

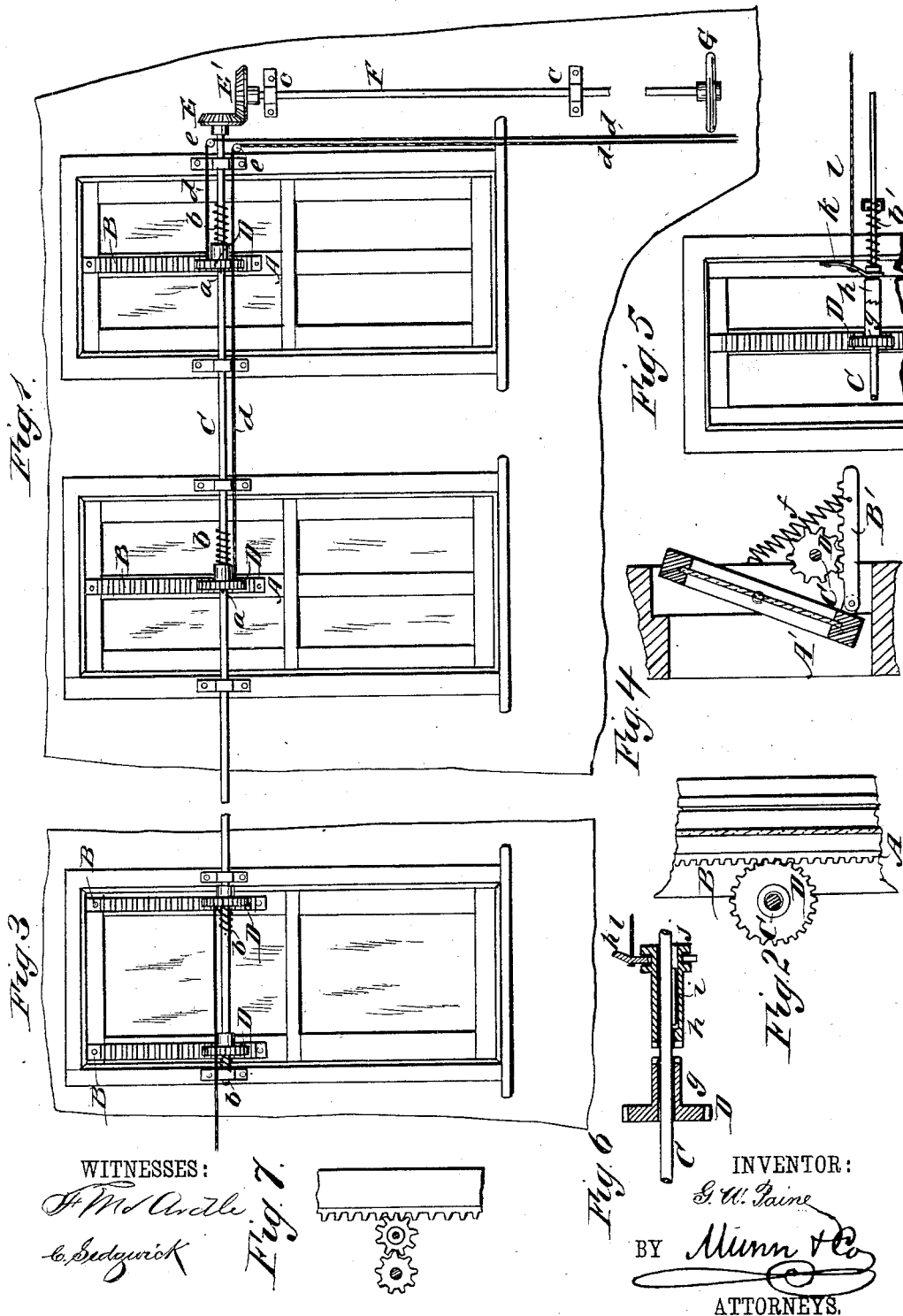
(No Model.)

G. W. PAINE.

DEVICE FOR OPERATING SASHES.

No. 345,857.

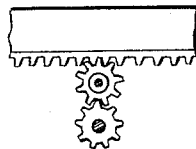
Patented July 20, 1886.



WITNESSES:

J. M. Andle
C. Sedgwick

Fig. 7



INVENTOR:

G. W. Paine

BY

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE W. PAINE, OF SULLIVAN, ILLINOIS.

DEVICE FOR OPERATING SASHES.

SPECIFICATION forming part of Letters Patent No. 345,857, dated July 20, 1886.

Application filed March 20, 1886. Serial No. 195,967. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. PAINE, of Sullivan, in the county of Moultrie and State of Illinois, have invented a new and useful

Improvement in Apparatus for Raising and Lowering Windows, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a side elevation. Fig. 2 is a detail view of the window-operating mechanism. Fig. 3 shows the application of my device to a heavy window. Fig. 4 shows the device applied to a transom. Fig. 5 is a side elevation of a modified form of the apparatus. Fig. 6 is a longitudinal section of the clutch mechanism shown in Fig. 5. Fig. 7 is a detail view of a double arrangement of gearing for deep windows.

Similar letters of reference indicate corresponding parts in the different figures of the drawings.

The object of my invention is to provide simple and efficient apparatus for raising and lowering a number of windows simultaneously, and for locking them in an open or closed position.

My invention consists in the combination, with the window-sash, of racks secured thereto and a shaft extending along the series of windows and provided with pinions for engaging the racks, and in means for disengaging the window-operating apparatus from one or the other of the windows, as hereinafter more fully described.

To the center stile, A, of the window-sash is secured a rack, B, and a shaft, C, extending along the entire series of windows, and, journaled in suitable supports, carries a pinion, D, opposite each rack B, and arranged to engage the rack when it is in its normal position on the shaft. The pinions D are capable of sliding longitudinally on the shaft, but are prevented from turning thereon by a slot in the pinion and a feather on the shaft, or by making the shaft square, or in any other well-known way. Each pinion is held against a stop-pin, a, when in its normal position, by a spiral spring, b, secured at one end to the shaft, with its other end pressing against the boss of the pinion.

To one end of the shaft C is secured a bevel-wheel, E, which is engaged by a bevel-wheel, E', on the vertical shaft F, journaled in suitable fixed bearings, c, and provided at its lower end with a hand wheel, by which the shaft F, and through it the shaft C, is turned.

To each pinion D is secured a cord, d, which extends over a pulley, e, near the beveled gearing and downward within convenient reach, so that by drawing one or the other of the cords d the pinion with which the cord is connected will be moved laterally out of engagement with its rack B, so that the sash to which the rack is attached will not be moved when the shaft C is turned.

In case of a large or heavy window or a window having but a single pane of glass, I apply racks B to the stiles on opposite sides of the sash, and employ two pinions, D, for moving the window, as shown in Fig. 3. In case of a pivoted window or transom-light, I arrange the rack and pinion as shown in Fig. 4, the rack B being pivoted at one end to one stile of the transom A', and held into engagement with the pinion D by a spiral spring, f, connected with the free end of the rack B' and attached to the casing of the window. In this case, when the shaft C is turned, the rack B' is moved back or forth, and the transom-light is tilted on its pivots.

In Figs. 5 and 6 the pinion D is provided with a boss, g, having clutch-teeth formed on the end thereof, and the pinion is capable of turning independently of the shaft or of remaining stationary, and allowing the shaft C to be turned thereon when disengaged from the clutch h. The clutch h is pressed forward into engagement with the boss g by the spiral spring b', which is secured to the shaft at one end, while its other end presses against the clutch h. The clutch h is arranged to slide freely on the shaft C, but is prevented from turning thereon by the feather i and the slot j, formed in the clutch, and receiving the feather i, or equivalent device. The clutch h is grooved circumferentially to receive the forked end of the spring-clutch arm k, whose opposite end is attached to the window-casing. The cord l, connected with the clutch-arm k, is employed to disengage the clutch h from the boss g of the pinion D.

When the windows are deep, so that the diameter of the spur-wheels D would be too great, I employ an intermediate spur-wheel, as shown in Fig. 7.

5 My improved window-operating device is especially applicable to large factories, churches, and halls, where it is desired to have all of the windows under one control, and to secure uniformity in ventilation.

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

1. In a window-operating apparatus, the combination of the racks B, the laterally-movable pinions D, the shaft C, and the cord d, for moving the pinions, and springs for restoring the pinions to their engagement with the

racks, substantially as herein shown and described.

2. In window-operating mechanism, the combination of the shaft C, extending along the series of windows, the pinions D, movable longitudinally on the shaft C, racks B, secured to the window-sash and arranged for engagement with the pinions D, springs b, for holding the pinions into engagement with the racks, and the cords d, for disengaging the pinions from the racks, substantially as described.

GEO. W. PAINE.

Witnesses:

D. F. BRISTOW,

A. E. D. SCOTT.