

H. H. ELWELL & T. TAYLOR.

KNOB-LATCH.

No. 173,217.

Patented Feb. 8, 1876.

fig:1

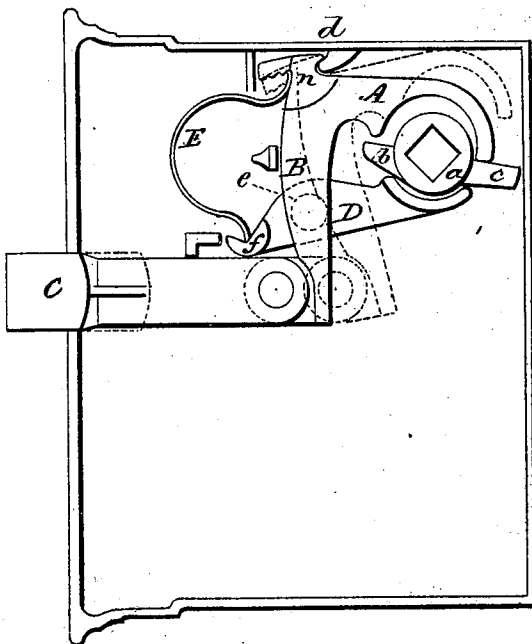
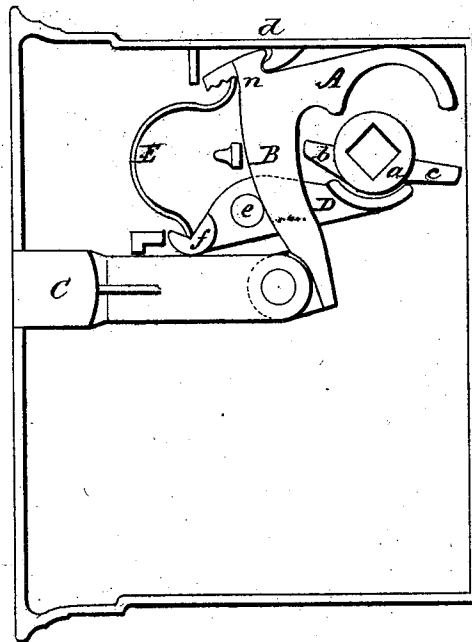


fig. 2



Witnesses.

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UNITED STATES PATENT OFFICE

HENRY H. ELWELL AND THOMAS TAYLOR, OF NORWALK, CONNECTICUT,
ASSIGNORS TO THE NORWALK LOCK COMPANY, OF SAME PLACE.

IMPROVEMENT IN KNOB-LATCHES.

Specification forming part of Letters Patent No. 173,217, dated February 8, 1876; application filed
January 17, 1876.

To all whom it may concern:

Be it known that we, HENRY H. ELWELL and THOMAS TAYLOR, both of Norwalk, in the county of Fairfield and State of Connecticut, have invented a new Improvement in Knob-Latches; and we do hereby declare the following, when taken in connection with the accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, an interior view of the latch-bolt and its operative mechanism, with the parts in a state of rest; Fig. 2, an interior view, the parts occupying the position as when the bolt is forced back as in the act of closing the door.

This invention relates to an improvement in what are commonly called "knob-latches," the object of the invention being to adapt a single spring, so that it may be strong on the knob, but light on the bolt, in order that the resistance may be less on the bolt in closing the door than when the spring is alike on both knob and bolt, the force to return the knob being much greater than that necessary for throwing the bolt; hence, when the same force is applied to both the resistance offered by the bolt in closing is much greater than necessary for the operation of the bolt; and the invention consists in a bell-crank lever hung in a case at the angle; one arm worked by the hub, the other attached to the bolt, so that turning the knob the lever will be turned, and the bolt drawn or thrown accordingly, combined with a second lever, the longer arm of which bears upon the arms of the hub; and between the shorter arm of the second lever and a point near the fulcrum of the other lever, a spring is arranged, the tendency of which is to force both levers against the arms of the hub upon opposite sides, and so that in turning the hub the spring exerts its force upon the hub through both levers, and so that when the bolt is forced in without turning the knob the principal lever only is turned, and the resistance of the spring to such turning much less than the resistance to the movement of the combined levers, as more fully hereinafter described.

a is the hub, provided with the arms *b c*, and arranged in the case in the usual man-

ner. *A* is one arm, and *B* the other arm, of a bell-crank lever, having its fulcrum at *d* within the case, the arm *A* extending around the hub, so that either arm of the hub will bear upon a corresponding part of the arm *A* accordingly as the knob is turned, and to the arm *B* the latch-bolt *C* is attached, also in the usual manner; hence by turning the knob in either direction the latch-bolt will be drawn.

D is a second lever, having its fulcrum at *e*, one arm extending to the hub, and so as to bear upon the arms of the hub opposite the arm *A* of the principal lever. On the other arm of the lever *D* is a spring-seat, *f*, and at a point on the lever *B*, forward of the fulcrum, is a similar seat, *n*. Between these two seats, *f* and *n*, a bent or other suitable spring, *E*, is arranged, one end in each seat, the tendency of which is to force the arms of the respective levers upon the hub; hence, in turning the hub, the power of the spring upon both arms is exerted upon the hub to cause it to return to its place of rest when free.

The principal lever being independent of the lever *D* the bolt may be forced inward, as seen in Fig. 2, without in any way affecting the hub or lever *D*, and the only resistance offered to this forcing in of the bolt is the bearing *n* upon the spring, and this is so near the fulcrum as to be very light, yet sufficient to force the bolt outward when free, the power of the spring through the lever *D* being preferably considerably greater than that through the principal lever.

The power of the spring may be increased by forming several seats at *n* on the principal lever at varying distances from the fulcrum, it being understood that the farther the bearing is from the fulcrum the greater the power of the spring upon the lever.

This invention is applicable to all classes of knob-latches.

We claim—

The combination in a knob-latch, of the hub, the principal lever *A B*, the bolt hung to one arm of the lever, the auxiliary lever *D*, and the spring *E*, substantially as described.

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Witnesses:

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