(No Model.)

J. SCHADE.

LOCK.

No. 528,114. Patented Oct. 23, 1894.

Fig. 1.

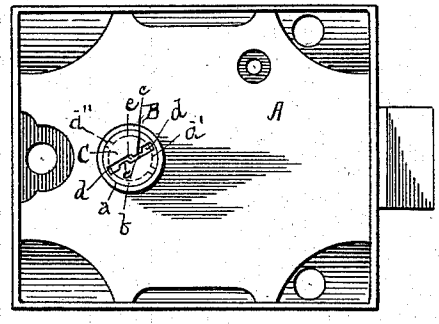


Fig. 2.

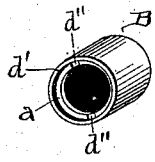


Fig. 3.

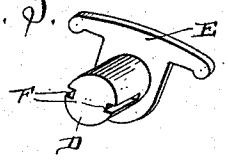


Fig. 4.

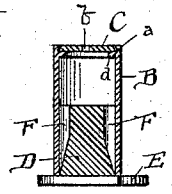


Fig. 7.

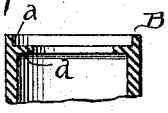


Fig. 5.

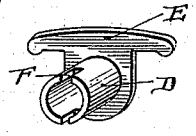
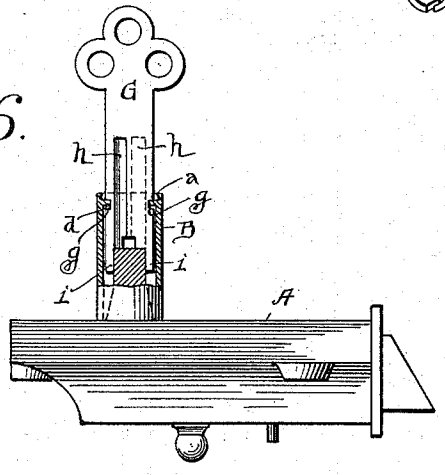


Fig. 6.



WITNESSES

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LOCK.

SPECIFICATION forming part of Letters Patent No. 528,114, dated October 23, 1894.

Application filed March 31, 1894. Serial No. 505,938. (No model.)

To all whom it may concern:

Be it known that I, JOHN SCHADE, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Locks; and I do 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a bottom plan of the lock. Fig. 2 is a perspective view of key cylinder with rotary disk removed. Fig. 3 is a perspective view of plug and cam. Fig. 4 is a longitudinal section through disk, key cylinder and plug. Fig. 5 is a perspective view of modified form of plug. Fig. 6 is a side elevation of lock with key inserted, and key cylinder partially in section. Fig. 7 is an enlarged view of top portion of key cylinder.

This invention has relation to certain new and useful improvements in locks, my object being to provide a simple ward lock, having no pins or tumblers of any kind, but which will present great difficulties in the way of being fraudulently opened in any manner except with a key specially provided therefor.

A further object of my invention is to greatly simplify the construction of the lock, making it of few parts, and thereby greatly reducing the cost and labor of manufacture.

With these objects in view, the invention consists in the novel construction and combination of parts all as hereinafter described and pointed out in the appended claim.

Referring to the accompanying drawings illustrating the invention, the letter A designates the cap plate of the lock to which is rigidly attached, or it may be integrally formed with, a key cylinder or barrel B. Seated in the outer end portion of said cylinder or barrel, upon a flange or shoulder *a* thereof, is a rotary disk C, secured against removal by spinning over the end portion of the said cylinder or barrel, or by otherwise providing the same with an obstruction by which the disk when seated cannot pass. Formed in the said disk is a key slot *b* which is made irregular by central obstructions or projections *c*, giving the said slot an offset *d* at each end thereof, and a central offset *e*. The exact form of the slot and the location and form of the obstructions or projections is not materially essential, the object being to so arrange the slot that no implement or false key can be introduced therethrough except it be specially grooved to pass the said obstructions. Below said disk, the cylinder or barrel B is formed with an internal shoulder or throat *d'* which is cut away vertically at two opposite points at *d''*, forming slots or passes for the key in alignment with the key slot in the disk when the latter is turned into proper relation thereto.

D designates a plug which works loosely in the cylinder or barrel, and which is attached to the usual cam E which operates the bolt or latch. This plug is formed with two opposite vertical, lateral grooves F which run in from the end of the plug, which is formed with an obstruction or solid central portion between said grooves.

G designates the key, which at two opposite points is formed with the lateral notches *g* which receive the shoulder or throat *d'* as the key and disk are rotated, the broad faces of the key having longitudinal grooves *h* to pass the central obstructions *c* of the key slot *b*. The inner end portion of the key is cut away to form the legs *i* which embrace the plug D and engage with the grooves F thereof, the key being stopped in its entrance at the proper point to bring the notches *g* thereof opposite the throat or shoulder *d'*. It is obvious that the key can be inserted and withdrawn only when the disk is in position to align its slot with the passes in the said throat or shoulder. The plug D being loose in the barrel or cylinder is free to accommodate itself to the lock.

It will be observed that the peculiar feature of this lock which renders it difficult to pick consists in the combination of the laterally or throat obstructed barrel or cylinder, the centrally obstructed key slot, and the centrally obstructed plug D. The lateral obstruction of the barrel or cylinder prevents the lock being opened by the introduction of a piece of metal or false key at either end of the slot, since the throat or shoulder pre-

vents it from rotating, even if successfully engaged with one of the grooves in the plug. The central obstruction of the slot prevents the introduction of a false key sufficiently wide to engage with the grooves in the plug, while the central obstruction of the plug bars the engagement with the said grooves of a false key inserted through the central portion of the key slot. It will therefore be observed that in order to fraudulently open this lock it would be necessary to devise a false key of such irregular and peculiar form that it could with difficulty be introduced through the limited opening of the key slot, and if so introduced would necessarily be of such slender character that it would not possess sufficient strength to overcome the tension of the latch spring. The lock therefore, while much simpler, offers all the difficulties to fraudulent opening, if not more, than the pin and tumbler locks in common use.

In Fig. 5, I have shown a modified form of the plug D, wherein the central metal is removed or bored out between the two key slots. The operation and principle is however the same, the central cavity forming an obstruction or a portion upon which a false key introduced through the center of the key slot of the disk can take no effective bearing.

The key slot is usually made as much wider than the key, as the lateral depth of the key slots in the plug.

In order to provide changes in different locks so that each can be opened only by its own special key, it is only necessary to vary the location of the throat or shoulder *d'*, placing it at different positions in the barrel or cylinder, and correspondingly locate the lateral notches of the key, it being obvious that a key will not work any lock except these two features correspond with each other. I may also vary the location of the obstructions in the key slots and the corresponding face grooves of the key.

I am well aware that a rotary key disk is common in various locks; also that it is not new to centrally obstruct a key slot in a stationary key disk or escutcheon, but I am not aware that such features have ever before been combined with a pinless cylinder having internal lateral obstructions, and a cam plug having a central portion against which a key can take no hold, whereby a lock is provided which is as difficult to pick, if not more so, as one having pins and tumblers, and which is very much more simple in point of construction, and cheaper to manufacture.

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

In a lock, the combination with a non rotary key cylinder or barrel having an internal throat or projection formed with opposite key passes or slots, a rotary disk seated in the outer portion of said cylinder or barrel and having a centrally obstructed key slot, and a bolt actuating plug having lateral grooves or key seats, and a central portion against which a key can take no hold, substantially as specified.

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

JOHN SCHADE.

Witnesses:
PHILIP C. MASI,
GEORGE H. PARMELEE.