C. EHRMAN.

LOCKING DEVICE.

APPLICATION FILED MAY 24, 1915.

1,200,178.

Patented Oct. 3, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

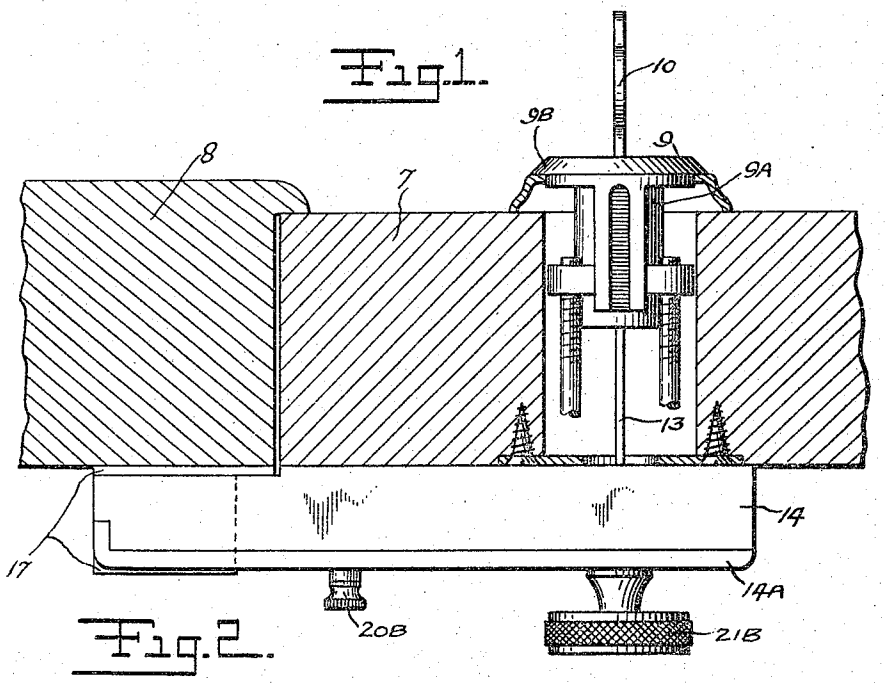
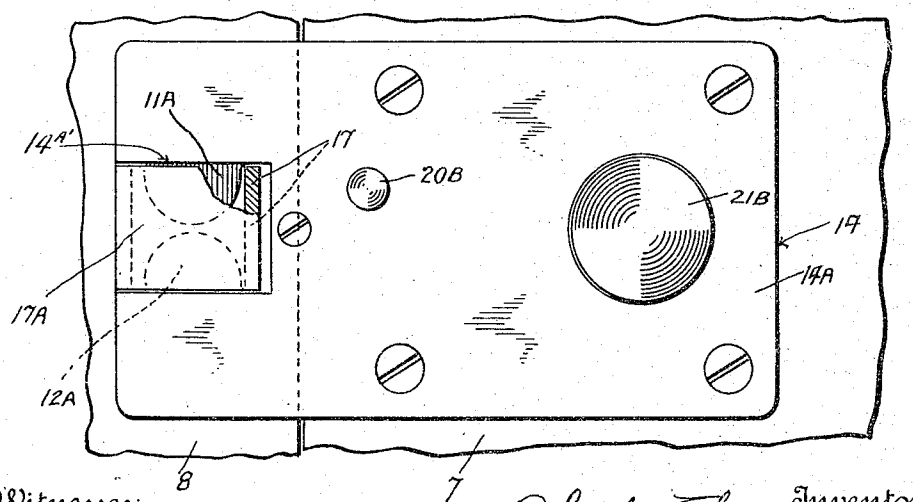


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

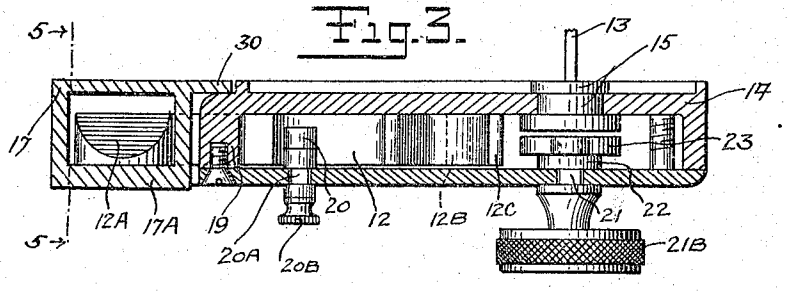


Fig. 4.

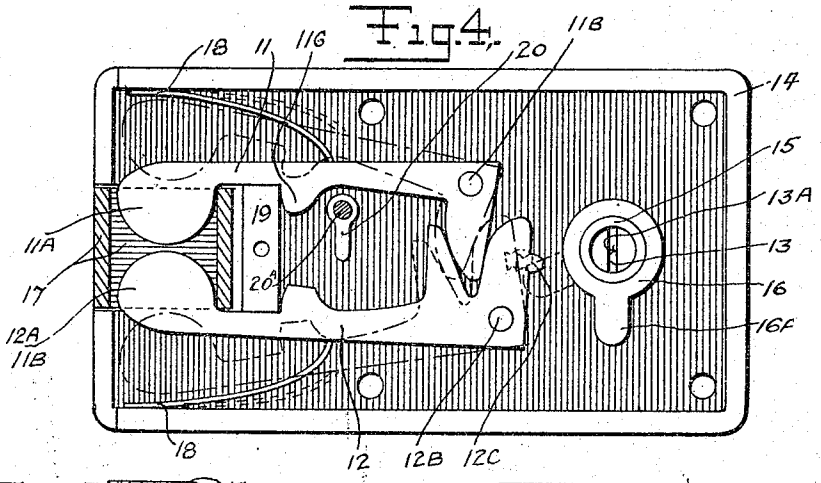


Fig. 5.

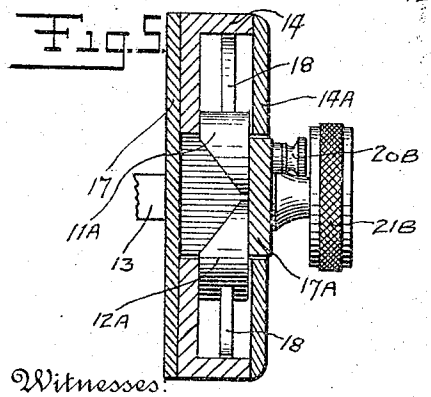
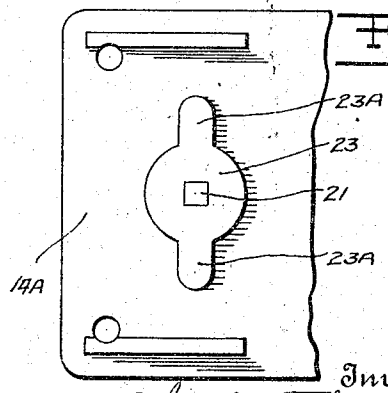


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES EHRMAN, OF NEW YORK, N. Y.

LOCKING DEVICE.

1,200,178. Specification of Letters Patent. Patented Oct. 3, 1916.

Application filed May 24, 1915. Serial No. 29,954.

To all whom it may concern:

Be it known that I, CHARLES EHRMAN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Locking Devices, of which the following is a specification.

This invention relates to improvements in locking devices, and more particularly aims to provide an embodiment designed for advantageous utilization in connection with, and more particularly for use as a readily employable attachment for, permutation locks which in themselves are considered to furnish adequate insurance against the use of an unauthorized key but do not furnish such insurance against the possibility of successful "picking" in connection with the locking bolt.

The cardinal object of the invention is to provide an embodiment of the above characteristics wherein the same may, with convenience and ease, be attached to a swing-door, and may with expedition and safety be used for locking, unlocking (from the outside with a key and from the inside without a key) and holding the locking members in inoperative position.

Other important features of the invention concern themselves with details of construction at present believed to be of the utmost importance from the standpoints of ease of assembly, small cost of manufacture, ruggedness of construction, and absolute certainty of predetermined operation and protection.

Other objects and aims of the invention, more or less broad than those stated above, together with the advantages referred to in the course of the following description of the elements, combinations, arrangements of parts, and applications of principles constituting the invention; and the scope of protection contemplated will appear from the claims.

In the accompanying drawings, which are to be taken as a part of this specification, and wherein is shown an embodiment of the above type, Figure 1 is a horizontal sectional view taken through a swing-door 7 (provided with the usual type of cylinder) and a door jamb 8, the said embodiment being in this view indicated in what may be termed top-edge-plan and being partially mounted upon said door and partially mounted upon said jamb; Fig. 2 is a front elevation of certain of the parts shown in Fig. 1; Fig. 3 is a section taken through a part of the subject-matter of Fig. 1; Fig. 4 is a front elevation of the parts shown in Fig. 3 (with the face plate 14^A and with the parts mounted upon spindle 21 removed); Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 3; and, Fig. 6 is a rear elevation of a portion of the face plate 14^A and a rear elevation of the terminal disk 23 mounted upon the spindle 21 mentioned in the above brief description of Fig. 4.

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

Door 7 is assumed in connection with the present embodiment already to carry or to be preliminarily equipped with a Yale cylinder as indicated at 9 in Fig. 1, the Yale key 10 being the prime mover for unlocking the oppositely beveled latch-noses 11^A and 12^A (Fig. 5) terminally carried by the pivoted jaws 11 and 12 (Fig. 4). A proper moving part, as the usual final tumbler, segment or combination-disk, located within the barrel 9^A of said lock, has attached thereto or carries for turning therewith a bar 13 having substantially the cross section defined by the slot 13^A shown in Fig. 4. And with the face plate 9^B of the cylinder anchored upon the outer face of door 7, with the lock-casing 14 anchored upon the inner face of said door and with the bar 13 engaged with said slot 13^A, as most clearly indicated in Figs. 3 and 4, it will be seen that the insertion of the proper key 10 and the proper operation thereof will rotate, in a clockwise direction, a barrel 15 (Figs. 3 and 4) which is journaled in the wall of the lock-casing 14, and which has formed therein the slot 13^A aforesaid carried by said barrel 15, for turning with the barrel 15 a rigidly secured collar 16, formed with a wiper-tooth 16^A.

Casing 14 is provided with the usual side walls, posts 11^B and 12^B upon which are fixedly pivoted the jaws 11 and 12, and there is also a cut-away portion $14^{A'}$ into which project the latch-noses aforesaid and into which may be entered the cross-bar of a U-shaped keeper 17, whereby the cross-bar or roof-wall 17^A (Fig. 5) of said keeper will automatically abnormally spread apart the latch-noses 11^A and 12^A, preliminary to their locking engagement with said keeper

when the door is closed. The keeper just referred to is of course anchored upon the door jamb 8 in the location shown in Fig. 1, with its cross-bar in a plane parallel to that of the closed door, and the latch-noses, it will be observed, are oppositely beveled on one side respectively, with the ramp of each lying in a plane which is oblique to the plane of the cross-bar of the keeper 17, so that the keeper may readily spread them apart; thus the door may be locked with a slam, while on the other side the noses are in a common plane, parallel to that of the cross-bar of the keeper. The inclined faces or ramps of the latch-noses permit the automatic latching of the door when "slammed," while the opposite faces hold it latched until deliberately released.

The normal position of jaws 11 and 12, whether the door be closed or open, is illustrated in full lines in Fig. 4, the leaf-springs 18 serving to urge the jaws against the opposite ends of a transverse stop 19.

Jaws 11 and 12 each as to form somewhat resembles a bell-crank lever, the first of these jaws presenting a peculiarly conformed single shorter arm, that normally lies within a bifurcated shorter arm of the second jaw. These shorter arms actually coöperate in a cam capacity, for when either of the jaws is rocked against the tendency of its leaf-spring 18, the other jaw is forced similarly to rock.

Jaw 12 carries a lug 12^{C} with which wiper-tooth 16^{A} coöperates predeterminedly (and as aforesaid,) and jaw 11 carries a lug 11^{C} with which a wiper-tooth not hereinbefore mentioned but now given the reference numeral 20, coöperates predeterminedly.

The support for wiper-tooth 20 is a spindle 20^{A} that is journaled transversely of casing 14's face plate $14^{A'}$ upon which is mounted a disk or collar (Fig. 4), having offset therefrom wiper-tooth 20, and upon which is similarly mounted an operating knob 20^{B}; the last, of course, being located upon the spindle exteriorly of the casing 14. By manually operating the knob 20^{B} at any time, it will be seen that the wiper-tooth 20 will be caused to coöperate with the lug 11^{C} and thus hold the jaws in inoperative position. The face plate 14^{A} on casing 14 also has journaled transversely thereof a spindle 21, which spindle, too, has fixedly anchored thereon and located exteriorly of said casing, an operating knob 21^{B}. This spindle 21 is substantially axially in line with barrel 15 (Figs. 1 and 3), the portion of said spindle 21 beyond the washer 22 being squared (see Fig. 6) for the keying thereon of a disk 23 provided with a plurality of wiper-teeth 23^{A} (see Fig. 6). From Figs. 3 and 4 it will be observed that one or the other of the teeth 23^{A} will, upon at most less than a semi-revolution of knob 21^{B}, whatever previous position it may have occupied, engage with the lug 12^{C} to cause a disengagement of the latch-noses 11^{A} and 12^{A} from the keeper 17. This gives to a person on the inside a convenient and rapid means of unlocking the door without the use of a key of any sort. It will be noted, too, that had the jaws 11 and 12 been held in inoperative position as aforesaid, the operation of said knob 21^{B} would not disturb that condition of the jaws. Furthermore, it is clear that a rotation of said knob 21^{B} will not bring about a rotation of bar 13, and hence the cylinder will not be at all readjusted from its previous setting. It will immediately be seen that the embodiment is one of sturdy and reliable construction throughout, and that it accomplishes all its appointed functions in an efficient and convenient manner; and more than this, that there is provided a latching means (the keeper 17 and the coöperant and peculiarly conformed latch-noses 11^{A} and 12^{A}) that absolutely cannot be "picked" from the outside, and a latching means, too, that functions automatically upon the closing of a spring door, and that will not, from an examination of the outside of the door, betray its presence and employment when exposed to view.

Inasmuch as many changes could be made in the above construction, and many apparently widely different embodiments of my invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. It is also to be understood that the language used in the following claims is intended to cover all the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim:

1. In a device of the class described, in combination, a door-jamb, a swinging door, a keeper positioned on the jamb and a latching means carried by the door, said latching means comprising two pivoted jaws yieldingly supported each of which is adapted to strike the keeper when the door is moved toward closed position, and to move into position toward each other beneath the keeper when the door is fully closed to lock the door and optional means movably engageable with the jaws for separating the jaws to unlock the door one of which means is arranged on the outside of the jaws and the other of said means is arranged between said jaws.

2. In a device of the class described, in combination, a swinging door, a door jamb,

a keeper carried by the jamb, a latch means carried by the door, said latch means including a pair of spring pressed pivoted jaws, arranged in vertical relation, said jaws having oppositely beveled latch noses adapted to engage with the keeper for locking the door when the door is closed, one of which jaws is provided with a short arm, and the other of which jaws is provided with a bifurcated arm, the faces of which bifurcation are adapted for engagement with said short arm for opening and closing the jaws and means engageable with one of the arms for separating said jaws.

3. In a device of the class described, in combination, a swinging door, a door jamb, a keeper carried by the jamb, a latch means carried by the door and functioning to become engaged with said keeper when the door is closed, said latch means including a pair of spring pressed pivoted jaws, one of which jaws is provided with a short arm, and the other of which jaws is provided with a bifurcated arm, the faces of which bifurcation are adapted to coöperate with said short arm for opening and closing the jaws, a lug on one of the jaws, a wiper engageable with said lug to separate the jaws, a lug on the other jaw and a wiper engageable therewith for holding the jaws in inoperative position.

4. In a device of the character described, in combination, a swinging door, a door jamb, a keeper carried by the jamb, a latch means carried by the door and functioning to become engaged with said keeper when the door is closed, said latch means including a pair of spring pressed pivoted jaws, said jaws having contact with each other adjacent their pivot and pivoted means engageable with one of the jaws for separating the jaws and pivoted means arranged between the jaws coöperating with one of the jaws for moving the jaws upon their pivot to cause the jaws to be separated and locked against movement.

5. In a device of the class described, in combination, a swinging door, a door jamb, a keeper carried by the jamb, a latch means carried by the door and functioning to become engaged with said keeper when the door is closed, said latch means including a pair of spring pressed pivoted jaws arranged for interlocking engagement with each other, a wiper engageable with one of the jaws operable from one side of the door for unlocking the jaws from the keeper and a wiper operable from the other side of the door engageable with the other jaw for holding the jaws in unlocked position.

In testimony whereof I affix my signature.

CHARLES EHRMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."