D. KELLEHER.

Shutter-Workers.

No. 152,121. Patented June 16, 1874.

Fig. 1.

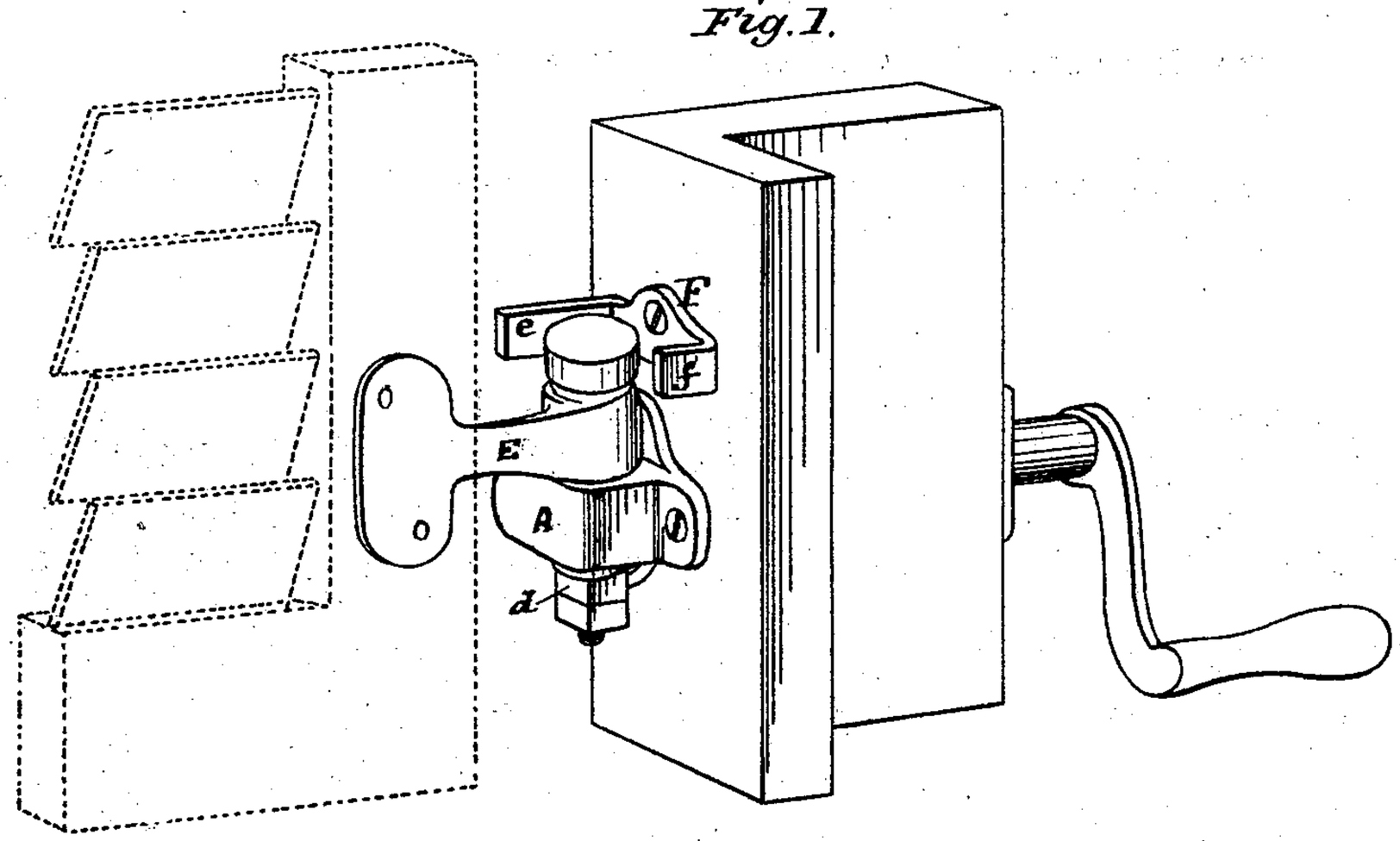


Fig. 2.

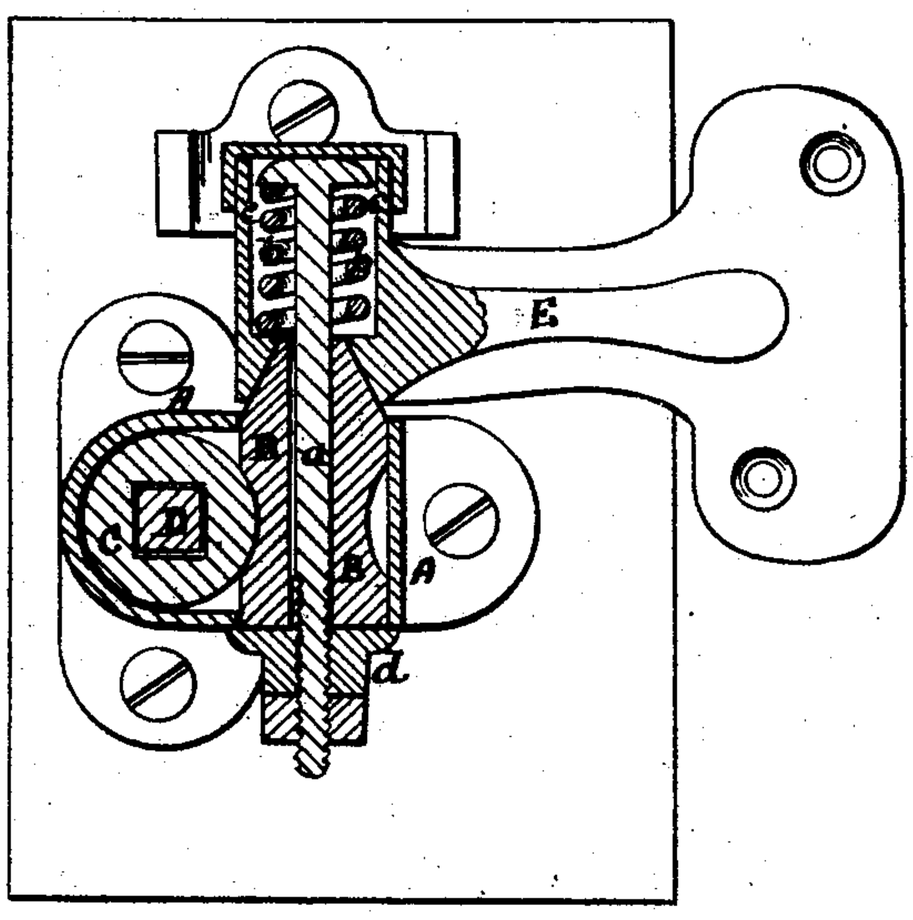
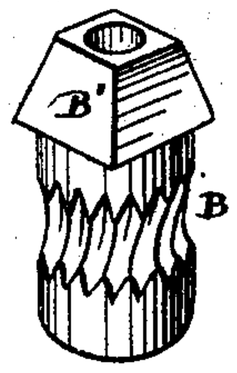


Fig. 3.



Witnesses.

Ewell A. Sieck.

A. C. Rawlings.

Inventor

David Kelleher

by atty Hoesk

UNITED STATES PATENT OFFICE.

DANIEL KELLEHER, OF NEW BEDFORD, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO ELIHU BUNKER, OF SAME PLACE.

IMPROVEMENT IN SHUTTER-WORKERS.

Specification forming part of Letters Patent No. **152,121**, dated June 16, 1874; application filed May 15, 1874.

CASE C.

To all whom it may concern:

Be it known that I, DANIEL KELLEHER, of New Bedford, Massachusetts, have invented certain new and useful Improvements in Shutter-Workers, of which the following is a specification:

This invention is an improvement on the shutter-worker for which Letters Patent No. 148,303, were issued to me and Elihu Bunker, on the 10th day of March, 1874.

In the present instance I combine the reversible box and removable gear in substantially the same manner, and to operate in the same way as specified in my said Letters Patent. There is also the same combination of the spindle, worm, and box.

It is now my object to provide means whereby, when the shutter is partly open and thus exposed to the force of the wind, or to any other extraneous power tending to swing it in one direction or the other, the strain on the worm and gear may, after passing a certain limit, be relieved, and the shutter permitted to work independently of said parts, so as to prevent them from being unduly strained and worn, and perhaps broken. I also provide means whereby the shutter, when either closed or open, will be locked down securely on the gear or pintle connected therewith.

The nature of my invention and the manner in which the same is or may be carried into effect will be understood by reference to the accompanying drawing, in which—

Figure 1 is a perspective view of a shutter-worker embodying my invention. Fig. 2 is a vertical central section of the same in a plane coinciding with the axis of the reversible gear and transverse to the worm-operating spindle. Fig. 3 is a perspective view of the reversible gear detached.

A is the reversible box; B, the removable gear; C, the worm, and D the worm-operating spindle. These parts in their general organization and operation resemble the same parts in the Letters Patent above recited, and in these respects require no further explanation.

In said Letters Patent the gear B was provided with a square pintle, which entered a correspondingly-shaped socket in the part of the hinge attached to the blind. Under such construction the gear and worm were required to stand all the strain which was liable to come on the shutter when the same was partly open and exposed to the wind or other force acting against it from one side or the other, and from this cause there was liability of the shutter-working apparatus becoming soon worn or broken. To obviate this difficulty I now make the exterior head B′, of the removable gear, of a pyramidal or equivalent angular form, tapering from the base to the top, as seen plainly in Fig. 3. The socket of the shutter part E of the hinge is shaped to fit down onto and engage the pyramidal or angular tapering head.

It will be seen that under this arrangement if force be applied to the shutter to swing it, the beveled sides of the socket of the shutter part E of the hinge will, when the strain exceeds a certain limit, ride up on the inclined tapering head a sufficient distance to allow the shutter to turn independently of the gear B, thus relieving the latter of undue strain. When the force applied to the shutter to cause its movement is withdrawn, the part E of the hinge, by reason of the weight of the shutter, will drop down into place again on the head B′.

The head B′ may be of any suitable length, and may be used alone or have a cylindrical guide-pintle projecting from and above it to pass through a like hole in the part E of the hinge. I have, however, illustrated my invention in the drawing with an auxiliary spring mechanism for holding down the part E of the hinge, which mechanism, although not a necessity, may be used to advantage in some instances.

This mechanism consists of a pin or bolt, *a′*, passing loosely and axially through the gear B, and extending up into a chamber, *e*, formed to receive it in the part E of the hinge. In this chamber is a spiral or other spring, *b*, encompassing the rod and confined between the head of the rod and the bottom of chamber C. The lower projecting end of the rod is screw-threaded to receive a tightening-nut, *d*. By means of these devices the chambered hinge-

piece E is held down with a yielding pressure on the pyramidal head B′.

To prevent the shutter from rising, or from being lifted when either opened or closed, I provide on the frame of the window at the proper point above the box A a lock-piece, F, consisting of a base-plate with two projecting arms, *e f*, under one of which the part *e* of the hinge, when the shutter is either opened or closed, will just pass. The arm consequently will under these circumstances prevent the rising or lifting of the shutter by holding down the part E. The projecting angles of the base of the pyramidal head constitute a collar or bearing-surface to rest upon the reversible box and support the gear in proper position.

I would remark that the position of the parts may obviously be reversed, the pyramidal head being on the lower part of the hinge portion E and the correspondingly-shaped socket in the head of the gear.

Having now described my invention, and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the shutter-working gear and the shutter part of the hinge supported by said gear, the two being connected by a pyramidal head and socket-joint, formed as shown and described, to permit the shutter part of the hinge to rise under the conditions specified.

2. In combination with the shutter-working gear and the shutter part of the hinge connected by a pyramidal head and socket-joint, as specified, the spring mechanism interposed between the pyramidal head and the top of the pin or bolt operating to hold the two together with a yielding pressure, as shown and described.

3. The double locking-piece F, consisting of a base-plate and the two projecting arms *e f*, arranged above the box A to prevent the lifting of the shutter when either entirely closed or opened, as shown and set forth.

In testimony whereof I have hereunto signed my name this 12th day of May, A. D. 1874.

DANIEL KELLEHER.

Witnesses:

C. C. SIMMONS,

M. K. RAYMOND.