(No Model.)

G. E. TYSON.

LOCK.

No. 489,049. Patented Jan. 3, 1893.

Fig. 1.

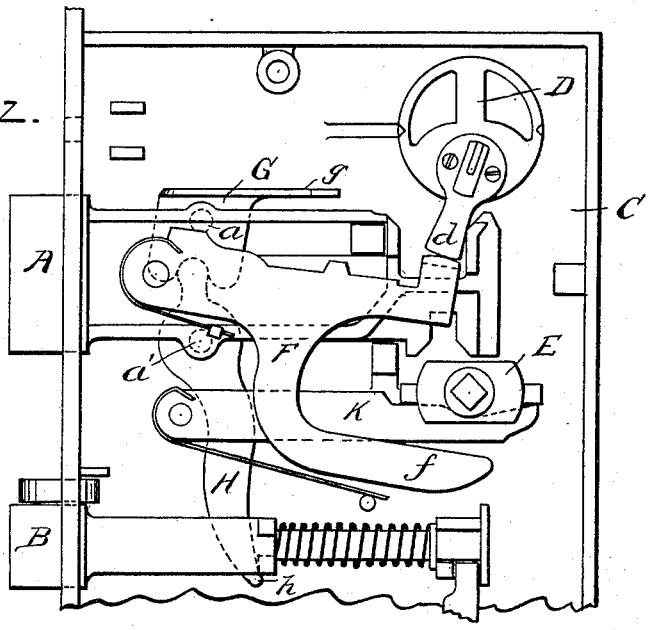
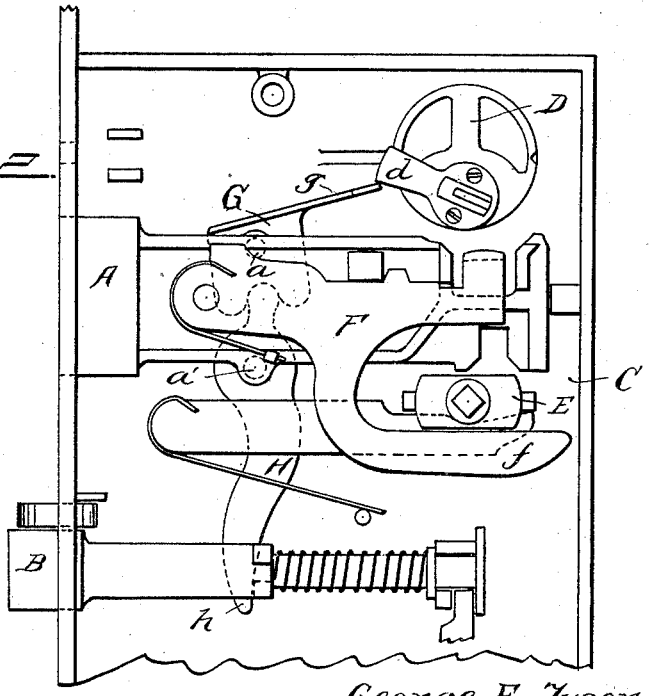


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE E. TYSON, OF READING, PENNSYLVANIA.

LOCK.

SPECIFICATION forming part of Letters Patent No. 489,049, dated January 3, 1893.

Application filed August 25, 1892. Serial No. 444,067. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. TYSON, a citizen of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented certain Improvements in Locks, of which the following is a specification.

My invention relates particularly to front door locks in which both a latch-bolt and lock-bolt are employed so as to be operated by a single key. In this class of locks the lock-bolt is ordinarily shot from the inside by means of a handle which turns a hub arranged to first raise the tumbler and then throw the bolt. The door is unlocked from the outside by turning the key-cylinder with the key until the cylinder-cam raises the tumbler and forces the lock bolt back; and the continued turning of the cylinder cam brings it into engagement with the lever mechanism by which the latch-bolt is likewise withdrawn.

The main objects of the invention are first to provide an improved arrangement of levers for operating the latch bolt from the cylinder-cam, whereby the parts will be positively thrown into proper position and satisfactory leverage provided. And second to constantly maintain the hub which operates the lock-bolt, in its normal position, so as to prevent it from interfering with the movement of the bolt by the key as it is ordinarily liable to do when the tumbler has been raised.

The features of the invention are described in connection with the accompanying drawings and are specifically pointed out in the claims.

Figure 1 is an elevation of a portion of a lock embodying my invention the cap plate being removed and the lock-bolt shown in the act of being withdrawn by means of the key. Fig. 2 is a similar view showing the lock-bolt withdrawn and the lever mechanism for operating the latch-bolt positively moved thereby into the path of the cylinder cam.

The latch bolt B is mounted in the case C so as to be operated by any ordinary knob mechanism, not shown.

The lock-bolt A is provided with the usual spring-tumbler F which is operated to release the bolt either by means of the hub E through the medium of a suitable handle on the inside of the door or by means of the cam *d* of the cylinder lock D; the further movement of either of which moves the bolt itself. The lower arm *f* of the forked-spring-tumbler F may bear upon the hub E as usual so that the turning of the latter will immediately swing it upon its pivotal connection to the lock-bolt, and leave the latter free to be moved. I provide however in addition a spring-arm K pivoted to the case and arranged to bear upon the hub E independently of the tumbler, the purpose of which arm will be more fully described later.

Upon studs *a* and *a'* projecting from the lower face of the lock-bolt I pivot separate levers G and H, the portions of which projecting beyond the pivots mesh together so that they have no independent movement in either direction. The arm *h* of the lever H engages the spring backed latch-bolt B so that the position of the right angled arm *g* of the lever G is positively controlled by the in and out movement of the lock-bolt, the proportions of the parts and their relative arrangement being such that when the lock-bolt is thrown out to lock the door the arm *g* is positively held outside of the path of the cylinder cam *d*, and as the bolt is withdrawn it is as positively moved into the cam path so as to be acted on by the continued movement of the cam.

In unlocking the door from the outside the cam *d* first comes in contact with and depresses the tumbler F, thus releasing the bolt which is moved inward by the continued turning of the key as shown in Fig. 1. It will be noticed that the depressing of the tumbler removes the arm *f* from its bearing upon the hub E so that it no longer prevents the latter from being turned from its normal horizontal position. In practice considerable difficulty has been caused by leaving the hub thus free to be turned (for instance by the accidental shaking of the door) for it is liable to assume an oblique position in which one end of the hub by getting into the path of the bolt forms a bar to its further retraction and effectually prevents the unlocking of the door from the outside until it shall adventitiously turn again out of the bolt path. By the employment of the supplemental spring arm K this difficulty is entirely obviated, the hub E being maintained by it in normal position regardless of the position of the tumbler. As the bolt A is

moved in, the arm *h* of the lever H is held immovable by its engagement with the latch-bolt B so that the lever swings upon the stud *a'* and being meshed with the lever G positively swings the latter upon the stud *a*, at the same time that it is carried inward with the bolt, the joint effect of the two movements being, when the parts are properly proportioned and arranged, to bring the end of the arm *g* within the path of the cam *d*, the continued rotation of which depresses it and causes the withdrawal of the latch-bolt B as described. By my improvements it will be seen that all the parts are positively brought to and maintained in proper position so that it is not possible for them to drop into or remain in inoperative position as heretofore.

What I claim is:—

1. In a lock the combination with the latch-bolt, the lock-bolt, and the cylinder cam arranged to directly operate said lock-bolt, of levers G and H separately pivoted to said lock-bolt and positively geared together, one of said levers being arranged to engage the latch-bolt and the other to be positively carried into and out of engagement with said cam by the joint movement of the lock-bolt and levers pivoted thereto, substantially as set forth.

2. In a lock the combination with the lock bolt, the tumbler therefor, and cylinder cam *d* and hub E arranged to independently operate said tumbler, of the supplemental spring arm pivoted to the case and bearing upon said hub to maintain it in its normal position when the tumbler is moved away from it, substantially as set forth.

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

GEO. E. TYSON.

Witnesses:
ADAM L. OTTERBEIN,
ED. A. KELLY.