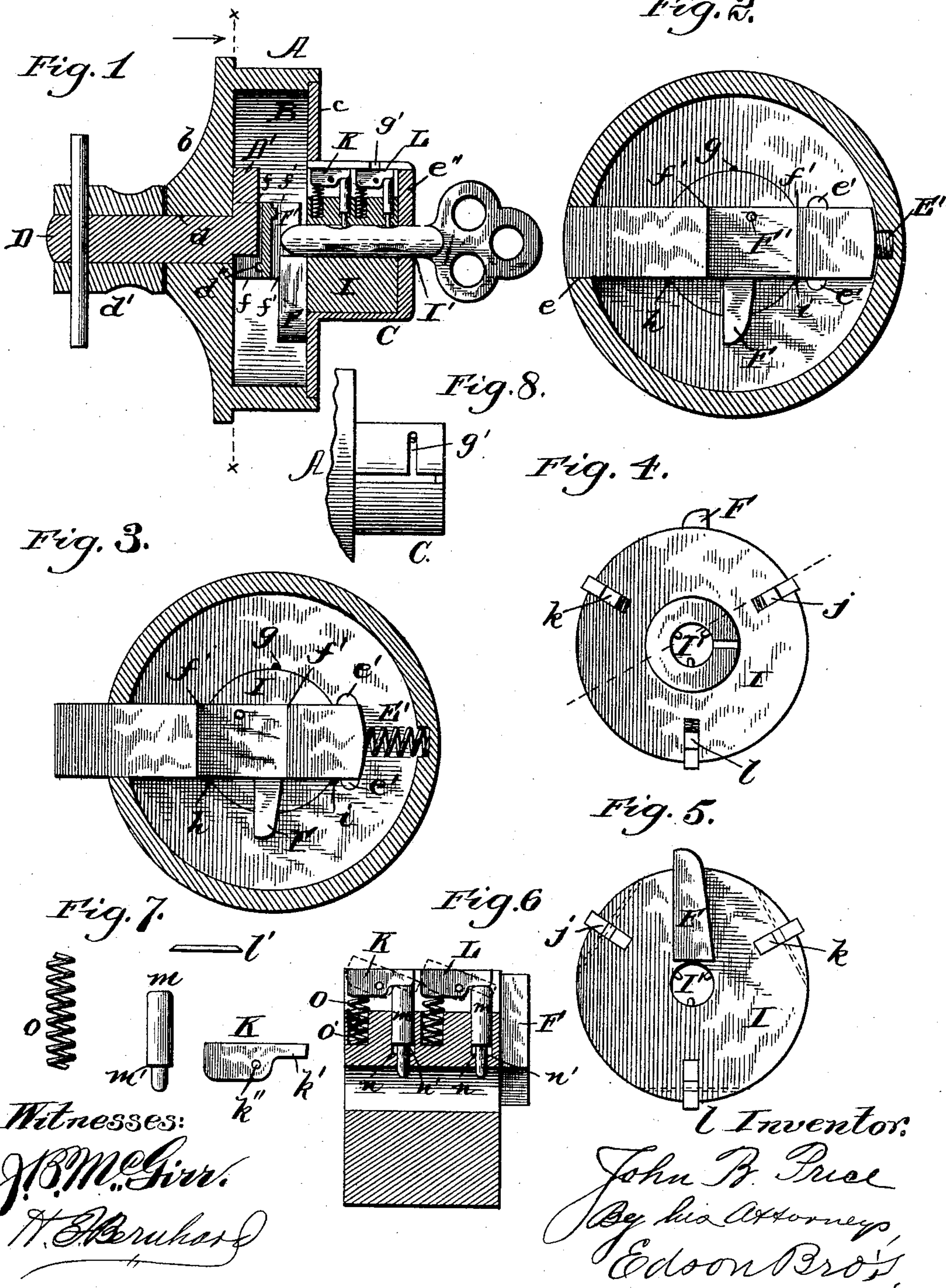


(No Model.)

J. B. PRICE.
LOCK.

No. 481,422.

Patented Aug. 23, 1892.



UNITED STATES PATENT OFFICE.

JOHN B. PRICE, OF WOLLASTON, MASSACHUSETTS.

LOCK.

SPECIFICATION forming part of Letters Patent No. 481,422, dated August 23, 1892.

Application filed March 30, 1892. Serial No. 427,108. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. PRICE, a citizen of the United States, residing at Wollaston, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of the present invention is to provide a combined lock and latch which can be easily and quickly applied to a door by simply boring therein from opposite sides holes of different diameters, which are in axial alignment, the smaller hole being on the outside of the door and larger hole on the inside thereof.

With these ends in view my invention consists of a sectional annular lock-casing, in which the larger annular member contains the latch adapted for manual manipulation from the inside of a door, and the smaller cylindrical section of the lock-casing contains the rotating barrel or plug carrying the key-operated plungers or pins which control the spring-pressed tumblers adapted for engagement with the slotted cylinder forming the smaller section of the lock-casing.

The invention further consists in the novel combination of devices and peculiar construction and arrangement of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view through my lock and latch applied to a door with the key inserted therein. Fig. 2 is a vertical transverse sectional view on the line xx of Fig. 1, looking in the direction indicated by the arrow, showing the latch retracted. Fig. 3 is a view similar to Fig. 2 with the latch projected. Figs. 4 and 5 are elevations looking at opposite ends of the revoluble plug carrying the tumblers and key-actuated plungers or pins. Fig. 6 is an enlarged sectional view taken longitudinally through a part of the plug to show the tumblers, plungers, and springs more clearly. Fig. 7 illustrates in detail the parts of the locking devices. Fig. 8 is a detail view of one member or part of the lock-casing, looking at the outside thereof.

Like letters of reference denote correspond-

ing parts in the several figures of the drawings.

A designates the lock-casing, which consists, essentially, of the two sections or members B C, which are annular or circular in form and suitably connected or joined together. The section B of the lock-casing is larger in diameter than the section C, and the two annular sections B C are arranged in axial alignment to adapt them to be readily fitted to a door, in which it is only necessary to bore two aligned holes, the larger hole being on the inside of the door and the smaller bore on the outside of the door. The section B of the lock-casing is fitted in the hole of large diameter on the inside of the door, and the smaller section or cylinder C of the lock-casing has a wide annular flange c at its inner end, said cylinder C being inserted from the inside of the door into the smaller hole or bore therein, so that the wide flange c on its inner end fits in the large section B of the lock-casing and is suitably secured thereto. It is evident that the flange c of the cylinder-section C can be fitted in and secured by screws to the large open inner end of the section B, and that after the holes have been bored the lock can be readily adjusted in the door by simply passing the small section C from the inside of the door, the latter having its outer end flush with the front face of the door. The large section B of the lock-casing has its outer end closed by a head b , and the center of the head is furnished with a bearing d , in which is journaled an arbor or shaft D, the outer end of which is furnished with a handle b' , by which the arbor can be easily turned to retract the latch E within the lock-casing. This latch has its bevel-nose passing through an aperture e in the side of the case-section B, and it is guided and held in place by means of the fixed studs $e' e'$ within the casing-section B, the latch being normally projected by means of a coiled spring E' , fitted between the inner end of the latch and one side of the casing-section B. At or near its middle the opposite faces of the latch are recessed, the recess in one face forming the shoulders $f f$ and the recess in the other face forming the shoulders $f' f'$. The inner end of the arbor or shaft D carries an arm D' , which works in the recess between the shoul-

ders *ff*, and this arbor and its arm are adapted
 to retract the latch within the casing, the arm
 D' being limited in one direction by means
 of a pin or stop *d''*, fixed in the latch in the
 5 path of the arm D'. In the recess in the other
 face of the latch formed by and between the
 shoulders *f' f'* operates the barrel-piece F,
 which is adapted to impinge against one of
 the shoulders to effect the withdrawal of the
 10 latch from the keeper after the key has been
 inserted in the barrel to retract the tumblers
 from engagement with the cylinder or section
 C of the lock. This operating-piece F is rigid
 with the barrel, being arranged radially
 15 thereof on its inner end adjacent to the latch,
 as shown more clearly in Fig. 1, and the move-
 ment of the operating arm or piece F is lim-
 ited in one direction by a stop or pin F' on
 the latch in the path of the operating-piece.
 20 The cylinder or section C of the lock-casing
 has its periphery formed with a series of three
 or more radial slots *g h i*, which extend from
 the flange or plate *c* to the outer closed end *e*²
 of the cylinder, and from one of these slots *g*
 25 extends a segmental slot *g'*, which lies in a
 plane substantially at right angles to the
 slot *g*.
 I is the barrel or plug of the locking mech-
 anism, which is of such diameter that it can
 30 turn or move on its axis freely in the cylinder
 C, in which it is snugly fitted. This barrel
 or plug is provided with a longitudinal pas-
 sage I', which extends entirely through the
 center of the plug from end to end thereof,
 35 and in its surface or periphery are formed ra-
 dial recesses *j k l*, which correspond to and
 are adapted to align with the slots *g h i* in the
 cylinder C. Each of these radial recesses in
 the plug or barrel receives two tumblers K L
 40 of the form shown in Fig. 6 of the drawings.
 Each tumbler is made or stamped from a sin-
 gle piece of metal, and it has a heel *k'*, which
 projects beyond one end of the body of the
 tumbler, and the aperture *k''* for the pivot-
 45 pin *l'*, which is located below and at one side
 of the heel *k'*. Against the heel of the pivot-
 tumbler bears a plunger or pin *m*, which
 passes through a radial aperture *n* in the plug
 or barrel, and the inner part of the aperture
 50 is contracted to form a seat *n'* for the shoul-
 der *m'*, formed by reducing the inner end of
 the plunger or pin *m*, so that the latter is
 prevented from passing entirely through the
 radial opening into the longitudinal central
 55 bore I', provided for the reception of the key.
 The tumbler is pivoted by the pin *l'* at an in-
 termediate point of its length, and against the
 free end of the tumbler bears a coiled spring
o, which is seated in a socket *o'* in the barrel
 60 or plug, provided on one side of the radial
 opening *n* therein, the function of the spring
o being to throw one edge of the free end of
 the pivoted tumbler beyond the surface of the
 barrel and to depress the plunger or pin into
 65 the central bore or passage I' of the plug. As
 each of the three radial recesses in the plug
 has two tumblers seated therein and each

tumbler has an independent spring and actu-
 ating-plunger, it will be seen that I provide a
 total of six tumblers arranged in pairs spaced 70
 equidistant around the periphery of the bar-
 rel, and the six pins or plungers are forced
 or projected into the longitudinal bore I' in
 the path of the key, so as to be forced or
 pressed outward by the proper wards on the 75
 key.

This being the construction of my improved
 lock and latch, the operation may be de-
 scribed as follows: To apply the latch to a
 door, two aligned holes are bored therein of 80
 different diameters and the lock passed from
 the inside of the door, so that its cylinder C
 enters the smaller hole and the section B is
 in the larger hole, the two sections B C be-
 ing suitably fastened together and the lock 85
 secured in the door. The latch is normally
 projected by its spring, and the plug or bar-
 rel is so adjusted that its tumblers fit into the
 radial slots in the cylinder or section C of the
 lock-casing, thus preventing the barrel from 90
 being turned, while the operating-piece F of
 the plug or barrel bears against one of the
 shoulders *f'* of the latch and prevents it from
 being retracted, except by the arbor and the
 key turning the plug. 95

It is evident that the arbor can be turned
 from the inside of the door to retract the
 latch, but to open the door from the outside
 it is necessary to insert the proper form of
 key into the barrel in order to force all of the 100
 plungers outward, thereby turning the tum-
 blers on their pivots and forcing all of the
 tumblers to lie flush with the surface of the
 plug, after which the key can be turned to
 rotate the plug or barrel sufficiently for the 105
 operating-piece F therein to retract the latch.

The oscillation of the plug or barrel is lim-
 ited in both directions by a pin or stud *p*, work-
 ing in the segmental slot *g'* in the cylinder C,
 said stud being rigid with the plug, as shown. 110
 I am aware that changes and alterations in
 the form and proportion of parts and details
 of construction of the mechanism herein
 shown and described as an embodiment of my
 invention can be made without departing 115
 from the spirit or sacrificing the advantages
 of my invention.

What I claim as new is—

1. In a lock substantially as herein shown
 and described, the sectional casing compris- 120
 ing the two annular members A C, of which
 the smaller member C is arranged in axial
 alignment with the larger member and pro-
 vided at its inner end with a radial flange or
 plate *c*, secured directly to said larger mem- 125
 ber, combined with a bolt guided in the mem-
 ber A and a key-actuated plug seated in the
 smaller member and having an arm F, which
 operates between suitable stops on the bolt,
 as and for the purpose described. 130

2. In a lock substantially as herein shown
 and described, the combination of an annu-
 lar sectional casing having its aligned mem-
 bers connected rigidly and directly together

and one member provided with a spindle-bearing, the latch-bolt F' , guided in one member of the casing and recessed on both sides thereof to provide the two sets of shoulders $f' f'$, an axially-turning plug seated in the other member of the casing and provided at its inner end with a radial arm F , which operates between the shoulders f' of the bolt, and a spindle journaled in the bearing of one member of the casing and also provided with a radial arm that fits between the shoulders f of the bolt, as and for the purpose described.

3. In a lock substantially as herein shown and described, the sectional annular casing adapted to be fitted in a door-stile by having two holes therein of different diameters, comprising an annular divided casing $A C$, in which the members are united rigidly and directly together at their inner meeting ends, combined with a latch-bolt guided in the member A , a spindle, and a turning plug seated in the member C and connected directly to the latch-bolt, as and for the purpose described.

4. The combination, with a fixed slotted casing, of the axially-turning plug or barrel seated therein and having the radial tumbler-recesses, the tumblers pivoted eccentrically in said recesses and normally projected by springs beyond the surface of the plug or barrel, and the plungers or pins bearing against

the tumblers and normally forced thereby into a longitudinal key-passage in the center of the barrel or plug, substantially as described.

5. The combination, with a slotted casing, of the recessed axially-turning plug, the series of tumblers, each pivoted independently in the plug or barrel and projected at one end beyond the surface thereof by a separate pressure-spring, and a separate pin or plunger bearing against the heel of each tumbler and forced thereby into a key-opening in the barrel, substantially as described.

6. The combination, with a radially-slotted casing, of an axially-turning plug having the radial recesses in its surface and a central key-passage, the series of tumblers, each eccentrically pivoted in one of the recesses and having a heel, a spring for each tumbler, seated in a socket in the plug or barrel and bearing against the free end of the tumbler, and a radial pin or plunger operating in a seated radial opening in the plug and bearing against the heel of the tumbler, as and for the purpose described.

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

JOHN B. PRICE.

Witnesses:

CHAS. F. THAYER,
HENRY J. THAYER.