R. W. VREDENBURGH & C. B. GILMORE.

COMBINED LOCK AND LATCH.

APPLICATION FILED DEC. 16, 1907

908,361.

Patented Dec. 29, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

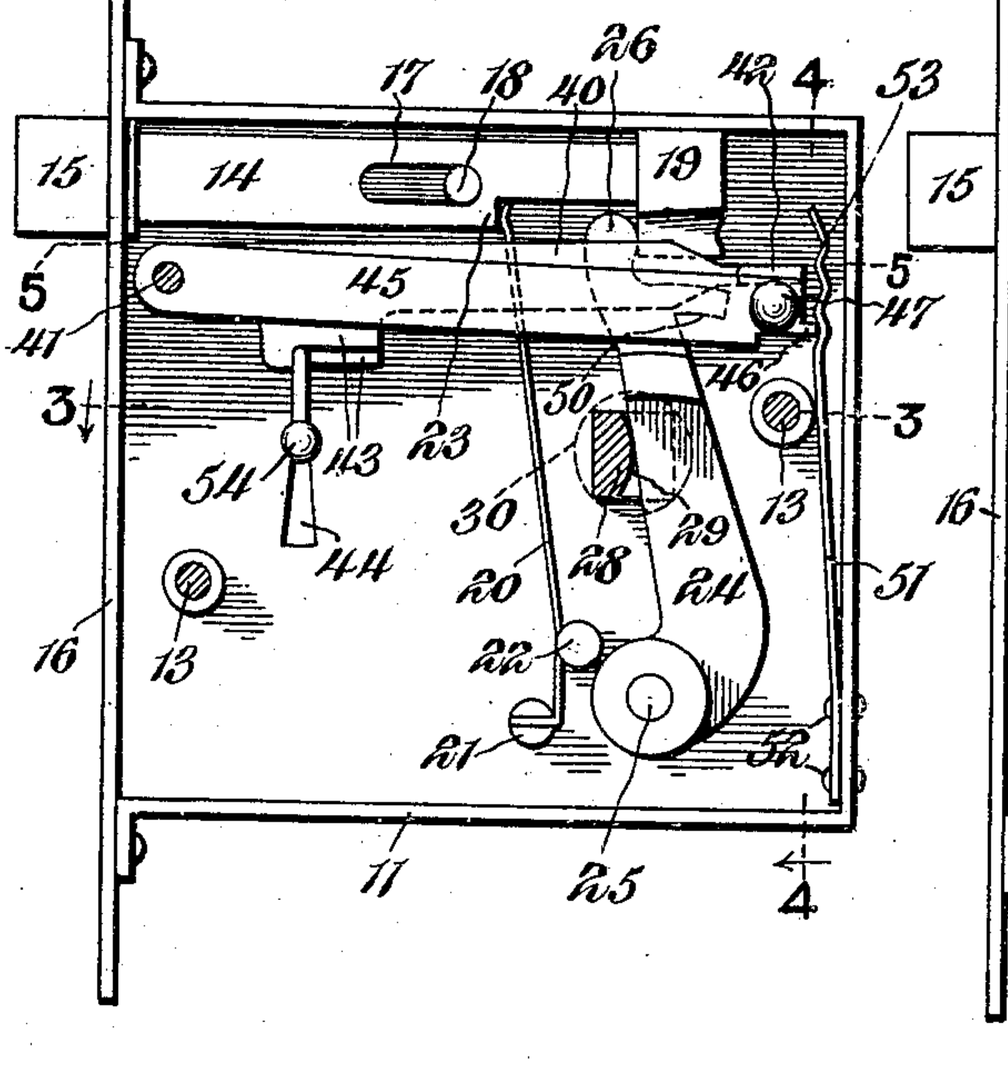


Fig. 2.

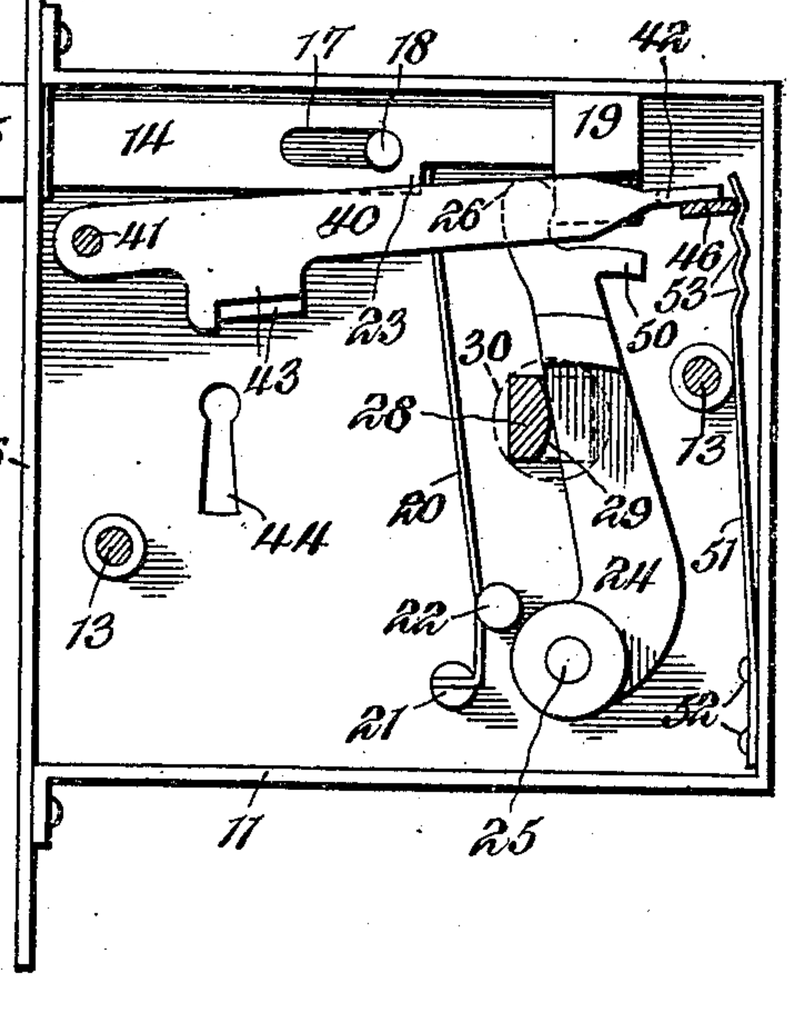


Fig. 3.

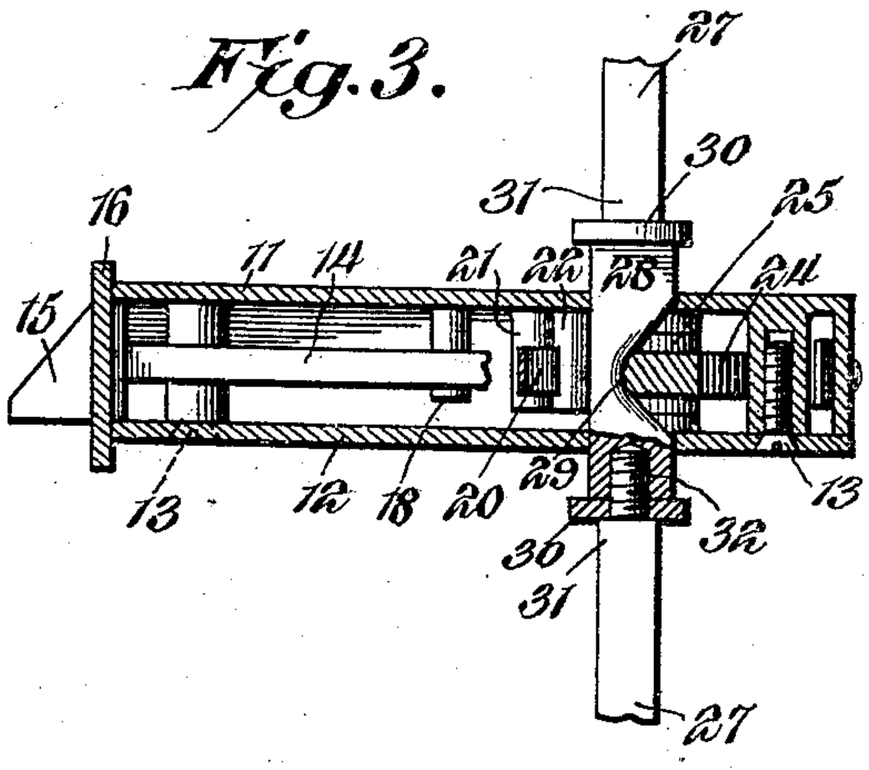
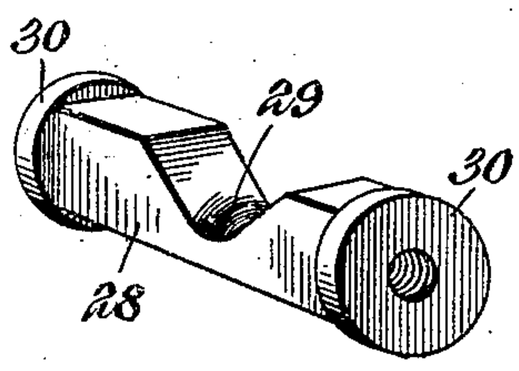


Fig. 6.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

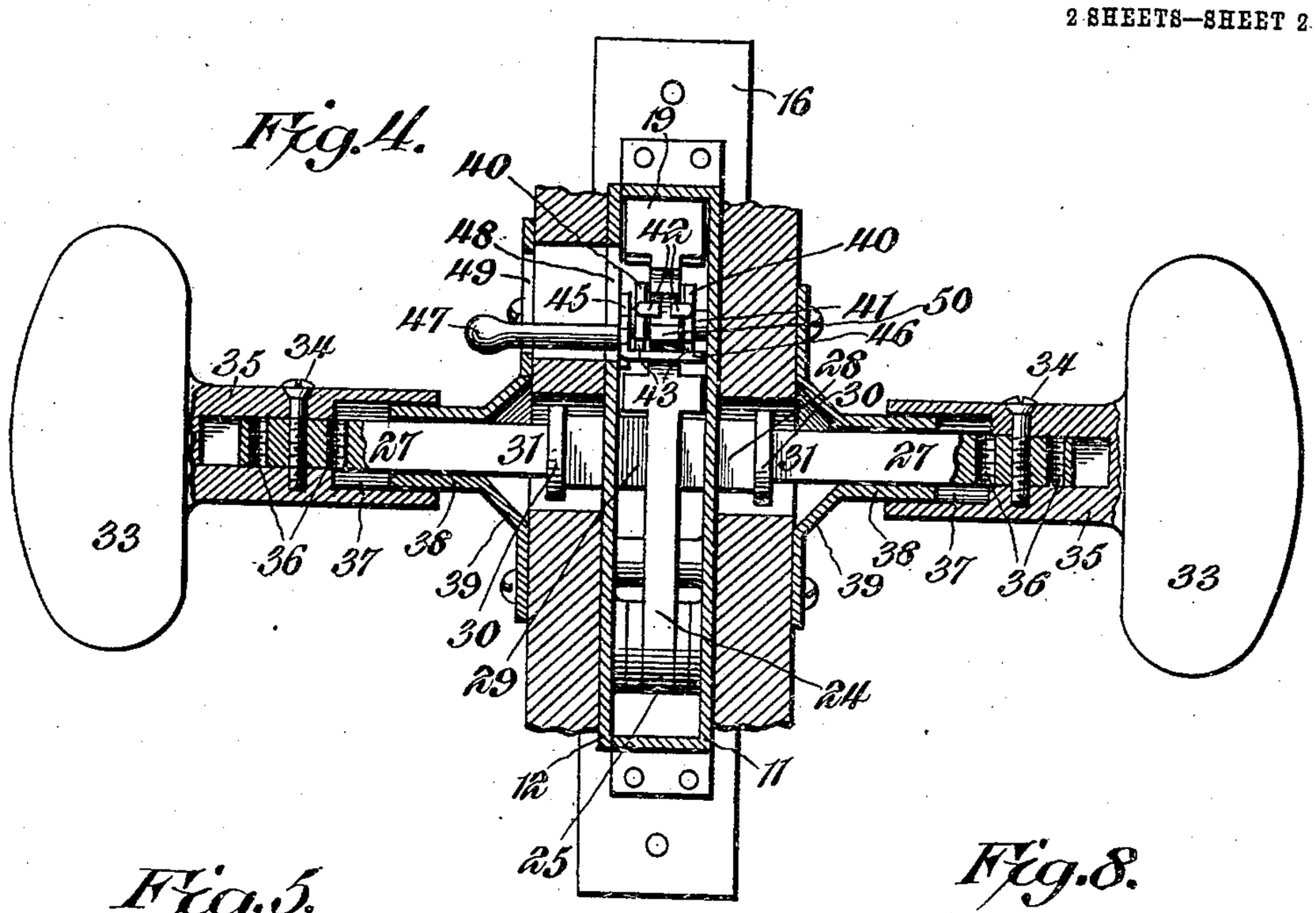


Fig. 5.

Fig. 8.

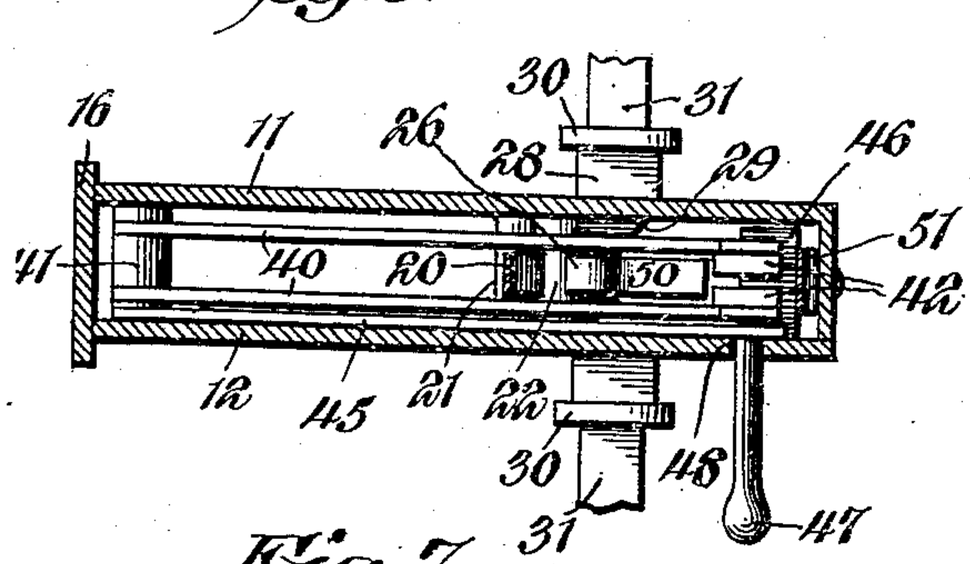


Fig. 7.

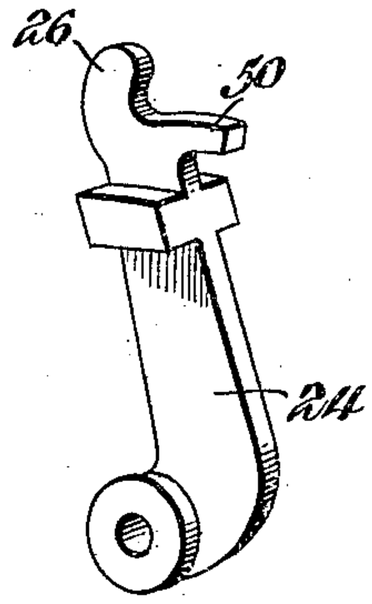


Fig. 9.

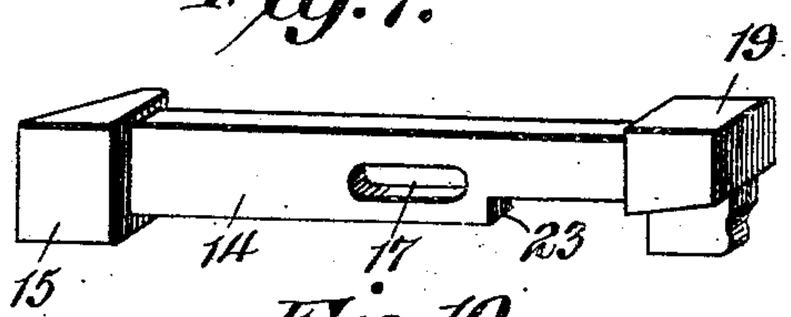
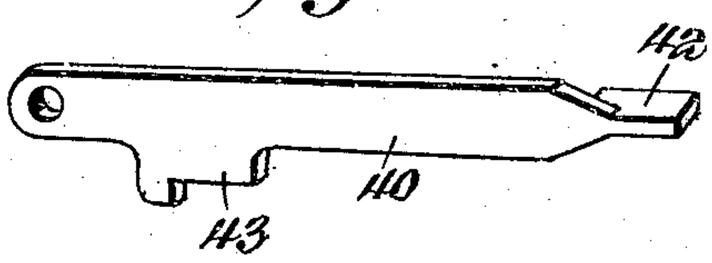
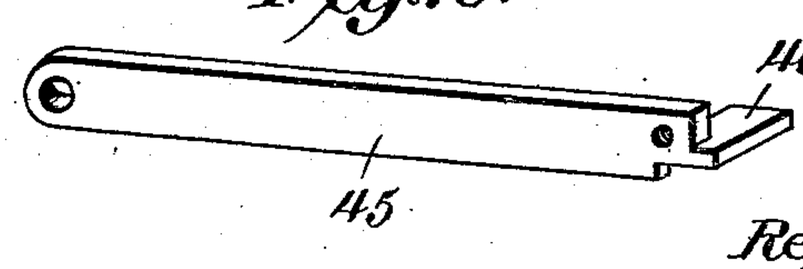


Fig. 10.





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UNITED STATES PATENT OFFICE.

REYNOLDS W. VREDENBURGH AND CHARLES B. GILMORE, OF SPRINGFIELD, ILLINOIS.

COMBINED LOCK AND LATCH.

No. 908,361. Specification of Letters Patent. Patented Dec. 29, 1908.

Application filed December 16, 1907. Serial No. 406,757.

To all whom it may concern:

Be it known that we, REYNOLDS W. VREDENBURGH and CHARLES B. GILMORE, citizens of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented a new and useful Combined Lock and Latch, of which the following is a specification.

The principal object of the present invention is to provide a novel, simple and effective combined lock and latch that eliminates the necessity of a locking bolt separate from the latch.

A further and important object is to provide mechanism which may be positioned so that the door can be locked against movement by the knob, the locking means being operable, however, by a key, said mechanism being also movable to a position to lock the latch and then so arranged that it cannot be operated by a key.

Another object is to provide simple and practical means for actuating the latch by movements of the knobs toward and from the door, said means being so constructed that the knob movements can be comparatively slight.

The preferred form of construction is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of the lock mechanism, one side of the casing being removed. Fig. 2 is a similar view but showing the supporting member removed and the locking device in a different position. Fig. 3 is a horizontal sectional view substantially on the line 3—3 of Fig. 1. Fig. 4 is a vertical sectional view on the line 4—4 of Fig. 1. Fig. 5 is a horizontal sectional view on the line 5—5 of Fig. 1. Fig. 6 is a detail perspective view of the cam portion of the knob stem. Fig. 7 is a similar view of the latch. Fig. 8 is a perspective view of the actuating lever. Fig. 9 is a detail view of one of the locking arms. Fig. 10 is a perspective view of the supporting device.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated, a casing 11 is employed, which may be of any desired form or construction, being preferably provided with a removable side 12 secured to the body of the casing by screws 13 or other fasteners. In the upper portion of this casing is slidably mounted a reciprocatory latch 14 having a head 15 that projects from the outer end or face plate 16 of the casing. The latch bar has a slot 17 in which is engaged a supporting pin 18 and its inner end is provided with a suitable head 19. A leaf spring 20, secured at its lower end to a pin 21 and having a bearing against another pin 22, has its upper end engaged against a shoulder 23 of the latch bar, and thus the head 15 of the latch is yieldingly held in projected relation.

A lever 24, fulcrumed at its lower end, and as shown at 25, upon a pin in the lower portion of the casing, has a rounded bearing 26 at its upper end against the head 19 of the latch. It will be evident that if the lever is swung rearwardly, the latch will be withdrawn into the casing. To effect this movement, a knob stem 27 is employed that extends transversely through the casing and reciprocates therein. This knob stem has a central cam portion 28 that slidably extends across the casing, being provided with a cam seat 29 in its rear side, in which the lever is engaged. The cam seat has oppositely inclined walls, as shown in Fig. 3, and is preferably rounded as illustrated in Figs. 1 and 2. The movement of the stem in opposite directions is limited by suitable collars 30 located at the ends of the cam portion 28, and secured in place by the terminal portions 31 of the stem which preferably pass through the collars 30, and are threaded as shown at 32 into the ends of the cam portion or section. Knobs 33 are adjustably secured to the end portions 31 by means of screws 34 that are passed transversely through the shanks 35 of said knobs and through any of a plurality of openings 36 formed in the ends of the stems. The shanks 35 have their inner ends recessed, as illustrated at 37 to receive the bosses 38 of suitable trimmings 39 secured to the opposite sides of the door. It will be observed that the cam 29 engages the actuating lever 24 between its fulcrum and its engagement with the latch. Therefore a comparatively slight longitudinal movement of the knob stem will effect a sufficient swinging of the lever 24 carrying the latch head 15 into the casing. Therefore if the knobs are pressed or pulled, it will be evident that the latch will be actuated and when said knobs are released, the spring 20 will react to again project the latch from the casing.

For the purpose of securing the latch against movement by the knobs, a locking device is employed, comprising a pair of spaced

arms 40 pivoted at their front ends upon a pin 41 and having inset lugs 42 at their rear ends, as shown more particularly in Figs. 4 and 5. These arms also have key engaged portions 43 located above a key-hole 44. It will be evident that said portions 43 may be altered to produce various combinations.

A support for the locking device or arms is provided that is in the form of a swinging arm 45, also pivoted on the pin 41 and having at its rear end, an offset finger or shelf 46, upon which the rear ends of the locking arms 40 rest. The supporting arm 45 carries an outstanding handle stem 47 that projects through a slot 48 in the casing, the inside trimming 39 being also provided with a slot 49 to permit the passage of the stem, as illustrated in Fig. 4. By moving the supporting arm 45, it will be evident that the locking device or arms 40 can be raised, so that the lugs 42 will be in rear of the head 19 of the latch, as shown in Fig. 2, or said support may be lowered so that said lugs will be in rear of an extension 50 on the lever. The support can also be moved to an intermediate position, in which case, the lugs are located between the lever and the latch. In order to hold the parts in these several positions, a spring 51 is secured at its lower end, and as shown at 52, to the rear end wall of the casing, and this spring has at its upper end a series of seats 53 that receives the rear edge of the finger or shelf 46.

The operation of the mechanism is substantially as follows: When the arm 45 is located so that the finger or shelf 46 is in the central seat 53 of the spring 51, the lugs 42 of the locking device will be located between the head 19 of the latch and the extension 50. It will thus be evident that upon the operation of the knobs, as above explained, the latch can be withdrawn so that the door can be opened. If, however, the handle stem 47, which it will be understood projects from the inner side of the door, is moved downwardly, so that the finger 46 is in the lowermost seat 53 of the holding spring, then the locking lugs 42 will be disposed in rear of the extension 50 and the latch cannot be operated by the knobs for the reason that the lever 24 is held against rearward movement. When in this position, the key-engaged portions 43 of the locking device are located in the range of action of a key, as for instance 54, shown in Fig. 1, and if a key is inserted through the key-hole 44 and turned, the locking device will be raised so that the lugs 42 will be moved to their central positions, and the door can be unlatched by actuating the knobs. On the other hand, if the supporting device is elevated to its highest position, then the locking lug 42 will be disposed in rear of the latch, and said latch will again be locked. Moreover when so locked, the key engaged portions 43 will be out of the range of the action of the key, and the door cannot be unlocked from the outside.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is:—

1. In mechanism of the character set forth, the combination with a latch, of actuating means therefor, a pair of swinging arms located side by side and having a common pivot axis, one of said arms having a locking device movable with said arm to and from a position to hold the latch against movement by the actuating means, the other arm having a swinging engagement with the first mentioned arm, and means for locking said other arm to effect the movement of the locking device.

2. In mechanism of the character set forth, the combination with a latch, of actuating means therefor, a swinging key-actuated locking device movable to and from a position to prevent the operation of the latch by the actuating means, a swinging supporting arm having a finger that engages the locking device, a common pivot for both the arm and device, and a handle connected to the supporting arm for moving the same.

3. In mechanism of the character set forth, the combination with a latch, of actuating means therefor, and a locking device movable into coaction with the latch to hold the same against movement, and into coaction with the actuating means to prevent its movement and thereby the movement of the latch.

4. In mechanism of the character set forth, the combination with a latch, of actuating means therefor, and a key operated locking device movable into coaction with the latch to hold the same against movement, and into coaction with the actuating means to prevent its movement and thereby the movement of the latch, said locking device when in one position being operable by a key and when in the other position being out of the range of action by said key.

5. In mechanism of the character set forth, the combination with a latch, of actuating means therefor, a key operated locking device movable to two positions in both of which it holds the latch against movement by the actuating means, said locking device when in one of said positions being operable by a key and when in the other position, being out of the range of action of such key.

6. In mechanism of the character set forth,

the combination with a latch, of actuating means therefor, and a key operated locking device movable into coaction with the latch to hold the same against movement and into coaction with the actuating means to prevent its movement and thereby the movement of the latch, said locking device when in coaction with the actuating means being operable by a key, and when in coaction with the latch being out of the range of action of said key.

7. In mechanism of the character set forth, the combination with a latch, of an actuating lever engaged with the same, and a swinging locking device movable into coaction with the latch to hold the same against movement and into coaction with the lever to prevent its movement and thereby the movement of the latch, said locking device when in coaction with the lever being operable by a key and when in coaction with the latch being out of the range of action of such key.

8. In mechanism of the character set forth, the combination with a latch, of actuating means therefor, a key operated locking device movable to two positions in both of which it holds the latch against movement by the actuating means, said locking device when in one of said positions being operable by a key and when in the other of said positions being out of the range of action of the key, said locking device furthermore being movable to a third position in which the latch is operable by the actuating device.

9. In mechanism of the character set forth, the combination with a latch, of actuating means therefor, and a key operated locking device movable into coaction with the latch to hold the same against movement and into coaction with the actuating means to prevent its movement and thereby the movement of the latch, said locking device when in one position being operable by a key and when in the other position being out of the range of action of such key, said locking device also being movable to a third position out of coaction with both the latch and actuating means to permit the movement of the latch by said actuating means.

10. In mechanism of the character set forth, the combination with a latch, of actuating means therefor, and a locking device movable into coaction with the latch to prevent its movement, being movable also into coaction with the actuating means to prevent its movement and being movable to a position between the latch and actuating means to permit the free movement of both.

11. In mechanism of the character set forth, the combination with a latch, of actuating means therefor, a locking device movable into coaction with the latch to prevent its movement, also being movable into coaction with the actuating means to prevent its movement and being movable to a position between the latch and actuating means to permit the free movement of both, and means for maintaining the locking device in its several positions.

12. In mechanism of the character set forth, the combination with a latch, of actuating means therefor, a swinging locking device movable into coaction with the latch to prevent its movement, said device being also movable into coaction with the actuating means to prevent its movement and being movable to a position to permit the free movement of both the latch and actuating means, and a spring for holding the locking device in its several positions.

13. In mechanism of the character set forth, the combination with a latch, of actuating means therefor, a locking device movable into coaction with the latch to prevent its movement, being movable into coaction with the actuating means to prevent its movement and being movable to a position between the latch and actuating means to permit the free movement of both, means for maintaining the locking device in its several positions, and a hand operated device for moving the locking device to its different positions.

14. In mechanism of the character set forth, the combination with a casing, of a reciprocatory latch mounted in the casing and projecting therefrom, a spring for holding the latch in projecting relation, a lever fulcrumed at one end and having its other end engaged with the latch, a transversely sliding knob stem having a cam portion that engages the lever between its fulcrum and its engagement with the latch, a pivot, a locking device comprising arms mounted on the pivot, said arms having stops that are movable to a position behind the latch, to a position behind the lever and to a position between the two that permits the free movement of both, a swinging supporting arm mounted on the pivot and having a finger on which the locking arms rest, said supporting arm having an outstanding actuating stem projecting from the casing, and a spring secured to the casing and having seats that receive a portion of the supporting arm to hold the same in different positions.

In testimony, that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

REYNOLDS W. VREDENBURGH.
CHARLES B. GILMORE.

Witnesses:
PETER VREDENBURGH, Jr.,
ALBERT SCHUPPE.