

**No. 663,648.**

**Patented Dec. 11, 1900.**

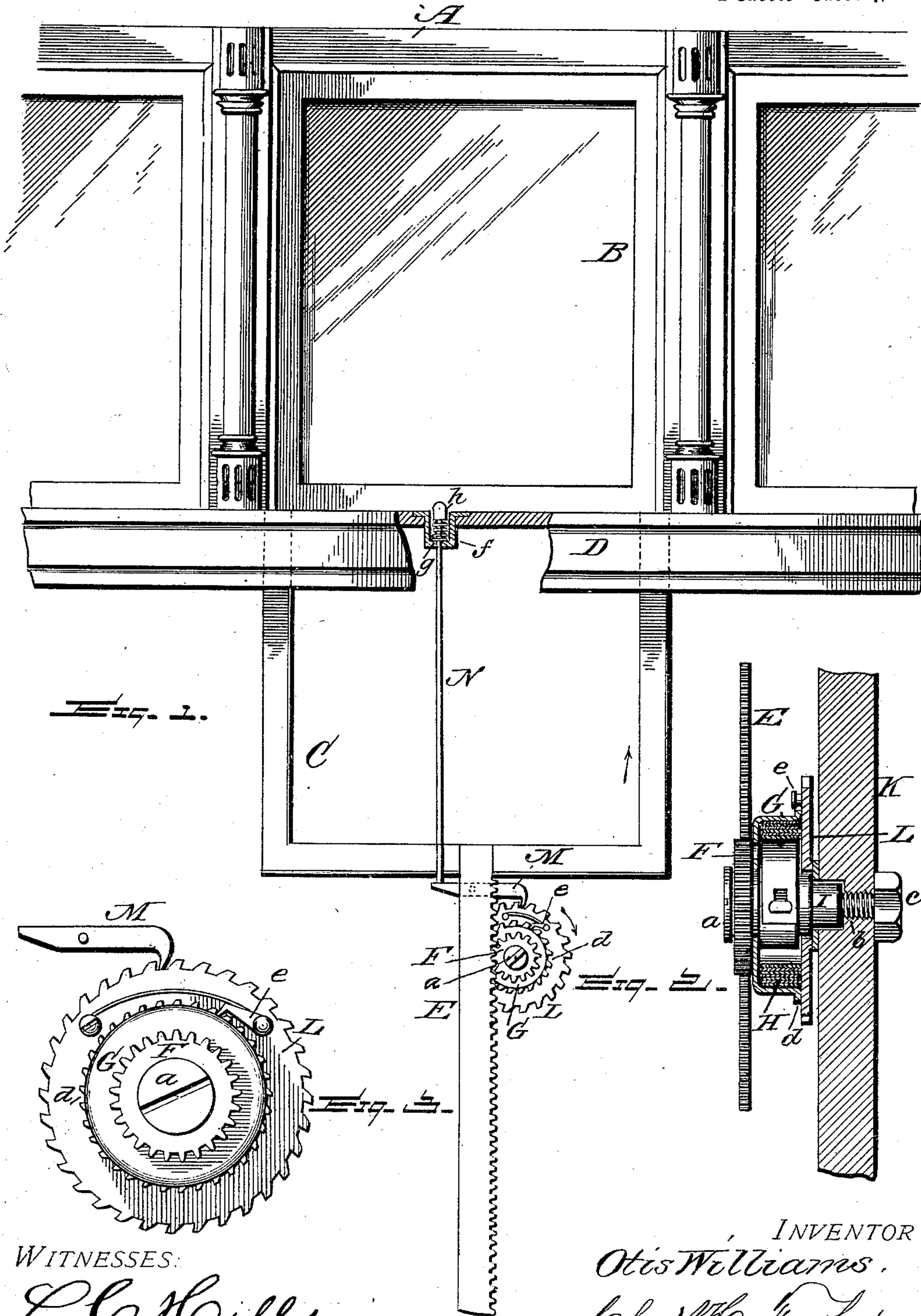
**O. WILLIAMS.**

**DEVICE FOR LIFTING SASHES, DOORS, OR SHUTTERS.**

(Application filed Sept. 7, 1900.)

(No Model.)

**2 Sheets—Sheet 1.**



WITNESSES:

L. C. Hills  
M. G. Goodwin

*INVENTOR*

Otis Williams.

BY

Chas H. Fowler.

Attorney.

No. 663,648.

Patented Dec. 11, 1900.

O. WILLIAMS.

DEVICE FOR LIFTING SASHES, DOORS, OR SHUTTERS.

(Application filed Sept. 7, 1900.)

(No Model.)

2 Sheets—Sheet 2.

FIG. 4.

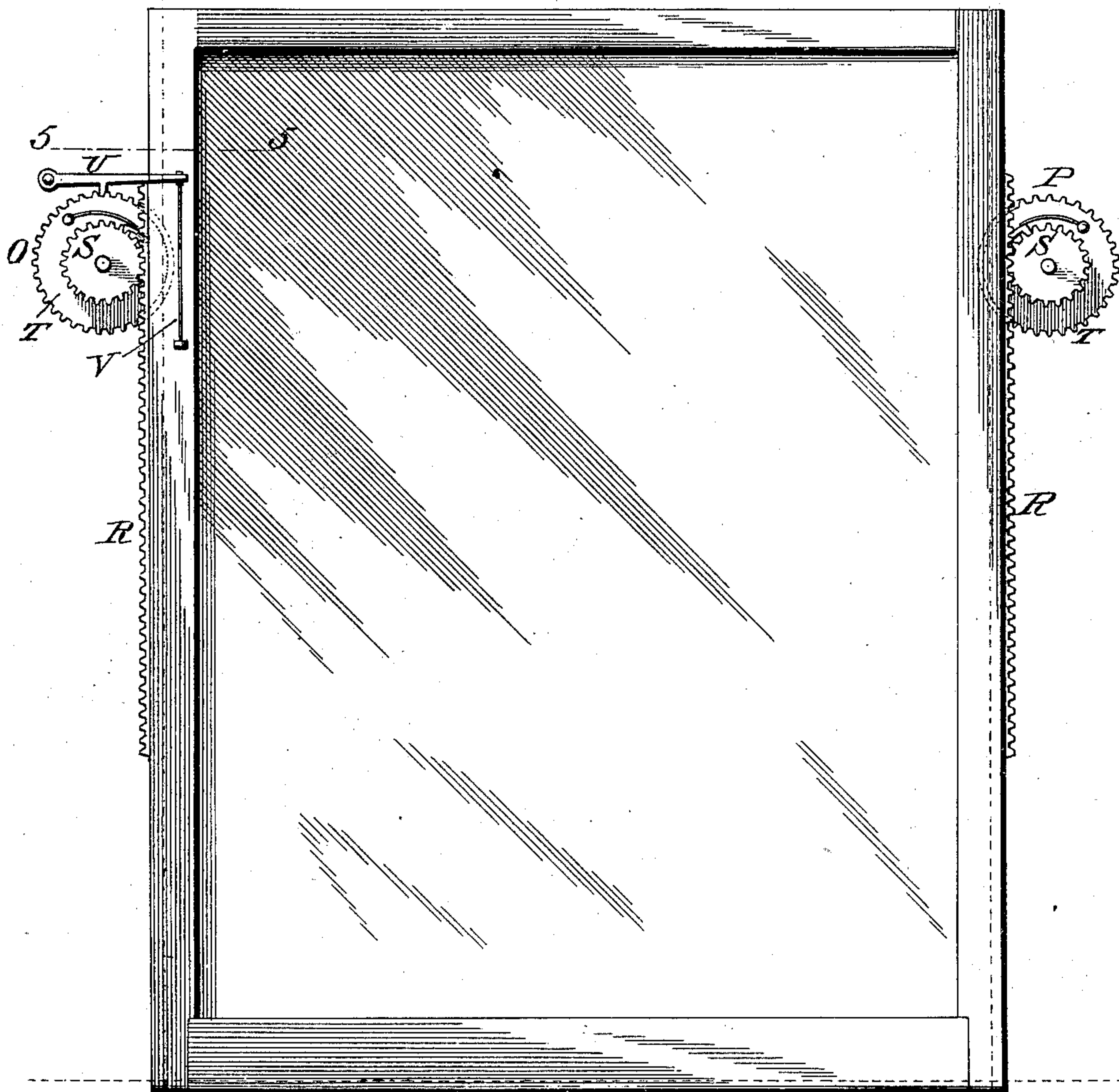
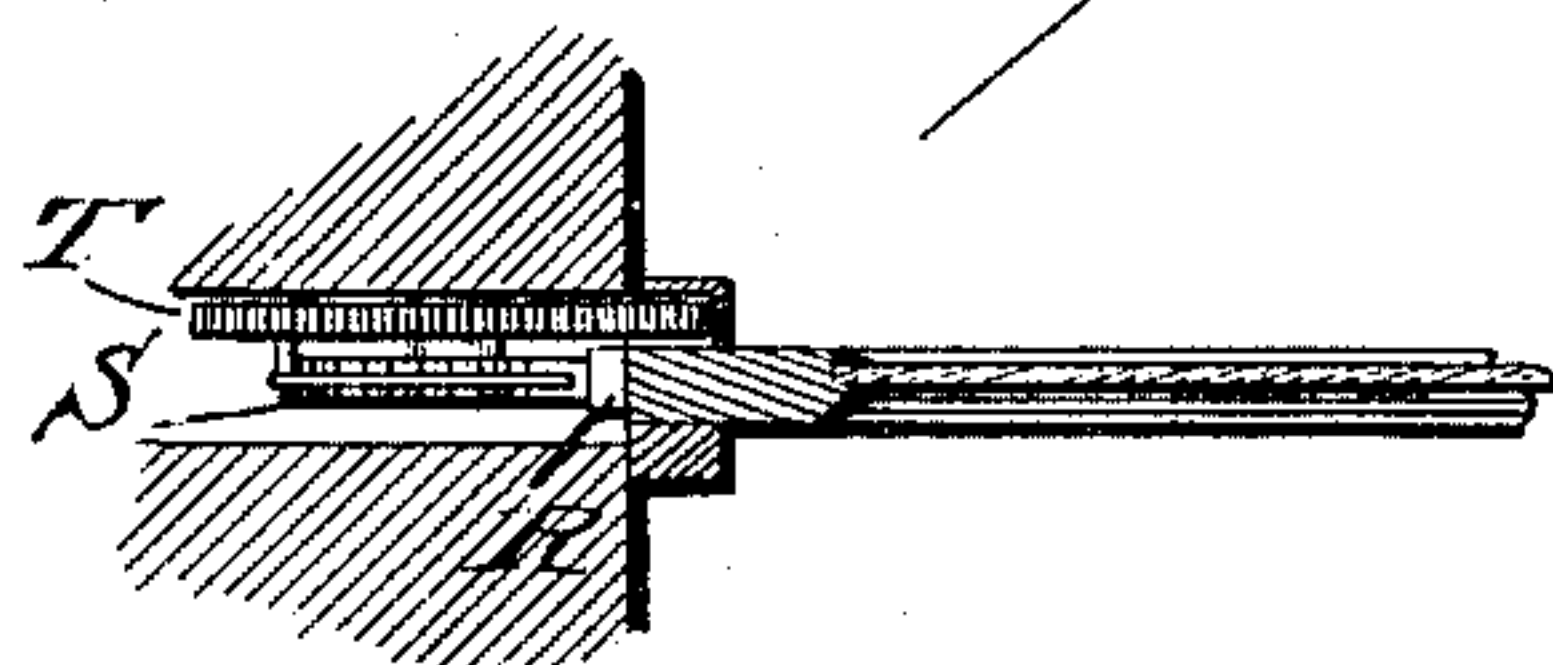


FIG. 5.



WITNESSES:

*L. C. Mills*  
*M. G. Goodwin*

INVENTOR

*Otis Williams,*

BY

*Chas. H. Fowler,*

Attorney



# UNITED STATES PATENT OFFICE.

OTIS WILLIAMS, OF ST. JOHNSVILLE, NEW YORK.

## DEVICE FOR LIFTING SASHES, DOORS, OR SHUTTERS.

SPECIFICATION forming part of Letters Patent No. 663,648, dated December 11, 1900.

Application filed September 7, 1900. Serial No. 29,333. (No model.)

*To all whom it may concern:*

Be it known that I, OTIS WILLIAMS, a citizen of the United States, residing at St. Johnsville, in the county of Montgomery and State of New York, have invented certain new and useful Improvements in Devices for Operating Window-Sashes, Doors, or Shutters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has for its purpose to provide a simple and effective device for operating the sashes of car and other windows, sliding doors, sliding shutters, and like objects; and it consists in a device constructed substantially as shown in the drawings and hereinafter described and claimed.

Figure 1 of the drawings is a side elevation showing my invention applied to a car-window; Fig. 2, a view, on an enlarged scale and partly in section, showing the rack-bar, driving-pinion, and the spring-motor and its connections; Fig. 3, a side elevation of the ratchet-wheels, the pawls, the barrel or casing of the motor, and the driving-pinion; Fig. 4, a front elevation of a window-sash, showing a modification of the device for operating the same; Fig. 5, a horizontal cross-section taken on line 5 5 of Fig. 4.

In the accompanying drawings, A represents the frame of a car-window, and B the sash thereof, said sash having a frame extension C at its lower end, which projects below the usual sill D when the sash is in a closed position, as indicated in Fig. 1 of the drawings. The frame extension C has a downwardly-extending rack-bar E, which is rigidly secured thereto and moves therewith, a pinion F engaging said rack-bar, whereby the frame extension and window-sash are operated, as will be hereinafter described.

I provide a spring-motor for operating the rack-bar E through the medium of the pinion F. Said motor comprises the usual barrel or casing G, which contains the coiled spring H, one end of which is secured to the interior of the barrel or casing and the opposite end of said spring secured to a stationary shaft I. The shaft I is provided at one end with a suitable head a, and at its op-

posite end is a screw-threaded shank b, with which engages a nut c to secure the shaft, with the motor, to the side wall of a car, below the window thereof, or to any other suitable stationary object, as shown at K in Fig. 2 of the drawings. The barrel or casing G has outwardly-extending ratchet-teeth d and is suitably fastened to a large ratchet-disk L, which forms the bottom or closed inner side of the same. The barrel or casing, the driving-pinion, the spring, and the ratchet-disk are movable together upon the stationary shaft, the coil-spring being the power to impart motion thereto. A spring-actuated pawl e engages the ratchet-teeth d, and a pivoted gravitating pawl M engages the ratchet-disk L, said gravitating pawl having a spring-actuated push-rod N connected thereto and extending up into a socket f, connected to the window-sill. The rod N is spring-actuated in resuming its normal position through the medium of a coiled spring g, located in the socket and encircling the rod between the bottom of the socket and a push-button h, connected to the end of the rod, as shown in Fig. 1 of the drawings.

In Fig. 1 of the drawings the window-sash is shown in a closed position, and when it is desired to open the window the button h is pressed down upon, and through the medium of the rod N the pawl M will be raised out of engagement with the teeth of the ratchet-disk L. This disengaging of the pawl M with the teeth of the ratchet-disk L will release the motor, and through the medium of the spring H the barrel or casing G will be rotated in the direction of the arrow in Fig. 1 of the drawings, the pinion F being carried around with the barrel or casing. The pinion F engaging with the teeth of the rack-bar E will force the rack-bar in an upward direction, and with it the frame extension C and sash B. When the sash is raised the required distance to open the window, the pressure on the push-button is removed, which through the medium of the coiled spring g at the upper end of the rod N and the weight of the pawl M will cause the rod to resume its normal position and the pawl to engage the teeth of the ratchet-disk L, thereby holding the sash in its adjusted position to partly or entirely open the window, as required. When it is desired to



close the window, the push-button *h* may be pressed down upon, as before, to release the pawl *M*, after which the sash *B* is pulled down by hand to the position indicated in Fig. 1 of the drawings, or the sash may be closed by merely pulling it shut or down by hand or lowered to any position. This downward movement of the sash through the medium of the rack-bar and pinion will rewind the spring to its former tension, so as to bring it again in condition to force the window-sash up or open, as hereinbefore described.

It is not absolutely necessary that both the gravitating pawl *M* and the coiled spring *g* be used to bring the push-rod *N* to its normal position and the pawl in engagement with the teeth of the ratchet-disk *L*, as when the spring is used it is not necessary that the pawl be gravitating or self-acting, any ordinary form of pawl answering the same purpose, or when a gravitating pawl is used the coiled spring may be dispensed with.

In Fig. 4 of the drawings I have shown an ordinary window-sash or a car-window where it is found impracticable to locate the spring-motor under the sill, there being two motors, in the present instance indicated at *O P*, constructed substantially as shown in Fig. 2 of the drawings. A rack-bar *R* is secured to each side of the window-sash, with which the pinions *S* engage to operate the sash. One of

the motors, preferably the motor *O*, has a ratchet-disk *T* and a gravitating pawl *U* engaging therewith, which operate in the same manner as the ratchet-disk and gravitating pawl in Fig. 3 of the drawings. A push-rod *V* is connected with the pawl *U* to operate the same for disengaging the pawl with the teeth of the ratchet-disk and allowing the motor to act in the same manner as hereinbefore described.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A slidable window-sash, door or shutter, and means for operating the same, consisting of a rack-bar, a suitable motor provided with a rotatable casing having outwardly-extending ratchet-teeth, a suitable pawl adapted to engage therewith, a pinion rotated by the motor and engaging with the rack-bar, a ratchet-disk connecting with the casing of the motor, and a suitable pawl engaging therewith and means for disengaging said pawl, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

OTIS WILLIAMS.

Witnesses:

CHARLES EIGENBROADT,  
CHARLES MUNK.