(No Model.)

A. MERZ.

SHUTTER WORKER.

No. 454,371. Patented June 16, 1891.

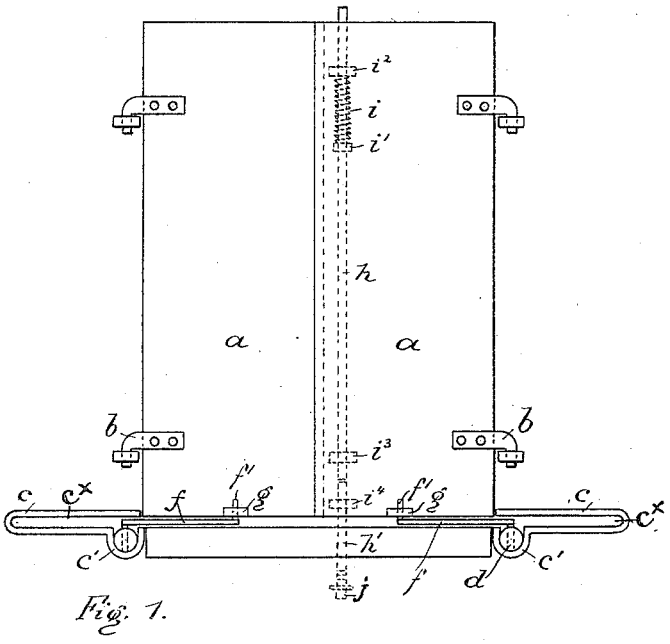

Fig. 1.

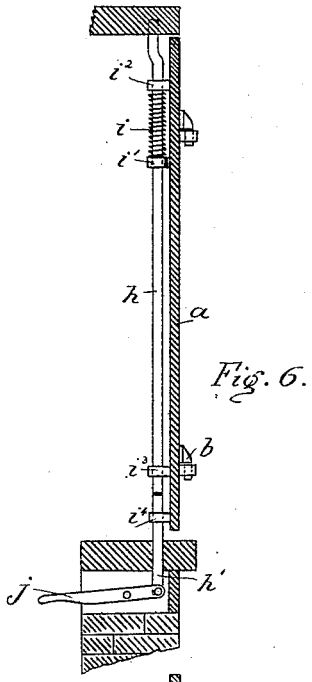

Fig. 6.

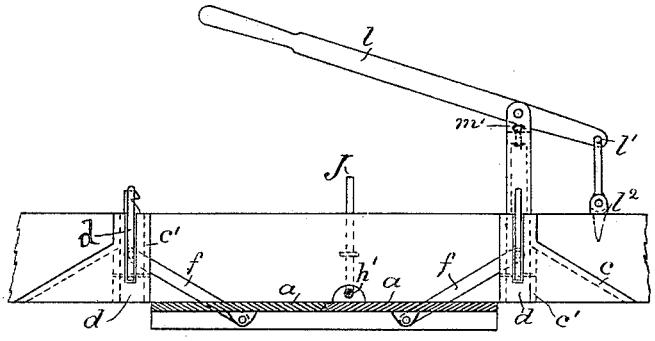

Fig. 2.

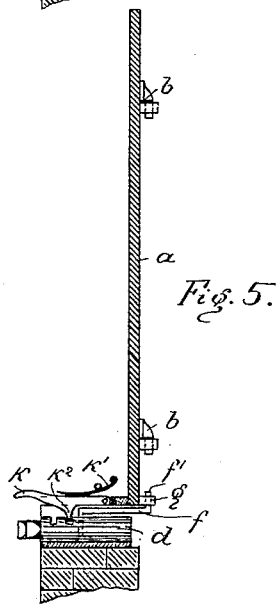

Fig. 5.

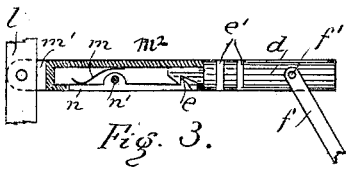

Fig. 3.

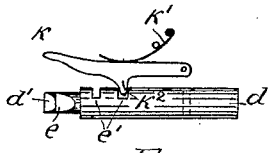

Fig. 4.

Witnesses
Walter Wagner
John Schroeder

Inventor
Anton Merz.
By his Attorney
Wm Zimmerman

UNITED STATES PATENT OFFICE.

ANTON MERZ, OF CHICAGO, ILLINOIS.

SHUTTER-WORKER.

SPECIFICATION forming part of Letters Patent No. 454,371, dated June 16, 1891.

Application filed March 19, 1891. Serial No. 385,591. (No model.)

To all whom it may concern:

Be it known that I, ANTON MERZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Shutter-Workers, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 shows in front elevation a pair of closed shutters provided with my improved shutter-worker mechanism. Fig. 2 shows Fig. 1 in plan view with the working mechanism on the interior of the shutter. Figs. 3 and 4 show details of construction of parts on an enlarged scale. Fig. 5 shows my shutter-worker in transverse vertical section, taken at the outer edge of the closed shutter. Fig. 6 shows my device in a transverse vertical section, taken near the center of the closed shutter.

Like letters refer to like parts.

The object of my invention is to provide a simple, effective, and easily-applied mechanism to open and close window-shutters without the necessity of opening the window; and to attain said ends I construct my new device in substantially the following manner, namely:

I provide a slotted cast-iron piece *c*, composed of an upper and a lower flat plate united on their outer edges in a diagonal line, so as to form a triangular piece with a slot $c^{\times}$, as shown. Said diagonal edge is placed away from the shutter, and on the inner edge of the lower plate and integral therewith is a channel or way *c'*, vertical to the plane of the wall. Said parts are secured into the wall of the building. Into said channel is placed a plug *d*, capable of moving back and forth freely. The upper side of said channel is open through a longitudinal slot, through which one end or a pin on the end of a rod *f* plays, pivoted in said plug *d*, and the other end of said rod is pivoted in a lug *g* by a pin *f'*.

From what has been shown it is evident that when the shutter turns on its hinges *b* the pin *f'* will describe an arc of a circle, and thus cause the plug *d* to move back and forth. When the shutter *a* is closed, said rod *f* lies diagonally under the shutter, and when the shutter is open the said rod lies in the outer edge of the slot $c^{\times}$. Said plug *d* has a shouldered end or neck *d'*, fitting into a tube m^2, of the same or slightly less diameter than said plug, and a notch *e*, into which a catch *n* engages. Said catch plays in a slot in said tube, and is fulcrumed on a pivot at *n'* and pushed toward said notch by a spring *m*. To the outer end of said tube is attached a swiveled head *m'*, in which a lever *l* is fulcrumed on a pin. By this arrangement the said tube may turn on its axis so as to face upward with its spring-catch *n* for either the right or left hand shutter. The lever *l* is connected by a link *l'* to a hook l^2, made fast to the wall. When the said tube is attached to said shouldered neck *d'* and the link *l'* to the hook l^2 and the tube pushed outward by means of the lever *l*, it will cause the shutter *a* to swing out until it stands at or near a right angle to the wall, and if such movement is made with sufficient rapidity the momentum given to the opening shutter will cause it to swing beyond said right-angled position, which is a "dead-point" in the operation of this mechanism, after which the action of the lever *l* must be reversed and continued on until stopped by the shutter striking against the wall. To close the shutter the same operation of the lever *l* is necessary. In order to hold the shutter in either position, I provide said plug with one or more notches *e'*, and a lever *k* with a spur k^2, which is pivoted to the wall above said plug and depressed by a spring *k'*, arranged so that the spur k^2 may enter one of the notches *e'* when the shutter is in either the closed or open position, and thereby hold it in place. Said catch k^2 must be raised out of its notch *e'* before any of the parts of the shutter can be moved. To provide a stronger locking mechanism for the closed shutter, I attach to the outer and overlapping shutter a vertical bolt *h*, which moves up and down freely in eyes i^2 i^3, attached to the interior of the shutter. Said bolt is operated by a bolt *h'*, and said bolt *h* is operated by a lever *j*, pivoted in a vertical slot in the wall. The outer end of said lever is shown down and its inner end up, thus raising the bolts *h'* and *h*, the latter catching in the cap above while the lower one passes through an eye i^4, thus holding both the upper and lower edges of the shutters.

A coiled spring *i* surrounds the bolt *h* and

presses against the eye i^2, and its lower end rests on a collar i' on the bolt h. This said spring helps to drop the bolt h in case it should otherwise be held from dropping by friction.

What I claim is—

1. In a shutter-worker, the combination, with the slotted plate c, having channel c' below the slot $c^\times$ and said channel provided with a longitudinal slot, of the reciprocating plug d in said channel, and rod f, pivoted to and connecting said plug and shutter, substantially as specified.

2. In a shutter-worker, the combination, with the slotted plate c, having channel c' below the slot $c^\times$ and said channel provided with a longitudinal slot, of the notched plug d, catch k^2 to enter the notches of said plug, and rod f, pivoted and connecting said plug and shutter, substantially as specified.

3. In a shutter-worker, the combination, with the slotted plate c, having channel c', with a longitudinal slot therein, of the notched reciprocating plug d in said channel, rod f, connecting said plug and shutter, a tube m^2, having a catch to fit on the neck of said plug, and lever, link, and fixed hook l^2 to operate said plug, substantially as specified.

ANTON MERZ.

Witnesses:
WM. ZIMMERMAN,
M. C. BURKLEO.