

F. H. KNIGHT.
LOCK.

APPLICATION FILED OCT. 8, 1915.

1,173,112.

Patented Feb. 22, 1916.

2 SHEETS—SHEET 1.

FIG. 1.

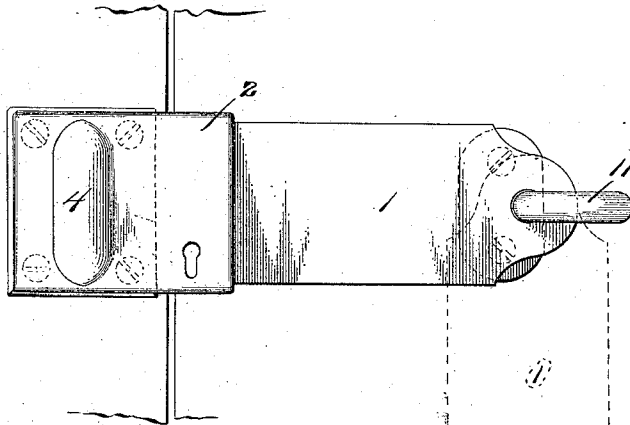


FIG. 5.

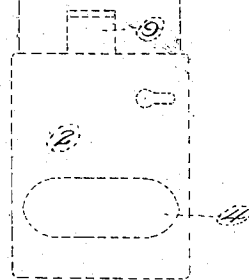
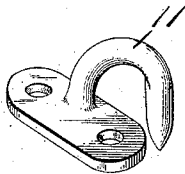


FIG. 2.

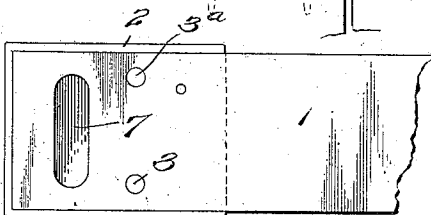
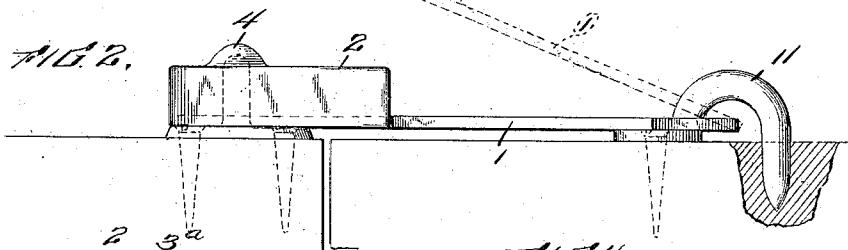


FIG. 4.

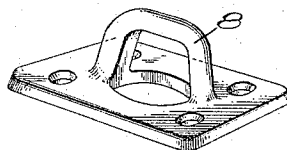


FIG. 3.

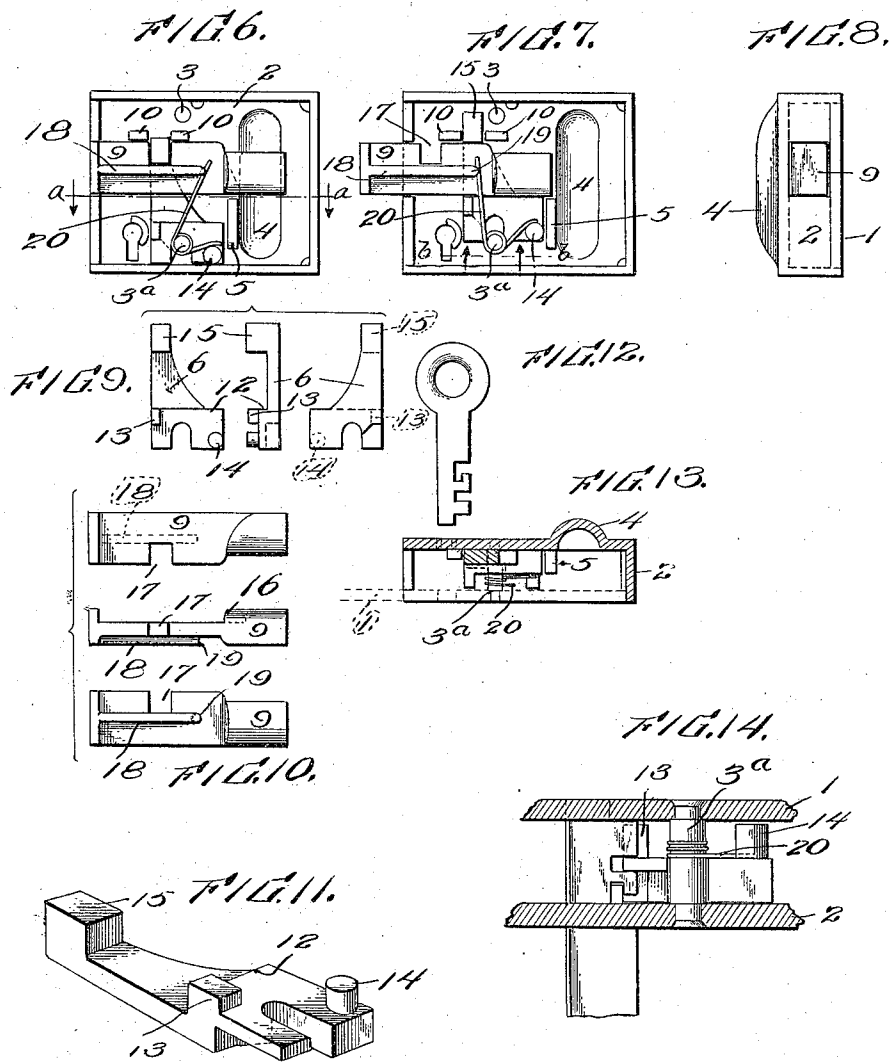
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

FRANK H. KNIGHT, OF LANCASTER, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO
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LOCK.

1,173,112.

Specification of Letters Patent.

Patented Feb. 22, 1916.

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To all whom it may concern:

Be it known that I, FRANK H. KNIGHT, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Locks, of which the following is a specification.

This invention relates to locks of the pivotally hung swinging type used in combination with a staple form keeper and to be applied in its preferred form to barns, stables, gates and the like.

The objects of my invention are to greatly simplify the construction and mechanism of the lock, to improve its operation, to provide a bolt which on its release is spring retracted, to provide simple and efficient means of securing the lock in position and to improve the lock casing, all of which objects, among others, are accomplished by the construction, arrangement and combination of parts hereinafter more particularly set forth, described and claimed.

In the accompanying drawings: Figure 1 is a front elevation of a lock embodying my invention, showing the same in solid lines in locking position and, in dotted lines, in unlocked vertical position, the bolt being shown as withdrawn in dotted lines in the latter position of the lock; Fig. 2, a side elevation of the same showing it locked in solid lines and, in dotted lines, unlocked and swung outward on its fastening element; Fig. 3 represents a rear elevation of the lock, the end of the rear plate being broken away; Fig. 4, a perspective view of the keeper; Fig. 5, a similar view of the fastening element; Fig. 6, a rear elevation of the lock, the rear plate being removed, showing the bolt and tumbler in locking position; Fig. 7, a similar view, showing the bolt and tumbler in released or open position; Fig. 8, an end elevation of the lock; Fig. 9, detail views of the tumbler in rear, side and front elevation; Fig. 10, similar views of the bolt; Fig. 11, a detail perspective view of the tumbler; Fig. 12, a detail side elevation of the key; Fig. 13, a sectional view on the line *a-a* of Fig. 6, looking in the direction of the arrow; and Fig. 14, a longitudinal sectional view on a line in proximity to the lower side of parts 3^a, 6 and 14 Fig. 7,

looking upward in the direction of the arrows.

Referring now to the drawings in detail, 1 represents the rear plate, on one end of which is mounted the molded or cast metal member or front 2 by means of two rivets or other suitable fastening elements 3 and 3^a. The member 2 has a transverse raised or arched portion 4 to receive the front of the keeper 8, or may be provided with an elongated opening at this point to allow the keeper to project therethrough and is further provided adjacent the inner edge thereof with a transverse guide lug 5 extending inward therefrom to guide the tumbler 6 and with two similar longitudinally arranged, alined guide lugs 10 to guide the bolt 9. These two lugs 10 also guide the upper end of the tumbler 6, being spaced apart at a distance slightly greater than the width of the upper end of said tumbler and receiving the same between them. The rear plate is provided with a transverse slot 7, which, when the two parts 1 and 2 are fastened together, registers with the raised portion 4 and allows the keeper 8 to protrude into the interior of the lock for engagement and disengagement by the bolt 9. This plate is also provided with a further perforation, circular in shape, registering with the key-hole in member 2 and in which the inner end of the key will be journaled when in use. The keeper 8 is secured in position by means of screws, as shown in dotted lines in Fig. 2, passing through holes left therein for that purpose.

Referring now more particularly to the mechanism of the lock, the tumbler 6 is mounted to reciprocate transversely of the bolt and is guided in said movement by the lug 5, the lugs 10 and rivet or stud 3^a, said tumbler being recessed in its lower end to receive said rivet. It is provided with a shoulder 12 on its rear face longitudinally of the lock as a whole, also with a lug 13 extending rearward therefrom to be engaged by the key, also on its inner and lower corner with a rearwardly presented preferably integral pin 14. On its upper end it is provided with an integral rearwardly presented angular or rectangular lug 15.

The bolt 9 is mounted to reciprocate longitudinally of the lock and is guided in such

movement by the lugs 10 and the shoulder 12 of tumbler 6 and is provided with a curved shoulder 16 on its front and near its inner end, corresponding in shape to the adjacent edge of the tumbler 6, against which it engages to limit the outward movement of said bolt. Said bolt 9 is further provided with a deep angular or rectangular recess 17 in its upper edge to receive the lug 15 of the tumbler 6 and has on its rear face an integral projecting strengthening or reinforcing rib 18 provided with an overhanging lip 19 on its inner end. A spiral spring 20 mounted on rivet 3^a bears with its short arm on the upper face of pin or lug 14 to force the tumbler 6 down, and with its long arm on the end of projection 18 of bolt 9, fitting under the overhanging lip 19 of said projection, to force said bolt outward.

From the above it will be seen that rivet 3^a performs three functions; it holds the two parts of the casing together, it forms a guiding element for the tumbler 6, and it holds the spiral spring 20 in place. Also, it will be seen that the spring 20 performs two functions; that of operating the bolt, and that of operating the tumbler transversely thereto, also that it operates on one bolt only in performing both functions.

The operation is as follows, presuming the bolt to be in its outer position. The bolt 9 is forced inward by the hand until in the position shown in Fig. 6, when the short arm of the spring 20 will force the tumbler 6 down so that lug 15 enters the recess 17 in the bolt, as shown, holding the same in locking position. To release the bolt, the key, shown in Fig. 12, is inserted in the key-hole and turned to engage shoulder or lug 13 and force the tumbler 6 upward, against the action of the spring 20, to the position shown in Fig. 7, when the lug 15 will be entirely out of recess 17 of the bolt 9, freeing the latter which will then be forced outward by the long arm of the spring 20 to the position shown in Fig. 7. When the bolt 9 is in its innermost or locking position its rear end will be flush with the exterior face of the member 2 of the casing.

Obviously various changes and modifications may be made in the construction, combination and arrangement of the several parts of my invention, of which a preferred form only has been described and shown herein and it is therefore my intention to protect all such changes and modifications by the appended claims which I desire be given the broadest construction possible consistent with their wording.

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

1. In locks, a casing consisting of two elements and a rivet holding said elements together, in combination with a tumbler re-

ciprocally mounted in said casing and guided by said rivet, a lug carried by said tumbler, a bolt reciprocally mounted in said casing and adapted to reciprocate through one end thereof and provided with a recess, a projection on said bolt, a projection on said tumbler and a spiral spring mounted on said rivet and bearing with its respective arms on said projections to force said tumbler into position to hold its lug in said recess when the bolt is in locking position, and to force said bolt outward when the tumbler is in such position that its lug is out of said recess.

2. In locks, a reciprocating bolt provided with a recess and a tumbler adapted to reciprocate transversely thereto and having a lug adapted to fit into said recess, in combination with a spring operating on said bolt and tumbler to force said bolt outward when the lug of said tumbler is out of said recess and to force said tumbler transversely to said bolt, carrying said lug into said recess, when the bolt is in its locking position.

3. In locks, a reciprocating bolt provided with a recess and a sliding tumbler having a lug adapted to fit in said recess, in combination with a spring operating on said bolt and tumbler to force said bolt outward when the lug of said tumbler is out of said recess and to move said tumbler relatively to said bolt, carrying said lug into said recess, when the bolt is in its locking position.

4. In locks, a reciprocating bolt provided with a recess and a tumbler adapted to reciprocate transversely thereto and having a lug adapted to fit in said recess, in combination with a spring operating on said bolt and tumbler to force said bolt outward when the lug of said tumbler is out of said recess, and to force said tumbler downward, carrying said lug into said recess, when the bolt is in its locking position, and means carried by said bolt limiting its outward movement.

5. In locks, a reciprocating bolt having a recess and provided with a projection having an overlapping lip, and a tumbler adapted to reciprocate transversely to said bolt, provided with a shoulder which guides the latter and a lug which is adapted to fit into said recess and having a fixed pin, in combination with a spring fitting under said lip and against said spring to force said bolt outward when said lug is out of said recess and to force said tumbler downward, carrying said lug into said recess when the bolt is in locking position.

6. In locks, a reciprocating bolt provided with a recess, and a sliding tumbler having a lug adapted to fit in said recess and provided with a shoulder which serves as a guide for said bolt, in combination with a spring operating on said bolt and tumbler to force said bolt outward when said lug is out of said recess and to move said tumbler

relatively to said bolt, carrying said lug into said recess, when the bolt is in its locking position.

7. In locks, a reciprocating bolt provided
5 with a recess, and a sliding tumbler having a lug adapted to fit in said recess, in combination with a spring operating on said bolt and tumbler to force said bolt outward

when said lug is out of said recess and to move said tumbler relatively to said bolt, 10 carrying the lug into said recess, when the bolt is in its locking position, and guiding means for said bolt and tumbler.

In testimony whereof, I have signed my name to this specification.

FRANK H. KNIGHT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."