R. R. WEST.

WINDOW OPERATING DEVICE.

APPLICATION FILED JULY 5, 1912.

1,050,073.

Patented Jan. 7, 1913.

3 SHEETS—SHEET 1.

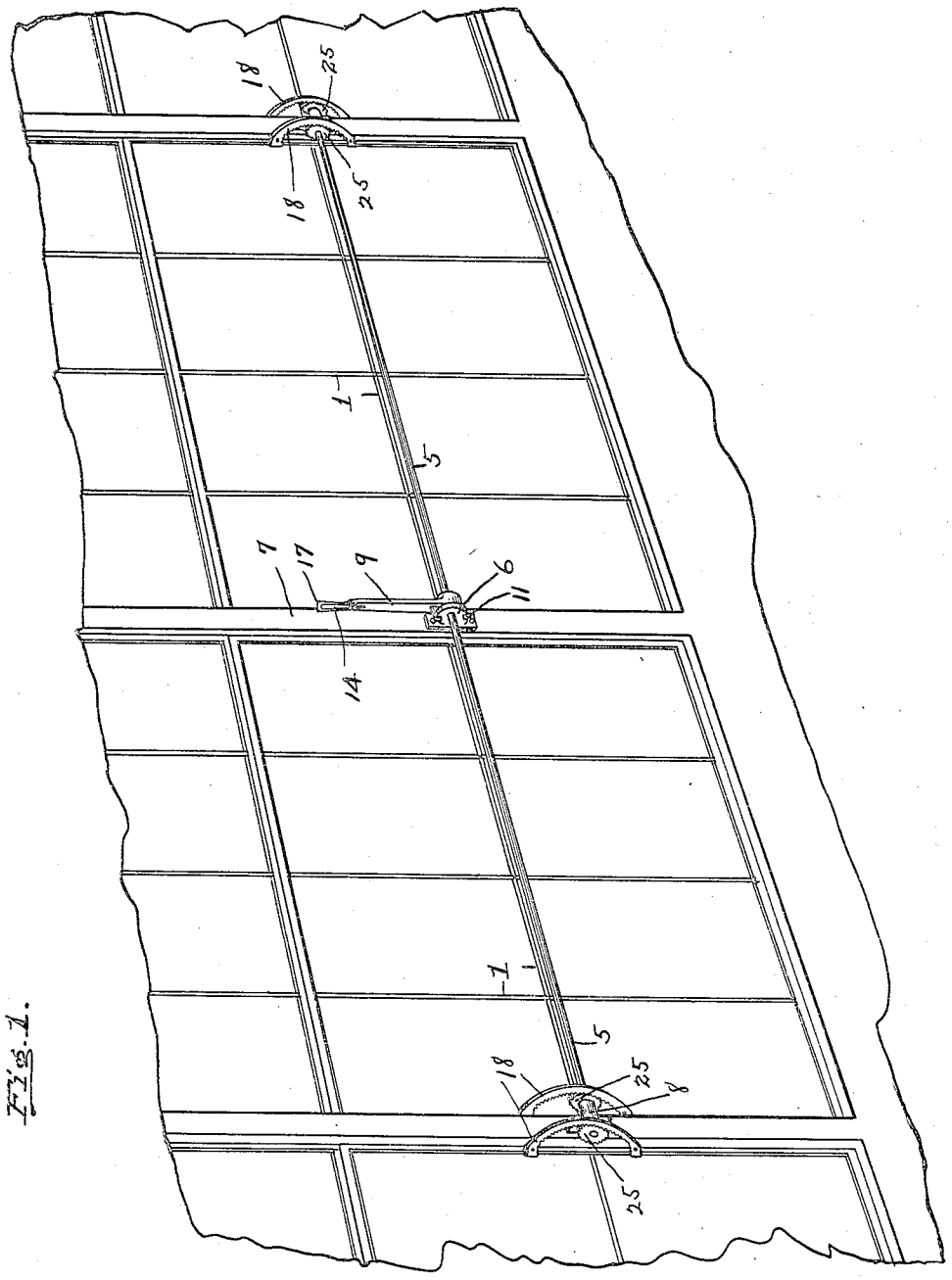

Fig. 1.

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3 SHEETS—SHEET 2.

Fig. 2

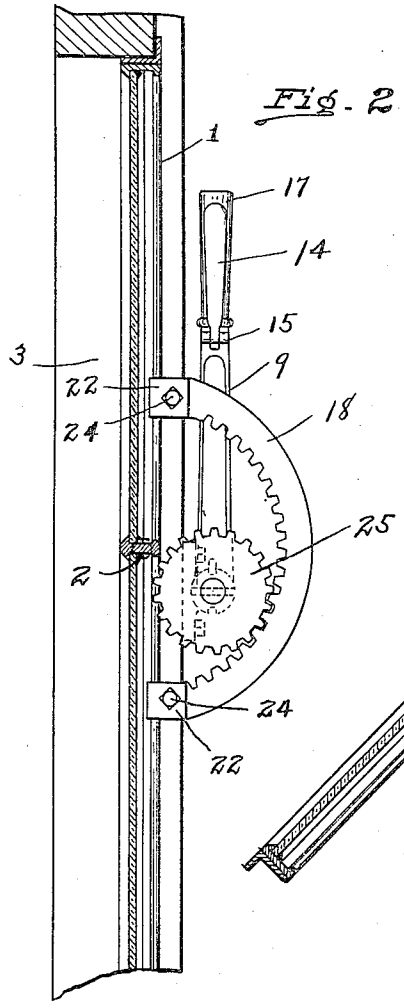
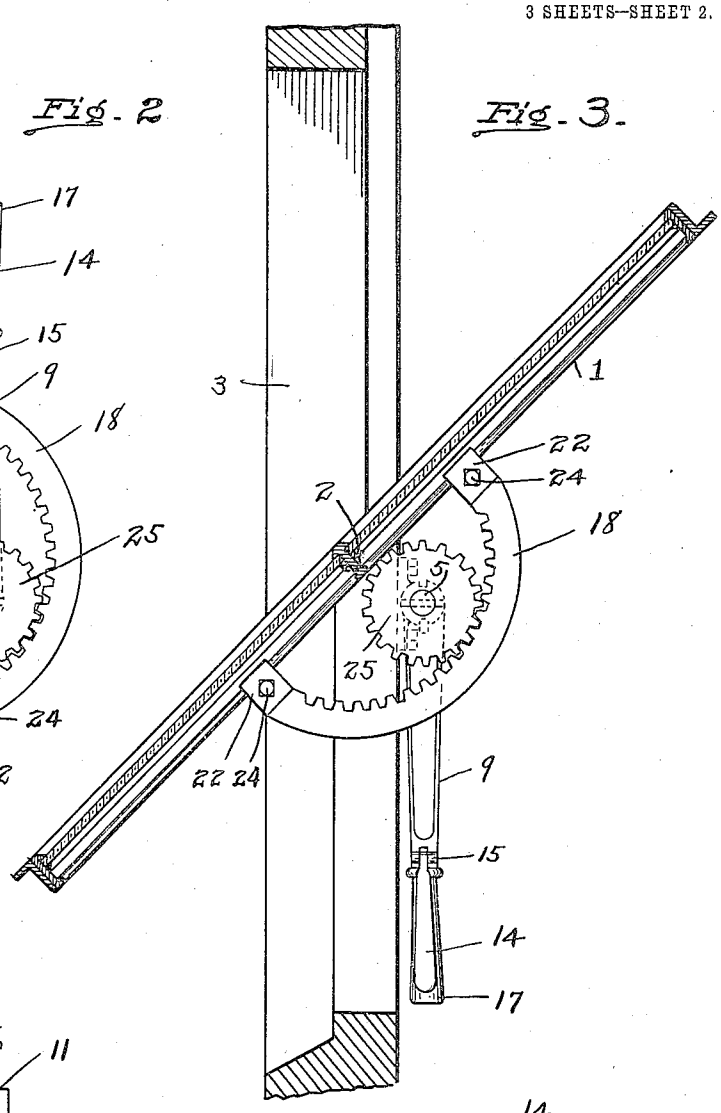


Fig. 3.



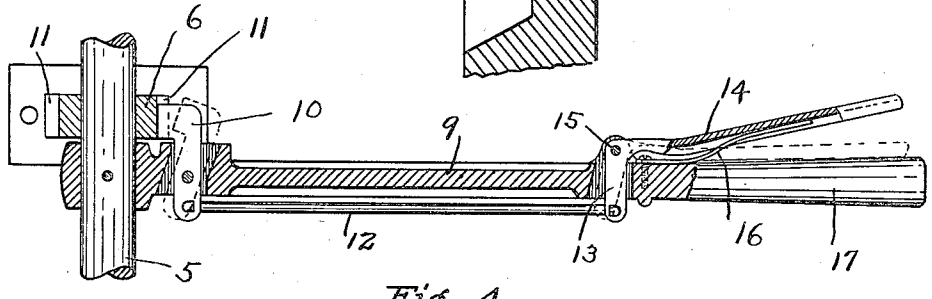


Fig. 4.

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3 SHEETS—SHEET 3.

Fig. 6.

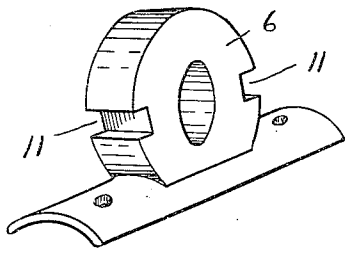


Fig. 7.

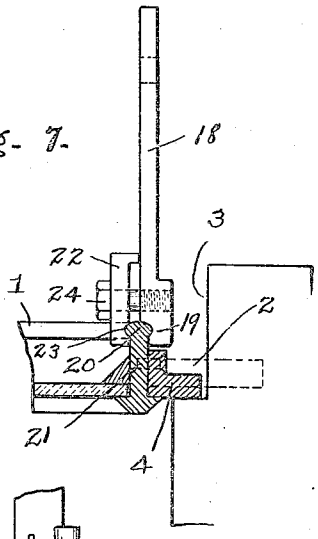
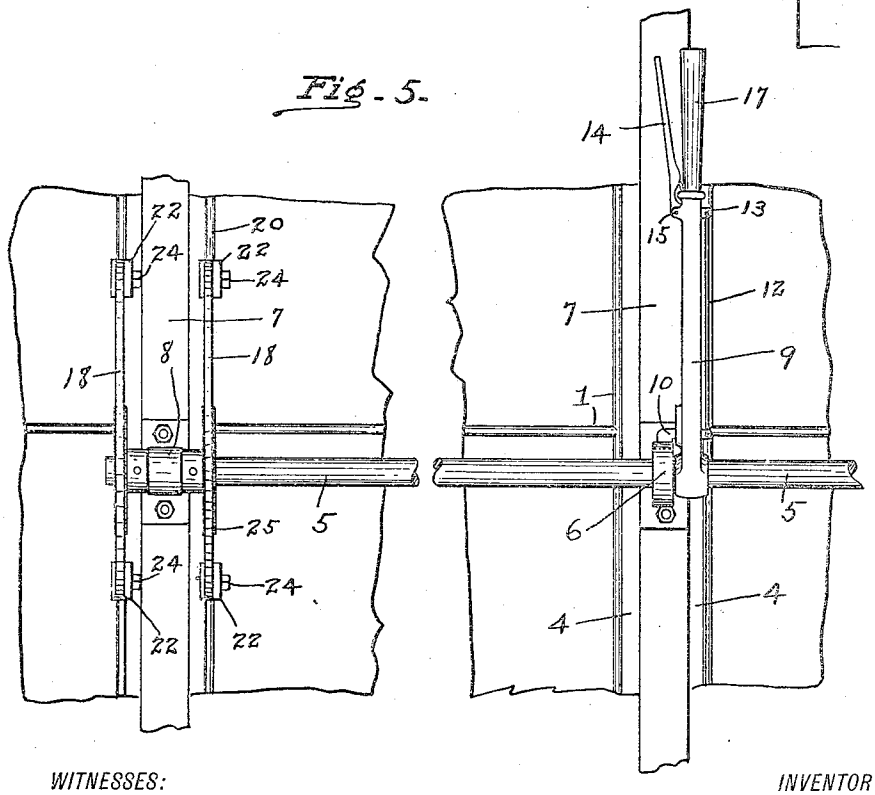


Fig. 5.



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UNITED STATES PATENT OFFICE.

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WINDOW-OPERATING DEVICE.

1,050,073. Specification of Letters Patent. Patented Jan. 7, 1913.

Application filed July 5, 1912. Serial No. 707,956.

To all whom it may concern:

Be it known that I, Ross R. WEST, a citizen of the Dominion of Canada, residing at Windsor, in the county of Essex, Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Window-Operating Devices; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to a window opening and closing device especially designed for swinging the sash of windows to afford ventilation, and consists in the construction and arrangement of parts hereinafter more fully set forth and pointed out particularly in the claims.

The object of the invention is to provide simple and efficient means for swinging the sash of windows so as to enable them to be readily adjusted to afford the desired ventilating opening.

The invention contemplates such an arrangement as to enable a plurality of sash to be swung concurrently, and to provide for securing the sash in the open or closed position.

The above object is attained by the apparatus illustrated in the accompanying drawings, in which:—

Figure 1 is a fragmentary view in perspective, showing the application of my invention to a plurality of windows. Fig. 2 is a fragmentary view in vertical section through a window frame and sash to which my invention is applied, showing the position of parts with the sash closed. Fig. 3 is a similar view showing the position of parts with the sash open. Fig. 4 is a fragmentary view in section showing the actuating lever mounted on the shaft, and illustrating means for locking said lever and shaft against rotation. Fig. 5 is a fragmentary view in elevation showing the invention operatively associated with a plurality of windows. Fig. 6 is a perspective view of one of the bearing members for the rock shaft adapted to be mounted on the facing strips of the window frames, and provided in its periphery with notches into which the detent of the locking lever is adapted to engage. Fig. 7 is a fragmentary view in section through a portion of a window frame and sash illustrating the manner of clamping the semi-circular rack to the sash to enable an actuation of the sash by a movement imparted to said rack by means of an engaging pinion carried on the rock shaft.

While the invention is not limited to use in connection with metallic window sash and frame work, the mode of applying the invention illustrated herein has been shown in connection with such construction.

Referring to the drawings by the characters of reference marked thereon, 1 designates the window sash, which may be of any size and shape, each sash being pivotally mounted, as shown at 2, to swing upon a horizontal axis between the dividing members 3 of the window frame. The stiles 4 of the sash, as herein shown, are of angle iron (see Fig. 7) and carry the pivot pins 2 on which the sash swings.

Crossing the inner face of the sash horizontally is a rock shaft 5, supported intermediate its ends in a bearing member 6 mounted on the facing strip 7 of the window frame, and at its ends in like bearing members 8 also mounted on the facing strips 7. Fast to the shaft 5, preferably at a point midway between the ends thereof, is an actuating lever 9. Pivoted to said lever near its lower end is a detent 10 adapted to engage in the notches 11 in the periphery of the bearing member 6 in which the shaft 5 is supported. Pivotally connected at one end to said detent is a rod 12 extending parallel of the actuating lever 9, the other end of said rod being pivotally connected to the arm 13 of the releasing lever 14 pivotally mounted at 15 on the main or actuating lever. The free end of the releasing lever 14 is normally held outwardly by a spring 16 mounted on the handle portion 17 of the actuating lever and bearing against said releasing lever. The tension of said spring normally holds the engaging end of the detent 10 in the notch 11 in the semi-circular bearing member 6 to lock the actuating lever against movement. By pressing inwardly against the free end of the releasing lever it may be actuated on its pivot against the tension of the spring 16 to withdraw the detent from engagement with either of the notches in the member 6 to release or free the main lever, as shown by dotted lines in Fig. 4. When the main le-

ver is released the shaft 5 may be rocked or caused to turn in its bearings in either direction by a movement of said lever in the arc of a circle.

Mounted on each of the sash is a semi-circular rack 18, the terminal portions of which are provided with transverse channels 19 (see Fig. 7) which receive a bead 20 on the outer edge of a sash bar 21. Each terminal of the rack 18 is clamped to the sash bar by means of a clamping plate 22, having therein a channel which embraces the opposite portion of the bead 21 of the sash bar, said plate receiving a bolt 24 that passes therethrough and screws into the terminal portion of said rack, whereby the rack is detachably mounted upon the sash in a manner to firmly clamp it thereto. Fixed upon the shaft 5 to turn therewith is a pinion 25 which meshes with the teeth of the rack 18, whereby, as the shaft 5 is turned, the rotation of the pinion 25, through its engagement with the rack 18, will swing the sash upon its axis of oscillation. There will be as many of the racks and pinions employed as there are sash to actuate through the rotation of a single shaft section 5. As illustrated in Fig. 1 the shaft section 5 is employed to swing four sash through the operation of a single lever 9.

Fig. 2 illustrates the normal position of the parts with the sash closed. By disengaging the detent 10 and swinging the main lever 9 downwardly in the arc of a circle the sash will be swung to the position shown in Fig. 3, thereby opening the window for ventilation. A return movement of the main lever will close said window. It will be observed that the rack 18 is concentric with the axis on which the sash swings, whereby a rotary movement of the pinion 25 will cause a tilting of the sash in either direction, accordingly as the pinion is rotated.

By providing for swinging or actuating a number of sash through the medium of one lever the operation of opening and closing the windows is greatly facilitated, and is a matter of material importance in the handling of the many windows employed in modern factory construction.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. In a window opening and closing device, the combination of a pivoted sash, a semi-circular rack mounted on said sash approximate its point of pivot, said rack having teeth upon its inner arc, a shaft journaled on the window casing passing through said semi-circular rack, a pinion on said shaft engaging the teeth of said rack, and means for rotating said shaft.

2. In a window actuating device, the combination of a pivoted sash, a semi-circular rack having teeth upon the inner arc thereof, said rack also having clamping jaws at its terminals adapted to be clamped to the outer edge of a sash bar, a shaft journaled on the casing and passing through said semi-circular rack, a pinion on said shaft meshing with the teeth of said rack, and means for actuating said shaft.

3. In a device for the purpose set forth, a plurality of pivotally mounted window sashes, a semi-circular rack having internal teeth mounted on each of said sashes, a single shaft journaled on the window casing and passing through said semi-circular racks adjacent the points of pivot of the sashes, a pinion fixed on said shaft at each rack and meshing with the teeth thereof, a lever on the shaft for actuating it, and a locking device for said lever to enable the sashes to be secured at various points of adjustment.

In testimony whereof, I sign this specification in the presence of two witnesses.

ROSS R. WEST.

Witnesses:
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