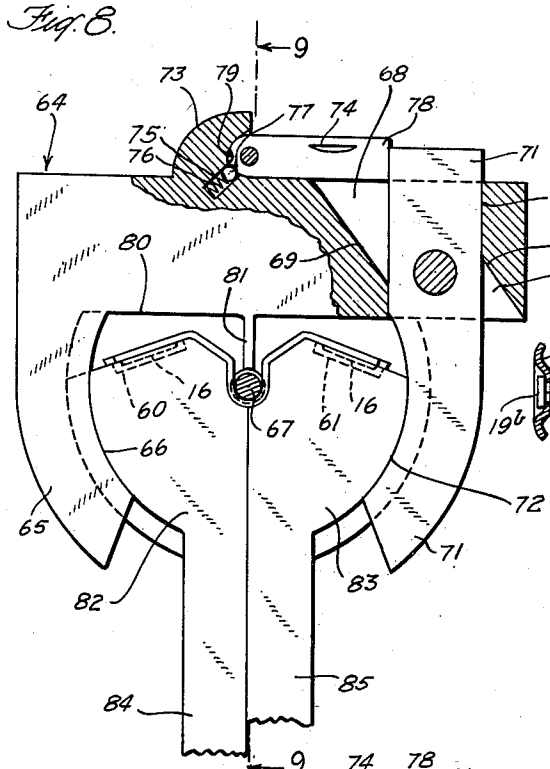
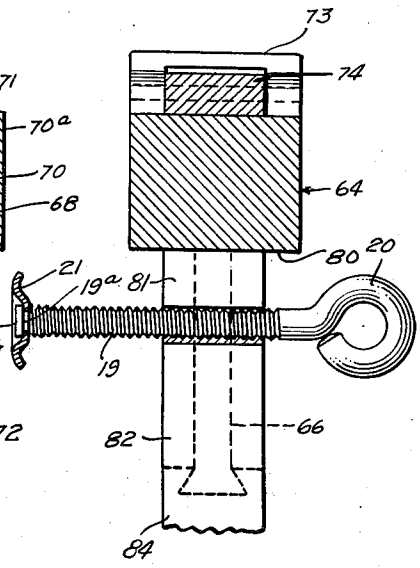


Fig. 9.



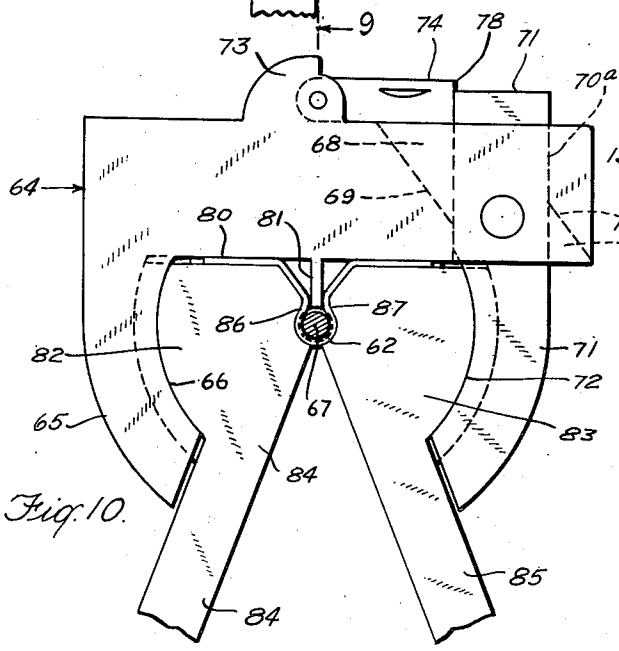
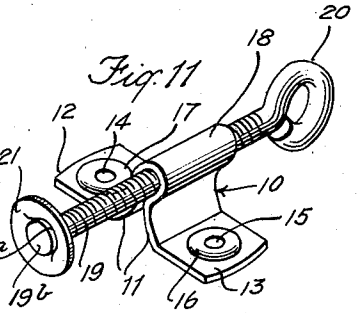


Fig. 10.

Fig. 11



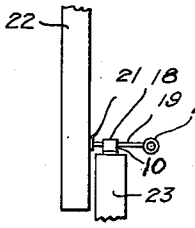


Fig. 12.

Henry F. Keil
INVENTOR

BY his ATTORNEYS
Jamieson, Blair & Curtis

Patented Mar. 12, 1935 1,994,428

UNITED STATES PATENT OFFICE

1,994,428

WINDOW LOCK AND METHOD FOR MAKING THE SAME

Henry F. Keil, Scarsdale, N. Y., assignor to Francis Keil & Son, Inc., a corporation of New York

Application August 11, 1931, Serial No. 556,364

25 Claims. (Cl. 29—148)

This invention relates to a window lock and a method of making the same.

One of the objects of this invention is to provide a device of the above character which will be of simple and thoroughly practical construction. Another object of this invention is to provide a device of the above character which will be durable and dependable in operation. Another object of this invention is to provide a device of the above character which will be of inexpensive and ready manufacture and which may be easily and inexpensively installed. Another object of this invention is to provide a practical and inexpensive method of constructing a device of the above character. Another object of this invention is to provide a thoroughly efficient method of producing a device of the above character which will reduce labor to a minimum and in which the parts may be assembled in a rapid, convenient and desirable manner. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements, arrangements of parts and in the several steps and relation and order of each of the same to one or more of the others, all as will be illustratively described herein, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which are shown a preferred form of the mechanical features of my invention,

Figure 1 is a central vertical and longitudinal sectional view of a punch and die apparatus in open position, with the raw material inserted therein ready for operation thereon,

Figure 2 is a similar sectional view of the same parts shown in Figure 1 in their closed or operated position,

Figure 3 is a transverse sectional view taken along the line 3—3 of Figure 2,

Figure 4 is a bottom plan view of the punch shown in Figure 1, looking upwardly along the line 4—4 of Figure 1,

Figure 5 is a top plan view of the die shown in Figure 1, looking downwardly along the line 5—5 of Figure 1,

Figure 6 is a top plan view of strap metal raw material at one stage of my process,

Figure 7 is a top plan view of the raw material of Figure 6 after completion of another step of my method,

Figure 8 is a front elevation of a tool or mechanism used in another step of my method,

Figure 9 is a vertical cross-section of the mechanism shown in Figure 8, taken along the line 9—9 of Figure 8,

Figure 10 is a front elevation of the mechanism of Figure 8 in a subsequent operative position,

Figure 11 is a perspective view of my window lock as completed, and,

Figure 12 is a diagrammatic view showing the position my lock occupies when installed and operated.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now first to Figure 11, there is shown a V-shaped strip 10 having formed integrally therewith upon the opposite sides of its legs 11, two outwardly extending flanges 12 and 13. Holes 14 and 15 extend through flanges 12 and 13 and these holes are preferably countersunk as at 16 and 17. The bottom V-shaped part 10, or the top thereof as shown in Figure 11, is formed into a substantially cylindrical interiorly threaded channel 18 with which a thumb screw 19 is in threaded engagement. Any convenient means may be provided for turning screw 19 as, for example, an eye 20 at one end thereof. An abutting member 21 is rotatably secured to the other end of screw 19 in any convenient manner, as by heading over a reduced portion 19^a of the screw 19 as at 19^b (better shown in Figure 9). If screw 19 is rotated, abutting member 21 travels relative to part 18 in a direction depending upon the direction in which screw 19 is threaded.

In Figure 12, I have shown one of the various possible ways of mounting my lock upon a window sash. Thus sashes 22 and 23 are of common window construction and may slide upwardly and downwardly relative to each other. As here shown, the lock is mounted upon the top of bottom sash 23, this being easily accomplished by securing flanges 13 and 12 to the sash in any convenient manner as by means of screws passing through holes 14 and 15. The lock is so positioned that abutting member 21 adjoins and is in registry with one side of sash 22. When abutting member 21 is out of engagement with sash 22, the two sashes may be moved relative to each other until the desired position thereof is reached. Subsequently, by rotating screw 19 and forcing abutting member 21 against sash 22, a suitable and thoroughly dependable jamming of the two sashes in the window frame is achieved, thus preventing further movement of the sashes or

either of them in either direction until screw 19 is loosened.

As conducive to a clearer understanding of certain features of this invention, it might be well to point out that considerable difficulty and inconvenience has been experienced in the past in manufacturing an article of this general character. As is past practice in manufacturing such an article, there is provided first a base that is cast, drilled, tapped, and then the screw, which is quite long, is threaded therethrough, requiring much time and labor. In order to thread the screw through the base, the abutting member cannot be connected thereto until after the completion of this tedious operation. After the screw is threaded through the base, the partially completed article is unwieldy and difficult to handle while the abutting member is being secured to the screw. Special and cumbersome tools may prove necessary to hold the combined base and screw while this operation ensues, thus entailing extra labor and inconvenience. One of the various objects of this invention is to provide a method in which the above-mentioned difficulties as well as many others are successfully avoided.

Turning now to Figure 1, there is shown a punch support 24 having secured to the bottom side thereof a punch part 25, a knife or shear member 26 and two punches 27 and 28. Part 25 has two re-entrant or concave-like surfaces 29 and 30 on the bottom thereof culminating in a semi-cylindrical section 31 extending below the lowest portions of surfaces 29 and 30. As is more clearly shown in Figure 4, section 31 has formed upon its cylindrical surface a series of threads 32. Still referring to Figure 4, knife member 26 has concave sides or cutting edges 33 and 34. Thus, if knife member 26 should be forced upon and through a suitably supported metallic strip, it would cut such a strip in sections having curved or rounded ends conforming to cutting or shearing walls 33 and 34 thereof.

Turning back to Figure 1, punches 27 and 28 have round or cylindrical sections 35 and 36 preferably extending below the main body thereof. As best shown in Figures 1 and 4, the bottom sides of the main body portions of punches 27 and 28 have formed therein concave indentations 37 and 38 respectively and adjoining sections 36 and 35 respectively. Thus annular ridges 37^a and 38^a are formed upon the bottoms of punches 27 and 28 adjacent to but spaced from punch sections 36 and 35. If punches 27 and 28 are forced against a suitably supported metal strip, sections 36 and 35 would pierce holes in such strip and, if further pressure is applied, indentations 37 and 38 would form countersinks adjoining and about these holes on the opposite sides of the strip.

Still referring to Figure 1, there is shown a die member 39 shaped to coact with punch member 24. Immediately below part 25 and more particularly below section 31 thereof there is formed in the die 39 a substantially half-cylindrical recess 40 corresponding in shape to section 31. Immediately adjoining recess 40 and in substantial registry with concave faces 29 and 30 of the punch part 25 are two walls 41 and 42 likewise corresponding in shape to and adapted to mate with faces 29 and 30.

Over the top of die 39, and sufficiently spaced therefrom as will be described hereinafter, is a plate-like holding part 43 in the left hand end of which is a recess 44 as is better shown in Figures 1 and 5. Recess 44 is in substantial registry with and directly beneath shear member 26 and also conforms in shape and size thereto. Directly below recess 44, there is a recess 45 in die 39 corresponding, at its upper end, exactly in shape and size to shear member 26. Thus shear member may pass freely through opening 44 in the upper part 43 and directly into the recess 45 with which it thus mates.

Two apertures 46 and 47 extend through part 43 near the right hand end therof and directly beneath punches 27 and 28 so that the latter may pass through part 43. Directly beneath apertures 46 and 47 there are formed two apertures 48 and 49 in die 39 into which punch members 36 and 35 respectively may pass. Adjoining the sides of apertures 46 and 47 are two annular grooves 50 and 51 formed in die 39 for registry or mating with ridges 37^a and 38^a of punches 27 and 28.

Die member 39 is preferably secured to a suitable table in proper alignment with the various above described parts mounted upon the bottom of punch member 24, which punch is secured to any suitable pressure exerting means (not shown) adapted to move it downwardly relative to die 39 and then to retract it. Thus, when mounted in a suitable machine, punch member 24 and the various parts mounted thereon may be forced into interengagement with the corresponding parts or indentations and recesses in die members 39, all as described above. With this apparatus I perform certain steps of my method.

I provide a suitable length of suitably hard or rigid sheet metal strip 52 preferably of the shape and size shown in Figure 6; it is preferably of so-called strap metal and is preferably of steel or hard brass. Part 43 is channeled along its under face and is sufficiently spaced from die 39 so that there is formed therebetween a channel 54 along which strip 52 may be fed in a left-hand direction as viewed in Figures 1, 2 and 5. To start my process, I insert one end of strip 52 into channel 54 so that an end portion of the strip underlies aperture 47 in part 43. Punch 24 is then released or moved downwardly so that it assumes the position shown in Figure 2. Section 35 of punch 28 pierces strip 52 to form a hole 55 and ridge 38^a thereof forms a countersink 56 therein (see Figure 6).

Next, punch 24 rises and strip 52 is fed along channel 54 until its end lies substantially beyond the right hand wall of recess 44 in part 43 (Figures 1, 2 and 5). As strip 52 reaches this position, punch 24 again moves to its closed position, as illustrated in Figure 2, shear member 26 cutting off the end as at 53 in Figure 6 and punch members 27 and 28 forming a pair of countersunk holes 57 and 58 in strip 52 as is more clearly shown in Figure 6. Punch member 24 again moves upwardly to permit strip 52 to be fed to the left until end 53 thereof rests against wall 39^a of die 39 (see Figure 1). It should be noted that, as strip 52 reaches this position, the portion thereof which lies above surfaces 41 and 42 and recess 40 on die member 39, already contains holes counter-sunk 55 and 57 adjacent its opposite ends. Furthermore, hole 57 lies to the left of shear member 26 and hole 58 lies to the right thereof, as is well shown in Figure 1. Also, as strip 52 has been fed into this position, a new section or portion of strip has entered channel 54 so that a blank portion thereof lies beneath recesses 46 and 47 of part 43 and in position to be operated upon by punches 27 and 28.

Punch member 24 is now again brought down

to the position shown in Figure 2 and consequently shear member 25 severs the forward (or left-hand) portion of strip 52 or that portion lying over surfaces 41, 42 and recess 40 of die member 39. Thus, an individual piece, generally indicated at 59, of strip 52 is formed, the right hand end of which is rounded the same as is end 53 thereof, due to the contour of wall 34 of shear member 26 (Figures 4, 5 and 6). At the same time section 31 of part 25 forces a middle portion of piece 59 into recess 40 of die member 39 and consequently draws the opposite ends thereof inwardly toward the center, as shown in Figure 2, forming a U-shaped or semi-cylindrical intermediate portion 62 in piece 59. Simultaneously with the forming of this portion 62 (Figures 2 and 7) in piece 59, threads 63 are formed or swaged in the base thereof by the bottom surface of punch section 31 which carries threads 32 as described above, the walls of recess 40 in die 39 backing up the metal of portion 62. The position occupied by section 31 when punch member 24 is closed to form the threads in the portion 62 of piece 59 is best shown in Figure 3. Recesses 60 and 61 are provided in surfaces 41 and 42 of die 39 so that the countersunk portions of holes 55 and 57 are not harmed or flattened by the full brunt of the blow from punch 24 but rather are accommodated in these recesses.

Simultaneously with these actions punches 27 and 28 engage strip 52 so that sections 35 and 36 thereof together with annular ridges 38^a and 37^a form a new pair of holes 57^a and 58^a (Figures 2 and 7) together with their respective countersinks in this new portion of strip 52. Punch member 24 now rises and piece 59 may be removed from die member 39 in any suitable manner as strip 52 is again fed forward or to the left, as viewed in Figure 1, until the new end 53^a thereof (see Figure 7), formed in the last operation by wall 33 of shear member 26, abuts against wall 39^a of die 39. It will be seen that the parts are now in position for the dropping of punch member 24 to form another piece, similar in shape and character to piece 59, in a manner substantially similar to that described above and to repeat the other operations above described.

For purposes of convenience, I may so time the feeding action of strip 52 and the downward movement of punch member 24 so that a new section of strip will lie above surfaces 41 and 42 and indentation 40 of die 39 each time punch member 24 comes into its closed position, as shown in Figure 2. In other words, punch member 24 may be actuated at regular intervals and the travel of strip 52 in a left-hand direction, as viewed in Figures 1 and 2, may be so regulated as to position the strip properly for each blow of the punch.

It will be seen that I have thus far provided a thoroughly practical and efficient method for producing and forming a piece of sheet metal strip into individual pieces such as piece 59, best shown in Figures 2 and 7. Furthermore, as the side walls of U-shaped portion 62 in piece 59 are substantially parallel (Figure 2), I may now insert within this threaded portion or channel a thumb screw 19 such as that described above with reference to Figure 11. It should be noted that it is not necessary to thread screw 19 lengthwise into channel 62 and consequently this thumb screw, which may be produced in any suitable manner, may have formed on or secured to the end thereof remote from eye 20 an abutting member 21 of any convenient character (Figure 11). Accordingly the next step in my method is to lay such a screw, preferably already carrying its abutting member, into threaded channel 62, simply meshing the threads of the two parts, after which I proceed with the final step in my method as will now be described.

Turning now to Figure 8, there is shown a mechanism or tool which I may employ in the practice of this next and final step of my method. This tool comprises a frame, generally indicated at 64, and extending downwardly from one side of which is a leg 65. The inner surface 66 of leg 65 is arc shaped, the center of this arc being substantially at a point 67. The right hand side of frame 64, as viewed in Figure 8, has formed therein a slot 68 running generally at an angle to the vertical. The left-hand wall of slot 68 is indicated at 69 and the other wall 70 of slot 68 runs substantially parallel to wall 69 thereof throughout a portion of the length of slot 68, whence it is cut to run directly as at 70^a, in an upward direction or substantially at right angles to the top of frame 64. A leg 71 is pivotally mounted within slot 68 so that its inner surface 72, which takes the form of an arc similar in dimensions to the arc formed by surface 66 of leg 65, may lie in substantial registry therewith and preferably upon the opposite side of center point 67, when leg 71 rests against portion 70^a of wall 70.

A lug 73 extends upwardly from and is preferably integral with the top side of frame 64 and a pawl 74 is pivotally mounted upon frame 64, in any convenient manner, substantially adjacent lug 73. The left-hand end of pawl 74 is in engagement with the right-hand surface of lug 73, as viewed in Figure 8. Seated within a slot 75 in the base of lug 73 and top of frame 64 is a spring 76 preferably carrying at its upper end a ball 77. When pawl 74 lies in a horizontal position as shown in Figure 8, its remote end 78 abuts against the inner surface of leg 71 to hold this leg against portion 70^a of wall 70. However, when pawl 74 is forced upwardly about its axis, it disengages leg 71 and leaves this leg free to swivel about its axis. To hold part 74 in this upper position out of engagement with leg 71, I provide an indentation 79 in the left hand end thereof which engages ball 77 when part 74 assumes this upper position. The pressure exerted by spring 76 is sufficient to hold ball 77 in indentation 79 and thus hold part 74 in its upper position until it is forced downwardly.

It will now be seen that when locking part 74 is in its closed or horizontal position so that end 78 thereof abuts against leg 71, the inner surfaces 66 and 72 of legs 65 and 71 respectively, form a portion of a circle, the top side of which is cut off by the bottom 80 of frame 64. Extending downwardly from bottom 80 of frame 64 and substantially in line with center point 67 is a lug 81.

Two parts 82 and 83 are shaped to slidably fit within the circular space created by legs 65 and 71, these parts having surfaces engaging surfaces 66 and 72, the arcs of which are substantially similar, thus having for their center, point 67. The lower portions 84 and 85 of parts 82 and 83 respectively extend downwardly to take the form of handles (not shown) so that when these parts are in the position shown in Figure 8 they may be spread with respect to each other to the position shown in Figure 10. To insert parts 82 and 83 into their operative position, as shown in Figure 8, part 74 is forced upwardly out of engagement with leg 71 and consequently this leg is free to swivel about its pivotal point. When

leg 71 is moved outwardly so that the upper portion thereof conforms to the general direction of slot 68, parts 82 and 83 may be inserted in frame 64. Next, part 74 is moved downwardly so that end 78 thereof abuts against leg 71 to hold it rigidly against portion 70a of wall 70.

When parts 82 and 83 are in their closed position, as shown in Figure 8, and free from frame 64, the upper surfaces thereof substantially conform to the shape of piece 59 as shown in Figures 2 and 7. Thus, after screw 19 is inserted in threaded channel 62, as described above, piece 59 may be placed upon the top surfaces of parts 82 and 83 and next (leg 71 being free to swivel about its pivotal point as described above) parts 82 and 83 are positioned in frame 64 as shown in Figure 8. Part 74 is now forced down to its horizontal position so that parts 82 and 83 are firmly held within frame 64 as described above. It will be noted that when the parts are in this position, projection 81 is preferably in engagement with screw 19. Next parts 82 and 83 are spread with respect to each other, as more clearly shown in Figure 10, so that the opposite ends of piece 59 are bent upwardly to a position parallel to the bottom side 80 of frame 64 or at right angles to projection 81.

Referring to Figure 10, it will now be seen that upon the completion of the above-described action, the opposite walls 86 and 87 of portion 62 are bent or wrapped around the greatest portion of the circumference of screw 19. Next, part 74 (Figure 10) is forced into its upper position or out of engagement with leg 71 so that parts 82 and 83 may be removed from frame 64, thus carrying upon their top surfaces the complete window lock, as more clearly shown in Figure 11. By wrapping walls 86 and 87 about such a large portion of the screw 19, this screw is firmly held in this position against displacement while permitting free rotation of the screw. The metal from which strip 52 is formed is of sufficient rigidity to hold its final shape against any of the usual forces met with in use which might tend to distort the parts to displace screw 19 therefrom. However, this metal is also soft enough to allow for an easy and efficient performance of the various steps of my method. Any spreading force such as that described above is also further prevented after my lock is installed, due to the fact that screws or other fastening means passing through holes 14 and 15 (Figure 11) also hold piece 59 in its original shape.

It will thus be seen that I have provided a thoroughly practical and efficient device and method in which the several objects hereinbefore mentioned as well as many others have been successfully accomplished and in which the several difficulties commonly met with in manufacturing such articles are avoided in an efficient and inexpensive manner.

As many possible embodiments may be made of the mechanical features of the above invention and as the art herein described might be varied in various parts, all without departing from the scope of the invention, it is to be understood that all matter hereinabove set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. The herein described art which consists in successively forming pairs of holes in a metal strip, cutting said strip between the holes of each pair, forming a channel in said strip so that the remaining portions thereof extend outwardly and downwardly from the opposite sides of the open top of said channel, forming threads in said channel, placing a threaded bolt in and in partial registry with said threads of said channel, and bending said portions upwardly to enclose said bolt in said channel and to complete the registry of the threads of said bolt with the threads of said channel.

2. The herein described art which consists in successively piercing a metal strip with pairs of countersunk holes, cutting said strip between the holes of each pair to form an individual piece having holes at its opposite ends, forming a channel in said piece substantially near the center thereof so that the remaining portions of said piece extend outwardly and downwardly from the open top of said channel, forming threads in said channel, placing a threaded bolt in said channel, and bending said portions upwardly to enclose said bolt in said channel.

3. The herein described art which consists in successively piercing pairs of holes in a metal strip so that said pairs are spaced from each other, cutting said strip between the holes of each pair to form an individual piece having holes at its opposite ends, forming a channel substantially near the center of said piece so that portions of said piece extend outwardly and downwardly from substantially near the top of said channel, forming threads in said channel, placing a threaded bolt in said channel, and bending said portions upwardly to enclose said bolt in said channel.

4. The herein described art which consists in successively piercing pairs of holes in a metal strip so that said pairs are spaced from each other, cutting said strip between the holes of each pair to form an individual piece of metal having holes at its opposite ends, forming a channel substantially near the center of said strip and running crosswise thereof so that portions of said strip extend outwardly and downwardly from a point substantially near the top of said channel, forming threads in said channel, placing a threaded bolt in said channel, and bending said portions upwardly to enclose said bolt in said channel.

5. The herein described art which consists in successively in piercing pairs of holes in a metal strip so that said pairs are spaced from each other, cutting said strip between the holes of each pair to form an individual piece having holes at its opposite ends, bending said piece to form an indentation running crosswise thereof so that portions of said piece extend outwardly and downwardly from the top of said indentation, forming threads in said indentation, placing a threaded bolt in said indentation, and bending said portions upwardly to enclose said bolt in said indentation.

6. The herein described art which consists in forming holes in a metal strip, cutting said strip between said holes to form individual pieces having holes at their opposite ends, forming channels substantially near the center of said pieces so that portions of said pieces extend outwardly and downwardly from the tops of said channels, swaging threads in said channels, placing threaded bolts in said channels, and bending said portions upwardly to enclose said bolts in said channels.

7. The herein described art which consists in forming holes in a metal strip, cutting said strip between said holes to form individual pieces hav-

ing holes at their opposite ends, forming channels substantially near the center of said pieces so that portions of said pieces extend outwardly and downwardly from a point substantially near the tops of said channels, forming threads substantially at the bottoms of said channels, placing threaded bolts in said channels, and bending said portions upwardly to enclose said bolts in said channels.

8. The herein described art which consists in piercing a metal strip to form holes spaced from each other, cutting said strip between said holes to form individual pieces having holes at their opposite ends, forming channels in said pieces running crosswise thereto so that portions of said pieces extend outwardly and downwardly from the opposite sides of said channels, forming threads in the bottoms of said channels, placing threaded bolts in said channels, and bending said portions upwardly to enclose said bolts in said channels.

9. The herein described art which consists in successively piercing pairs of holes in a metal strip so that said pairs are spaced from each other, cutting said strip between the holes of each pair to form an individual piece having holes substantially at its opposite ends, bending said piece to form a channel running crosswise thereof so that portions of said piece extend outwardly and downwardly from said channel, swaging threads substantially in the bottom of said channel, placing a threaded bolt in said channel, and bending said portions upwardly to enclose said bolt in said channel.

10. The herein described art which consists in successively piercing pairs of holes in a metal strip so that said pairs are spaced from each other, cutting said strip between the holes of each pair to form an individual piece having holes at its opposite ends, bending said piece to form an indentation running crosswise thereof so that portions thereof extend upwardly, outwardly and thence downwardly from a point substantially near the top of said indentation, forming threads substantially near the bottom of said indentation, placing a threaded bolt in said indentation, and bending said portions upwardly so that said bolt is enclosed within said indentation.

11. The herein described art which consists in successively forming pairs of holes in a metal strip, cutting said strip between the holes of each pair to form an individual piece having holes passing through its opposite ends, forming a channel in said strip so that portions of said piece form flanges extending outwardly and downwardly from a point substantially near the top of said channel, forming threads in said channel, placing a threaded bolt in said channel, and bending said portions upwardly to a plane substantially at right angles to a vertical plane passing through the axis of said bolt.

12. The herein described art which consists in piercing a metal strip to form holes, cutting said strip between said holes to form individual pieces having holes at their opposite ends, forming indentations in said pieces and running crosswise thereof so that portions of said pieces extend outwardly and downwardly from a point substantially near the tops of said indentations, swaging threads in said indentations, placing screws in said indentations, and bending said portions upwardly to a plane substantially at right angles to a vertical plane passing through the axis of said screws.

13. The herein described art which consists in successively piercing pairs of holes in a metal strip so that said pairs are spaced from each other, cutting said strip between the holes of each pair to form an individual piece having holes at its opposite ends, bending said piece to form an indentation running crosswise thereof and substantially near the center thereof so that portions of said piece extend outwardly and downwardly from a point substantially near the top of said indentation, swaging threads substantially at the bottom of said indentation, placing a threaded bolt in said indentation, and bending said portions upwardly to a plane substantially at right angles to a vertical plane passing through the axis of said screw.

14. The herein described art which consists in successively forming pairs of holes in a metal strip, cutting said strip between the holes of each pair to form an individual piece having holes at its opposite ends, forming said piece into an open shape having a channel running crosswise thereof, forming threads in said channel, placing a screw in said channel, and bending the opposite ends of said piece so that it assumes its closed shape.

15. The herein described art which consists in piercing a metal strip so that pairs of holes are spaced from each other, cutting said strip between the holes of each pair to form an individual piece having holes at its opposite ends, bending said piece to form an indentation running crosswise thereof so that said piece assumes its open shape, swaging threads in said indentation, inserting a thumb screw in said indentation, and bending said piece from its opposite ends so that it closes about said screw to assume its closed shape.

16. The herein described art which consists in bending a metal strap at its center portion into a U-shape, swaging threads in the bottom of the U-shaped portion thereof, laying a threaded screw into said U-shaped portion, and bending the side walls of the U-shaped portion toward each other to encompass the screw by more than 180°.

17. The herein described art which consists in piercing pairs of holes at spaced intervals along a metal strap, severing the latter between the holes of the various pairs pierced therein, stamping threads crosswise of a severed portion and substantially at the center part thereof and wrapping the threaded part of said portion about a screw.

18. A window lock comprising, in combination, a wedging member having an abutment at one end and means at the other end for rotating it and being threaded throughout its intermediate portion, and a sheet metal strap member having threads formed in a series thereof at its center, said strap member being bent so that the threads thereof mate with said threaded wedging member throughout at least 180° of the circumference of the latter.

19. A window lock comprising, in combination, a wedging member having an abutment at one end and means at the other end for rotating it and being threaded throughout its intermediate portion, a sheet metal strap having countersunk holes at least one at each end thereof, and threads stamped in one face thereof and crosswise thereof, said strap being bent so that the threaded portion thereof is substantially wrapped about the threaded portion of said wedging member.

20. A window lock comprising, in combination, a rotary wedging member having an abutment at

one end and a hand grip at the other end whereby said member may be rotated, said member being threaded throughout its intermediate portion, and a support for said wedging member, said support being in the form of a sheet metal strap provided with means for securing it to an object, and having a substantially U-shaped portion whose bottom and sides have threads formed therein, the intermediate threaded portion of said wedging member being seated in said U-shaped portion and at least one side of said U-shaped portion being bent around said threaded intermediate portion so that the threads of the U-shaped portion mate with the threads of the wedging member throughout at least 180° of the circumference of the latter.

21. In the art of making window locks, the process which consists in simultaneously bending an intermediate portion of a strap of metal into U-shape and stamping threads in the bottom and sides of the U-shaped portion, resting a screw in said U-shaped portion with the threads of the screw mating with the stamped threads in the bottom of said U-shaped portion, and bending at least one side of said U-shaped portion about the screw so that the stamped threads in the said side mate with the threads of the screw.

22. In the art of making window locks, the process which consists in intermittently advancing a metal strap and simultaneously, during a halting advancing movement of the strap, piercing a pair of relatively closely spaced holes in the strap at one point in its length and severing the strap intermediate of a pair of holes previously pierced and bending the severed strap into a U-shaped portion intermediate of its length.

23. In the art of making window locks, the process which consists in intermittently advancing a metal strap and simultaneously, during a halting advancing movement of the strap, piercing a pair of relatively closely spaced holes in the strap at one point in its length and severing the strap intermediate of a pair of holes previously pierced and in one operation bending a central portion of the severed strap into a U-shape while stamping threads in the U-shaped portion.

24. The herein described art which consists in intermittently advancing a metal strap and simultaneously, during a halting advancing movement of the strap, piercing a pair of relatively closely spaced holes in the strap at one point in its length and severing the strap intermediate of a pair of holes previously pierced and in one operation bending the severed strap into a U-shape intermediate its ends while stamping threads in the U-shaped portion and bending each of the two remaining end parts of the severed strap each into two portions, one portion at an acute angle to a side of the U-shaped portion and the other portion at an obtuse angle to the said one portion.

25. The herein described art which consists in intermittently advancing a metal strap and simultaneously, during a halting advancing movement of the strap, piercing a pair of relatively closely spaced holes in the strap at one point in its length and severing the strap intermediate of a pair of holes previously pierced and in one operation bending the severed strap into a U-shape intermediate its ends while stamping threads in the U-shaped portion and bending each of the two remaining end parts of the severed strap each into two portions, one portion at an acute angle to a side of the U-shaped portion and the other portion at an obtuse angle to the said one portion; then inserting a screw in said U-shaped portion with the threads of the screw mating with the threads stamped in the U-shaped portion; and bending the sides of the U-shaped portion about the screw to bring the said other portions of the end parts of the severed strap into substantially the same plane.

HENRY F. KEIL.