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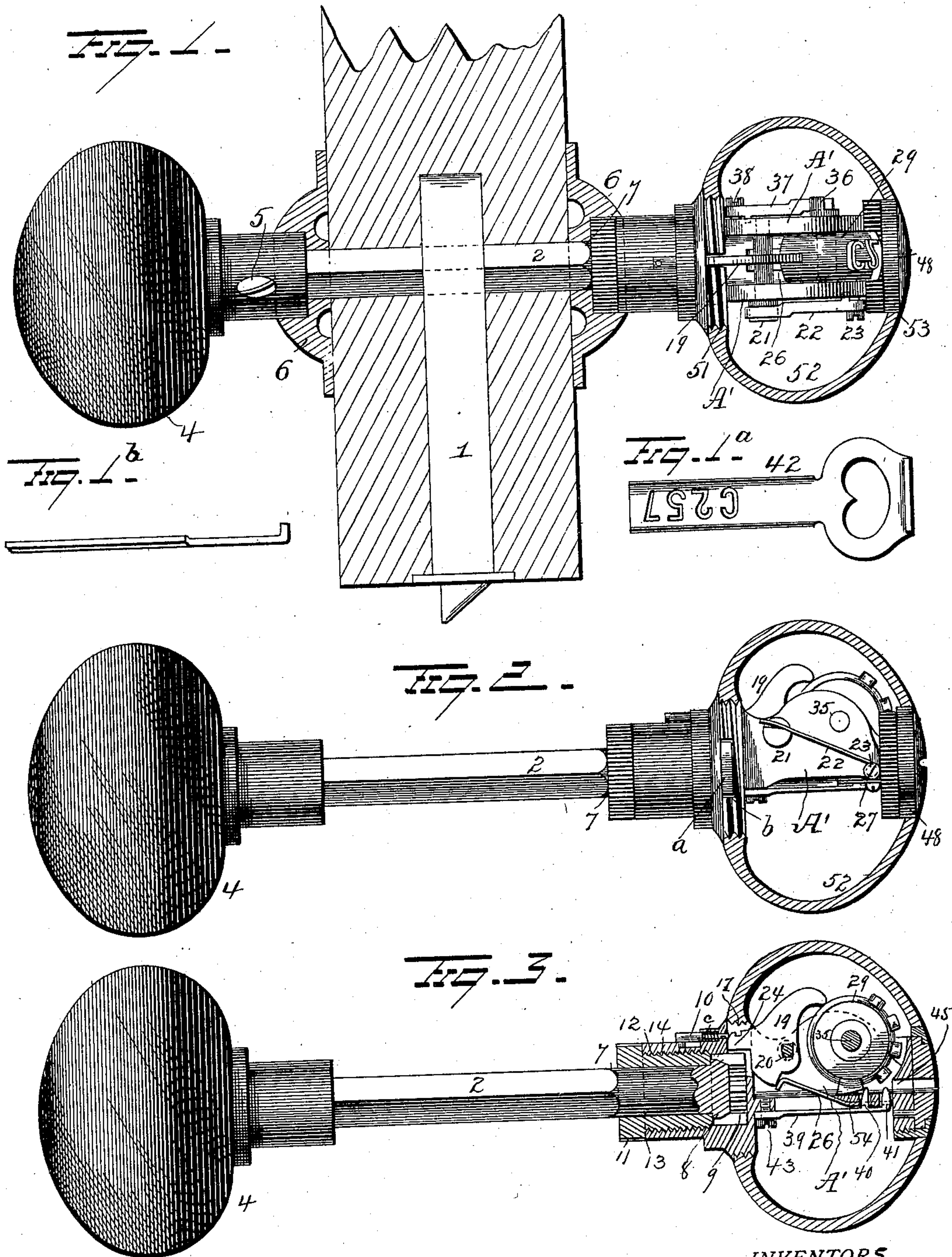
Patented Jan. 10, 1899.

A. R. FERGUSON & S. CHASE.  
LOCK AND LATCH COMBINED.

(Application filed July 9, 1898.)

2 Sheets—Sheet 1.

(No Model.)



WITNESSES  
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G. F. Downing.

INVENTORS  
A. R. Ferguson &  
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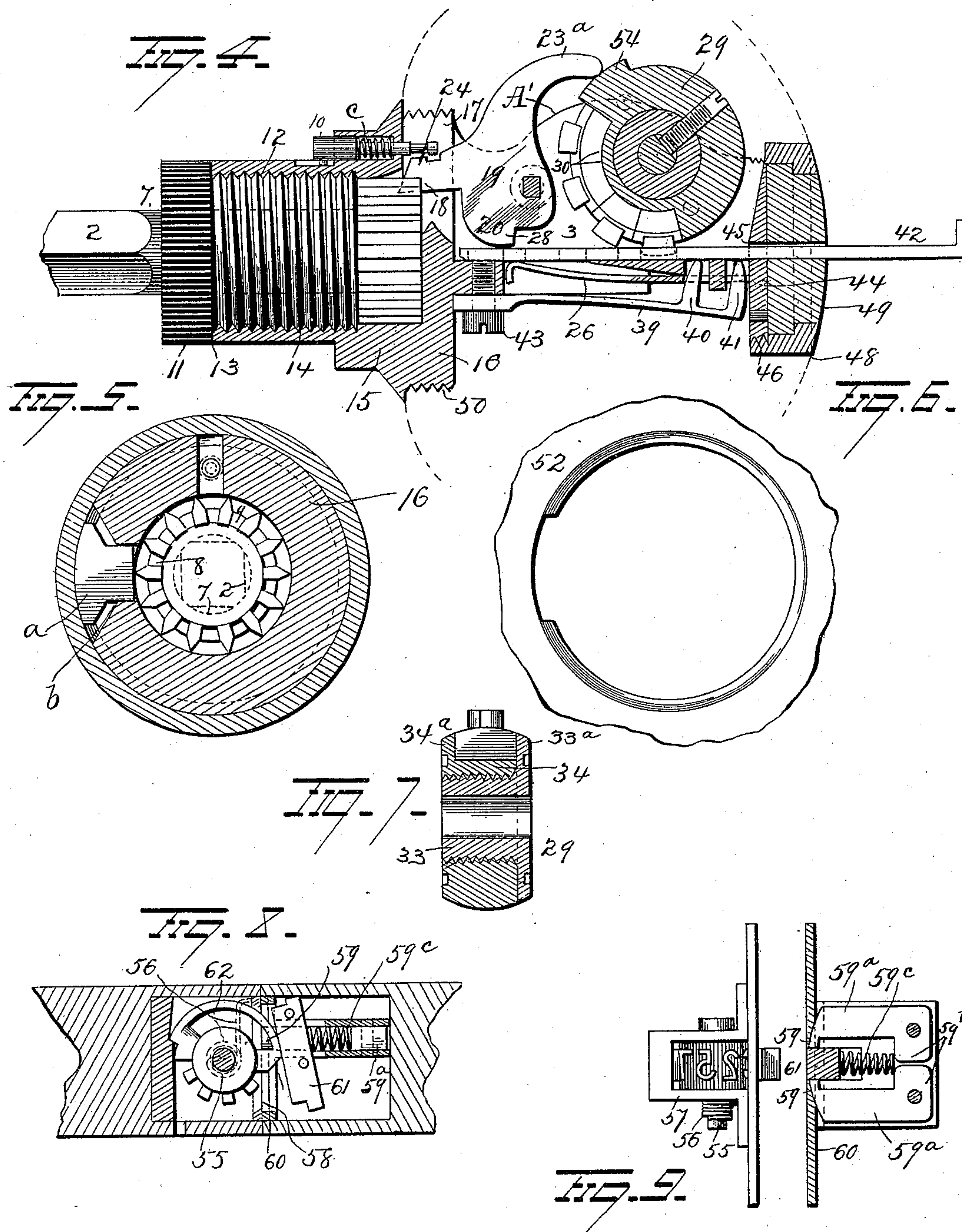
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# UNITED STATES PATENT OFFICE.

ALAN ROBB FERGUSON AND SOLON CHASE, OF DENVER, COLORADO; SAID  
CHASE ASSIGNOR TO SAID FERGUSON.

## LOCK AND LATCH COMBINED.

SPECIFICATION forming part of Letters Patent No. 617,648, dated January 10, 1899.

Application filed July 9, 1898. Serial No. 685,560. (No model.)

*To all whom it may concern:*

Be it known that we, ALAN ROBB FERGUSON and SOLON CHASE, residents of Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in a Combined Lock and Latch; and we 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.

Our invention relates to an improvement in combined locks and latches, the object of the invention being to provide a neat and simple device which will fit and be inclosed in a door-knob and adapted to be operated by a key passing through a keyhole in the knob.

A further object is to provide a simple locking and unlocking device that may be secured to any ordinary latch and which will permit of the release of a knob from its spindle, and hence preclude any possibility of turning the latch by that knob.

A further object is to provide a device which shall be simple and compact, cheap to manufacture, and which will effectually perform the functions for which it is intended.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view, partly in section, showing the application of our improvements to a door-latch. Figs. 1<sup>a</sup> and 1<sup>b</sup> are views illustrating the key. Fig. 2 is a view showing the spindle, an ordinary knob at one end thereof, and our improved knob-lock at the other end, the knob containing the lock being in section to show parts of the lock. Fig. 3 is a similar view showing the knob-lock in section. Fig. 4 is an enlarged sectional view illustrating the lock with the key inserted therein. Fig. 5 is a transverse sectional view through the knob and shank. Fig. 6 is a face view of the inner end of the knob 52. Fig. 7 is a sectional view of the tumbler 29. Figs. 8 and 9 are views illustrating a modification.

1 represents an ordinary latch, 2 a spindle

for operating same, and 3 our improved lock. One end of the spindle 2 may be provided with the ordinary knob 4, secured thereto by means of the ordinary screw 5. Secured to each side of the door, at diametrically opposite points, are the usual escutcheons 6 6, adapted to form bearings for the knobs.

The spindle 2 is preferably made cylindrical at one end to form a bearing 7 and provided with a head or enlargement 8, on which a series of teeth or pins are provided for the reception of an arm or tooth 18, which will be hereinafter described. A bearing-sleeve 11 is mounted to rotate in the escutcheon 6 and is provided at its outer end with screw-threads 12 to engage screw-threads in a flange 14 on the head 15 of the knob-shank. The bearing-sleeve 11 is provided at a point where the screw-threads stop with a flange 13, whereby to form a seat for the knob-shank and make a neat joint therewith.

A blind key *a* can be placed in a slot *b* in the shank and is adapted when the knob is screwed onto the shank to engage a shoulder on said knob and prevent its removal from the shank by unauthorized persons. In inserting the blind key it is placed in the slot *b* in the shank, and after the knob has been screwed in the shank the key will be made to drop into engagement with the shoulder on the knob. The key will be retained in engagement with the shoulder on the knob by means of the upper end of the spindle, as shown in Fig. 6.

The knob-shank 16 is provided with a slot or hole 17, through which an arm or projection 18 on an arm or lever 19 is adapted to pass. The arm or lever 19 is secured on a shaft or arbor 20, journaled in the lock-frame A', and said arbor is provided with an enlargement or head 21 at one end, said head or enlargement having a flat face against which a spring 22 bears. The spring 22 is secured to the side of the frame by means of a screw or pin 23 and serves, by engagement with the flat face on the head 21 of the arbor, to normally press the arm 23<sup>a</sup> of said lever against the periphery of a tumbler 29. The arm or lever 19 is provided with a shoulder 24, which normally rests in the path of a pin 10, which ex-



tends outside the shank and is provided with a spring *c*, which normally holds the pin in its outward position. However, when the arm or lever 19 is thrown to one side the pin 10 can be forced inward and made to engage the shoulder on said lever or arm, whereby to hold the said lever in its changed or locked position, as the arm or projection 18 will be, when the lever is locked in place by the pin 10, in engagement with the teeth 9 on the spindle, and hence permit the spindle 2 to be turned and the door to be unlatched when the knob is turned. A spring 26, secured to the lock-frame A', as shown at 27, is adapted to normally rest against a shoulder 28 on the lever 19, whereby to prevent the unlocking of the device by simply turning the tumbler 29, which will be more fully hereinafter described.

Our improved revolving tumbler 29 is provided, preferably in its periphery, with grooves 30, whereby to removably hold raised letters, figures, or other characters, which can be changed or interchanged to form different locking combinations of figures or characters, should it be desired to do so. The tumbler is preferably constructed in two parts 33 34, the part 33 being externally screw-threaded to enter the threaded opening in the part 34. This portion 34 is provided with a groove or recess 30 to receive the letters or figures comprising the combination, and said letters or figures will be securely clamped in place by the peripheral portions 33<sup>a</sup> and 34<sup>a</sup> of the respective parts of the tumbler. The tumbler is secured on a shaft or arbor 35, which is provided on one end with an enlargement or head 36, having a flat face against which a spring 37 is adapted to pass, and spring 37 is secured to the frame A' by means of a screw or pin 38, as shown.

A spring 39, provided with projections 40 41, which are adapted to extend through slots in the frame and normally rest in the path of the key for unlocking the device, is secured to the frame by means of a screw or pin 43.

Secured to the outer end of the lock-frame A' is a circular portion 44, provided with a keyhole 45 and screw-threaded on its outer edge, as shown at 46, to mesh with screw-threads in a collar 48, whereby to secure in place a plate 49, provided with a keyhole in alinement with the keyhole 45. The plate 49 is preferably made of hard metal and may be provided with phosphorescent composition to enable the keyhole to be readily seen in the dark.

The knob-shank 16 is provided with screw-threads 50 at the outer edge of the head to engage screw-threads 51 in a hole of the hollow knob 52, whereby to inclose the locking mechanism heretofore described. In the knob a hole 53 to receive the collar 48 and hard-metal plate 49 is provided, thus making in appearance an ordinary knob with the locking mechanism inclosed therein.

The key 42 for locking and unlocking the

lock is provided with a beveled end, as shown, and cut-out portions to correspond with the characters or figures on the tumbler, whereby when the key is inserted through the keyhole 45 the key will first force the projections 40 41 out of its path and then bear against the projection 54 on the tumbler and then engage each successive letter or numeral on the tumbler, turning the latter until the projection 54 is about to strike the lever 19 and throw same into its locked position with the spindle, when the end of the key will strike the spring 26 and release the lever 19 and permit the projection 54 to force the lever to its unlocking position, and thus cause the arm 18 to engage one of the teeth on the end of the spindle. The knob can now be operated to turn the spindle and withdraw the latch. When the lever is in this position, the pin 10 can be pushed inwardly and made to engage the shoulder on the lever 19 and hold the lever in its locked position, when the key can be withdrawn and the knob can still be manipulated to operate the latch after the key has been withdrawn. When the key has been withdrawn, the lever 19 will be moved slightly by the spring 22, so as to cause the shoulder 24 on said lever to rise and engage the headed end of pin 10. When it is desired to lock the door, it is simply necessary to insert the key, which will again cause the tumbler to be rotated and the projection 54 thereon to engage the arm 23<sup>a</sup> of lever 19 and move said lever sufficiently to disengage the shoulder 24 from the headed end of pin 10, and thus release the pin 10 and permit the lever 19 to assume its normal position out of engagement with the pins or teeth 9 when the key has been withdrawn. It will now be impossible to open the door by means of this knob, because it will turn on the spindle.

It will be seen that the combination of letters and numerals on the tumbler can be readily interchanged, which of course will necessitate the use of a new key with the numerals and letters arranged as in the changed combination.

Our improved lock may be applied to a great many objects other than doors—as, for instance, to a desk-top, as shown in Figs. 8 and 9—or it may be applied to a window-sash, trunk, valise, and various other uses to which any ordinary lock is put.

In the form of our invention shown in Fig. 8 and 9 the tumbler is mounted on a shaft or arbor 55, and the latter is provided with a coiled spring 56, as shown. The tumbler is preferably partly inclosed in the casing 57 and adapted to project through a slot 58 in said casing. The tumbler is provided with a series of letters and numerals or other projections on the periphery to be engaged by a key (not shown) with cut-out portions to correspond with the projections on the periphery of the tumbler. The tumbler is made with a curved slot 62 for the reception of locking-pins 59. The locking-pins 59 are made at the



outer ends of L-shaped arms 59<sup>a</sup>, which may be pivotally attached to the portion 60 of a desk or similar article. A plate 61 is adapted to enter between the locking-pins 59 when the desk is opened, and between this plate and the members 59<sup>b</sup> of arms 59<sup>a</sup> a spring 59<sup>c</sup> is disposed.

It will be seen that when the part of the lock containing the tumbler is forced against the other portion of the lock the tumbler will force back the spring-plate 61 and permit the pins 59 to be forced into the opening 62 in the tumbler and lock the parts securely together.

When it is desired to unlock the device, it is simply necessary to insert the key, which will turn the tumbler and gradually force the pins back and allow the plate 61 to come forward and hold the pins out of engagement with the tumbler, thus permitting the article to be opened.

Various slight changes might be made in the general form and arrangement of the several parts described without departing from the spirit and scope thereof, and hence we would have it understood that we do not limit ourselves to the precise details set forth, but consider ourselves at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of our invention.

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

1. The combination with a revoluble tumbler, of interchangeable peripheral projections on said tumbler and a key having cut-out portions to correspond to the projections on said tumbler, and a locking-lever controlled by the tumbler.

2. The combination with a knob and spindle, of a locking-lever carried by one part and having an arm to engage the other part, means for normally retaining said locking-lever in an unlocked position, a revoluble tumbler having peripheral projections, a key to cooperate with said peripheral projections whereby to rotate the tumbler and a projection on said tumbler to move the lever to locked position.

3. The combination with a spindle and a knob revolubly mounted thereon, of a locking-lever carried by the knob and adapted to engage the spindle, means for retaining said locking-lever normally out of engagement with the spindle, a tumbler, a key for operating said tumbler to move the locking-lever into engagement with the spindle, and means for retaining the locking-lever in engagement with the spindle after the key has been withdrawn and the tumbler has returned to its normal position, substantially as set forth.

4. The combination with a locking-lever, a locking-arm on said lever, a pin for engaging said lever and a spring for moving the pin in one direction, of a revoluble tumbler provided with projections on its periphery and a key provided with cut-out portions to corre-

spond with the projections on said tumbler whereby to engage said projections, revolve the tumbler and operate the lever.

5. In a lock, the combination with a revoluble tumbler having recesses or grooves in its periphery, of interchangeable pieces containing projections adapted to be inserted and secured in said recesses or grooves and a key having cut-out portions to correspond with the projections of the tumbler and adapted to turn the tumbler when moved tangentially thereto.

6. The combination with a latch-spindle and a knob mounted loosely thereon, of a locking-arm connecting said knob and spindle, a pin for locking said arm, a tumbler mounted in the knob and having peripheral projections, and a key adapted to enter the knob, cooperate with said tumbler and release the locking-arm from said pin whereby to permit said pin to assume its normal position and release the locking-arm from the spindle, substantially as set forth.

7. The combination with a knob and spindle, of a pivoted locking-lever carried by one part and adapted to engage the other part, a revoluble tumbler having a peripheral projection to engage and operate said locking-lever, and a series of removable peripheral projections representing characters on said tumbler, and a key adapted to mesh with said peripheral projections and rotate the tumbler, substantially as set forth.

8. In a lock the combination with a support, of a revoluble tumbler comprising two parts removably secured together and interchangeable peripheral projections held in place by the two parts of the tumbler.

9. In a lock, the combination with a support, of a revoluble tumbler comprising two parts adapted to screw one into the other and each having a peripheral projection, and interchangeable devices held between the peripheral projections of the two parts of the tumbler and projecting beyond the same, substantially as set forth.

10. In a lock the combination with a support, of a revoluble tumbler having a recess or cut-out portion in the periphery thereof, sections containing projections adapted to be secured in said cut-out portion, a locking-lever attached to said support, a projection on said tumbler adapted to move said lever to a locked position means for turning said tumbler and means for retaining said lever in its locked position.

11. In a lock, the combination with a spindle, of teeth on said spindle, a lever adapted to engage said teeth, a revoluble tumbler provided with projections on its outer edge, a spring normally holding said lever out of engagement with said teeth and means for operating said tumbler, releasing said spring and operating said lever.

12. In a lock, the combination with a knob and a spindle, of a sleeve mounted loosely on



said spindle and a shank mounted on and secured to said sleeve, a locking-key within said shank adapted to engage the knob and lock the shank and knob together and means  
5 in said knob for locking the shank to the spindle, substantially as set forth.

13. In a lock, the combination with a spindle having teeth on one end thereof, of a sleeve mounted loosely on said spindle, a shank secured to the sleeve, a lever mounted on the  
10 shank and adapted to engage the teeth on the spindle, means mounted on the shank for operating said lever and a knob inclosing said lever and operating means.

15 14. The combination in a lock, of a revoluble tumbler, projections on said tumbler, a key provided with cut-out portions to correspond with the projections on said tumbler and provided with a beveled end, a spring  
20 having arms thereon normally in the path of

said key and adapted to be pushed out of the way by the beveled end of said key.

15. The combination in a lock, of a spindle a locking-lever adapted to engage the spindle, a spring adapted to hold said lever out of en- 25 gagement with the spindle, a revoluble tumbler provided with peripheral projections and a key provided with cut-out portions corresponding with said projections and adapted to turn said tumbler and push said spring 30 out of engagement with said locking-lever.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

ALAN ROBB FERGUSON.  
SOLON CHASE.

Witnesses:

J. L. McDOWELL,  
B. L. SMITH.