(Model.)

J. WURM.

LOCK AND LATCH COMBINED.

No. 315,456. Patented Apr. 7, 1885.

Fig. 3.

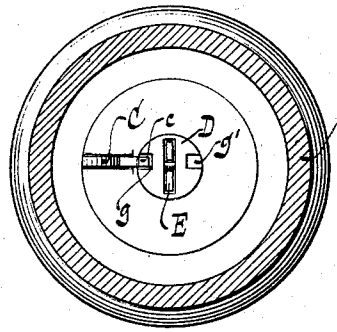


Fig. 1.

Fig. 4.

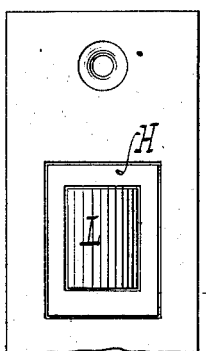
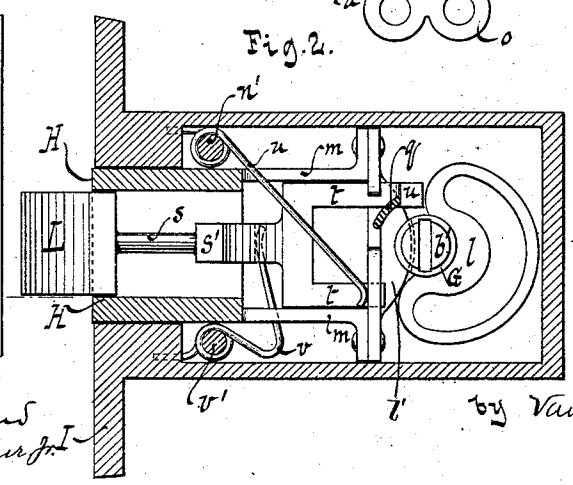


Fig. 2.



Witnesses
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N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

JOSEF WURM, OF NEW YORK, N. Y.

LOCK AND LATCH COMBINED.

SPECIFICATION forming part of Letters Patent No. 315,456, dated April 7, 1885.

Application filed November 13, 1884. (Model.)

To all whom it may concern:

Be it known that I, JOSEF WURM, a citizen of the German Empire, residing at New York, in the county and State of New York, have invented new and useful Improvements in Locks, of which the following is a specification.

The invention relates to improvements in locks and latches; and it consists in the novel combination of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a longitudinal section of my improved lock as applied to a door. Fig. 2 is a transverse section of the same in the plane *x x*, Fig. 1. Fig. 3 is a transverse section in the plane *x' x'*, Fig. 1. Fig. 4 is an end elevation of part of my lock.

Similar letters indicate corresponding parts.

In the drawings, the letter A, Fig. 1, designates the door-knob on the outside of the door, and B the knob on the inside. In the top of the outside knob, A, is screwed or otherwise secured a disk, *a*, with which is cast integral a tumbler, C, said tumbler being provided with two wards, *b* and *c*. D is a barrel or cylinder constituting what I will term a "tumbler-hub," having a reduced outer end, which is journaled to rotate in a circular orifice in the disk *a*, this tumbler-hub having a longitudinal slot or key-hole, *d*, for the reception of the flat key E. At the end of the slot *d* metal may be left to form a ward or wards, *e*, so as to allow only the introduction of the proper key. The tumbler-hub D is also formed with a deep transverse recess, *f*, and two short longitudinal notches, *g g'*, which notches end in the transverse recess *f*.

F is a cylindrical spindle capable of rotating in the stem of the knob A, and provided at its outer end with an annular recess, *h*, and a slot, *h'*, for the reception of the key E. In the annular recess *h* is fitted a spiral spring, *i*, which abuts against the bottom of said recess *h*, and acts upon the tumbler-hub D, forcing the same continually in the outward position against the disk *a* on the knob A. On the bottom of the spindle F is a flat projection, *j*, which engages a corresponding slot, *j'*, in a hub, G, which has bearings *b'* in the casing I. The hub G is formed with a cam, *l*, which acts upon a circular projection, *l'*, secured to the arms *m* of the hollow bolt H, the bolt being constantly kept drawn back by the spring *n*, which is secured at one end to a screw or post, *n'*, attached to the inside of the lock-case beside the hollow bolt, the rear free end of the spring acting against the plate which is provided with the circular projection *l'*.

F' is a spindle which extends through the inside knob, B, having secured to it on its outer end a handle or key, *o*, and has on its inside end a projection, *p*, which engages a corresponding recess, *p'*, in the hub G. The spindle F' passes through a disk, *a'*, secured in the knob B, and is thus held in position capable of axial rotation.

On the inside end of each of the two knobs A B is a projection, *q*, extending through annular slots *r* in the casing I.

L is the latch, inclosed in the hollow bolt, and consists in a stem, *s*, to which is attached a fork, *s'*, having four arms, *t t'*. One arm, *t*, on the top, and one, *t'*, on the bottom in the same line, are provided each with a projection, *u*, which projections *u* are engaged, respectively, by the projections *q* on the knobs A B. The latch L is kept constantly pressed forward by the spring *v*, secured to the casing I, encircling the post *v'*, secured in the casing and abutting against the latch.

M M are knob-roses partially countersunk into the wood-work of the door, and secured thereto by screws *w w*. On the stems of the knobs A B are formed shoulders *w'*, which abut against the knob-roses M M, and by these and the annular grooves *y* on the stems of the knobs, which are engaged by screws *y'*, the knobs are held in position, and are capable of axial rotation independently of any rotation of the knob-spindles F F'. When the parts are in the position shown in the drawings, the ward *c* on the tumbler C engages the longitudinal notch *g* in the tumbler-hub D and the tumbler-hub cannot be rotated.

If it is desired to throw forward the bolt that is to lock the door from the outside, the key E is slipped in the key-hole *d* and pressed downward, a slot in the key allowing the same to pass some distance out at the end of the tumbler-hub before it is carried down-

ward, and the key enters the slot *h'* in the spindle. The notches *g* on the tumbler-hub are now cleared of the ward *e* and can be turned, whereby the key can turn the spindle F, and the cam *l* on the hub G forces the bolt H forward, and on releasing the pressure on the key the tumbler-hub D is forced outward by the action of the spring *i* and again forced in position, the ward *e* engaging the second slot, *g'*, in the same.

To unlock the door from the inside it is necessary only to turn the key or handle *o* in the required direction, the spindle F' then acting on the hub G, carrying the cam *l*, which then engages the bolt H.

In the drawings the door is shown latched. To unlatch the same one of the knobs is turned in the proper direction. The projection *q* thereof engages the corresponding projection, *u*, on the arm of the latch, and this draws the latch back against the action of the spring *v'*. When the knob is released, the latch flies forward again, as in case of any ordinary lock.

By the combination of parts as herein described I obtain a lock requiring no extra key-hole in the lock-case for the bolt, while it answers all the purposes of a lock and latch combined.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a lock-case, a hollow sliding bolt, a latch sliding within the bolt, a rotating hub acting on the bolt, two rotating and independent knob-spindles connected with the hub to project the bolt, and two knobs independently rotating on the spindles and connected with the latch for retracting it within the bolt.

2. The combination of a lock-case, a hollow sliding bolt, a spring normally holding the bolt retracted, a latch sliding in the bolt, a spring normally holding the latch projected, a rotating hub having a cam for projecting the bolt, two rotating and independent knob-spindles connected with the hub, and each having a device at its outer end for its rotation, and two knobs independently rotating on the spindles and connected with the latch for retracting it within the bolt, substantially as described.

3. The combination of a lock-case, a sliding bolt, a hub for projecting the bolt, two rotating and independent spindles connected with the bolt, and the outside spindle having a slot in its outer end, a longitudinally-movable tumbler-hub adapted to rotate in the outside knob, a stationary tumbler fixed to the knob, and a key for moving the tumbler-hub inward and disengaging it from the stationary tumbler of the knob, substantially as described.

4. The combination, with a lock-case, a sliding bolt, and a rotating hub acting on the bolt, of two rotating and independent knob-spindles connected with the hub, the outside spindle having an annular recess, *h*, and a slot, *h'*, in its outer end, a spring arranged in the annular recess, a longitudinally-movable tumbler-hub journaled to rotate in the outside knob and acted on by the spring, a stationary tumbler rigid on the outer knob, and a key for moving the tumbler-hub inward to disengage it from the tumbler of the knob, substantially as described.

5. The combination of a lock-case, a sliding hollow bolt, a rotating hub having a cam for projecting the bolt, a latch sliding in the bolt and having arms *t t' t' t'*, the latter provided with the projections *u*, two rotating and independent spindles connected with the hub, and two knobs rotating on the spindles, and each having a projection, *q*, at its inner end acting on the projections of the arms of the latch, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JOSEF WURM. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.