No. 827,401. PATENTED JULY 31, 1906.

C. SOMMER.

WINDOW LIFTING AND CLOSING DEVICE.

APPLICATION FILED FEB. 5, 1906.

2 SHEETS—SHEET 1.

Fig. 1

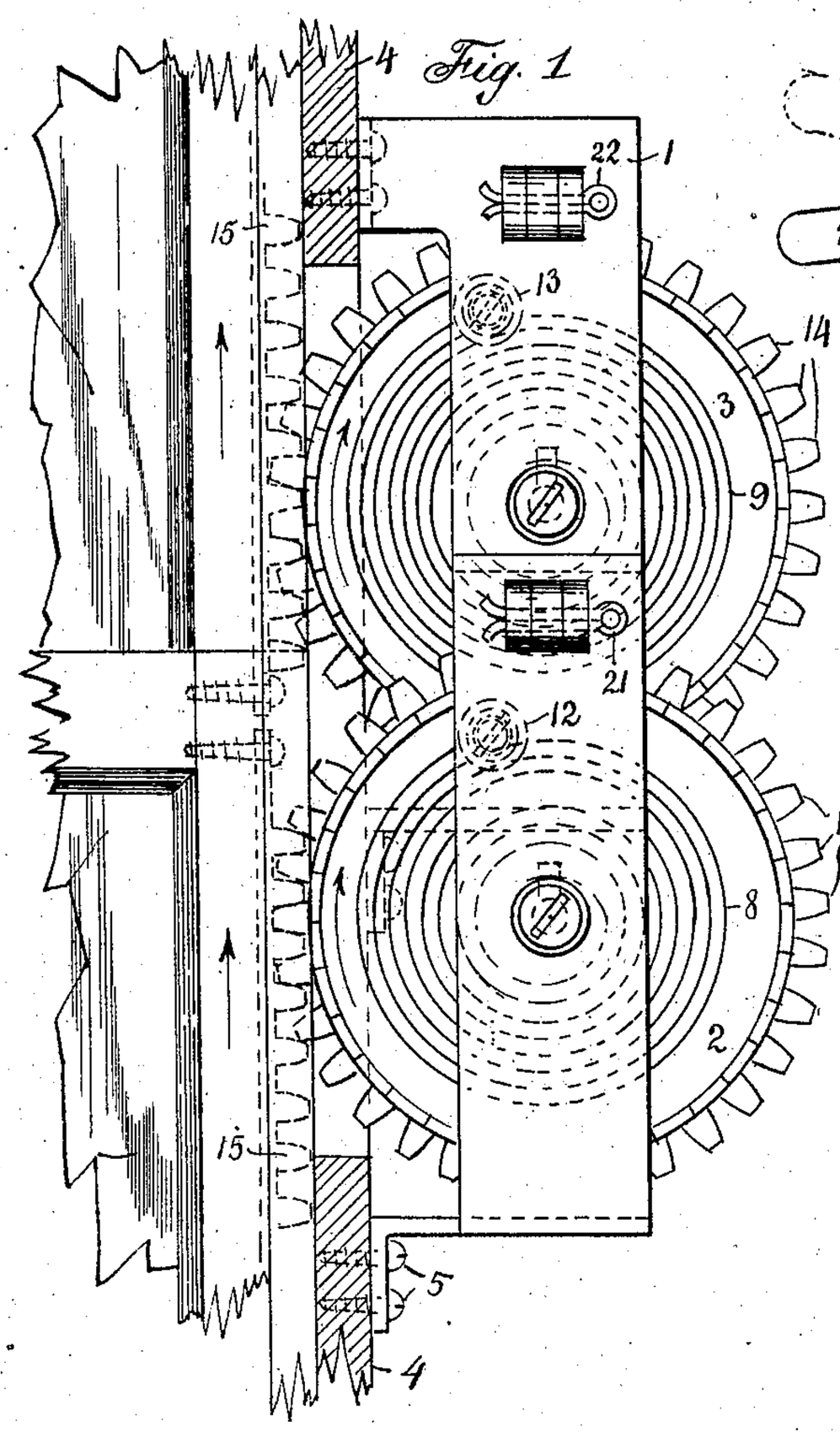
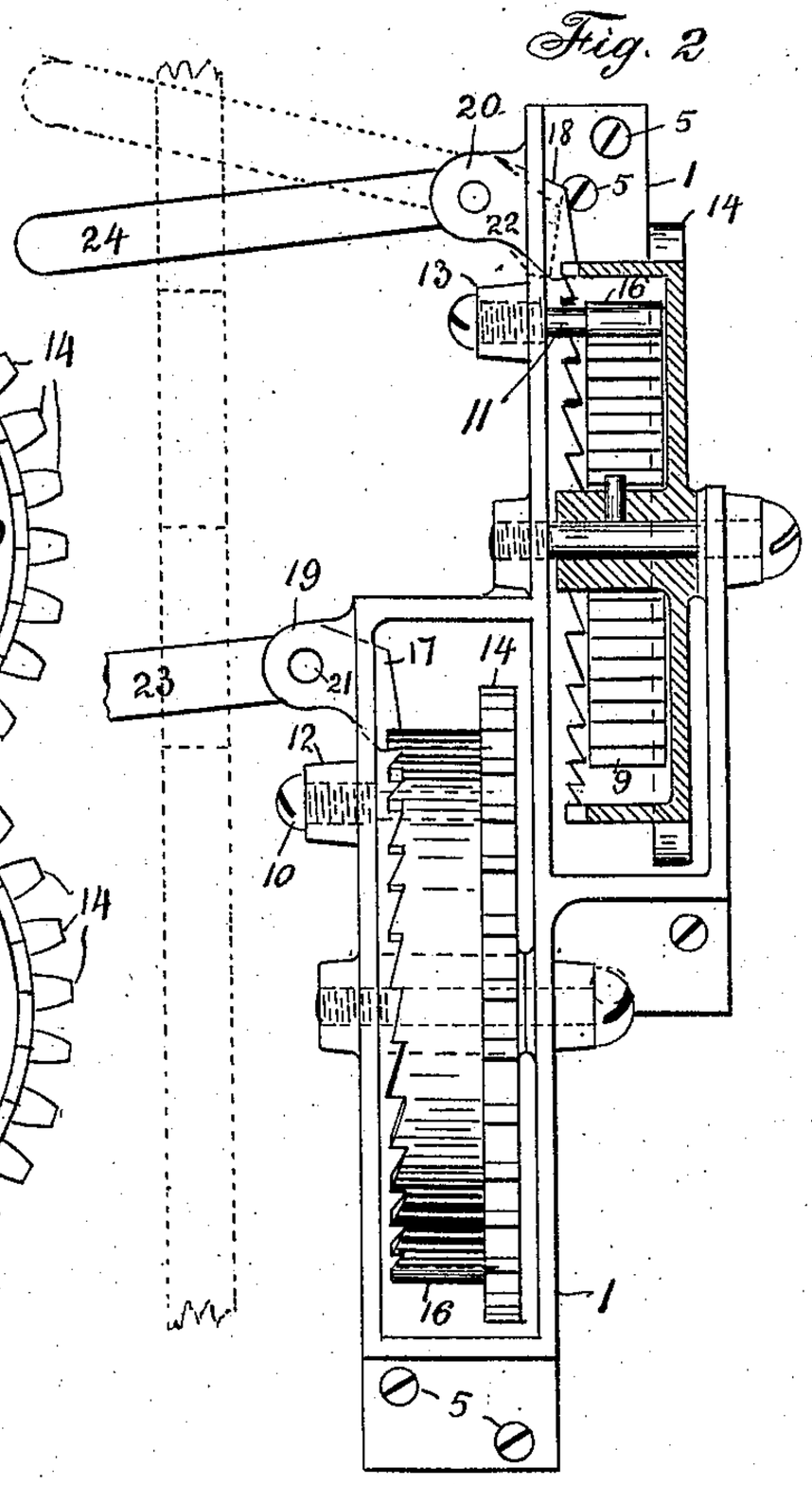


Fig. 2



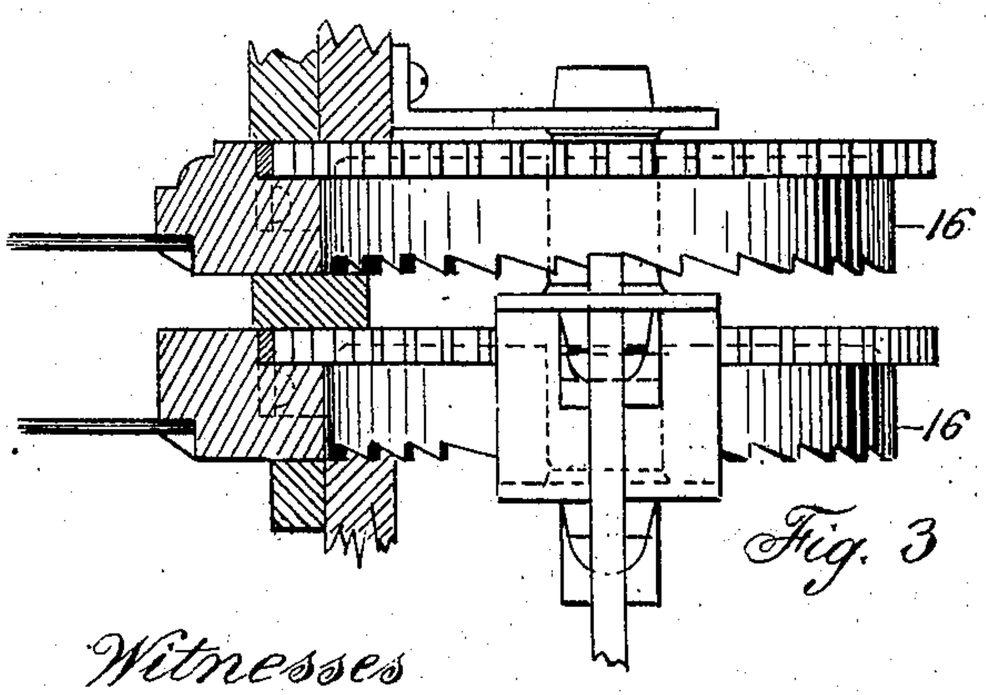


Fig. 3

Witnesses

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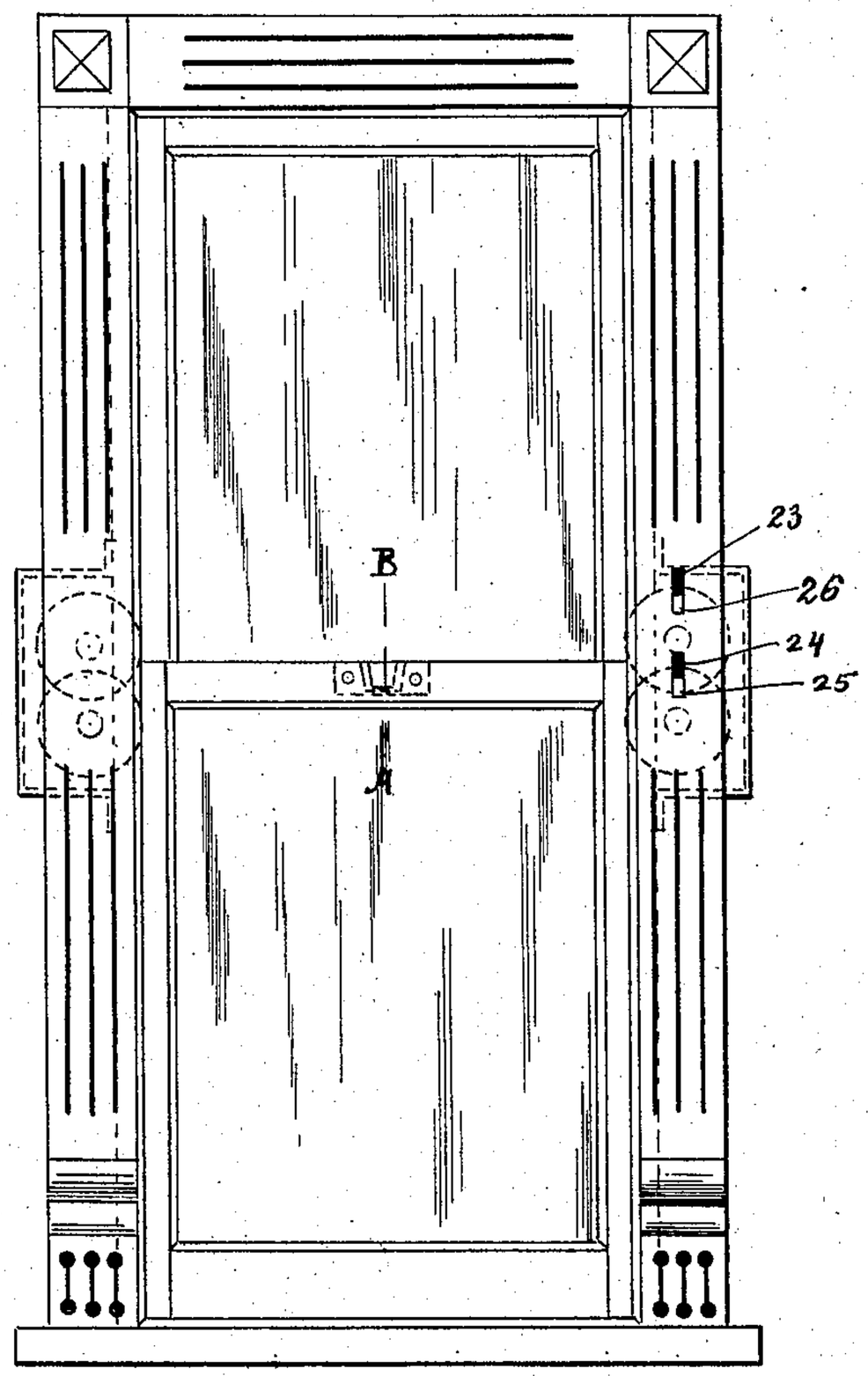
Fig. 4



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UNITED STATES PATENT OFFICE.

CHARLES SOMMER, OF CHICAGO, ILLINOIS.

WINDOW LIFTING AND CLOSING DEVICE.

No. 827,401. Specification of Letters Patent. Patented July 31, 1906.

Application filed February 5, 1906. Serial No. 299,382.

To all whom it may concern:

Be it known that I, CHARLES SOMMER, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Window Lifting and Closing Device, of which the following is a full, clear, and accurate description.

This invention relates to improvements in window-sash lifting and closing devices; and it is the object of same to provide a mechanical contrivance by means of which this can be readily accomplished by any person and in the case of windows access to which is obstructed by furniture and other obstructions. I attain this object by means of a spring-actuated contrivance in which the movement of the spring-housing is controlled by a pawl arranged horizontally above the periphery of the former engaging with the inclined ratchet-teeth cut into the top of the open housing and being provided with a lever forming a counterweight, whereby engagement between the inclined teeth and the pawl is maintained. This lever is used at the same time to effect disengagement between pawl-and-ratchet teeth for the purpose of allowing the spring-actuated contrivance to raise the respective window-sash.

The window lifting and closing device embodying my invention will be fully described and its novel features of construction pointed out, all as hereinafter set forth.

The accompanying drawings form a part of this specification, and like characters of reference indicate corresponding parts in all the figures.

Figure 1 is a front view of the device embodying my invention, partly in section and showing the position of the spring-barrels within the window-frame and their connection with a corresponding rack. Fig. 2 is a transverse section through the casing containing the spring-actuated barrels. Fig. 3 is a sectional plan view showing the relative position of the window-sashes with their respective racks and the corresponding connection with the spring-barrels. Fig. 4 is a full front view of the complete window and frame.

Referring to the drawings, 1 designates a casing designed to be seated in a recess of a window-frame. This casing is provided with two compartments, each containing a spring-barrel 2 and 3. Spring-barrel 2 is located with relation to the lower and 3 with relation to the upper sash. Both sashes are actuated by their respective spring-barrel in the direction as indicated by arrows. Casing 1 is secured within window-frame 4 by wood-screws 5. Extended transversely through the casing and held from rotary motion thereto are shafts 6 and 7, on which spring-barrels 2 and 3 are mounted to rotate. Arranged within spring-barrels 2 and 3 are coiled springs 8 and 9. One end of each spring is attached to the journal of the spring-barrel, while the other is fastened to pins 10 and 11, each pin being secured in bosses 12 and 13 of the casing by means of a screw-thread, as shown. On the periphery of each barrel are gear-teeth 14, designed to engage with a corresponding rack 15, seated in a vertical recess formed in the side rail of the sash, as clearly indicated in Fig. 1.

Springs 8 and 9 are housed within the spring-barrel by means of a housing 16, the crown of which is provided with teeth having an inclined plane designed for the purpose of engaging with a pawl, thereby forming a ratchet. Pawls 17 and 18 are pivoted in lugs 19 and 20, forming a part of casing 1, and pins 21 and 22.

Levers 23 and 24 provide the necessary weight by which the pawl is kept in contact with the saw-tooth crown of housing 16, thereby allowing the free movement of spring-barrels 2 and 3 only when the respective pawls are disengaged. Upon disengaging said pawls the tension of the springs within spring-barrels 2 and 3 have the tendency to revolve the barrels in the direction indicated by arrows, forcing the window-sash upward by engaging with the corresponding rack 15. The spring tension is set before the sashes are placed into the recesses of the window-frame. The device is placed in both of the vertical members of the window-frame midway between top and bottom, operating the upper as well as the lower sash from its central position and properly counterbalancing the weight of each sash, as shown in Fig. 4. The device shown in the left-hand vertical member of the window-frame may be minus the pawls, as shown. For example, if the lower sash is to be raised pawl 22 is disengaged by pressing lever 24 downward within slot 25, Fig. 4. Spring 9 will then rotate spring-barrel 3 in the direction indicated. The latter's teeth will engage with those of the corresponding rack 15, and the sash moves upward until the desired width of opening has been obtained,

whereupon pawl 22 is released. Immediately its own weight forces it into engagement with the ratchet and the movement of the sash is at once arrested, as will be obvious. When the upper window is opened—*i. e.*, when the upper sash is forced downward— spring 8 is wound around the journal part of barrel 2, the spring is set at tension, and pawl 21 secures it in this position until said pawl is disengaged by pressing lever 23 downward within slot 26, which sets the device in action in the same way as explained above.

It will be seen that each sash may be stopped at any desired point within the range of its possible movement by a very simple and effective mechanism.

Having thus fully described the novel features of my invention, I claim as new and desire to secure by Letters Patent—

A window lifting and closing device, comprising a casing arranged in a window-frame, an open spring-housing rotatably mounted in said casing, a spring therein, inclined ratchet-teeth cut into the top of the open housing, a pawl pivoted in the casing horizontally above the outer line of the said spring-housing, a lever attached to the said pawl whereby the engagement between the pawl and the said inclined teeth may be interrupted and forming at the same time a counterweight to maintain the engagement between the pawl and the said inclined teeth, a rack secured to the vertical member of the window-sash and gear connection between the spring-housing and the said window-sash, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES SOMMER.

Witnesses:

J. O. LUNDE,

E. C. F. AHLBERG.