

T. FRIEDRICK.
COMBINED LOCK AND LATCH.

No. 279,932.

Patented June 26, 1883.

Fig. 1.

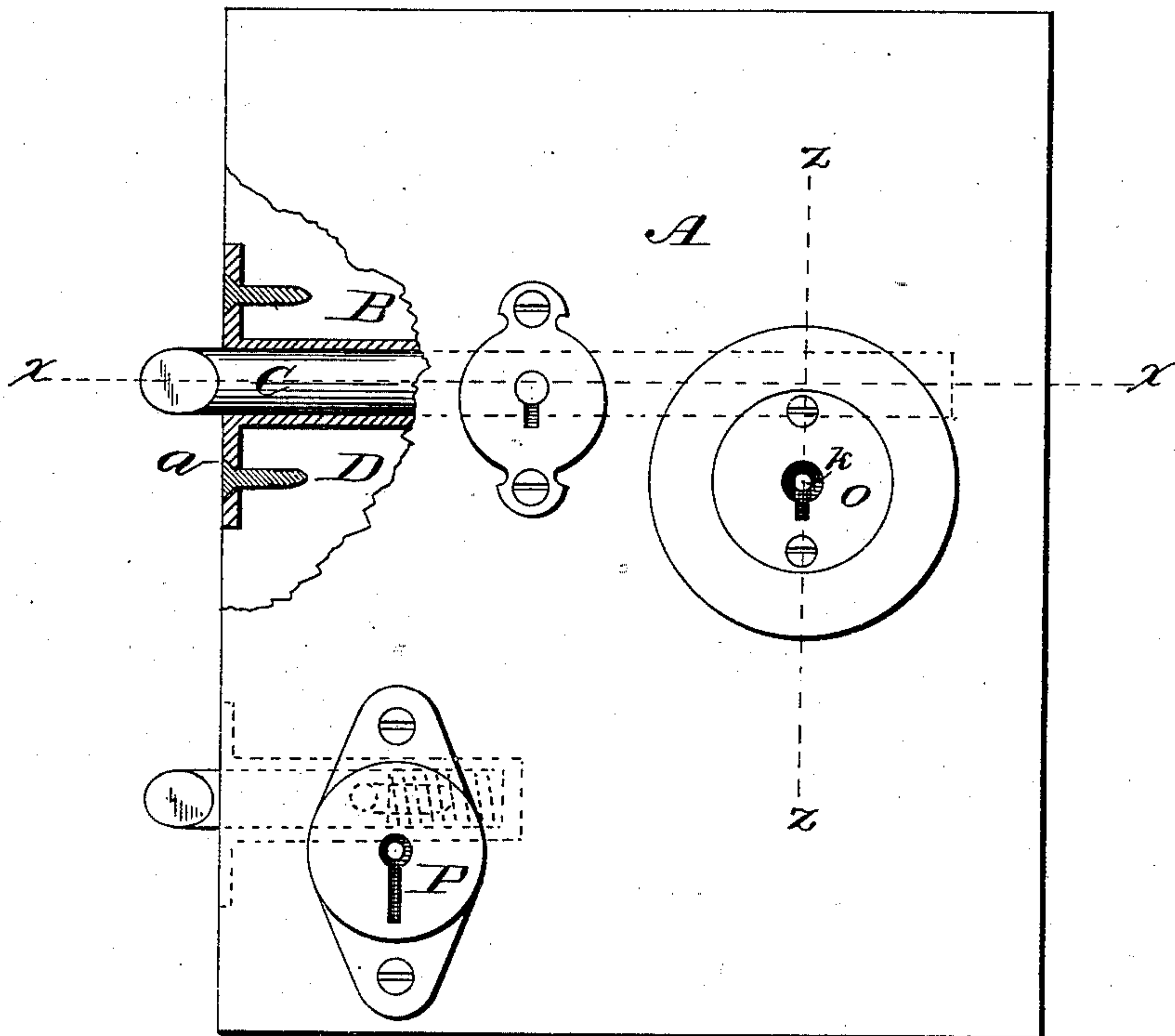
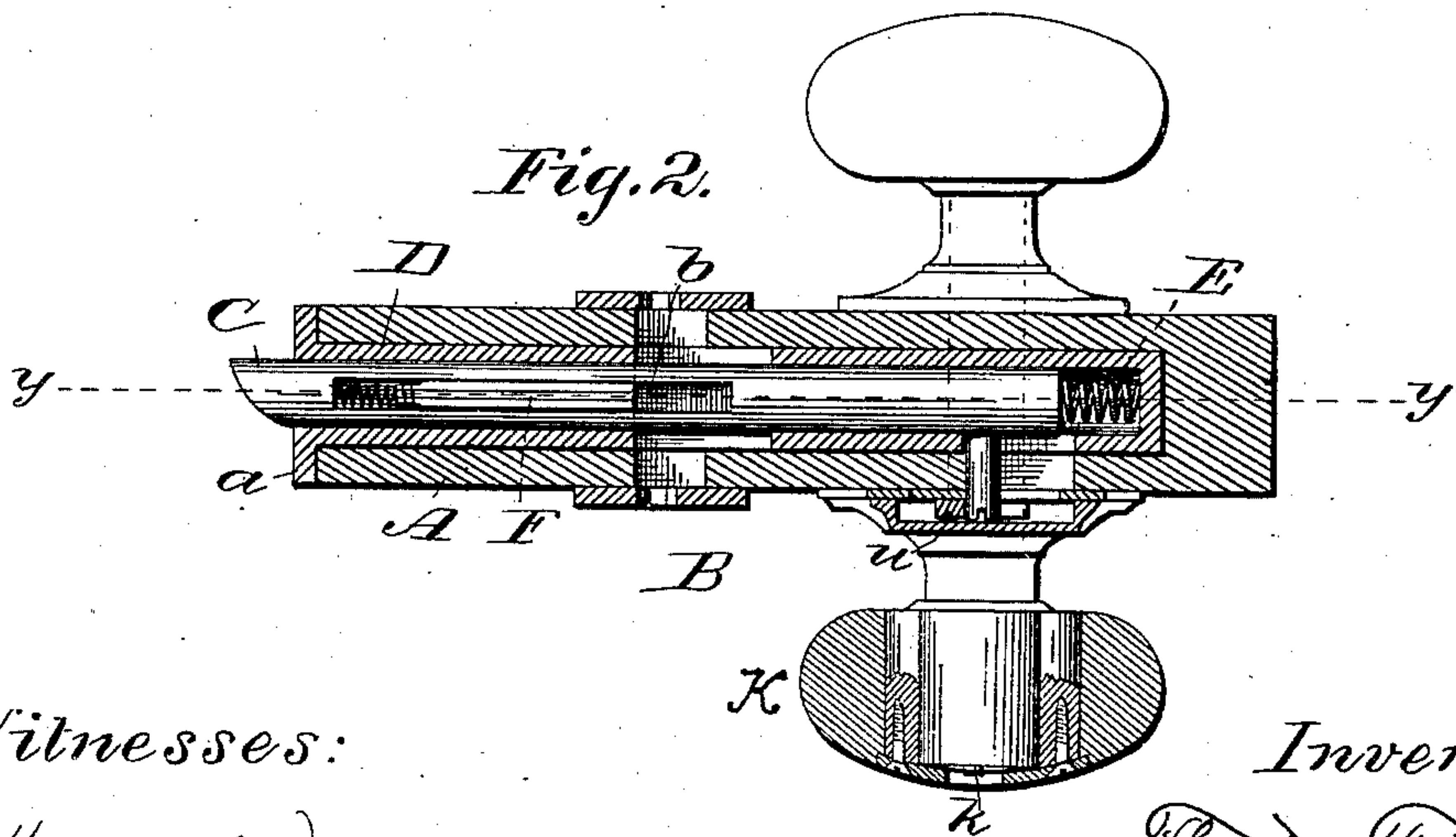


Fig. 2.



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(Model.)

2 Sheets—Sheet 2.

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Fig. 3.

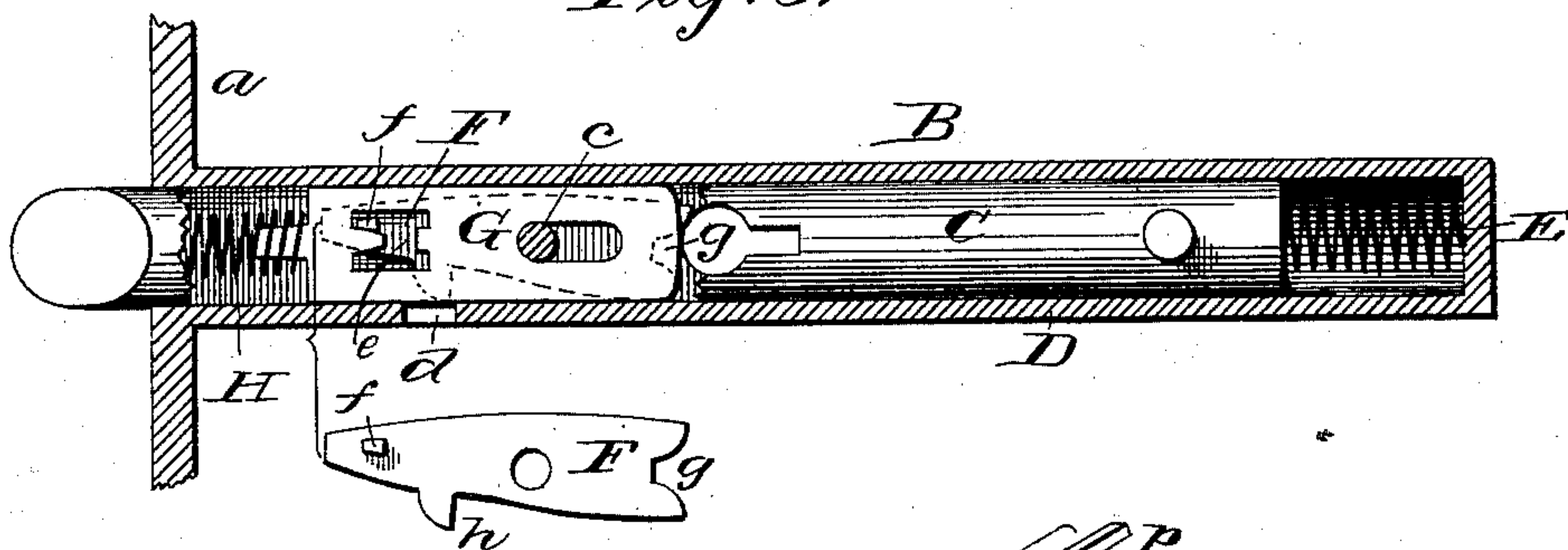


Fig. 5.

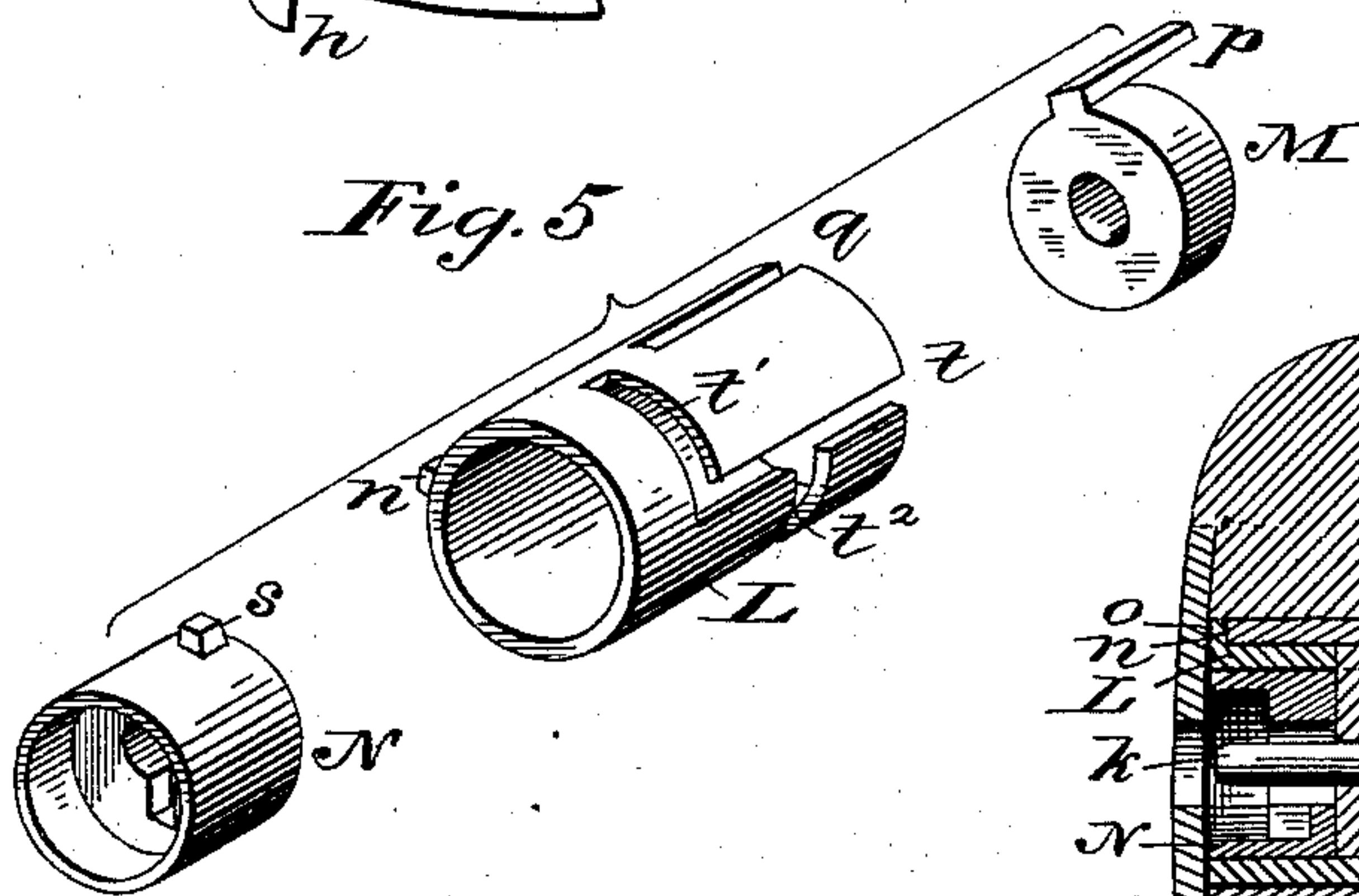


Fig. 4.

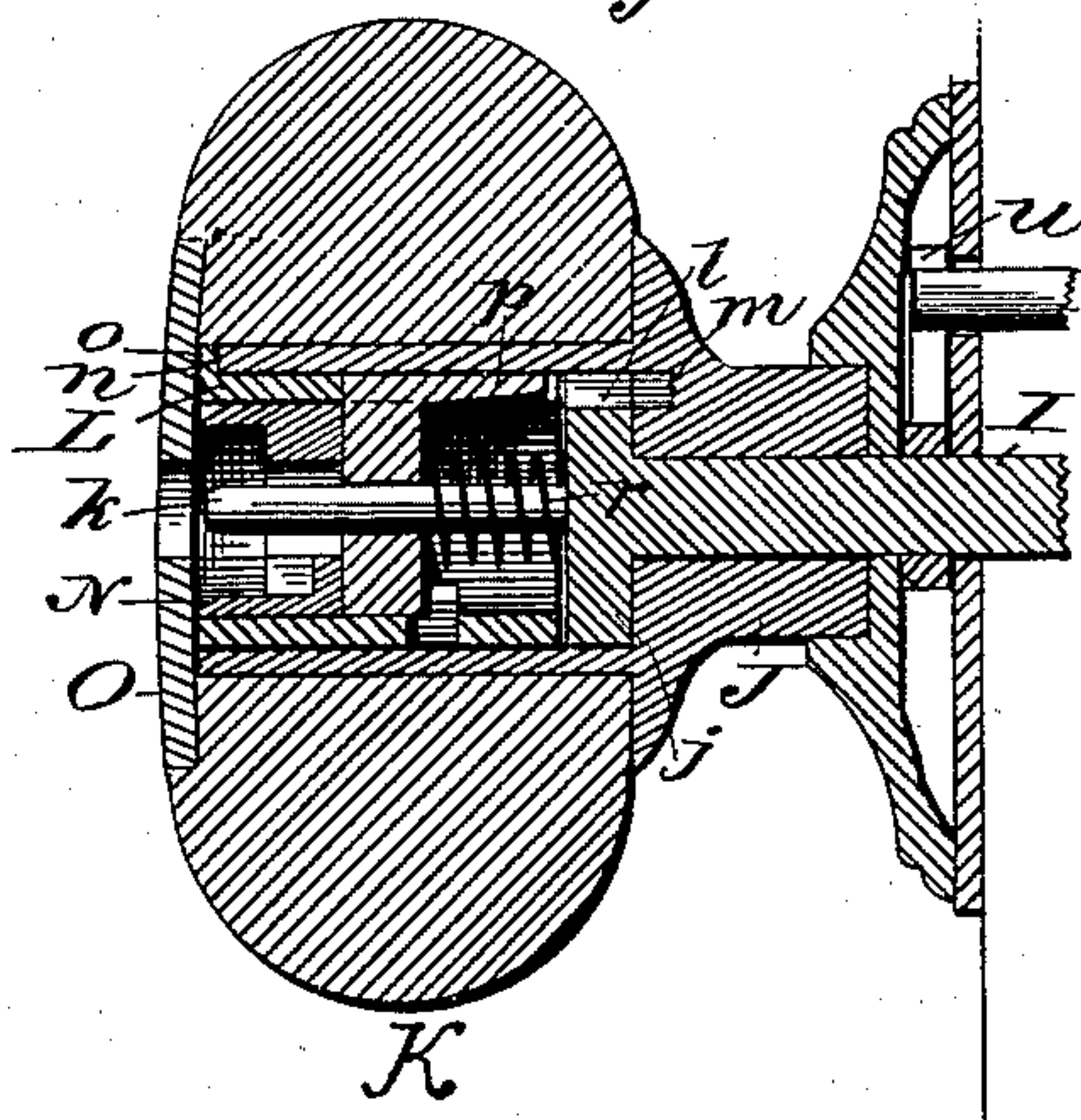
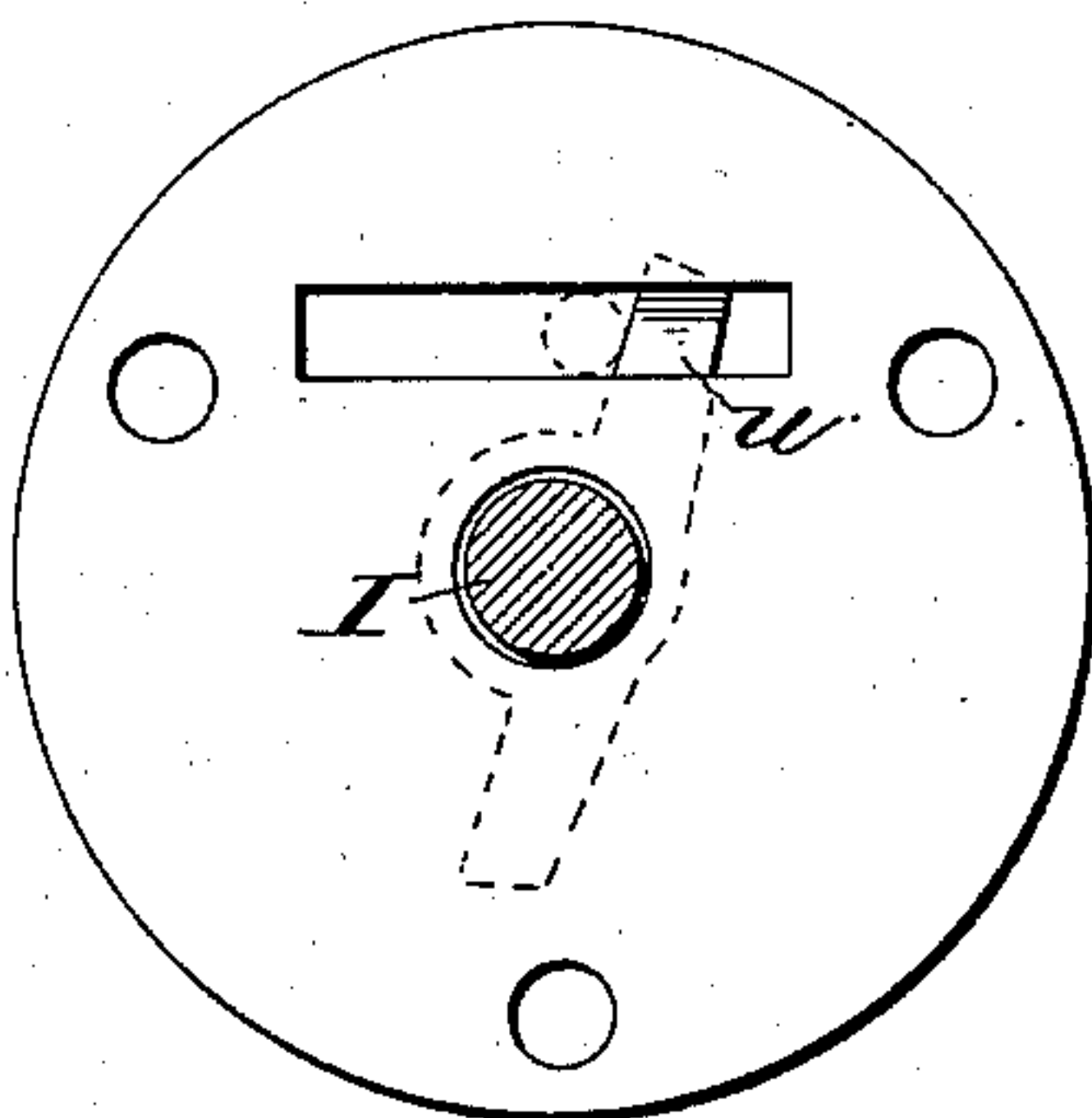


Fig. 6.



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UNITED STATES PATENT OFFICE.

THEODORE FRIEDRICK, OF OTTAWA, ONTARIO, CANADA.

COMBINED LOCK AND LATCH.

SPECIFICATION forming part of Letters Patent No. 279,932, dated June 26, 1883.

Application filed November 24, 1882. (Model.)

To all whom it may concern:

Be it known that I, THEODORE FRIEDRICK, of Ottawa, in the Province of Ontario and Dominion of Canada, have invented certain Improvements in Combined Lock and Latch, of which the following is a specification.

My invention relates to a combined lock and latch; and it consists in various features of construction, hereinafter more fully pointed out, prominent among which are the arrangement of the tumblers and operative parts of the lock within the sliding or locking bolt and the devices employed for engaging the knob with the spindle or disengaging it therefrom.

In the accompanying drawings, Figure 1 represents a face view of a door (or portion of a door) provided with my combined lock and latch; Fig. 2, a horizontal section through the lock case or shell on the line *x x* of Fig. 1; Fig. 3, a longitudinal section through the case or shell, with the bolt partially broken away to show the tumblers and other parts; Fig. 4, a central section through the knob and spindle on the line *z z* of Fig. 1; Fig. 5, a perspective view of the internal parts of the knob detached and separated one from another; Fig. 6, a face view, showing how the bolt is moved by the knob.

Heretofore locks and latches have been more commonly made separate, or, if combined in one case, they have generally been provided with independent bolts for the latching and locking operations. By my invention, however, the one bolt is made to serve both offices, and the device is adapted for use as a simple latch—as a dead-latch to be controlled from the outside only by a key, or as a lock controllable from the outside only by the use of both the latch-key and the lock-key—thus answering the same purposes as the independent lock and dead-latch commonly employed.

Referring again to the drawings, the construction and operation will be explained.

A represents a door, to which the combined lock and latch B is applied, said lock and latch being made in the form of a cylindrical sliding bolt, C, fitting closely within a tubular case or shell, D, likewise of cylindrical form, but provided at its forward end with a plate or flange, *a*, which serves to receive the screws by which the case or shell is secured in place.

The shell or case D is preferably formed without joints, or else is made of sheet metal bent up and joined along one side throughout its length, the inner end being in all cases closed, as shown. The outer end of the bolt C is preferably beveled to enable it to be forced back by coming in contact with the keeper, and a spiral spring, E, seated in the shell or case, and bearing against the inner end of the bolt, serves to force and hold the nose of the bolt normally outward beyond the face of plate or flange *a*, as shown in Figs. 1, 2, and 3. The bolt C is slotted, as shown in Figs. 2 and 3, and within the slot *b*, which extends vertically through the bolt, I arrange a locking-dog, F, one or more tumblers, G, and a spring or springs, H, to keep the tumbler or tumblers in position, the said tumblers being slotted and retained in place by a transverse pin, *c*, as shown in Fig. 3. A hole is made through the door and through the sides of the bolt, to permit the entrance of a key by which the tumblers are operated, and the dog is caused to engage with or disengage from the edge or wall of opening *d*, formed in the shell or case D to receive said dog. Assuming the bolt to be unlocked, and the dog F consequently raised, as in Fig. 3, if the key be inserted and turned, it first bears against the end of tumbler or tumblers G, pressing the same forward until the opening *e* of the tumbler or tumblers is brought directly under the stud or projection *f* of the dog F, at which moment the key enters a notch or seat, *g*, in the end of dog F, and rocks or tips said dog upon the pin *c*, causing the hook or nose *h* to engage with the wall or edge of opening *d*, the tumblers being next pressed back by their springs, and thereby caused to engage over and hold down the stud or projection *f*, and thus to prevent the disengagement of the dog. It will thus be seen that the bolt C may be either left free to move back and forth as a simple latch-bolt, or it may be locked fast in its outer position, and thus made to serve as a lock-bolt, and it is particularly to be noted that the key inserted into the bolt does not in any way move or actuate said bolt, but merely causes the engagement and disengagement of the dog F. The movement of the bolt is in all cases effected by means of a knob, as in ordinary door-

latches. In the present instance, however, I employ a knob-spindle having one knob rigidly secured thereon, and the other, which will be the outside knob, loose upon the spindle, 5 but provided with mechanism controllable by a key by which the knob may be caused to turn upon or be locked to the spindle at will. When the knob is released from the spindle, the bolt or latch cannot be operated from the 10 outside, though it can be operated from the inside, unless locked by the dog F; hence, if the dog be disengaged and the outside knob made free, the device will be adapted to act as a dead-latch. If the outer knob be made fast 15 to the spindle, the device serves as an ordinary door-latch, controllable entirely by the knobs. Finally, if the dog F be caused to engage in the opening *d*, the bolt cannot be operated by either knob, even when the loose knob 20 is made fast to the spindle, and hence it becomes necessary to use, in addition to the key for engaging the knob with the spindle, the key for releasing the dog F. Said keys will of course be of different patterns, and 25 thus all the advantages of the separate lock and latch will be secured.

Referring now to Figs. 4, 5, and 6, the knob mechanism will be explained.

I indicates a knob-spindle, which passes 30 through a tubular knob-shank, J, and through the door, the end of the spindle being headed or enlarged within the tubular shank, as shown at *j*, Fig. 4, and provided with a central projecting key stem or spindle, *k*, which extends outward to near the outer face of knob K, which 35 latter is rigidly secured upon the tubular shank J. The head or enlargement *j* of the knob-spindle is provided with a notch or recess, *l*, and a socket, *m*, is formed in the shank J beneath or back of the head *j*, as shown. Within the tubular shank is placed a barrel or cylinder, L, provided with a lateral stud or projection, *n*, which engages in a notch or recess, 40 *o*, in the tubular shank J, and thereby prevents the barrel or cylinder from rotating with-in or independently of the knob-shank, which latter is arranged to turn loosely upon the cylindrical spindle I. Within the barrel or cylinder L is placed a block, M, provided with a 50 finger, *p*, which projects both laterally and in line with the axis of the cylindrical block, thus serving as a guide to move in a longitudinal slot or groove, *q*, in the barrel, and also as a dog or tooth to pass through the notch *l* and 55 to enter the socket *m*, and thereby to lock the barrel, the shank, and the spindle together, so that the turning of the knob shall cause the turning of the spindle also. The block M is provided with a central opening, to enable it 60 to pass over the key spindle or stem *k*, and is pressed outward by a spiral spring, *r*, encircling the spindle and tending to disengage the finger *p* from the knob shank and spindle. Above the block M, and likewise within the 65 barrel or cylinder L, is a second block, N, provided with a stud, *s*, which stud projects ra-

dially from the block into a slot, *t*, in the barrel or cylinder. This slot or groove is of angular form, consisting of two parts or sections, *t'* *t''*, running parallel one with the other, 70 partially around the barrel or cylinder, on opposite sides of a connecting section of the slot extending longitudinally along the barrel to its end, as more plainly shown in Fig. 5. The extension of the slot to the end of the barrel 75 is for the purpose of permitting the entrance of the stud or lug *s* and the placing in position of block N.

The manner of assembling the parts will be understood by referring to Figs. 4 and 5. The 80 spring *r* is placed upon stem *k*, and then the block N is passed into cylinder or barrel L, its stud *s* passing along the longitudinal slot *t*, and thence into the lateral slot *t'*, said block 85 being followed by block M, and the whole placed in position, with the stem *k* passing through the blocks M N, and the spring *r* bearing against the former. A cap or plate, O, is 90 placed over the outer face of the knob and made fast by screws or rivets, to retain the knob upon its shank and to keep the parts in place within said shank, a hole being left in the plate O for the insertion of a key.

In Fig. 4 the knob is represented as free or 95 disconnected from the spindle. If now the key be inserted and turned, the block N, which is recessed to receive the bit of the key, will turn until the stud or projection *s* traverses the slot *t'* to its end and comes into line with the main straight slot *t*. The turning is then 100 continued, and the key is at the same time pressed inward, causing the barrel or cylinder L, and consequently the knob, to rotate until the finger *p* of block M comes opposite the recess *l*, whereupon the pressure upon the key 105 will cause the finger to pass through the recess or notch and to enter the socket *m*, thereby locking the knob to the spindle, the further rotation of the key carrying the stud or projection *s* into the second or inner circumferen- 110 tial slot, *t''*, and thus locking the parts in engagement. The key may then be withdrawn and the latch operated by the knob, or by continuing the rotation of the key the bolt will be drawn back. The knob may be thus left 115 fast upon the spindle, or by reversing the operation of the key it may be again released. The spindle is furnished with a projecting finger, *u*, which engages with a lug or stud extending laterally through the case or shell D 120 from the bolt C, as shown in Figs. 2 and 6. The shell or case D, being of cylindrical form, can be readily fitted to a door, a bit or auger hole forming a perfect seat therefor, and the shell, being all in one piece, instead of in two 125 or more parts, as heretofore, cannot separate and permit the parts to be displaced.

The device is exceedingly compact, strong, and cheap, and does not interfere with the screws by which the lock-trimmings are se- 130 cured in place, as happens with ordinary flat-cased locks.

In some cases it may be desirable to omit the knob K and employ a key to act directly against the stud projecting from the locking-bolt, which may be advantageously accomplished by placing a key shell or case, P, over said stud, as shown in the lower part of Fig. 1, or to employ two rigidly-secured knobs, or to employ a rigid and a loose knob, the latter provided with a key-hole to receive a key adapted to engage directly with the spindle.

Having thus described my invention, what I claim is—

1. A combined lock and latch consisting of a shell or case, a bolt arranged within said case and provided with locking devices, substantially as shown and described, a spindle having a finger adapted to engage with the bolt, and a knob loosely mounted upon said spindle, and provided with means, substantially such as described, whereby the knob may be made fast to the spindle.

2. In combination with the sliding bolt C, the spindle I, the loose knob K, having shank J, and the cylinder L, blocks M N, and spring r, arranged within said shank and adapted,

substantially as described, to lock the knob to the spindle.

3. In combination with a sliding bolt, C, the spindle I, having notched head j, knob-shank J, mounted loosely upon said spindle and provided with recess m, cylinder L, provided with slot t t' t'', block M, having finger p, block N, provided with stud s, and cap or plate O, all substantially as shown.

4. In a lock, the combination of a sliding bolt, C, a shell provided with an opening, d, and a dog, F, and tumbler G, arranged inside of the bolt, substantially as shown and described.

5. In a lock, the combination of a sliding bolt, a spindle carrying a finger to retract the bolt, and a knob mounted and free to turn upon and independently of the spindle, and provided with a key-hole whereby a key may be inserted to turn the spindle.

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Witnesses:

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