J. G. L. MARTIN. 2 Sheets--Sheet 1.

Locks for Doors.

No. 166,620. Patented Aug. 10, 1875.

FIG II

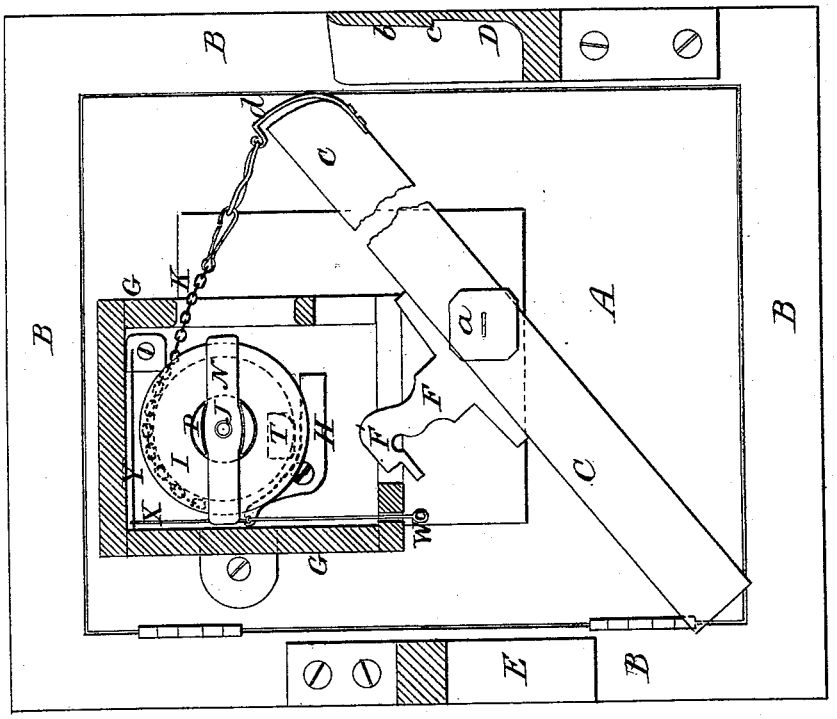
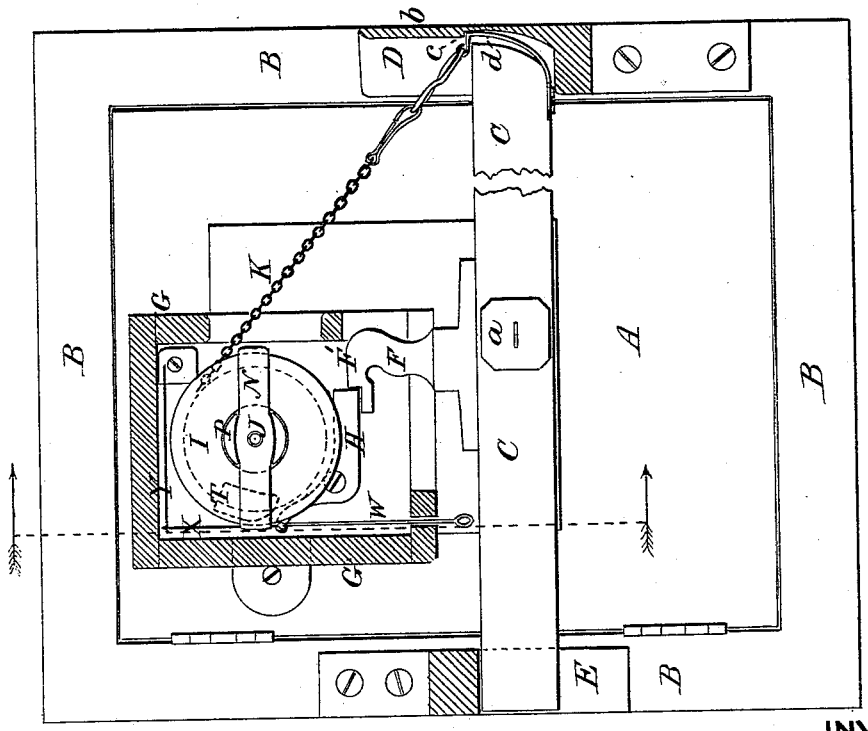


FIG I



WITNESSES

John E. Laing.
J. H. Rutherford

INVENTOR

James G. L. Martin.
by Johnson and Johnson
his Attys.

J. G. L. MARTIN.

2 Sheets--Sheet 2.

Locks for Doors.

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FIG III

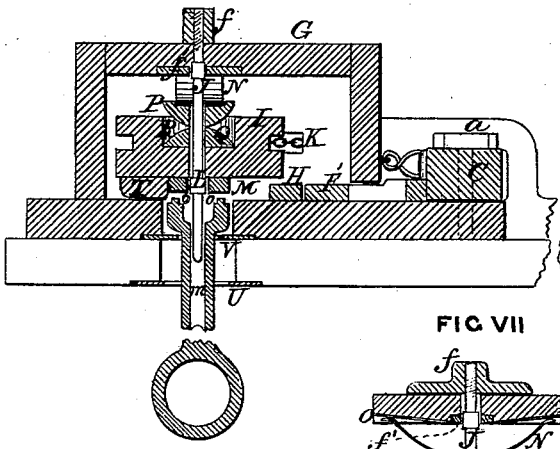


FIG IV

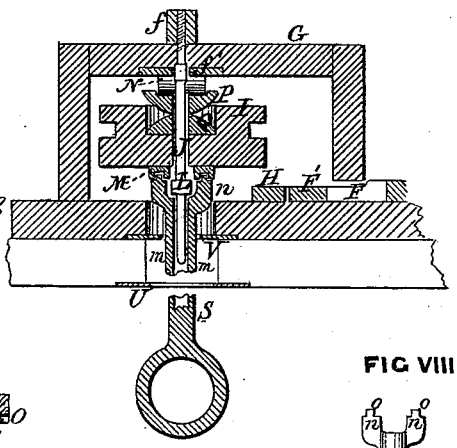


FIG VII

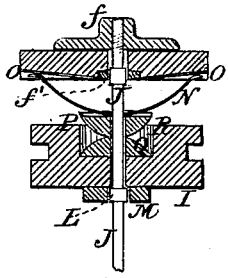


FIG VIII

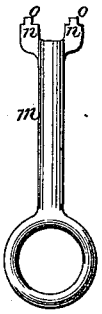


FIG X

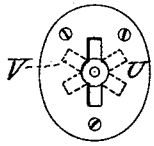


FIG V

FIG VI

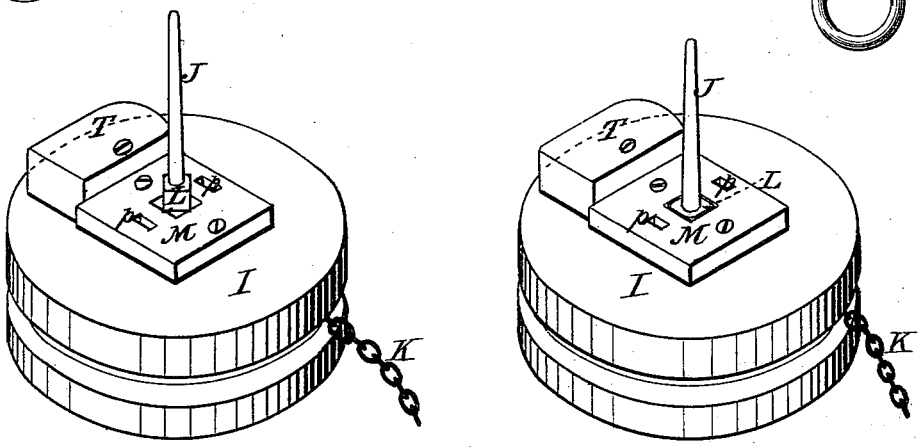
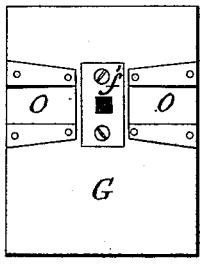


FIG IX



WITNESSES

John E. Laing

J. A. Rutherford

INVENTOR

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by Johnson & Johnson

his Attys

UNITED STATES PATENT OFFICE.

JAMES G. L. MARTIN, OF EUFAULA, ALABAMA.

IMPROVEMENT IN LOCKS FOR DOORS.

Specification forming part of Letters Patent No. **166,620**, dated August 10, 1875; application filed December 17, 1874.

To all whom it may concern:

Be it known that I, JAMES G. L. MARTIN, of Eufaula, in the county of Barbour and State of Alabama, have invented certain new and useful Improvements in Combined Bar-Locks for Doors; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The design of this invention is to combine a lock with a pivoted bar for doors of dwellings, banks, warehouses, barns, corn-cribs, gin-houses, and smoke-houses, and to fasten and unfasten the door-bar by means of a key from the outside of the door.

The bar-lock consists of a pivoted fastening-bar applied to the inner side of a door, and made to enter keepers on the door-jamb, and locked and unlocked therewith, from the outside of the door, by means of a hook-shaped extension of the bar entering a lock-case and engaging with a pivoted tumbler or elbow-lever, which is disengaged for freeing the bar by means of a cam carried by a revolving pulley or disk, that is first unlocked from a fixed spindle, and then turned on the same by a key inserted from the outside of the door, and entered into the face of the pulley. The pulley is grooved, and carries a chain, which is connected with a spring catch-plate on the end of the fastening-bar, so as to release said catch from the keeper, and then, by turning the pulley by the key, the chain is wound on the pulley, so as to turn the bar on its pivot until it is disengaged from the keepers, which enables the door to be opened, the unwinding of the chain and the lowering and fastening of the bar being also effected by the key and the weight of the bar.

The special features of invention which I have made will be specifically pointed out in the claims.

In the accompanying drawings, Figure 1 represents an elevation of a combined bar-lock embracing my invention, and showing the door-bar fastened and the lock-casing removed; Fig. 2, a similar elevation, showing the door-bar unfastened; Fig. 3, a vertical cross-section at the line *x x* of Fig. 1, showing the pulley locked with its fixed spindle or arbor; Fig. 4, a similar view, showing the pulley unlocked from the fixed spindle or arbor; Fig. 5, a view in perspective of the pulley unlocked from its spindle; and Fig. 6, a similar view, showing the pulley locked with the spindle.

The door A may be that of a dwelling or warehouse, bank-vault, or other place of deposit. B designates the casing or frame into which the door is set. To the inner side of the door is attached, by means of a pivot-bolt, *a*, a transverse horizontal fastening-bar, C, the ends of which are caused to enter bracket-shaped keepers D E, securely fastened to the door-casing. The keeper D is formed with a closed outer wall, *b*, on the inner side of which is made a shoulder or offset, *c*, for the reception of a locking or spring catch-plate, *d*, applied to the end of the fastening-bar. The catch-plate yields sufficiently to permit the fastening-bar to pass within the shoulder, and it springs into place to hold the bar in a locked position. The pivot pin or bolt of the fastening-bar is generally located at a short distance from the center of the same, so as to cause a preponderance of weight to be at one end of the bar, the result of which is that the bar will drop into its keepers by its own gravity.

A hook-shaped extension, F, is formed on or attached to the upper side of the fastening-bar, said hook serving as the means for connecting the bar with the locking mechanism. The upper end of the hook or extension F is provided with a lateral arm, F′, which has a shouldered or reduced outer end, designed to receive the horizontal arm of a locking-tumbler or elbow-lever, H, pivoted within the lock-case G. This tumbler is pivoted to the front plate of the lock-case, and the remainder of the lock mechanism occupies the inside space of the case and the back plate. The bar-locking tumbler H is arranged in front of or in proper relation to a pulley or disk, I, fitted on a stationary spindle or arbor, J, the front end of which terminates at the front key-hole plate, and the rear end of which passes through the back plate of the lock-case, and is screwed into

a nut-plate, *f*, located thereat, and held from turning by a square hole in a plate, *f'*. The pulley or disk is circumferentially grooved, and it carries a chain, K, which is attached to the catch-plate *d* on the end of the fastening-bar. The spindle or arbor J is made cylindrical nearly its entire length, so as to enable the pulley to readily turn on the same, and it is provided with a square, oval, or angular portion or boss, L, in front of the pulley I, which projection is designed to enter a corresponding recess in a key receiving and holding plate M on the front face of the pulley. When the parts are in this position the pulley is held stationary or fixed on its arbor, as the square projection and recess will preclude the turning of the same. The pulley is constantly pressed forward, so as to cause it to engage with the square projection on the arbor, through the medium of a spring N, interposed between the rear face of the pulley and the back plate of the lock-case. The spring is, in the present instance, made in a curved or plate form; but any other suitable spring may be employed for accomplishing the same result. Reversely-running seats or recesses O, Fig. 7, in the back plate of the lock-case, receive the ends of the plate-spring N, to allow the same to move to a proper extent. A convex plate or block, P, having a grooved rear face is fitted on the central or bow portion of the spring, which serves to hold it in contact with a correspondingly-convexed plate, Q, fitted into and securely fastened on a circular seat or recess, R, formed in the rear face of the pulley or disk. The two convex surfaces, placed in contact with each other, tend to produce a sort of globe-bearing, which will enable the pulley to turn freely. The key spindle or arbor passes through the pulley, convex bearings, and spring, and thus serves to hold the designated parts in proper relation to each other. The key S, employed in connection with my bar-lock, is provided with a long tubular barrel, *m*, and with a bifurcated inner end or branches, *n*, having projections or points *o*. The plate M on the front face of the pulley is provided with openings *p*, corresponding with the points *o*, and it will thus be perceived that by introducing the key from the outside of the door, so as to engage with the plate M, the pulley can be moved longitudinally on its arbor, for unlocking it, by pressing the key in an inward direction, and then it can be rotated by turning the key, which receives the angular projection L between its prongs *n*. The door-bar is unlocked through the medium of a cam-shaped block, T, on the pulley, which, when the same is turned, will come in contact with the vertical arm of the tumbler or elbow-lever H, and turn the same on its pivot, for releasing it from the locking-arm F' of the hook F. The rotary movement of the pulley will also wind up the chain, thus releasing the fastening-catch on the locking-bar, and drawing the same from its keepers.

In connection with a lock and key of the construction specified, I propose to use two or more key-hole plates, U V, located, respectively, on the outer and inner sides of the door, and provided with key-openings, crossing each other, or arranged at right angles to each other, at such distance as to allow the key-fork to turn freely in the key-hole. In order to introduce the key into the pulley it will be necessary to alternately push and turn the key until it strikes the pulley. I also provide means for operating the locking-bar from the inner side of the door, and this I accomplish by attaching a rod or wire, W, to the vertical arm of the tumbler or elbow-lever H, and running it through the bottom of the lock-case, where it terminates in a button or loop. The tumbler is also connected by a wire, X, with the free end of a plate-spring, Y, Figs. 1 and 2, attached to the front plate of the lock-case. By pulling on the wire W the tumbler is released from the locking-bar, and the same can then be moved by hand. The spring Y holds the tumbler in proper position for operation with the hook-arm of the locking-bar.

I claim—

1. The combination, with the pivoted locking-bar C, provided with the hook F F', of the lever H and the cam-pulley I T, connected with said bar C by the chain K, whereby the bar C is both unlocked and turned by the direct action of said pulley, as set forth.

2. In combination with the fastening-bar C and grooved pulley I, the connecting-chain K and the spring catch-plate *d* on the end of the fastening-bar C, substantially as and for the purpose herein set forth.

3. The combination of the pulley I, having a rotating and sliding movement upon its spindle, with the angular boss L on the arbor J, the spring N, and the angular socket in the pulley I, whereby the pulley is released from the locking-boss and rotated to raise the bar, as herein set forth.

4. The convex bearing-plates P Q, in combination with the revolving pulley I, the spring N, and the lock-case G, substantially as and for the purpose specified.

5. The lock-case G, provided with reversely-running seats or recesses O, in combination with the pressure-spring N and pulley I, substantially as and for the purpose herein described.

In testimony that I claim the foregoing as my own I have affixed my signature in presence of two witnesses.

JAMES G. L. MARTIN.

Witnesses:
J. C. McKENZIE,
D. R. WILSON.