(No Model.)

V. KRASKE & T. NAERUP, Jr.

SHUTTER WORKER.

No. 471,128. Patented Mar. 22, 1892.

Fig. 1.

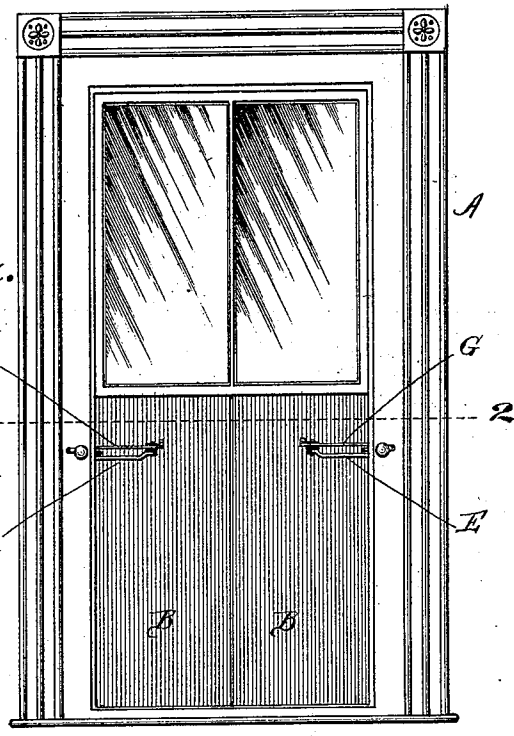


Fig. 6.

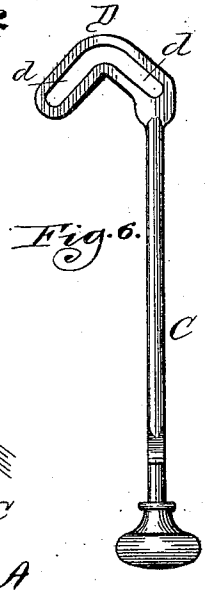


Fig. 7.

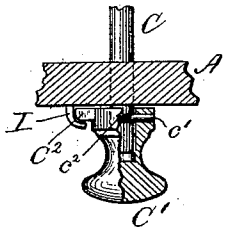


Fig. 2.

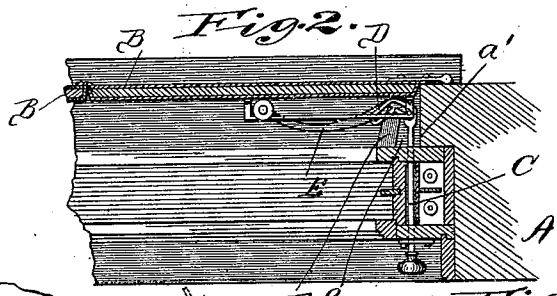


Fig. 5.

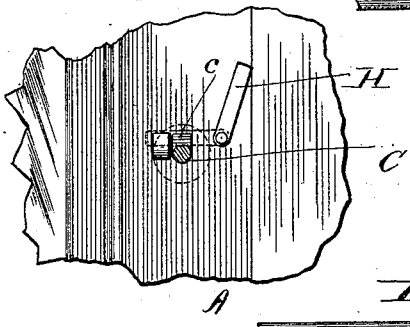


Fig. 4.

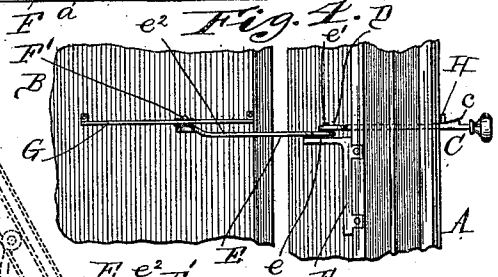
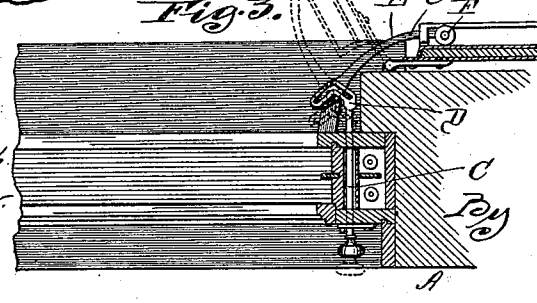


Fig. 3.



Witnesses,
V. D. Mann,
Margaret Ingner.

Inventors
Victor Kraske
Thorwald Naerup Jr.
By
Chas. G. Page
Attys.

UNITED STATES PATENT OFFICE.

VICTOR KRASKE AND THORWALD NAERUP, JR., OF CHICAGO, ILLINOIS.

SHUTTER-WORKER.

SPECIFICATION forming part of Letters Patent No. 471,128, dated March 22, 1892.

Application filed August 11, 1891. Serial No. 402,350. (No model.)

To all whom it may concern:

Be it known that we, VICTOR KRASKE and THORWALD NAERUP, Jr., both citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Shutter-Workers, of which the following is a specification.

Our invention relates to shutter-workers in which the shutter is swung by operating a push and pull rod extending through the frame at one side of the shutter and carrying at its outer end a double cam or camway.

The object of our invention is to provide a more easy working and generally efficient device for opening and closing the shutters of buildings, and to provide certain novel and improved matters of construction, combination, and arrangement, as hereinafter set forth.

In the accompanying drawings, Figure 1 represents in elevation a window and shutters with a couple of shutter-workers involving our invention applied for operating the shutters. Fig. 2 is a section through a portion of Fig. 1 on line 2 2, the shutter being closed; and Fig. 3 is a like view of the shutter open, and also illustrating in dotted lines the shutter at a point substantially midway of its allotted swing. Fig. 4 shows in elevation a portion of the shutter and window-frame with our improved shutter-worker applied. Fig. 5 shows a portion of the window-frame with one form of latch for locking the push and pull rod. Fig. 6 shows on a larger scale the push and pull rod and cam. Fig. 7 is a horizontal section through a portion of the window-frame and a knob on the inner or rear end of the push and pull rod and illustrates a preferred construction of locking device.

In said drawings, A indicates the window frame or casing, and B denotes the shutter, which is hinged, as usual.

The push and pull rod C for operating the shutter is arranged to extend through openings or bearings in the window-casing, and projects to a suitable extent within the room, so that the operator may conveniently take hold of it for the purpose of opening and closing the shutter. The inner end of the operating-rod can be provided with a knob or any other suitable handle which will permit the operator to readily hold it while pushing it forward and drawing it back.

The push and pull rod C, which may be conveniently termed the "operating-rod," is arranged horizontaly, and is provided at its outer end with a cam D, which is formed with a double oblique way—that is to say, the cam is provided with a way or slot comprising the two oblique portions d and d, which are oppositely oblique to the length of the rod and arranged to converge toward the middle of the cam. The shutter is operated from said cam D by a vibratory lever E, which is pivotally supported upon a bracket F, Fig. 4, on the window-frame, and arranged to connect with both the cam and the shutter. As a means for connecting the lever with the cam, the lever has its short arm e provided with an anti-friction roll or stud e', arranged to engage in the slot or way of the cam, and as a means for connecting the lever with the shutter by a movable or sliding connection we provide the long arm e^2 of the lever with a sheave or anti-friction roll F, which is arranged to traverse a horizontal guideway along the inner side of the shutter, so that when the lever is swung in one direction it will cause the shutter to open, while, on the other hand, when the lever is swung in an opposite direction it will cause the shutter to close. The said guideway on the shutter can be formed in various ways, so as to provide between the lever and the shutter a movable or sliding connection, which will allow the shutter to swing when the lever is operated, a simple and convenient mode of construction being to simply provide the shutter with a guide-rail G, which is secured to the shutter as a bracket and arranged parallel with and set back from side of the shutter, so as to provide working space for the anti-friction sheave or roll F, which works between and engages both the said guide-rail and the shutter, or a bearing-plate on the latter, should it be deemed desirable to thus provide the shutter with a bearing. The sheave or roll F is also preferably grooved to receive the rail and thus prevent sagging of the lever, although the roll may be unprovided with such groove, if desired. The bracket for the lever is conveniently arranged within the offset a, with which window-frames are commonly pro-

vided, and hence will be out of the way and so disposed as to avoid any objectionable appearance. The said offset also affords working space for the cam D, which need have an end movement to no greater extent than the width of such space in a direction at right angles to the plane of the window-frame, this comparatively limited movement on the part of the cam (and consequently on the part of the operating-rod) being rendered sufficient to swing the shutter from one to the other of the two extremes of its swing, from the fact that one-half of the allotted extent of swing on the part of the shutter is effected by an end movement of the operating-rod in one direction, while the remaining half of the allotted extent of swing on the part of the shutter is attained by an end movement of the operating-rod in an opposite direction. Thus under the arrangement herein shown the stud on the lever will, when the shutter is closed, be at the inner end of the camway—that is to say, at the end of the camway nearest the vertical side wall a', Fig. 2, of the offset a in the window-frame—the rod in such case being at what may be termed the "limit" of its forward movement or push. In order now to open the shutter, an operator within the room will pull back the operating-rod, and in so doing the cam will be retracted and swing the lever in a direction to open the shutter about halfway and bring the stud on the lever at a point about midway of the length of the camway. The operator will then push the operating-rod forward so as to advance the cam, which will swing the lever in the same direction as before and cause the shutter to swing wide open the stud on the lever when the shutter is thus wide open being at the outer end of the camway. In order to close the shutter, the operator will first exert a pull on the operating-rod, so as to partially close the shutter and bring the stud on the lever from the outer end of the camway to substantially the middle point of the cam and then push the operating-rod forward, so as to complete the operation of closing the shutter.

It will be observed that our invention, while applicable to all kinds of swinging blinds or shutters, is particularly adapted for service in connection with iron shutters, which on account of their weight will in swinging from either a closed or an open position acquire sufficient momentum to readily carry them past the middle point of the cam. We also provide in connection with the operating-rod a latch or locking device of any suitable or desired construction, so that the shutter can be locked from the inside, an exceedingly simple arrangement being to provide the operating-rod with a stop c, which can be engaged by a latch H, it being seen that when the shutter is either closed or wide open, the latch can be permitted to lie in engagement with the stop and thus prevent the operating-rod from being pulled back.

The latch can be either a spring or gravity latch, or otherwise, and, if desired, the operating-rod can be provided with other stops or notches, so that the shutter can be held open to any desired extent. As a preferred arrangement, however, we provide a knob C′, Fig. 7, which is arranged to turn on the inner end of the rod C and retained thereon by a pin c', secured in the knob and arranged to engage in an annular groove c^2 in the rod. The knob C′ is provided with a lug or catch C^2, which by properly turning the knob can be brought to engage in a keeper I on the window-frame.

What we claim as our invention is—

1. A shutter-worker for swinging a shutter, comprising in combination, substantially as hereinbefore described, the push and pull rod guided to work through the side of the window-frame with a straight end thrust or movement and provided at one end with a cam D, formed by the double oblique way, the swinging shutter provided with a horizontal guideway, and the vibratory lever supported upon the window-frame and arranged with one of its arms engaging said camway and with its other arm having a movable or sliding connection with the guideway on the shutter.

2. The combination, with a shutter-worker comprising a push and pull rod provided with a cam and a lever operated by said cam, of a locking device consisting of a knob arranged to turn on said rod and provided with a catch for engaging a keeper on the window-frame, substantially as described.

VICTOR KRASKE.
THORWALD NAERUP, JR.

Witnesses:
CHAS. G. PAGE,
MARGARET M. WAGNER.