

H. JONES.  
Knob-Latches.

No. 146,910.

Patented Jan. 27, 1874.

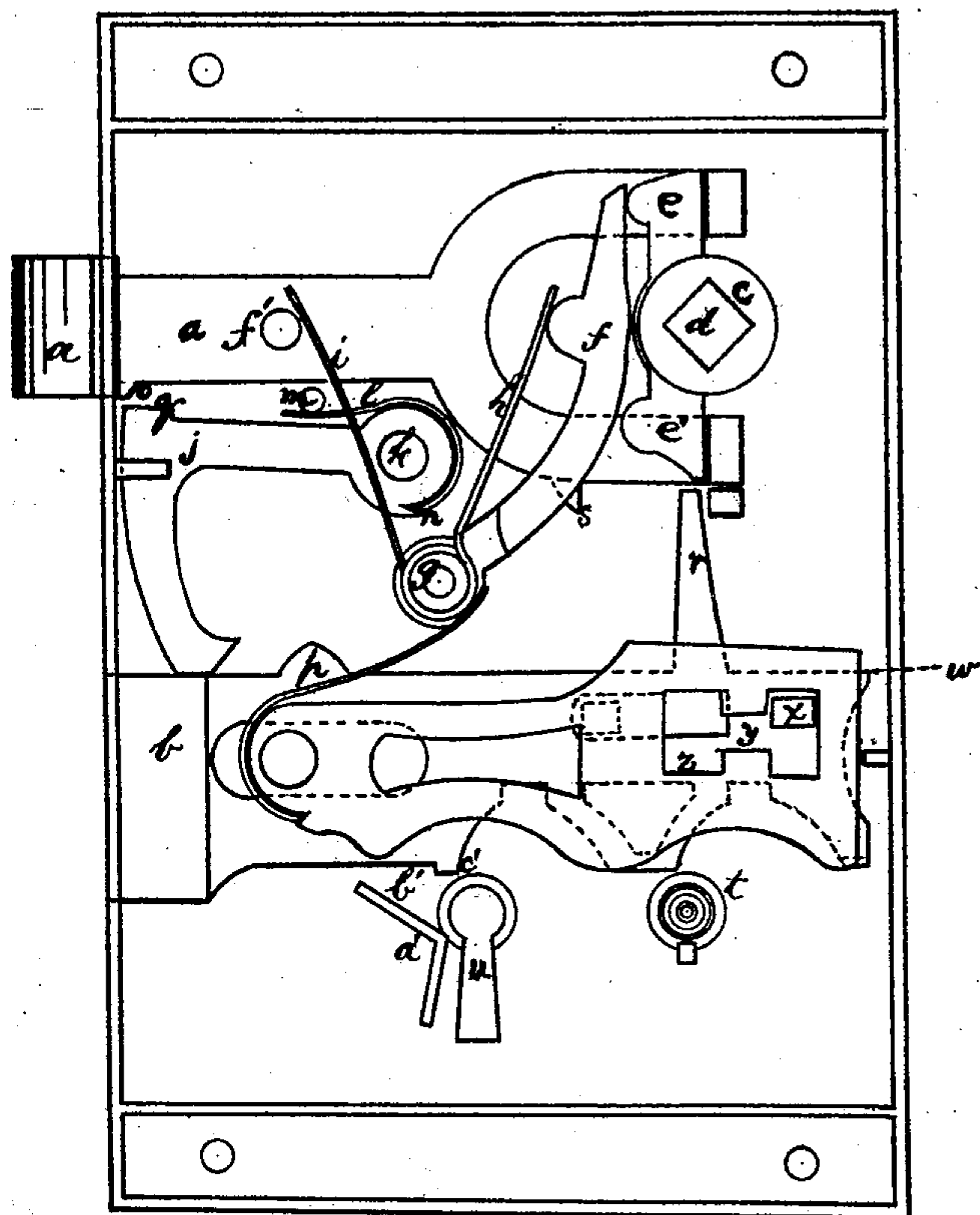


Fig. 1.

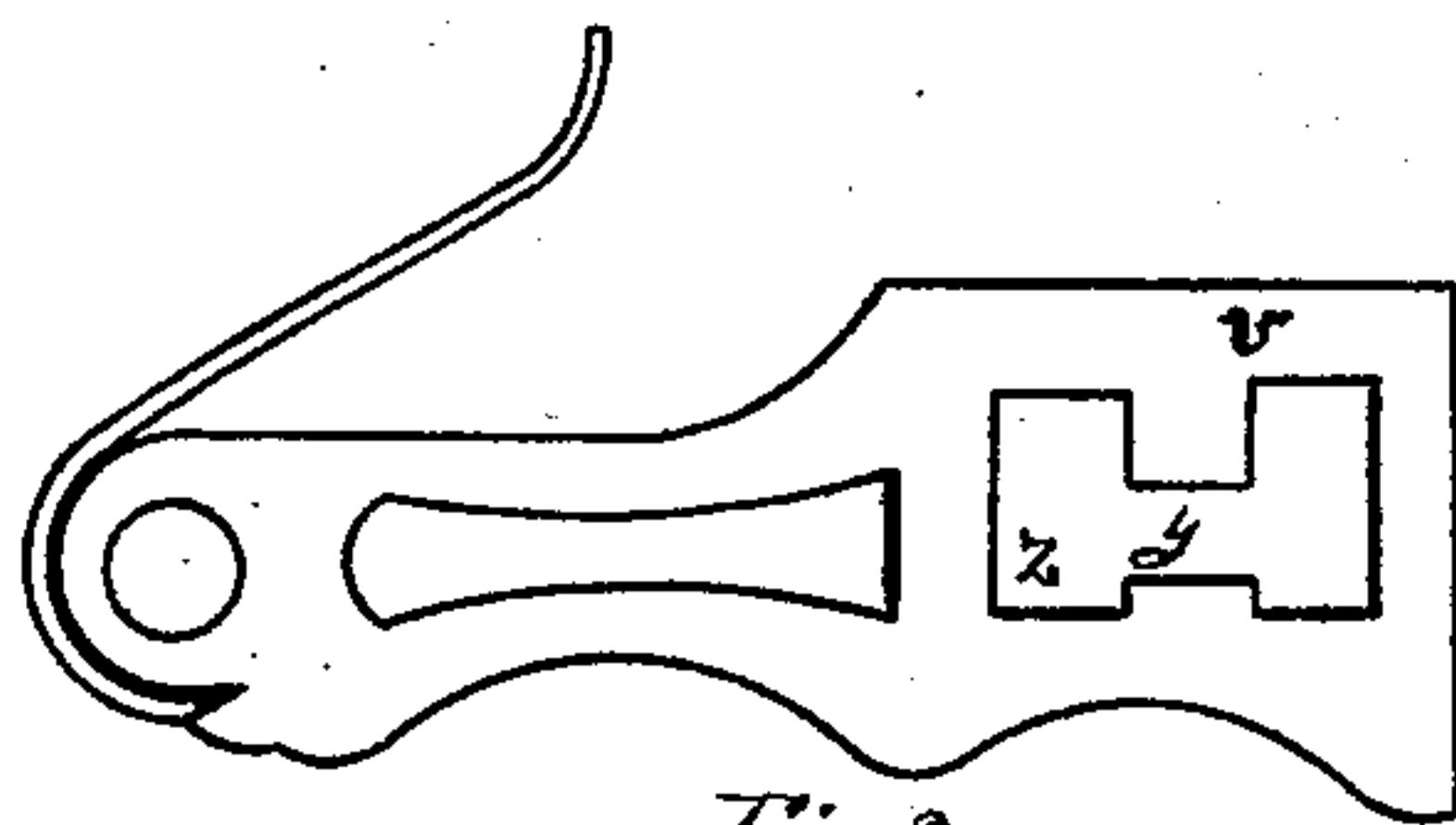


Fig. 2.

Witnesses:  
Frank H. Jordan  
Arthur Noble

Inventor:  
Henry Jones  
By his attorney  
Wm. Henry Clifford

# UNITED STATES PATENT OFFICE.

HENRY JONES, OF PORTLAND, MAINE.

## IMPROVEMENT IN KNOB-LATCHES.

Specification forming part of Letters Patent No. **146,910**, dated January 27, 1874; application filed February 27, 1873.

*To all whom it may concern:*

Be it known that I, HENRY JONES, of Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Latches; and I do hereby declare that the following is a full, clear, and exact description thereof, that 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 the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a face view, with the back plate removed to show the working parts. Fig. 2 is a detailed view of one of the tumblers which are located over the key-bolt.

Same letters show like parts.

My invention relates to certain improvements in door-latches. Its object is to provide such an arrangement of springs, a cam, and a pivoted arm, together with the hub of the knob-shank, that the bolt will be easily pushed back into the case when the door is pushed into the jamb, or is shut, in consequence of one only of the springs being bent, and by the operation of both the springs, in connection with the other devices named, to insure the return of the bolt to its original position after being drawn or turned in by the knob.

*a* is the latch-bolt; *b*, the key-bolt; *c*, the short cylinder, having the socket *d* to receive the shank of the knob. *e e'* is a cam attached to the cylinder. *f* is an arm, turning on the pivot *g*, and kept pressed against the cam *e e'* by the spring *h*, which is also attached to the pivot *g*. *i* is the easy spring of the latch-bolt, and is also attached to the pivot *g*. *j* is a dog, turning on the pivot *k*, and kept pressed down on the top edge of the key-bolt *b* by the spring *l* pressing against the spring *m*, and also attached to the dog at *n*. *o* is a shoulder on the latch-bolt, and *p* a projection on the key-bolt. The projection *p* pushes the dog *j* upward, so that its edge *q* moves up behind the shoulder *o*, and thus keys or locks the latch-bolt whenever the key-bolt is thrown. *r* is a finger on the key-bolt; *s*, a shoulder on the lower arm or bifurcation of the latch-bolt. The finger pushes out the latch-bolt to the full extent of its proper movement whenever the key-bolt is

thrown, and this insures the perfect operation of the dog *j* and shoulder *o*. *t* indicates the position of the key-hole in the back plate of the lock, or where the key is inserted when the lock is to be operated from the outside of a room. The recess *t* is to receive the end of the key. The key-hole *u* is the key-hole to be used when the lock is operated from the inside of a room. Thus the key, when inserted from the inside, cannot be reached from the outside except by cutting through the back plate of the lock. The key-bolt *b* is thrown by the key bit or point, lifting the tumblers *v w*, and allowing the stud *x* to move through the slot *y*, and into the recess *z*, as the bolt *b* is pushed by the key. The key, when inserted into the hole *u*, can only be turned one way, the guard *a'* preventing any other movement. When the bolt is thrown, the bit of the key rests upon the part *b'* of the guard *a'*, and at the same time its outer edge pushes or rests against the shoulder or point *c'* on the key-bolt, thus securing the bolt in that position when thrown, and rendering it necessary to cut through the back plate of the lock and turn back the key before the bolts can be moved from the outside of the room.

A description of the general operation of my invention may thus be given.

By turning the shank of the knob that is intended to enter the socket *d*, the following operations take place: The two springs *h* and *i* must be contracted, and their united force has the tendency to force out the bolt *a* when the power is removed from the knob. Thus the latch-bolt *a* is rendered quite certain in its operation, and also to resume its position. When a door is shut without turning the knob—that is, pushed into the jamb—the spring *i*, pressing against the pin *f'*, is the only spring to be bent. Thus the door can be easily shut, as the latch is easily sprung. This arrangement and operation of these two springs is of great importance to the convenient and reliable operation of a latch of this kind. The easy spring *i* admits of the door being shut when pushed into the jamb without slamming the two together. *h* and *i* force the latch-bolt out again when drawn in by the turning of the knob.

When the key-bolt is thrown, the following movements take place: The finger *r* travels



up to the shoulder *s*, and, if the bolt *a* is not fully thrown forward, pushes it forward to the full extent of its movement. The projection *p* forces the dog *j* up behind the shoulder *o*. The bit of the key, when the locking is done from the inside, lies upon *b'*, and the edge of the bit presses against *c'*.

It will be seen that the two springs *i h* are formed of one and the same piece of metal, and so arranged as to operate in the manner described—that is, the easy spring to operate by itself, as set forth, and the two to operate together, as described.

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

The combination of the arm *f* with the cylinder *c*, cam *e e'*, springs *i h*, pivot *g*, pin *f'*, and the latch-bolt *a*, all to operate as described.

In testimony that I claim the foregoing I have hereunto set my hand.

HENRY JONES.

Witnesses:

WM. HENRY CLIFFORD,  
FRANK H. JORDAN.