No. 705,387. Patented July 22, 1902.

# J. B. COX.

## COMBINED LOCK AND LATCH.

(Application filed Sept. 6, 1901.)

(No Model.)

Fig. 1.

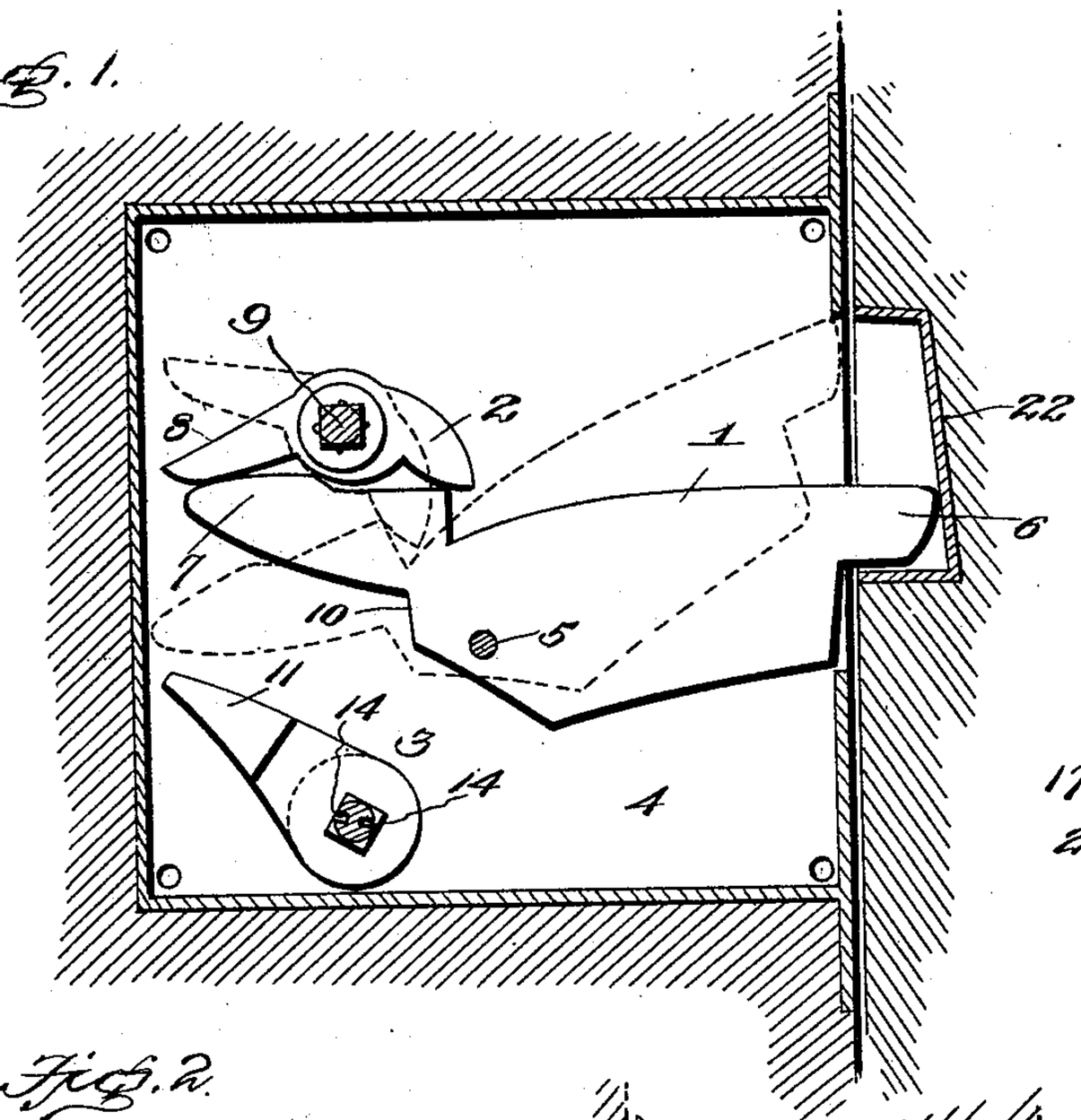



Fig. 4.

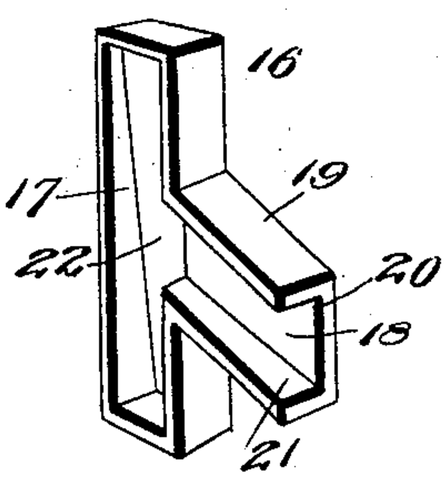



Fig. 2.

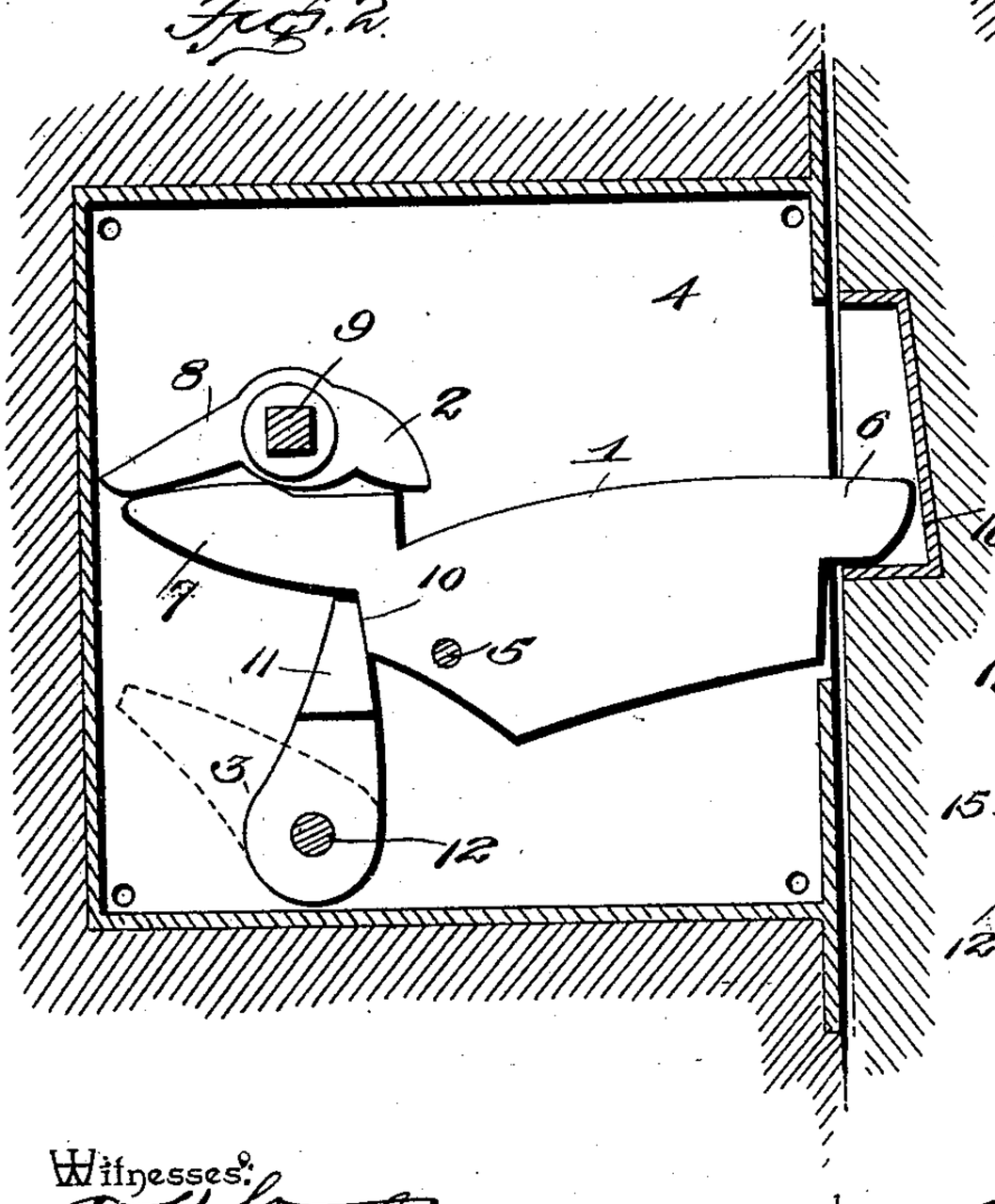
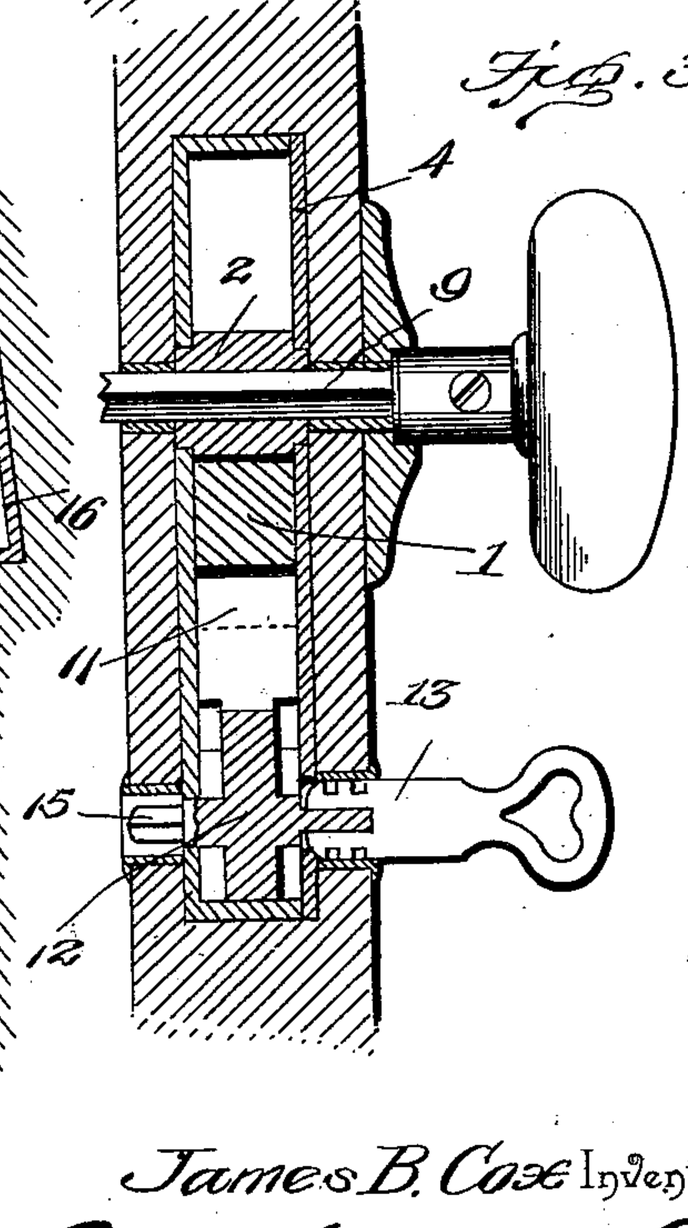



Fig. 3.




Witnesses:
E. K. Stewart
R. M. Elliott.

James B. Cox Inventor:
by Cushman & Co
Attorneys.

# UNITED STATES PATENT OFFICE.

JAMES BURTON COX, OF CANTON, NEW YORK.

## COMBINED LOCK AND LATCH.

SPECIFICATION forming part of Letters Patent No. 705,387, dated July 22, 1902.

Application filed September 6, 1901. Serial No. 74,565. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES BURTON COX, a citizen of the United States, residing at Canton, in the county of St. Lawrence and State of New York, have invented a new and useful Combined Lock and Latch, of which the following is a specification.

This invention relates to a combined lock and latch.

The object of the invention is to present a simply-constructed, thoroughly-efficient, durable, and inexpensive form of lock and latch in which the employment of a spring to actuate the latch-bolt is dispensed with and the force of gravity utilized for that purpose.

Further objects of the invention are to dispense of the necessity of turning the knob in closing the door, to provide means by which the latch-bolt may be lifted by turning the knob in either direction, and to reduce the number of operating parts of a lock to a minimum.

With these and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a combined lock and latch, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like numerals of reference indicate corresponding parts, there is illustrated a form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements herein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the scope of the invention, and in these drawings—

Figure 1 is a view in front elevation exhibiting the locked position of the latch in full lines and its unlocked position in dotted lines, the locking-tumbler being shown out of engagement with the latch. Fig. 2 is a similar view showing the locking-tumbler in engagement with the latch. Fig. 3 is a view in transverse section through the lock, showing a key inserted from the outside of the lock and in engagement with the tumbler. Fig. 4 is a detached detail view in perspective of the bolt-keeper.

The lock constituting this invention is composed of but three coöperative elements—namely, a latch-bolt 1, a latch-lifter 2, and a locking-tumbler 3. These parts are housed within a suitable casing 4, constructed as usual. The lock herein shown is of the mortise type; but it is to be understood that the improvements herein embodied are adaptable for use in connection with an ordinary outside lock, and as this will be perfectly obvious illustration is deemed unnecessary.

The latch 1 is pivoted intermediate of its ends upon a pivot 5 and is counterweighted, the heavy extremity being at the outer end of the latch or that carrying the bolt 6. The rear end of the latch carries an arm or projection 7, constituting a bearing-surface to be engaged by the members of the latch-lifter 8, carried by the knob-spindle 9, as usual. The surfaces of the latch-lifter that contact with the bearing-surface 7 are rounded or curved to present cam-surfaces, which by impingement against the said bearing-surface will lift the latch when the knob is turned in either direction, as will be obvious by reference to Figs. 1 and 2. The under side of the bearing-surface 7 is provided, adjacent to the pivot 5, with a shoulder 10, adapted to form a stop to the inward movement of a locking-tumbler 11, carried by a spindle 12, which projects through both sides of the lock-casing, as shown in Fig. 3. The locking-tumbler is of a length to engage with the under side of the bearing-surface 7, as shown in Fig. 2, thereby to effect secure locking of the latch against movement until the locking-tumbler is moved out of engagement with the bearing-surface. To effect turning of the locking-tumbler into or out of engagement with the latch, each end of the spindle is constructed to be engaged by a key. The key 13 (shown in Fig. 3) is adapted to be used on the outside of the door and is of the ordinary flat or Yale type and is provided with a longitudinal slot, the opposed arms formed thereby being adapted to engage longitudinal recesses 14, formed in the outer end of the spindle. The end of the spindle on the inside of the door is square, as shown at 15, and this shank will be engaged by an ordinary socket-key. While two different forms of keys are herein described as being employed for operating the locking-tumbler, it is to be understood that, if pre-

ferred, one key may be made to work both ends of the spindle, and as this will be readily understood it is not thought necessary to illustrate this feature. As before pointed out, the latch-bolt is to operate by gravity, and in order to effect this the latch-lifter operates against the upper face of the bearing-surface and against the resistance of the counterweighted end, and by reason of the coactive cam-surfaces of the latch-lifter the latch will not only automatically drop to position to hold the door closed, but will in this movement turn the knob-shank, and with it the knob, back to their normal positions after having been moved to lift the latch.

The keeper 16, which is secured to the jamb of the door in alinement with the bolt 6, is an approximately T-shaped structure having one of its sides provided with two recesses 17 and 18, disposed at right angles to each other. The walls of the recess 18 are to be constructed in such manner as to effect lifting up the latch when the door is closed to such height that when it drops it will pass into the recess 17 and occupy the lower portion thereof, thereby securely holding the door closed. To effect this result, the short outstanding member 19 of the keeper has its vertical wall 20 inclined outward from the extremity of the member 19 to the point where it terminates with the recess 18 and its lower wall 21 inclined upward throughout the same length. The object for having the vertical wall 20 inclined in the manner described is to prevent any binding between the bolt 6 and the said wall, it being obvious that as the keeper is stationary and the bolt moves in the arc of a circle it will be necessary to provide for this movement. The incline of the wall 21 is provided to cause the latch to be lifted as the door is closed, so that when it passes into the recess 17 it will drop down into its lower portion, and thus lock the door closed, and in order that the bolt may move through the requisite arc within the keeper its rear wall is inclined outward from the upper to the lower ends thereof, as shown at 22 in Figs. 1 and 4.

It will be seen from the foregoing description that the lock of this invention absolutely dispenses with the employment of springs for any purpose, the operation of the locking-latch being secured through the agency of gravity. The lock is therefore rendered certain and positive of operation and cannot get out of order unless the parts become broken or strained. Moreover, by the simple construction of the locking-tumbler certain and effective locking of the latch may be effected.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a lock, a gravity-actuated latch pivoted intermediate of its ends for rocking movement, and provided at one end with an enlarged counterweight terminating in a bolt and at its other end with an arm or projection provided on its upper side with a curved bearing-surface terminating in a square shoulder, and on its under side with a curved bearing-surface also terminating in a square shoulder disposed back of the shoulder of the upper surface, a two-arm latch-lifter having cam projections coacting with the curved upper surface and with the square shoulder of the latch whereby to rock the same in either direction, and a single locking-tumbler to engage with the square shoulder of the said arm or projection, the tumbler being provided with spindles which project through the lock-casing, each of the spindles being formed with means to be engaged by a key, substantially as and for the purpose specified.

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

JAMES BURTON COX.

Witnesses:
B. B. LANTRY,
JOHN O'BRIANT.