

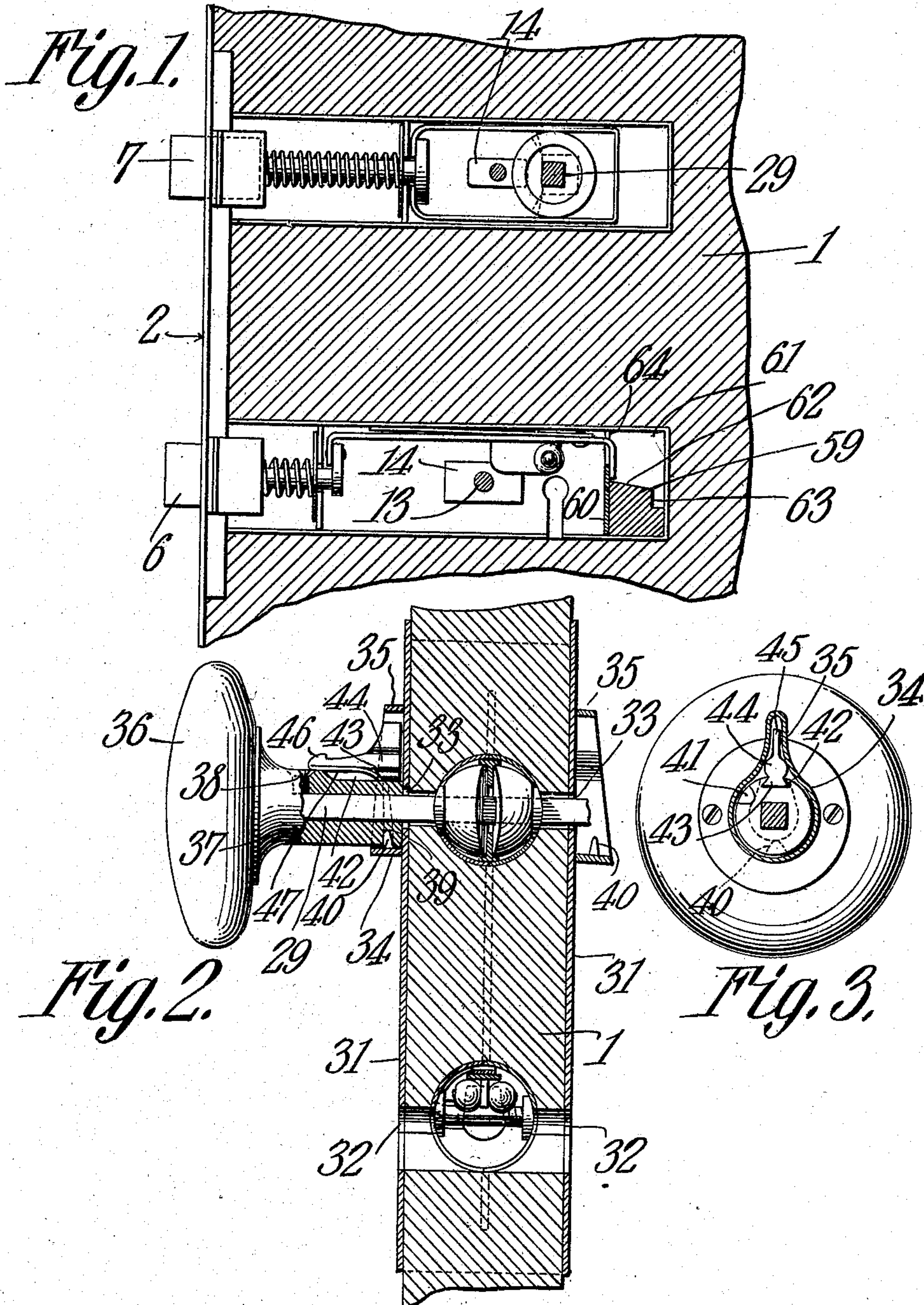
No. 885,225.

PATENTED APR. 21, 1908.

D. H. BURTCH.
LOCK AND LATCH.

APPLICATION FILED JULY 10, 1907.

2 SHEETS—SHEET 1.



WITNESSES:

E. J. Stewart
F. J. Chapman

Donaldson H. Burtch,

INVENTOR.

By

C. A. Snow & Co.

ATTORNEYS

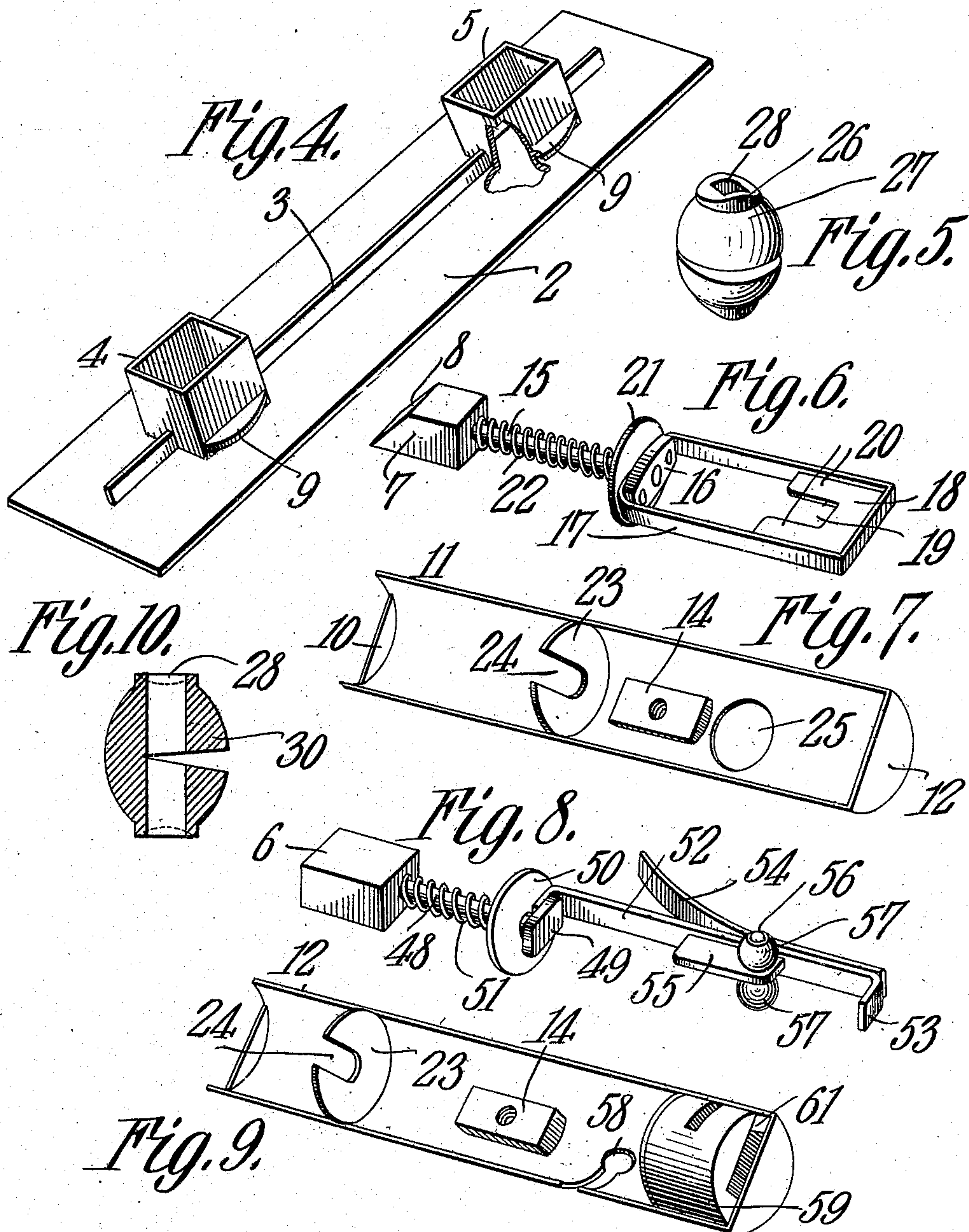
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By *C. A. Snow & Co.* ATTORNEYS

UNITED STATES PATENT OFFICE.

DONALDSON HORACE BURTCH, OF MORGAN CITY, LOUISIANA, ASSIGNOR OF ONE-THIRD TO
MARVILLE THOMAS GAUTREAUX, OF MORGAN CITY, LOUISIANA.

LOCK AND LATCH.

No. 885,225.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed July 10, 1907. Serial No. 383,053.

To all whom it may concern:

Be it known that I, DONALDSON H. BURTCH, a citizen of the United States, residing at Morgan City, in the parish of St. Mary and State of Louisiana, have invented a new and useful Lock and Latch, of which the following is a specification.

This invention has reference to improvements in door locks and latches, and it is designed to provide a simple and easily applied lock and latch requiring no skilled labor for its adjustment to a door, and is especially adapted for use in cottages and other places where locks of a more expensive and complicated character are not desirable. At the same time the efficiency of the device as a lock and latch is in no wise impaired by the simple and cheap construction.

The lock is provided with a suitable face plate designed to be adapted to the edge of a door after the manner of mortise locks, but said face plate may be made of light material which may be easily and cheaply stamped into shape. The lock and latch casings are both made cylindrical so that they may be readily fitted to a door by the use of an ordinary wood bit. These cylindrical lock and latch casings are separate one from the other and are so constructed that they may be applied to the face plate and secured thereto by the same screws which secure together the two parts of the casings. The mechanism of both the lock and the latch is designed with the idea of making these structures of the simplest possible type, while at the same time sacrificing nothing in efficiency. And in addition, there is provided a simple form of night-latch by which the knobs and coacting parts are effectively locked against manipulation.

The invention will be fully understood by reference to the following detailed description, taken in connection with the accompanying drawings forming part of this specification, in which,—

Figure 1 is a vertical central section through a portion of a door and through the combined lock and latch therein, parts being shown in elevation; Fig. 2 is a cross section of the same, taken on the line of the knobs, parts being shown in elevation; Fig. 3 is a section through the knob spindle in a plane coincident with the face plate; and Figs. 4 to

10, both inclusive, are views of details of the lock and latch disassembled.

Referring to the drawings, there is shown a small portion of a door 1. To this door is applied a face plate 2, shown in Figs. 1 and 4. This face plate is of the ordinary rectangular shape common to mortise locks and being made of sheet metal is provided with a central, longitudinal, strengthening rib 3, either stamped up from said plate or secured thereto in any suitable manner. Near each end the face plate is provided with guiding sleeves 4—5 for the lock-bolt head 6 and the latch-bolt head 7 respectively. In the particular construction shown the heads 6 and 7 are generally rectangular, as is common in locks, while the latch-bolt head 7 is made with the usual bevel 8. On each side of the sleeves 4 and 5 there are provided ears 9 spaced a short distance from the back of the face plate 2. Between these ears 9 and the face plate engage lips 10 extending radially inward at the ends of half-cylinders 11—12, a pair of which half-cylinders constitutes the cylindrical casing of the latch or lock, as the case may be. A half-cylinder 11 constituting one-half of the latch casing is shown separately in Fig. 7, and a similar half-cylinder forming one-half of the lock casing, is shown in Fig. 9. The other end of each half-cylinder is closed, as indicated at 12', and when two half-cylinders are secured together by means of a screw 13 passing through bosses 14 in the sides of the half-cylinders, one of said bosses being formed with a nut for the purpose, the two half-ends 12' constitute a complete closure for that end of the cylinder, while the other end is entered by the corresponding sleeve 4 or 5, and the lips 10 engage under the ears 9 and thus firmly hold the cylinders to the face plate without the necessity of any other fastening means. If the cylinders are made to fit snugly into the mortises formed in the door, the face plate will be held securely in place without other fastening devices, but it is advisable to use either screws or nails for further securing the face plate to the door. Since the strengthening rib 3 may be made of thin material, it is easy to drive such rib into the edge of soft wood doors.

Referring, now, more particularly to the latch part of the structure, it will be ob-

served that the head 7 is fast on one end of a rod 15, the other end of which has secured to it a laterally extending block 16. Secured to this block are the two ends of a rectangular saddle strap 17 at the yoke end of which there is secured a plate 18 centrally slotted, as shown at 19, to form two spaced legs 20. Loose on the rod 15 adjacent to the block 16 is a washer 21, and between this washer and the head 7 the rod 15 is surrounded by a helical spring 22.

Fast in the casing 11 of the latch-bolt is a circular plate 23 having a radial slot 24, which slot is provided for the reception of the rod 15 with the washer 21 on the forward side of the plate 23 and the block 16 on the rearward side of the plate 23. When the parts are in this position the spring 22 tends to project the latch-bolt head 7 beyond the face plate 2 into position to engage with the keeper on the door jamb. This keeper is not shown in the drawings, as it may be of ordinary construction.

Each half of the casing 11 is provided with an opening 25 for a journal 26 formed on the corresponding end of a roll-back 27, which roll-back extends through the saddle strap 17. This roll-back is made globular in shape and has extending through it a square axial passage 28 for the reception of a knob spindle 29 of ordinary construction. Midway of the length of the roll-back there is a cross slot 30 extending from one side of the roll-back entirely through the passage 28 for the knob spindle. When the parts are in place the knob spindle extends through the slot 19 in the plate 18, while the inner walls of the slot 30 engage the free ends of the legs 20. When the roll-back is rotated by the knob spindle one leg 20 or the other is engaged by the wall of the slot 30 and the latch-bolt head 7 is thereby moved inward with relation to the casing and against the action of the spring 22. When the parts are released the spring 22 returns the latch-bolt head to its normal position. The operation is the same as that of an ordinary latch.

Applied on each side of the door are other plates 31, each of which is provided with a keyhole slot 32 and a perforation 33 for the passage of the knob spindle. Surrounding the perforation 33 each plate 31 carries a cylindrical flange 34 having a radial extension 35, the walls of which are formed in one piece with the cylindrical portion 34. The knobs 36 may be of any ordinary or approved construction and are provided with knob shanks 37 having the usual socket for the reception of the knob spindle, to which latter they are attached by the usual screw 38. Each knob shank is provided near its end remote from the knob with a circumferential groove 39 into which extends a tooth 40 fast on and inwardly projecting in a radial direction from the walls of the flange 34 opposite the

extension 35 thereof. The end of each knob shank is provided with a slot 41 leading into the groove 39 and of such size as to receive the tooth 40. The slot 41 is so located that in the ordinary operation of the knob it will not be brought into matching relation with the tooth 40, and, therefore, the knob is locked to the corresponding plate 31 by a bayonet catch structure irrespective of its connection to the knob spindle 29. There is no danger, therefore, of the knob coming off the spindle should the screw 38 become loose. In one side of the knob shank there is provided a dovetail slot 42 in which engages a dovetail lug 43 formed on one side of a block 44, which block has a tongue 45 on the side opposite the lug 43 and is also provided with a manipulating extension 46 carrying a spring 47 arranged to travel in said slot 42. This block 44 may be made to slide longitudinally along the knob shank but cannot escape therefrom because of the dovetail connection, while the spring 47 affords sufficient resistance to hold the block in any adjusted position. When the block 44 is drawn toward the knob the tongue 45 is free from engagement in the extension 35, but when this block is moved toward the plate 31 the tongue 45 enters the extension 35 and so locks the knob against rotation. This sliding block carried by the knob shank constitutes a night latch structure by which the knob and latch-bolt are effectively locked against manipulation. When each knob is provided with such a night latch the structure is adapted for doors between communicating rooms, so that the occupants of each room may lock the corresponding side of the door against manipulation and so the door cannot be opened unless both occupants so please.

Referring, now, to the lock structure best shown in Figs. 1, 2, 8 and 9, it will be observed that the lock-bolt head 6 is fast on a stem 48 terminating at the other end in a block 49, and this stem carries a washer 50 between which and the head 6 the stem is surrounded by a helical spring 51. The casing 12 for the lock is provided, like the casing 11 for the latch, with a circular plate 23 having a radial slot 24, and this plate is interposed between the washer 50 and the head 49 so that the spring 51 will tend to force the lock-bolt head 6 always outward through the sleeve 4 and beyond the face plate 2. Fast on the block 49 is a metal strap 52 extending to the rear thereof and terminating in a right angle lug 53. This strap 52 is so located as to travel in the casing adjacent to one side thereof, and a flat spring 54, fast in the strap 52, tends to move the lug 53 away from the particular side of the casing toward the other side thereof. That this spring may act under conditions to be hereinafter stated, the strap 52 is made sufficiently elastic for the

spring to bend it to the desired extent. About midway of the length of the strap 52 on the side opposite the spring 54 and extending radially toward the axis of the cylindrical casing 12 is a tongue 55 carrying a through stud 56 on the ends of which are ball rollers 57, one being located on one side of the tongue 55 and the other being located on other side of the tongue 55. In the normal position of the parts the tongue 55 is located adjacent to the keyhole slots 58 formed in the sides of the casing 12 and arranged coincident with the keyhole slots 32 in the plates 31, it being understood, of course, that the door is appropriately bored out at these points for the passage of the key. Fixed in the rear of the lock casing 12 there is a block 59 which may, for cheapness, be made of wood, or this block may be made of any other material. The block 59 is confined in place by a face plate 60 which may be soldered or otherwise secured to one half of the casing 12. This block is provided with a through slot 61 in the longitudinal axis of the casing, and this slot is provided with a slanting bottom wall 62 and a shoulder 63 formed by a deepening of the slot. The plate 60 is also provided with a radial slot or recess 64 and the solid portion of this plate extends upward for a distance above the bottom 62 of the slot 61.

When the parts of the lock are assembled the lug 53 rests in the slot 61. When the lock-bolt is moved backward against the action of the spring 51 the lug 53 rides down the inclined bottom 62 of the slot 61, being forced to follow such inclination by the spring 54, and finally this lug 53, reaching the shoulder 63, drops behind the same under the action of the spring 54. The lug 53 and shoulder 63 effectively lock the bolt 6 from being forced outward by the action of the spring 51. Now, if a key be inserted through the keyhole and be brought into contact with the tongue 55 a continued rotation of this key will lift the tongue against the action of the spring 54 until the lug 53 is free from the shoulder 63, when the expansive force of the spring 51 will project the lock-bolt head 6 out beyond the face plate 2 until the lug 53 comes in contact with the plate 60. When the key is turned in the other direction it will come in contact with the rollers 57 and force the lock-bolt backward until the lug 53 engages behind the shoulder 63. In this action, the friction between the key and the parts it acts upon is greatly reduced by the

rollers 57 and the spring 54 meets with little or no resistance in acting to bend the strap 52 to force the lug 53 behind the shoulder 63. 60

From the foregoing it will be seen that the lock is of exceedingly simple construction, with most of the parts so made as to be readily stamped out of sheet metal. The several parts are readily assembled and are held together by a minimum of fastening devices. Furthermore, no skilled labor is required to apply the lock to a door, since an ordinary bit is all that is necessary to bore the holes for the reception of the cylindrical casings. 65 70

I claim:—

1. In a latch, a cylindrical casing, a roll-back formed of a substantial globular block having a passage for a knob spindle, and a slot extending through the block at right angles to the passage for the knob spindle, a latch-bolt provided with a saddle strap, and a plate secured to the yoke end of the saddle strap and centrally slotted to form two spaced legs entering the slot in the roll-back and straddling the knob spindle. 75 80

2. A latch, composed of a cylindrical casing, a face-plate having the central strengthening rib provided with guiding sleeves entering the cylindrical casing and to which the latter is anchored, a latch-bolt having its head guided by the sleeve, a stem extending from the latch-bolt head, a saddle strap fast on the stem, a washer on the stem, a spring on the stem between the washer and the head of the latch, a radially slotted plate fast in the cylindrical casing and receiving the latch stem between the washer and the strap, and a globular roll-back extending through the saddle-strap and engaging the same to cause longitudinal movement of the latch-bolt when the roll-back is rotated. 85 90 95

3. In a latch, a roll-back formed of a block having a passage for a knob spindle and a slot extending through the block at right angles to and intersecting the passage for the knob spindle from one side of the block to a point beyond the passage for the knob spindle, and a latch-bolt having projecting parts straddling the knob spindle and engaging the end wall of the slot formed in the roll-back. 100 105

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

DONNIE HORACE BURTCH.

Witnesses:

W. P. PAUNER,
S. J. BOURGEOIS.