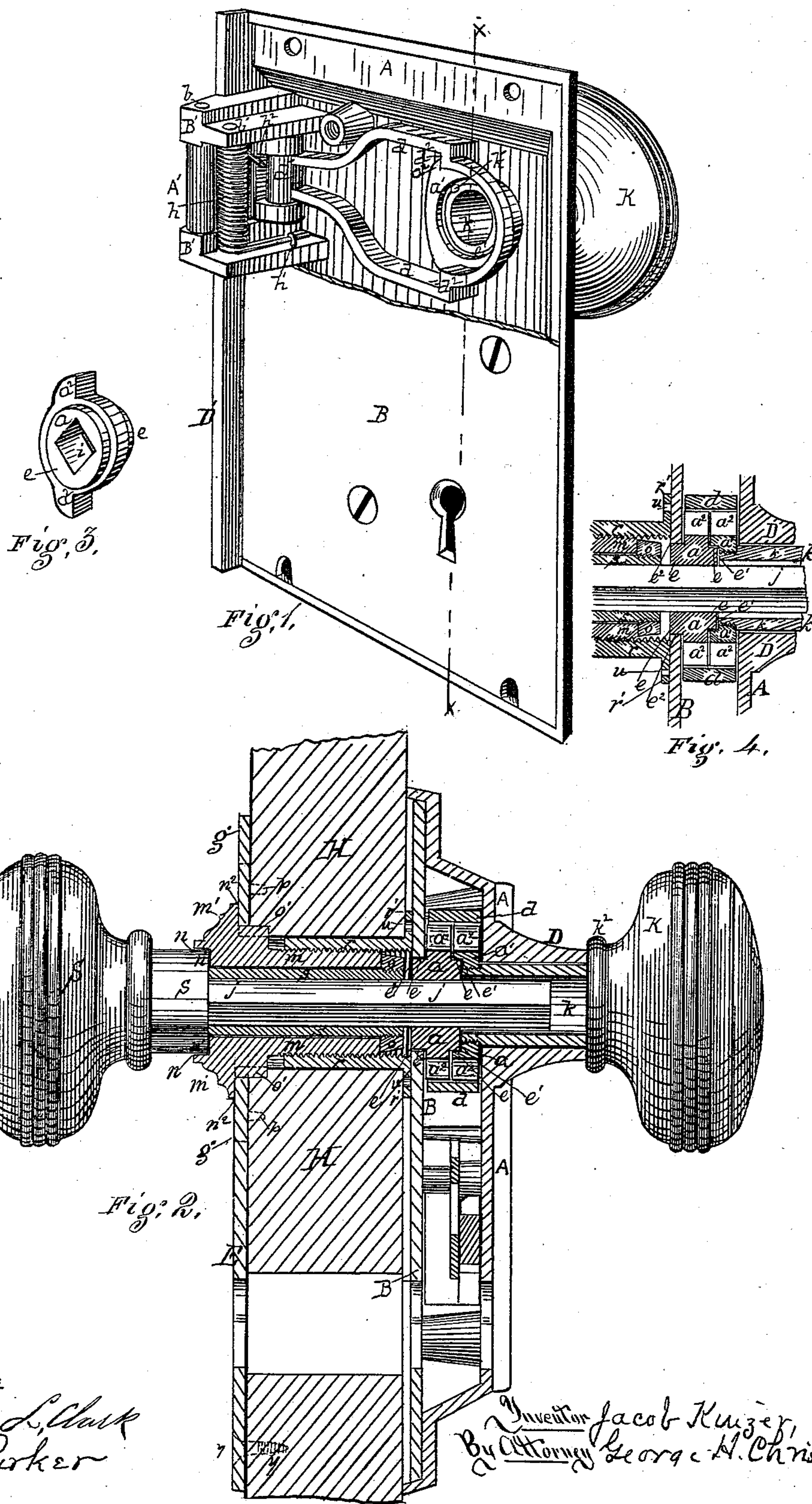


J. KINZER.  
Latch.

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# UNITED STATES PATENT OFFICE.

JACOB KINZER, OF PITTSBURG, PENNSYLVANIA.

## IMPROVEMENT IN LATCHES.

Specification forming part of Letters Patent No. **211,853**, dated February 4, 1879; application filed November 21, 1878.

*To all whom it may concern:*

Be it known that I, JACOB KINZER, of Pittsburg, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Latch-Knobs; and I do hereby declare the following to be a full, clear, concise; and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a perspective view of a car-door lock illustrative of my improvement, such view being taken from the back, and showing one knob, a part of the back plate and one part or piece of the hub removed. Fig. 2 is a vertical sectional view from the rear edge of the lock, taken in the line *xx* of Fig. 1, and drawn to an enlarged scale, the knobs being shown in elevation. Fig. 3 is a perspective view of that part of the hub omitted from Fig. 1, and drawn to the scale of that figure; and Fig. 4 is a detached sectional view of a part of the latch device, taken from Fig. 2, and drawn to the same scale.

My invention relates to knobs for door-latches; and consists in an improved construction and arrangement of knobs and parts of the latch, whereby the latch-bolt can be operated by either knob separately by turning in either direction, without turning or operating the other knob, and also a cheap and convenient device is secured for attaching the outer knob to the door.

In the drawings, A represents the face-plate, and B the back plate, of a door lock and latch. The latch-bolt A', Fig. 1, is pivoted by a bolt, *b*, to cheeks B', which are cast with and project back from the front edge, D', and face-plate A. A coiled spring, *h*, is also arranged between the cheeks B', back of the latch A', on a bolt, *b'*. One end of this spring is secured, in any convenient way, to one of the cheeks B', as at *h'*, while the other end of the spring extends down toward the face-plate, and bears against the rear face of the latch, as at *h''*, and operates to thrust the latch out. A stirrup, *d*, pivoted at its forward end to the rear face of the latch, as at *d'*, extends from the latch to and encircles a two-part or double hub, *a a'*, Figs. 1 and 4. Shoulders *d''* are made in the stirrup, on either side of the hub,

against which lugs or projections *a''* (two on each part of the hub) operate or press to draw the latch. The part *a'* of the hub, which lies against the face-plate A, is screwed to the end of the shank *k* of the inner or face knob, K; and to prevent unscrewing by the operation of the knob, a key, *k'*, may be driven into a groove cut out of the two.

The knob-shank *k* is provided with an extended bearing, so as to secure the requisite firmness, by means of a tubular eye or projection, D, extending out from the face-plate, and a collar, *k''*, on the shank bears against the outer end of the projecting eye D, and prevents the knob-shank from being pushed inward. The part *a'* of the hub operates not only to draw the latch when the knob is turned, but it also operates as a collar or nut to secure the knob in its bearings to the face-plate A. The part *a* of the hub, Fig. 3, occupies the space between the part *a'* and the back plate B. Collars or shoulders *e e* are made on the part *a*, one on either side face. The collar on the inner face fills and turns in a recess or socket, *e'*, in the adjacent face of the part *a'*, and thus a bearing is secured on this side, and the collar on the opposite or outer side or face entering and turning in an opening, *e''*, through the back plate B, affords a bearing on that side. In this way the part *a* of the hub is journaled in position independent of its operating-knob, and the two parts of the hub are free to be operated separately or independently in drawing the latch.

An angular opening, *i*, is made through the center of the part *a*, adapted to receive a correspondingly-shaped spindle, *j*, which is cast or otherwise secured to the shank *s* of the outer knob, S, and in the axial line of the shank, so that by turning the knob in either direction the latch will be drawn through the action of this part of the hub.

As shown in the drawings, the knob-shank *k* is hollow, and the interior opening is of such form and size that the end of the spindle *j* may turn freely therein without operating the shank or the part *a'* of the hub. The latch may thus be drawn by either knob separately, and the spring *h* is required to overcome the weight or load of but one knob in throwing the latch out.

The knob S is secured to the door H, as fol-



lows: A sleeve, *m*, is fitted loosely on the knob-shank *s*, and secured thereon by a nut, *o*, screwed to the end of the shank. The outer end of this sleeve has an enlarged collar or head, *m'*, with a socket or recess, *n*, for receiving a shoulder, *n'*, on the shank, and furnishing a bearing to prevent endwise motion; also, a flange or lip, *n''*, on the rim of the enlargement *m'*, which clamps the rose-plate *g* to the door. The sleeve *m* is prevented from turning by lugs *o'*, projecting into corresponding recesses or notches in the adjacent edge of the rose-plate, and pins or dowels *p* on the inner face of the rose-plate penetrate the wood and prevent the rose from turning. These pins *p* are employed more especially when the rose-plate is not connected with the key-escutcheon *E*. When these parts are connected as shown, the screws *y*, which secure the escutcheon, will prevent the rose-plate from turning.

The outer surface of the sleeve *m*, at its inner end, is threaded for such distance as to furnish a suitable support for the supplemental sleeve *r* and allow a range of adjustment thereon corresponding to the ordinary variation in the thickness of doors. This sleeve *r* is threaded on its inner surface, as shown, so as to screw onto the sleeve *m*, the nut *o* being made small enough to allow the sleeve *r* to pass over it without wearing the threads. A flange, *r'*, is also made on the end of this sleeve, which clamps the inner side of the door when the two sleeves are screwed together.

Spanner-holes *u*, or other suitable means, may be provided for screwing the sleeve *r* tight onto the sleeve *m*. These two sleeves form, in effect, an extensible or adjustable device for securing the knob to the door, and by means of it the knob can, with little or ordinary skill, be fitted to the door or to doors of different thicknesses.

The length of the exposed part of the spindle *j*, or that part of it projecting beyond the flanged end *r'* of the sleeve *r*, will be varied more or less as the sleeve is screwed up to take the thickness of the door. In any case the spindle should be long enough to enter and operate the part *a* of the hub when the lock is in place, and, on the other hand, it should not be so long as to reach beyond the limit of the cavity in the knob-shank *k*. Between these

extremes it may have any length without interfering with the separate action of the knobs, and therefore no other provision is necessary for adjusting its length with accuracy.

The interior face of the sleeve *m*, which affords a bearing for the knob-shank *s*, is smooth through its whole length. As thus arranged, there is no working of threaded parts upon each other when the knobs are turned, as is the case with many of the latch-knobs now in use. Such threaded bearings are a serious objection, especially when used on car-doors, since fine dust soon finds its way into the threaded part, and either cuts it away, so as to render the knob loose or shaky, or else chokes or binds the bearing, so as to make the knob turn hard.

The lock proper, which is usually arranged in the same case as the latch, may be of any desired construction, and the whole may be fastened to the door in the usual or any convenient way.

I claim herein as my invention—

1. In combination with a two-part hub for operating a latch, a knob and shank, secured to the door, and provided with a spindle adapted to enter and operate one part of the hub, and a knob and shank secured to the face-plate of the latch-case, and rigidly connected with the other part of the hub, such knob-shank having an interior cavity adapted to receive the end of the spindle without operating the same or being operated thereby, substantially as set forth.

2. As a device for securing a latch-knob to a door, an extensible or two-part sleeve, adapted by the adjustment of its parts to clamp the opposite sides of the door and inclose the knob-shank within a smooth unthreaded surface, substantially as set forth.

3. The combination of knob and shank *S s*, sleeves *m* and *r*, provided with flanges *n''* and *r'*, nut *o*, and bearing *n n'*, substantially as described.

In testimony whereof I have hereunto set my hand.

JACOB KINZER.

Witnesses:

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