

(Model.)

2 Sheets—Sheet 1.

G. A. COLTON.

TILL ALARM.

No. 312,707.

Fig. 1. Patented Feb. 24, 1885.

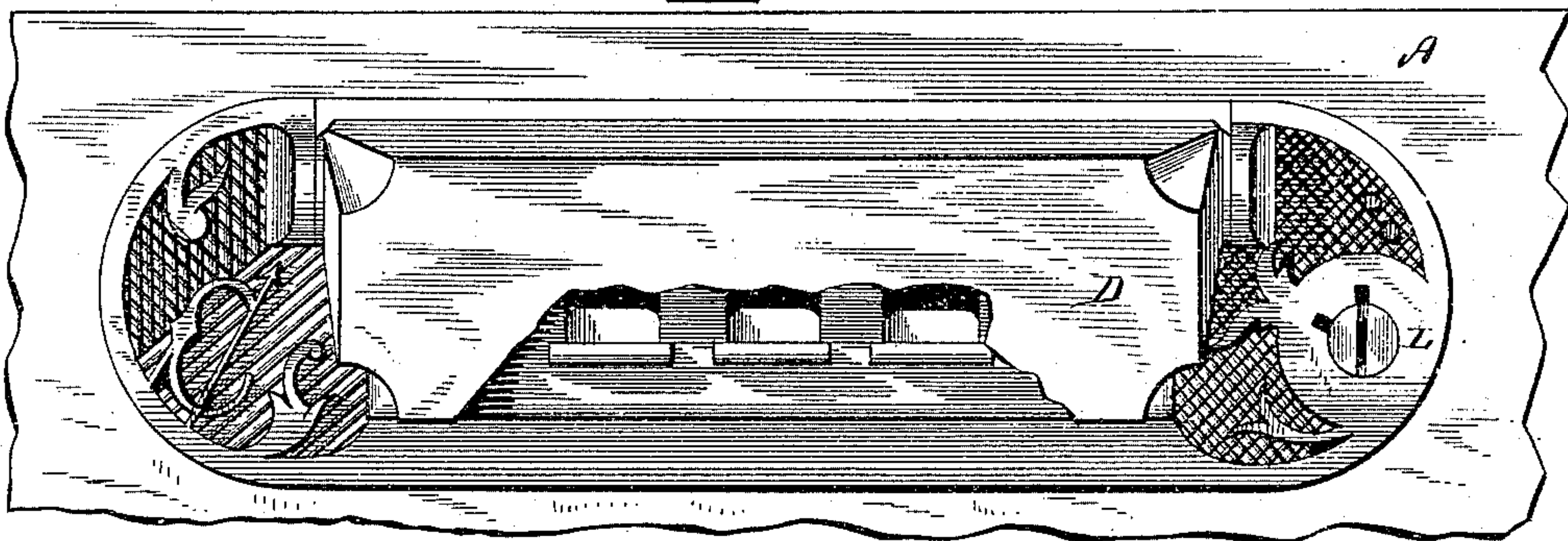


Fig. 2.

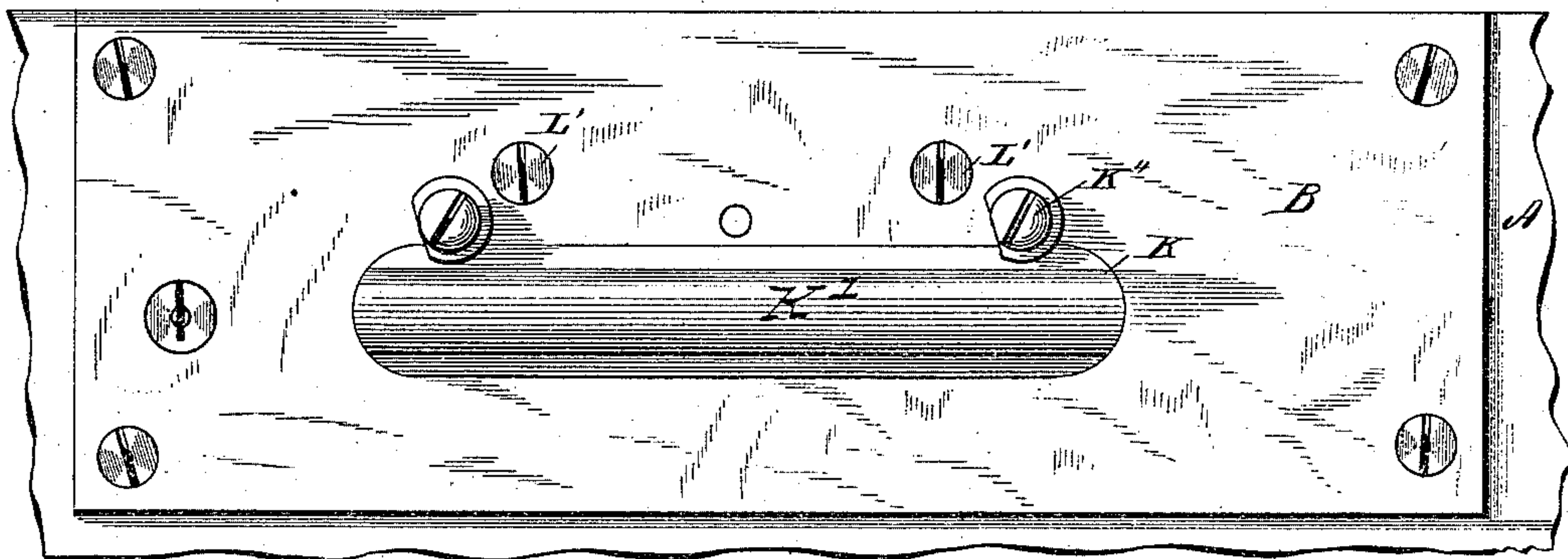
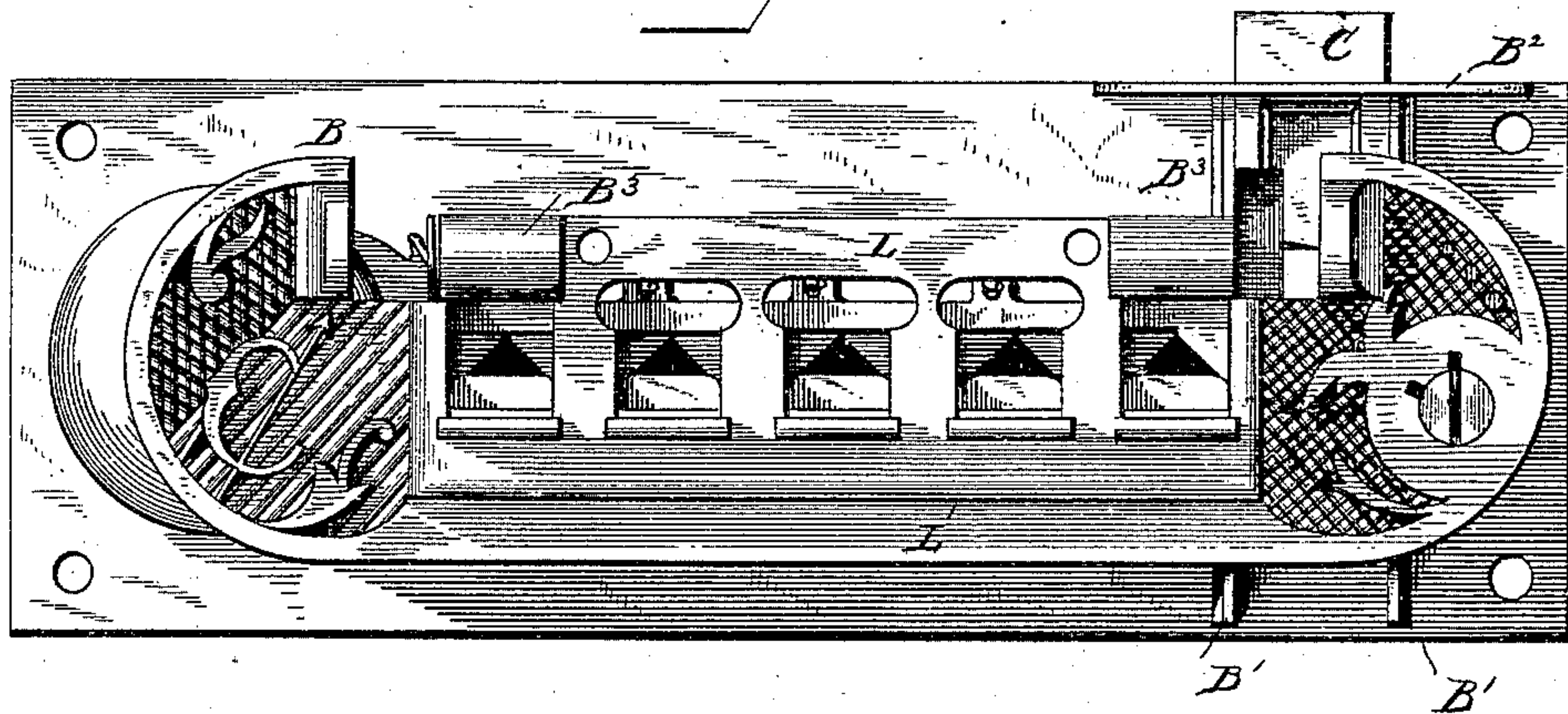


Fig. 3.



WITNESSES

Wm. L. Speiden.
Wm. Duwall

INVENTOR

Geo. A. Colton
by E. B. Stocking
Attorney

(Model.)

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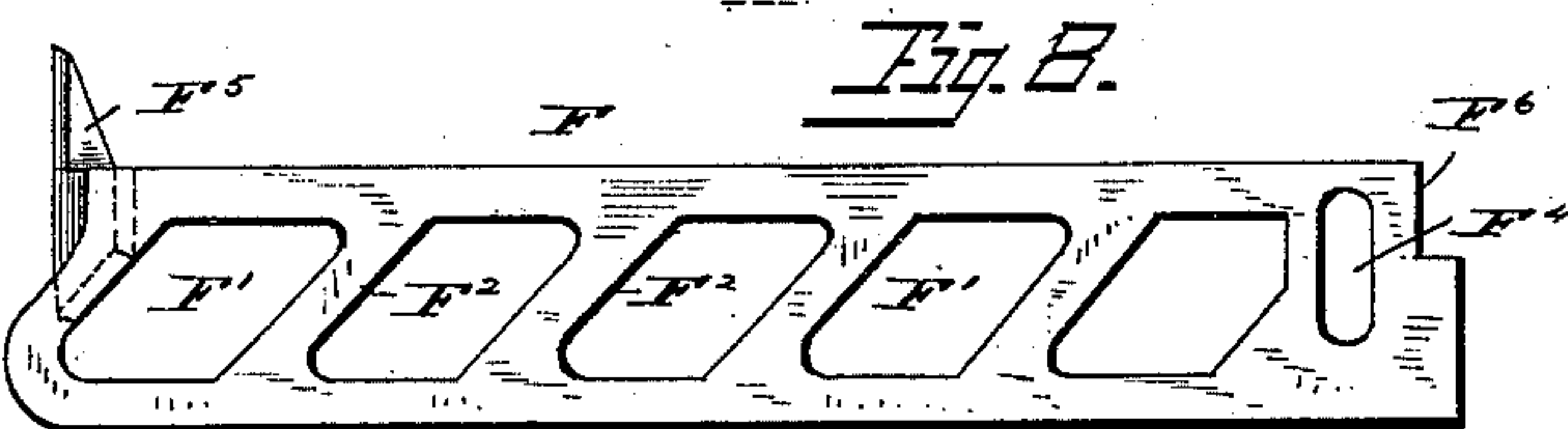
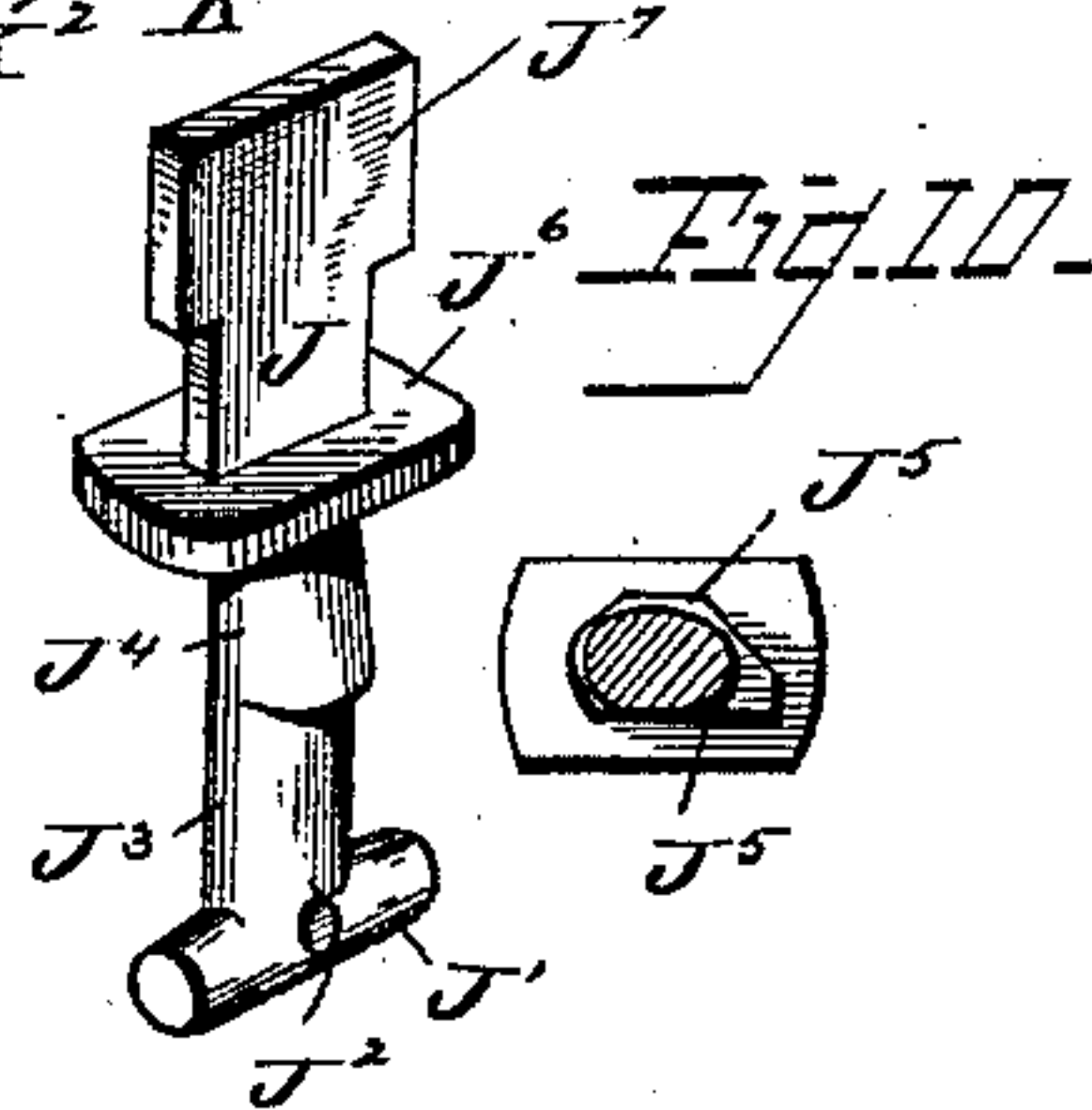
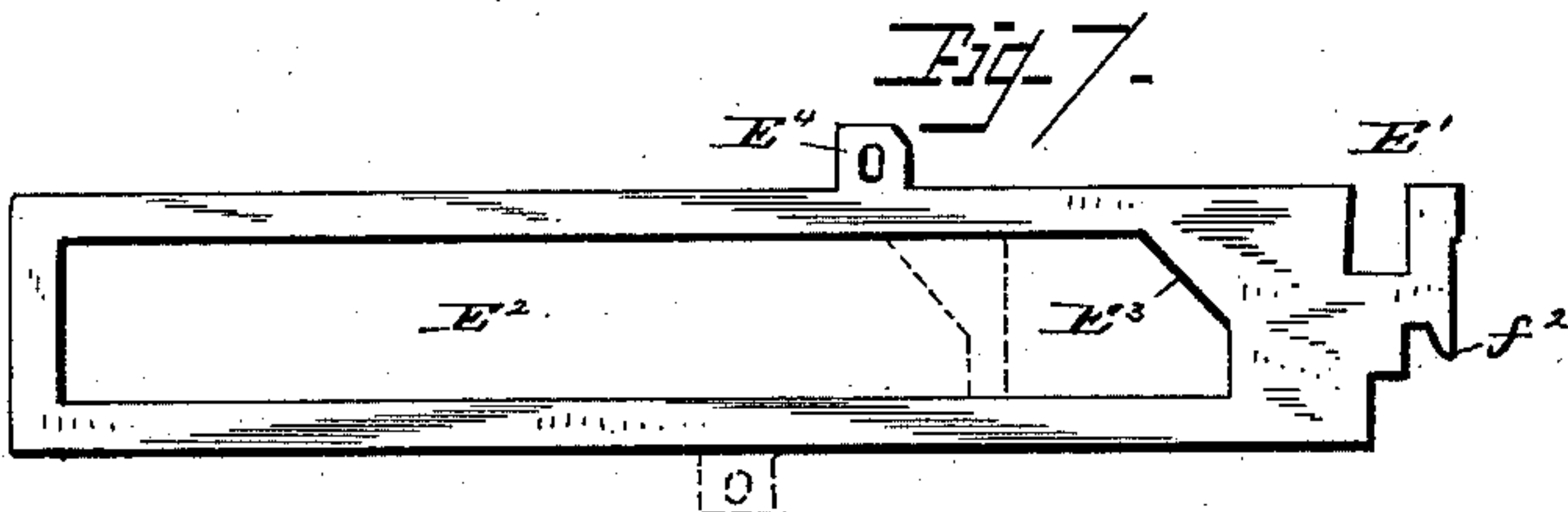
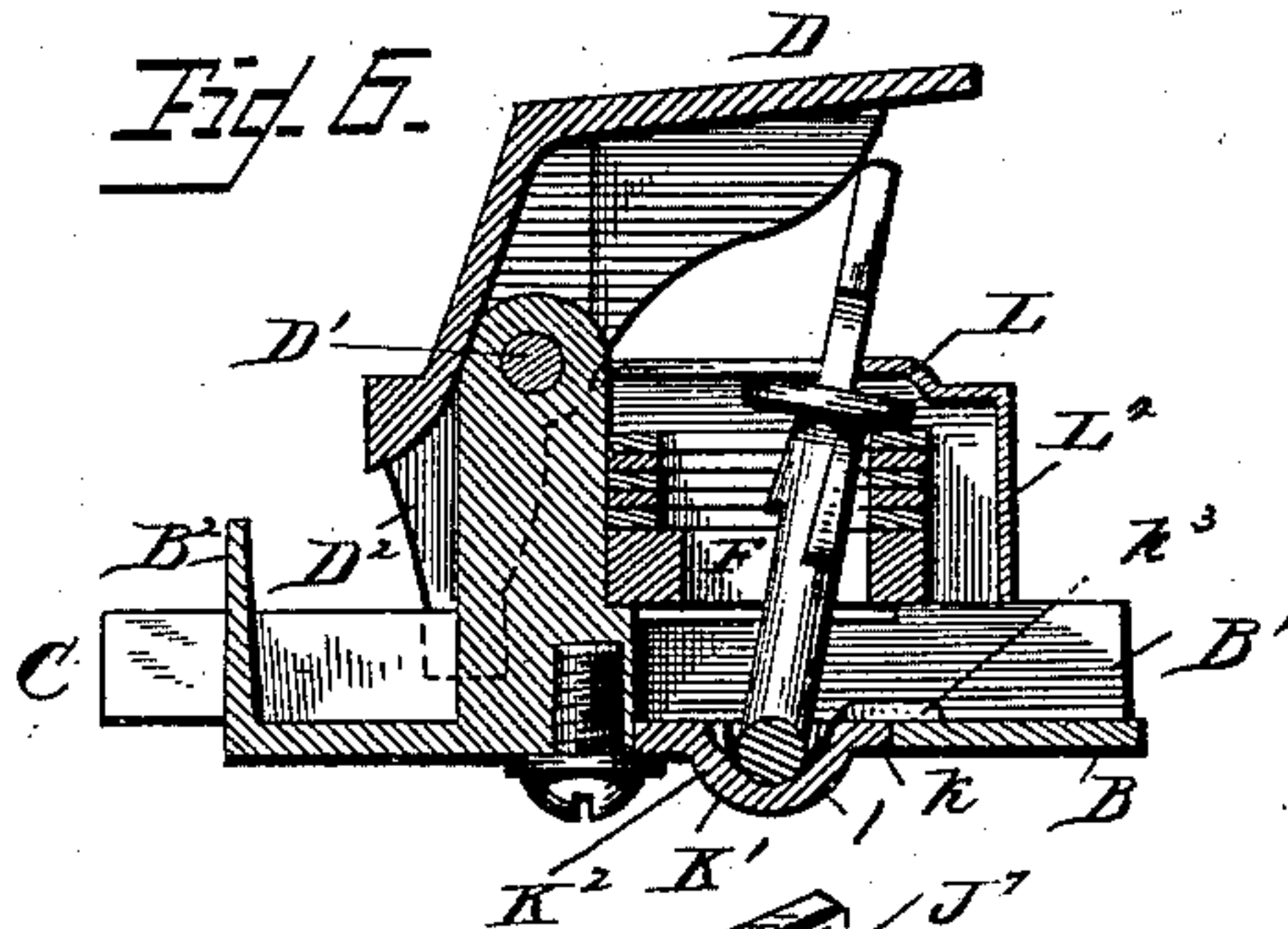
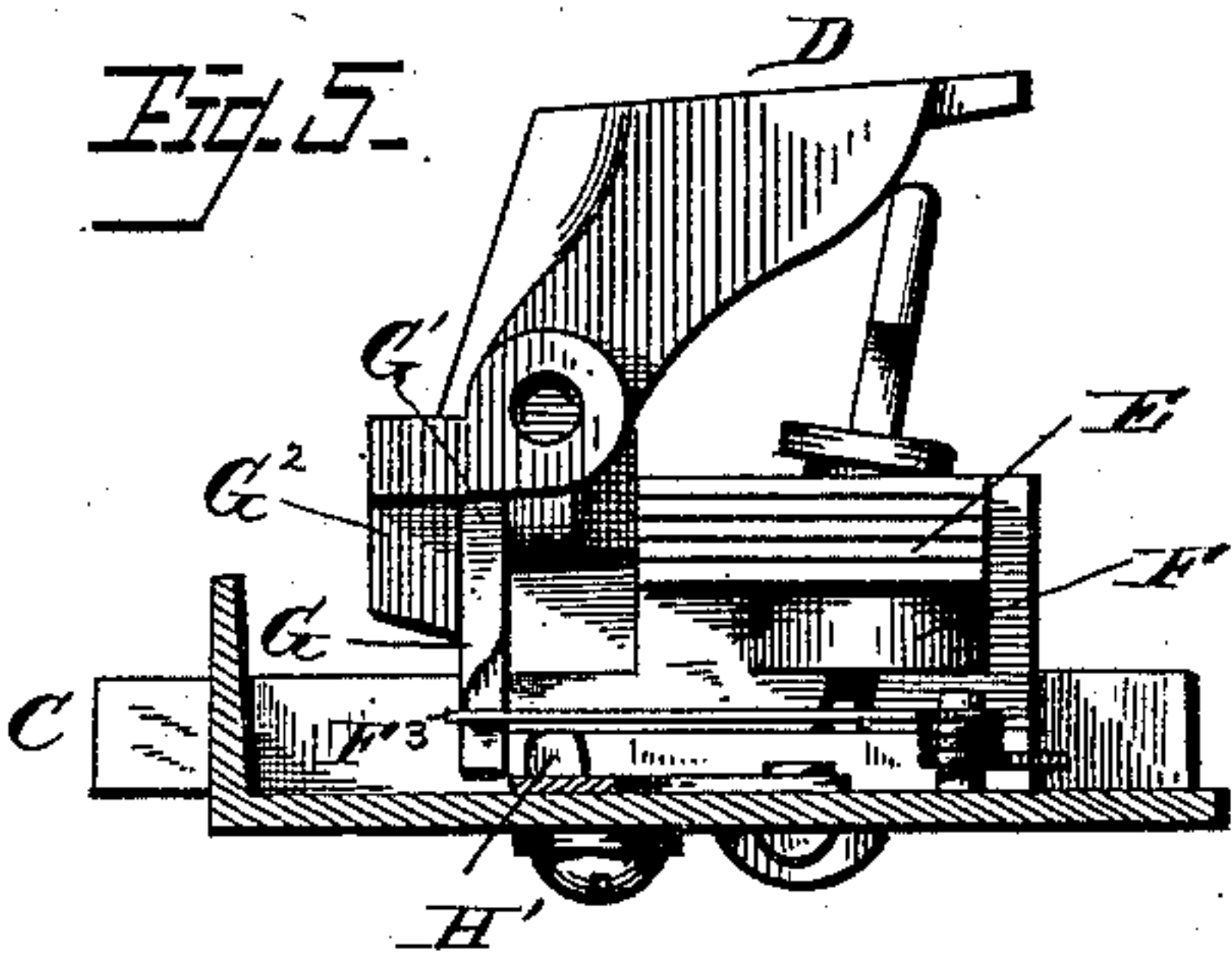
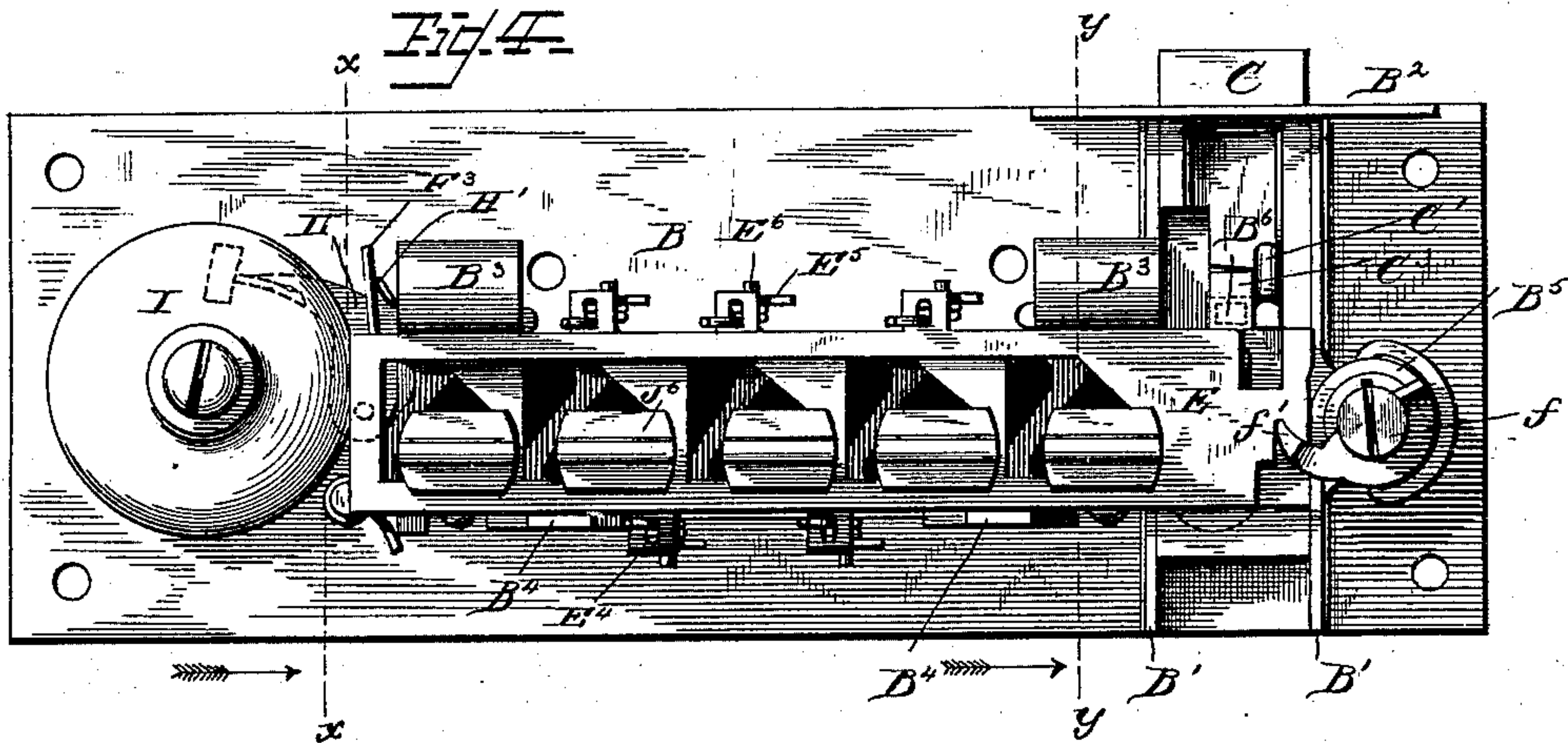
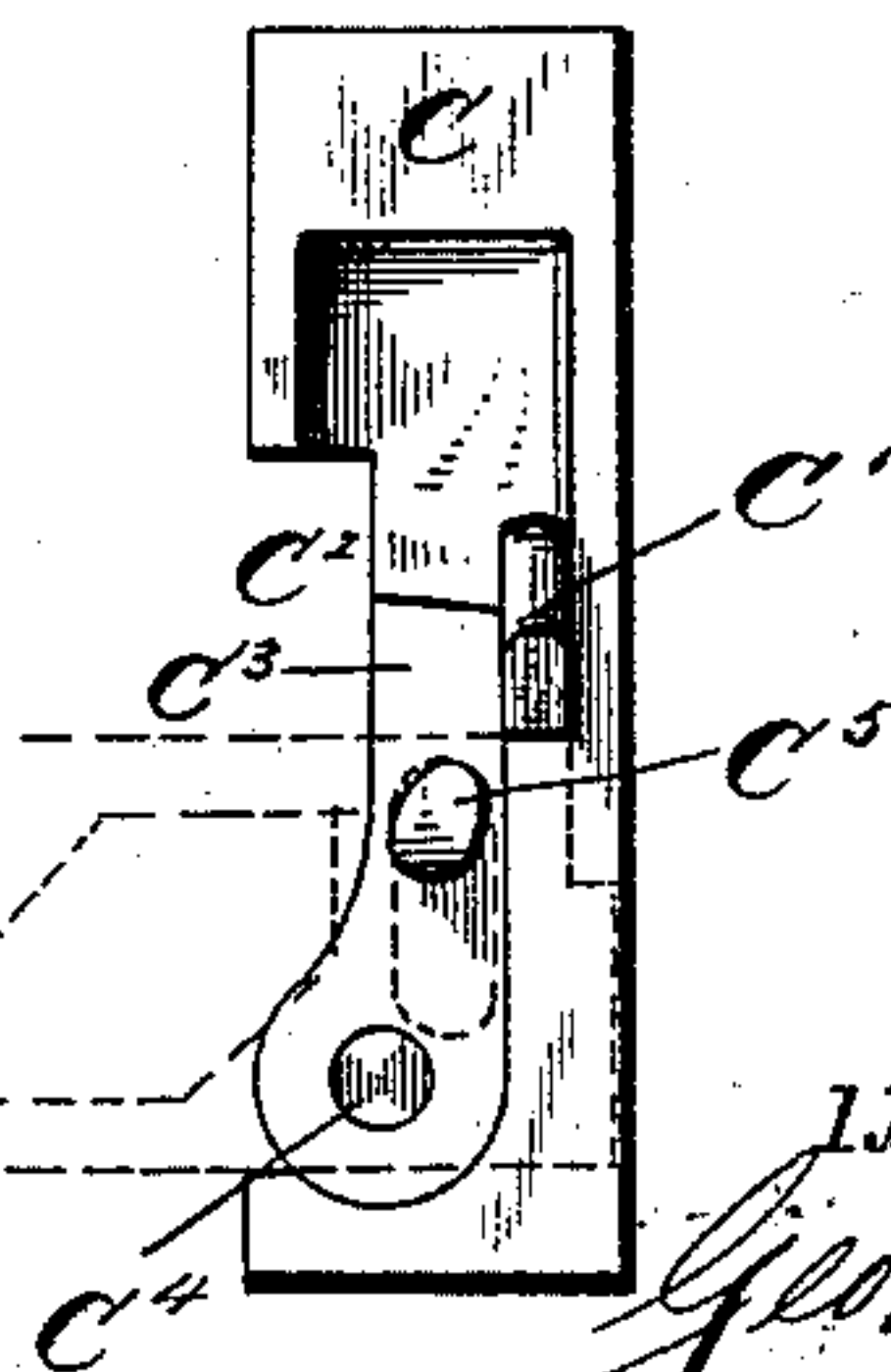


Fig. 9.



WITNESSES

Wm. L. Speiden.
Wm. L. Duwall

INVENTOR

Geo. A. Colton
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UNITED STATES PATENT OFFICE.

GEORGE A. COLTON, OF SYRACUSE, NEW YORK.

TILL-ALARM.

SPECIFICATION forming part of Letters Patent No. 312,707, dated February 24, 1885.

Application filed August 7, 1884. (Model.)

To all whom it may concern:

Be it known that I, GEORGE A. COLTON, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Permutation Alarm-Locks, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention has relation to permutation alarm-locks; and it consists in certain features of construction, hereinafter described, and specifically set forth in the claims.

Referring to the drawings, Figure 1 is a face view of the lock with a portion of the drawer-pull removed, and Fig. 2 is a rear view of the same, each of the views showing a portion of the door or drawer to which the lock is applied. Fig. 3 is a face view of the lock with the pull removed and the bolt projected. Fig. 4 is a face view with the pull and face-plate removed. Fig. 5 is a vertical section on the line X of Fig. 4. Fig. 6 is a vertical section on the line Y of said figure, looking in the direction indicated by the arrows. Fig. 7 is a plan of one of the tumblers. Fig. 8 is a plan of the latch-operating tumbler or bar; and Fig. 9 is a plan of the lock-bolt, the latch-operating tumbler or bar being shown in dotted lines. Fig. 10 is a perspective and a section of one of the permutation-keys.

Like letters refer to like parts in all of the figures.

The object of this invention is to provide a lock having a pull or handle portion similar to a drawer-pull for opening and closing a door or drawer, which pull shall be adapted to ring an alarm when operated independently of certain permutation-keys, spindles, or latches, so that persons tampering with the lock without having knowledge of its construction or the arrangement of its parts shall cause an alarm to be sounded, while persons conversant with its construction and arrangement may open or close the door or drawer without sounding such an alarm, the above objects to be gained by such mechanical devices and by a lock so constructed that it may be readily attached to any door or drawer as are ordinary locks.

Other objects and advantages will appear in the following description.

A represents a door or drawer face, or that portion thereof to which a lock is ordinarily secured.

B represents a base-plate provided with guides B', within which the bolt C of the lock properly slides or reciprocates. The base-plate is also provided with a flange, B², designed to be let into the edge of the door or drawer front, as is usual. The base-plate is also provided with standards B³, to which the pull D is pivoted at each of its ends by means of screws or pintles D'. (See Fig. 6.) The base-plate B is also provided with standards B⁴, arranged to form in connection with the standards B³ means for maintaining a series of tumblers, E, at a right angle to the bolt C, and it is also provided with a hub or perforated boss, B⁵, for the reception of an ordinary cylindrical tumbler-lock, f, the body of which is provided with a hook, f', adapted to be turned into and out of connection with recesses f², formed in the ends of the tumblers for the purpose of retaining the said tumblers against longitudinal movement when it is desired to permanently lock a drawer or door.

By reference to Fig. 9 it will be seen that the bolt C comprises a rectangular body provided with a standard, C', and that the body is cut away on one side, as at C², to receive an arm, D², projecting from one end of the pull D. Said arm D² is therefore capable of raising the bolt when the latch is withdrawn from a lug, B⁶, and the pull is lowered or pushed toward the face-plate. Within the body of the bolt is arranged a latch, C³, pivoted at C⁴ near the lower end of the bolt, and provided with a projecting lug, C⁵. The under surface of the latch is cut away, as shown by dotted lines, Fig. 4, so as to pass over a lug, B⁶, (also shown in dotted lines in said figure,) which lug is formed on or cast as a part of the base-plate B. Now it will readily be seen that when the latch C³ is vertical the bolt C cannot be drawn into the case by reason of the upper end of said latch coming in contact with the lug B⁶, so that in order to unlock or withdraw the bolt within the case the latch C³ must be moved to the left, so that it will project into the recess

C². When this is done, the upper end of the latch will be struck by the arm D² of the pull, and the bolt may by said pull be withdrawn into the case, provided that the standard C¹ meets with no obstruction. Obstructions against such a movement of the bolt, in addition to that which the latch C³ causes when not moved to the left, as just described, are provided in the tumblers E, one of which is shown in full lines in Fig. 7, and all of which are provided with slots E', each one being brought in line with the others to permit the entrance of the standard C', so that the bolt may be withdrawn. Each tumbler of the series is provided with an opening, E², terminating at one end in a slanting wall, E³, and the opening in each tumbler of the series is somewhat shorter than that of the preceding tumbler, as shown by dotted lines, Fig. 7. Each of the tumblers is also provided with a projecting lug, E⁴, having a perforation therein, through which one arm of the spring E⁵ is projected, the other arm resting on the base-plate B, while the body of the spring is coiled about a pin or stud, E⁶, arranged parallel with the base.

The latch-operating tumbler or bar F, Fig. 8, is provided with a series of openings, F', the transverse walls F² of which are arranged diagonally and opposite to the walls E³ in the openings of the tumblers, so that when the tumblers are arranged above the latch-bar these oppositely-inclined walls furnish means which, in connection with a suitable device hereinafter described, reciprocate the tumblers and latch-bar in opposite directions, while the springs E⁵ return the tumblers E, and a similar spring, F³, serves to return the latch-bar to its normal position. The latch-bar is slotted, as at F⁴, for the reception of the lug C³ on the latch C³, so that as the bar is drawn to the left, as herein arranged, the said latch is withdrawn into the recess C² of the bolt for the purpose above described.

At the opposite end of the bar to that in which the slot F⁴ is formed is a projecting arm, F⁵, the object of which is to move a bell-lever, G, Fig. 5, out of the path which it takes when it operates the alarm. Said lever G is pivoted to and so as to swing lengthwise of the pull, it being attached to the pull at G', and beneath or behind a short arm, G², cast upon the pull. The oscillations of the bell-lever are such in extent that at no time does it swing entirely free from the arm G², so that when otherwise uninfluenced the lever oscillates with the pull and its arm G² in a vertical plane. The spring F³ rests against the lever G, so as to hold it normally against the projection F⁵ of the latch-bar F, so that when said latch-bar is reciprocated longitudinally and to the left, the said lever is carried with it, and is caused to escape the hammer-lever H, and thus prevent the sounding of the alarm or bell I. The hammer-lever H is provided with an inclined lug, H', against which in its downward passage the lever G rides, so as to depress the hammer (shown in dotted lines) and

to permit of its being forced against the bell by means of a spring, as is usual in alarms of this class. Now it will be seen that the simple operation of drawing the pull away from the face-plate serves to ring the bell, and that without the proper manipulation of the permutation latches or spindles the alarm will be sounded at each of such motions of the pull.

Referring to Fig. 10, J represents one of the permutation latches, keys, or spindles removed, and it comprises the T-head J', having a slight projection, J², a body portion, J³, substantially cylindrical for a portion of its length, and enlarged at J⁴, and is shaped flat upon its side, as at J⁵, and substantially V-shaped at its opposite side, and is provided with an encircling flange, J⁶, and the flat end J⁷.

Taken in connection with the openings in the tumblers and the latch-bar, which have oppositely-arranged inclined walls, as described, it will be noticed that when the V-shaped sides of the latches, keys, or spindles J are arranged in said openings so as to project upwardly, by raising the ends J' of said latches, keys, or spindles, they will have a tendency to act like a wedge against the said inclined walls, so that each of the tumblers and the latch-bar may, by the operation of one or more properly-arranged latches, keys, or spindles, be reciprocated in opposite directions to a proper distance to bring their slots E' and the half-slot F⁶ in the draw-bar all in line with each other, so that the lug C³ of the bolt may enter the same, and the bolt be withdrawn into the case, and the drawer or door thus unlocked, while the opposite sides, J⁵, of the latches, being flat and projecting entirely from one side only of its body portion, act to manipulate the tumblers only, and fail to reciprocate the latch-bar, and they are inoperative; and it therefore follows that freedom of selection and arrangement of operative permutation latches, keys, or spindles is secured, so that by turning one or more of the same up or down the "combination" of the lock may be changed to suit the user, whereby he completely controls the lock, so that the use of the cylindrical tumbler-lock *f* is not essential.

In cases where several persons are conversant with the combination of the permutation latches, keys, or spindles, as during business hours, the lock *f* becomes of use to place the control of the lock entirely with one person in or out of business hours—that is, the person carrying the key to the same. Therefore I prefer to retain the lock *f*, although other features of my invention are not at all dependent thereon.

Referring to Figs. 2 and 6, K represents an opening in the base-plate, which is closed by means of a longitudinally-grooved cap, K', having depressions K² along the edges of the grooves to receive the projections J² on the T-heads on the latches, keys, or spindles J, whereby when the T-heads are inserted in the grooves they assist in controlling the move-

ment of the latches at their outer ends to a substantially true vertical line, although such a movement would be preserved by means of the T-heads lying within the longitudinal groove of the plate, as clearly shown in Fig. 6. The projections also indicate which side of the latch-body is up. The plate K' has the lugs K³ projecting from one edge thereof, which lugs are first inserted into the opening, and then the plate is swung into the opening, and the screws K⁴, having a portion of their heads removed, are partially turned, so that the remaining portion of the head projects across the joint between the base and the plate, where- by the plate is retained within the base.

For the purpose of facilitating the introduction and removal of the latches, keys, or spindles, (such removal not being necessary to change the combination of the lock,) it is necessary to merely remove the plate K' from the base and the cap while the door or drawer is open, and to remove the latches, keys, or spindles by simply turning the T-heads to occupy a vertical position in order that they may be drawn through vertical slots (not shown) formed in the back piece and in line with the openings through the tumblers and the latch-bar F, so that when so turned the latches, keys, or spindles may be completely withdrawn from the lock. The latches may be reversed to bring either its V-shaped or flat side uppermost and replaced, when the plate is again placed upon the base and secured in position, as described. The "combination" may be changed by removing the plate K' and turning the latches as described.

I do not wish to be understood as limiting my invention to the exact details of construction herein shown, as they may be altered in many minor respects by persons skilled in the manufacture of locks without departing from the spirit of my invention.

The arrangement of the bolt proper and of the latch-bar and tumblers at a right angle to each other renders the vertical pivotal movement of the drawer-pull available to operate the bolt of the lock proper, while at the same time such arrangement of the tumblers and latch-bar relative to the bolt allows a vertical movement to the permutation-latches to produce a horizontal movement of the parts with which they come in contact and make the necessary mechanical preparations in the lock for the vertical reciprocation of the bolt.

L represents the cap of the lock, which is secured in position by screws L', passing through the base-plate and threaded into the cap, and by screws entering lugs B⁴, after passing through the flange projecting inwardly from the lower edge of the cap, (said latter screws not being shown, and the flange being shown at L², Fig. 6.) This cap is provided with T-slots L³, Fig. 3, to receive the flat end of the permutation-keys, the narrow portions of said slots embracing a portion of the key outside of their flanges J⁶.

To take the lock apart, the screws L' are first removed and then the screws from the flanges L², and the cap is drawn downwardly and withdrawn from the case, the flat ends of the permutation-latches passing through the heads of the T-slots in the cap. The pivots of the pull are now exposed and removable, and the lock is in the condition shown in Fig. 4. When the cap is in place, the flanges of the latches are inside of the cap.

It is evident that any form of lock may be used in place of the lock f, and that the hub or boss B⁵ may be formed as a part of the cap L. So also may any well-known electric alarm be substituted for the bell-alarm herein shown, so that tampering with the lock may be indicated at a distance therefrom, and bolts having other than a reciprocating movement may be substituted for bolt C, and be operated by the latch-bar F and by means of an interposed pivoted or bell-crank lever, as commonly used in lock structures.

Other changes within the skill of locksmiths may be made without departing from the spirit of my invention.

Having described my invention and its operation, what I claim is—

1. In a till-alarm, a bolt having a latch, in combination with a latch-bar arranged at right angles to the bolt, and means for reciprocating the latch-bar, substantially as specified.

2. In a till-alarm, the combination of a bolt having a pivoted latch and a rigid standard projecting from the bolt, a latch-bar, and a series of recessed tumblers arranged at right angles to the bolt, and means for reciprocating the latch-bar and tumblers, substantially as specified.

3. In a till-alarm, the combination of a vertically-operating bolt provided with a pivotal latch and a horizontally-operating series of tumblers, a pivotal pull, and a series of permutation latches or spindles adapted to operate the tumblers, substantially as specified.

4. In a till-alarm, the combination of a bolt having a latch, a series of tumblers, and a latch-bar arranged at right angles to the bolt, and a series of permutation latches or spindles arranged at right angles to the tumblers and to the latch-bar, and devices for throwing the bolt, substantially as specified.

5. The combination of a recessed bolt having a latch, a latch-bar, and a pull having an arm projecting into the recess of the bolt, and means for reciprocating the latch-bar, substantially as specified.

6. The combination of a bolt having a standard or projection arranged at right angles to its face, and having a latch operating laterally within the body of the bolt, a pivoted pull having an arm operating in the direction of the length of the bolt, a series of slotted tumblers, and a series of permutation-latches, substantially as specified.

7. In a till-alarm, the combination of an alarm and a pivoted pull having an alarm-

operating lever and a bolt-throwing device connected therewith, substantially as specified.

8. The combination, with a pivoted pull having projecting arms at its ends near its pivots, of a bolt and an alarm operatively connected with said arms, substantially as specified.

9. An alarm-lock for doors or drawers provided with a pivoted pull having a bolt-operating arm and a swinging bell-lever, substantially as specified.

10. An alarm-lock having a pivoted pull provided with a bell-lever, a permutation latch-bar and latches or spindles between the alarm and latch-bar, and connecting mechanism for throwing the bell-lever out of action, substantially as specified.

11. In a till-alarm, a bolt, a latch-bar, and a series of parallel notched tumblers arranged at a right angle to the bolt, and an independent lock adapted to take into the notches of the tumblers, substantially as specified.

12. In a till-alarm, the combination of an independent lock, a series of notched and slotted tumblers, a bolt having a pivoted latch and a rigid projection thereon, a latch-bar having an arm for preventing an alarm, and a pivoted pull having a bolt-operating arm and a bell-lever, substantially as specified.

13. In a till-alarm, the combination of a bolt and a pivoted pull having a bolt-operating arm, substantially as specified.

14. In a till-alarm, an alarm in combination with a pivoted pull having a bell-lever, substantially as specified.

15. In a till-alarm, a base-plate having an opening therethrough, in combination with a longitudinally-grooved latch or spindle retaining cap, and with permutation keys, latches, or spindles having T-heads, substantially as specified.

16. A permutation key, latch, or spindle having a T-head and a cylindrical body portion enlarged to V shape on one side and flattened on the other, in combination with a diagonally-slotted tumbler, substantially as specified. 45

17. A permutation key, latch, or spindle having a T-head and cylindrical body enlarged to V shape on one side and flat upon the opposite side, and having a projecting flange and a flat end, in combination with a diagonally-slotted tumbler, a T-slotted cap, and base, substantially as specified. 50 55

18. The base-plate having the standards B³ B⁴, the guides B', and the opening K, substantially as shown and described.

19. The combination, with the base B, having the standards B⁴ B³, of the cap L and the pull D, substantially as shown and described. 60

20. The combination of the bolt C, having the latch C³ and the standard C', of the tumblers E, having the slots E' and inclined walls E³, the springs E³, and the latch-bar F, having the inclined walls F² and the slot F⁴, substantially as shown and described. 65

21. The combination of the bolt C, having the latch C³, the bar F, having the arm F⁵, the pull D, having the bell-lever G, and the hammer H, having the projection H' and the spring F³, substantially as shown and described. 70

22. The combination of the tumbler E, having the inclined walls E³, with the latch-bar F, having the inclined walls F² and the latches or spindles J, substantially as shown and described. 75

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

GEORGE A. COLTON.

Witnesses:

GEORGE W. NELLIS,
FREDERICK I. ALLEN.