No. 676,382. Patented June 11, 1901.

C. R. BUMBARGER.

SHUTTER WORKER.

(Application filed Jan. 14, 1901.)

(No Model.)

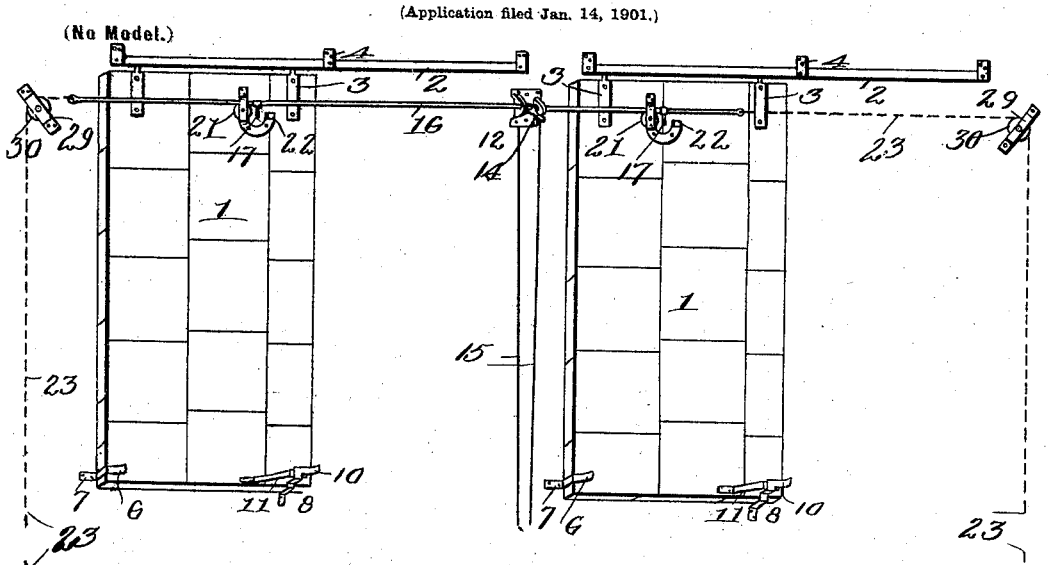

Fig. 1.

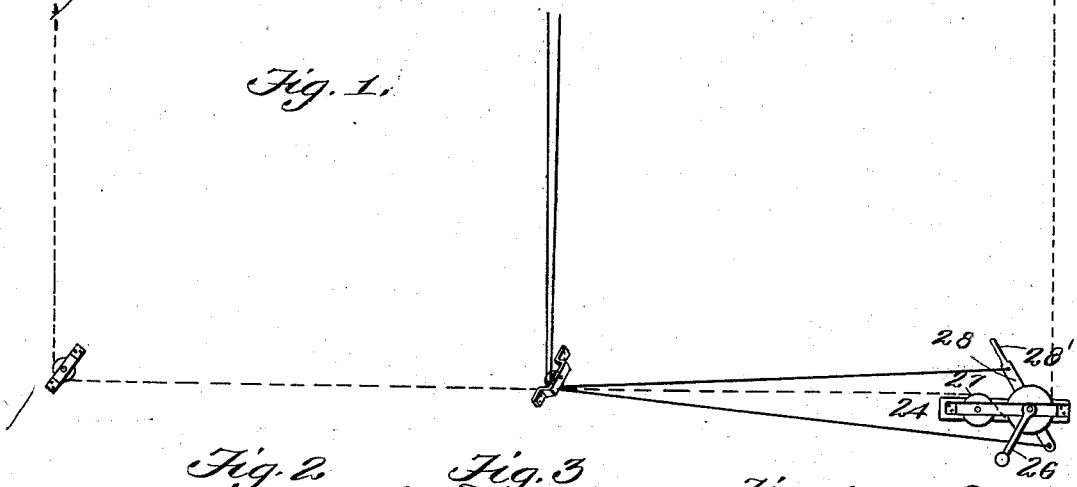

Fig. 2.

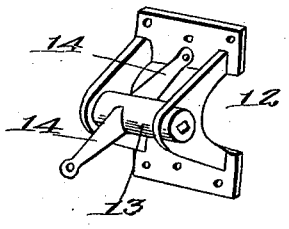

Fig. 3.

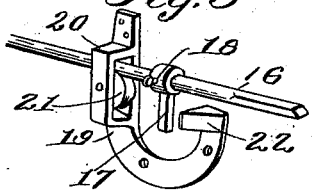

Fig. 4.

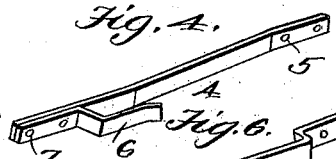

Fig. 6.

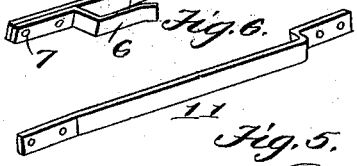

Fig. 5.

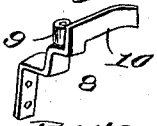

Fig. 7

Witnesses:
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UNITED STATES PATENT OFFICE.

CLARENCE R. BUMBARGER, OF KANSAS CITY, MISSOURI, ASSIGNOR OF THREE-FOURTHS TO GEORGE W. JOHNSON, HENRY M. BEARDSLEY, AND ALFRED GREGORY, OF SAME PLACE.

SHUTTER-WORKER.

SPECIFICATION forming part of Letters Patent No. 676,382, dated June 11, 1901.

Application filed January 14, 1901. Serial No. 43,176. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE R. BUMBARGER, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented new and useful Improvements in Shutter-Workers, of which the following is a specification.

The invention relates to an improved shutter-worker, which may be operated from inside or outside of a building for opening and closing a pair of or a series of shutters simultaneously, as well as to permit of the opening and closing of the shutters independently of each other.

The invention further aims to construct an apparatus of the above character which shall be simple in its construction, strong, durable, and efficient in its use, and comparatively inexpensive to manufacture; and to this end the invention consists of a shifting or operating rod brought into engagement with the shutters by a suitable operating mechanism for opening and closing the same, and, further, in providing said shifting or operating rod with means for disengaging the same from the shutters to enable the latter to be closed and opened independently of each other.

The invention finally consists of the novel combination and arrangement of parts hereinafter more specifically described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein like reference-numerals indicate corresponding parts throughout the several views, and in which—

Figure 1 is a side elevation of my improved apparatus for working shutters. Fig. 2 is a detail view of the bracket carrying the rotating screw. Fig. 3 is a like view of the carrier. Fig. 4 is a similar view of the shutter-stop. Fig. 5 is a like view of the shutter-guide. Fig. 6 is a like view of the shutter-retaining strip for the shutters. Fig. 7 is a like view of the catch or dog carried by the shifting or operating rod.

Referring to the drawings by reference-numerals, 1 indicates the shutters, which may be constructed of any suitable size and material and are suspended from and adapted to slide upon the track 2 by means of the hangers 3. The track 2 is secured to the outside of the building by any appropriate means, as at 4, and may be of any desired length. The hangers 3 are of the ordinary construction, provided with the usual roller, (not shown,) which operates upon the track in the well-known manner.

Secured to the outside of the building and to each of the window-frames is a shutter-stop for limiting the movement of the shutters in one direction, and which consists of an elongated bar 4, having the end 5 secured to the window-frame and the opposite end 5′ carrying a stop-clasp 6. The latter, with the end 5′, is secured to the building and arrests the movement of the shutter.

The reference-numeral 8 denotes the shutter-guide, which is attached to the building below each of the windows and is constructed in such a manner as to allow the shutter to play loosely between the wall of the building and the roller 9, carried by the guide 8. The latter is provided with a curved stop-arm 10, so as to catch the shutter if it should be drawn too far to the right. The shutter has secured to near its lower end a retaining-strip 11, having a portion of its length formed at an inclination. This strip is adapted to be engaged by the roller 9 as the shutter closes, which throws the same tight against the wall when the shutter is finally closed.

Connected to the wall of the building at one side of one of the shutters is a bracket 12, in which is pivotally mounted the spool 13, provided with the arms 14, projecting at right angles to the axis of the spool. The latter is formed with a square opening extending lengthwise of the same. Each of the arms 14 has connected thereto an operating rope, chain, or cable 15, the function of which will be hereinafter described.

The reference-numeral 16 denotes the shifting or operating rod, which extends through the square opening of the spool 13 and carries the dog or catch 17, adjustably secured thereto by means of the set-screw 18. The

length of the shifting or operating rod 16 is governed according to the number of shutters in longitudinal alinement.

Secured near the top of each of the shutters is a carrier 19, provided on one face with a bracket 20, within which is mounted the anti-friction-roller 21, suitably connected thereto and to the carrier 19, the roller 21 being adapted to support the shifting or operating rod 16. The carrier 19 is substantially U-shaped, and the leg opposite the roller 21 is bent to form a projection 22, which extends at right angles to the shutter and is beveled, so as to throw the catch or dog 17 out and turn the shifting rod, as will be hereinafter described. Connected to each end of the shifting or operating rod 16 is a rope, chain, or cable 23, winding upon a windlass arranged at the outside of the building. The windlass consists of a suitable frame 24, connected to the outside of the building and in which is journaled a sprocket-wheel, chain-wheel, or drum rotated by a crank or handle 26 and over which runs the rope, chain, or cable 23.

The reference-numeral 27 denotes a sheave-wheel, also mounted in the frame 24, adapted to hold the chain, rope, or cable more closely to the drum or wheel. The crank or handle 26 may be located at the outside or inside of the building.

Upon the axis of the drum or wheel is loosely mounted a shifting lever 28, provided with a handle 28′, to which are connected the ropes, chains, or cables 15, attached to the arms 14 for operating the same. By moving the lever 28 in either direction a corresponding movement will be given the arms 14, causing the partial rotation of the spool 13, thus turning the rod 16, so as to throw the catch or dog 17 into or out of engagement with the projection 22 and the carrier 19.

The side of the building has connected thereto by means of the brackets 29 a series of pulleys 30, over which passes the rope, chain, or cable 23.

The operation of the device is as follows: The shutters being closed, as shown in the drawings, the windlass is operated to wind the chain, rope, or cable 23. This causes the shifting of the rod 16 and brings the catch or dog 17 into engagement with the projection of the carrier and carries the shutters therewith, opening the same. This movement is continued until the shutters are arrested at the end of the track 2. By reversing the movement of the windlass the rod 16 will travel in an opposite direction, the catch engaging the carrier and closing the shutters, the movement in this direction being arrested by the stop-clasp 6. When the shutters are all open and it is desired to close one independently of the others, the lever 28 is moved to a reverse position, and a corresponding movement is given the arms 14 by means of the cables 15, causing the turning of the rod 16 and elevating the dog or catch 17 to prevent the engaging of the latter with the projection. This will permit the shutters to be closed independently. When it is desired to open the shutters independently of each other, the rod 16 is rotated and drawn back by the windlass the length of a shutter. The shutters are then free to move, as the catch or dog will not engage the carrier.

It is thought the many advantages of my improved apparatus for opening and closing the shutters of buildings can be readily understood from the foregoing description, taken in connection with the accompanying drawings, and it will be noted that various changes may be made in the details of construction without departing from the general spirit of my invention.

Having thus fully described my invention, what I claim is—

1. In an apparatus for working shutters, the combination with the shutters suspended from a suitable track, of a carrier connected to each of the shutters, an operating-rod adapted to engage the carriers for opening and closing said shutters simultaneously, means for imparting longitudinal movement to said rod, and means connected to said rod for rotating the same to permit of the opening and closing of the shutters independently of each other.

2. In an apparatus for working shutters, the combination with the shutters suspended from a suitable track, of a carrier connected to each of said shutters, an operating-rod adapted to engage the carriers for opening and closing said shutters simultaneously, means for imparting longitudinal movement to said rod, means connected to said rod for rotating the same to permit of the opening and closing of the shutters independently of each other, and means for limiting the closing movement imparted to said shutters.

3. In an apparatus for working shutters, the combination with the shutters suspended from a suitable track, of a carrier connected to each of said shutters, an operating-rod adapted to engage the carriers for opening and closing said shutters simultaneously, means for imparting longitudinal movement to said rod, means connected to said rod for rotating the same to permit of the opening and closing of the shutters independently of each other, means for limiting the closing movement imparted to said shutters, a guide for each of said shutters, and a retaining-strip carried by each of the shutters adapted to be engaged by the said guide.

4. In an apparatus for working shutters, the combination with the shutters suspended from a suitable track, of a carrier connected to each of said shutters, a pivoted spool provided with a pair of projecting arms, an operating-rod connected to said spool, means for imparting longitudinal movement to said rod, and means connected to said arms for rotating said rod.

5. In an apparatus for working shutters, the combination with the shutters suspended

from a suitable track, of a carrier connected to each of said shutters, a pivoted spool having a pair of projecting arms, an operating-rod connected to said spool and provided with a catch, means for imparting longitudinal movement to said rod, means connected to said arms for rotating said rod, and a stop for each of said shutters.

6. In an apparatus for working shutters, the combination with the shutters suspended from a suitable track, of a carrier connected to each of said shutters, a pivoted spool having a pair of projecting arms, an operating-rod connected to said spool and provided with a catch, means for imparting longitudinal movement to said rod, means connected to said arms for rotating said rod, a stop for each of the shutters, a guide and a retaining-strip engaged thereby for each of the shutters.

7. In an apparatus for working shutters, the combination with the shutters suspended from a suitable track, of a carrier connected to each of said shutters, a pivoted spool having a pair of projecting arms, an operating-rod connected to said spool and provided with catches, a windlass, means operated by said windlass and connected to said rod for moving the same longitudinally, a lever, and means operated by said lever and connected to said arms for rotating said rod.

8. In an apparatus for working shutters, the combination with the shutters suspended upon a suitable track, of an operating-rod connected to said shutters for opening and closing the same simultaneously, means for operating said rod longitudinally, and means connected to said rod for rotating the same to permit of closing and opening said windows independently of each other.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CLARENCE R. BUMBARGER.

Witnesses:

THEODORE REMLEY,

ROBERT S. FIELD.