

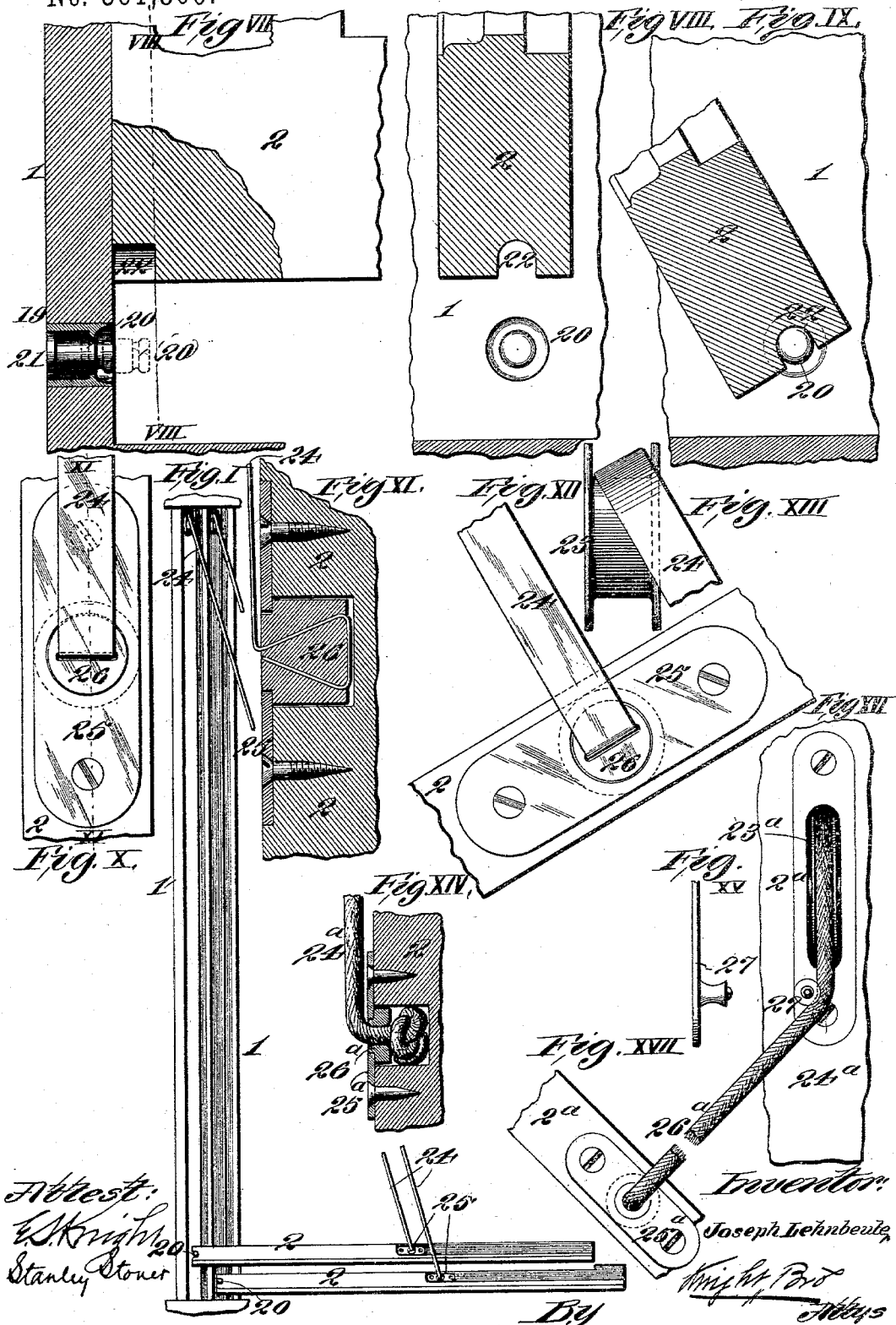
(No Model.)

2 Sheets—Sheet 1.

J. LEHNBEUTER.
REMOVABLE WINDOW SASH.

No. 561,800.

Patented June 9, 1896.



(No Model.)

2 Sheets—Sheet 2.

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Fig. II.

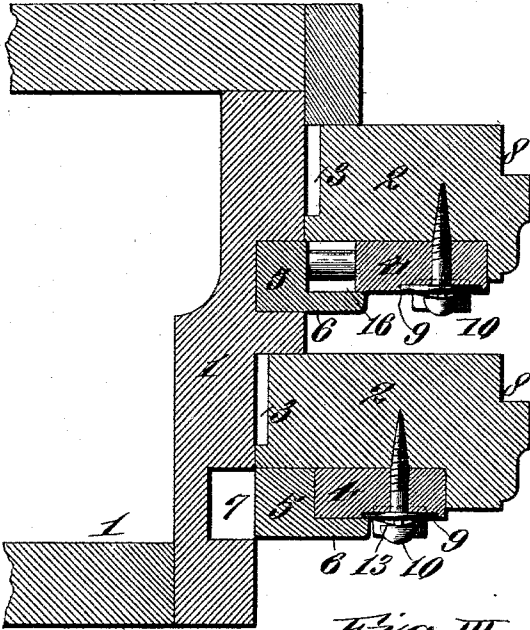
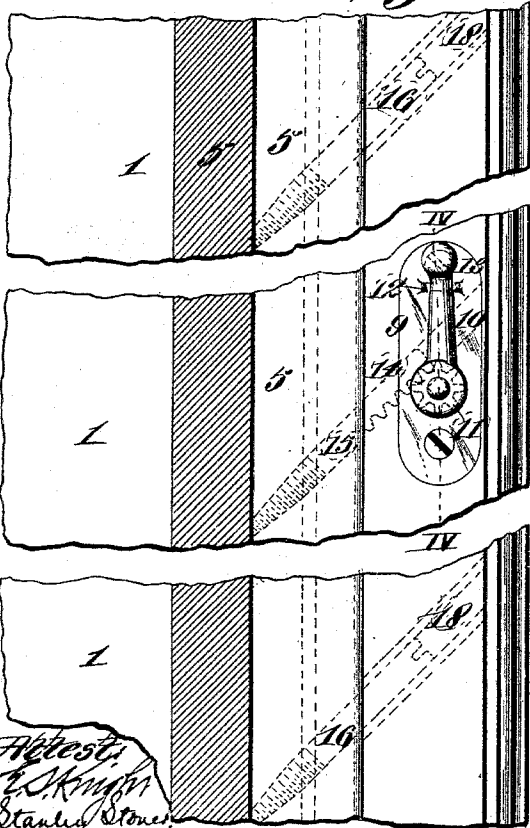


Fig. III.



Attest:
E. K. Knapp
Stanley Stone

Fig. V.

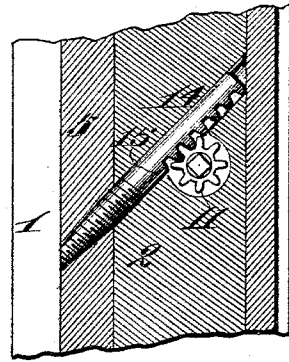
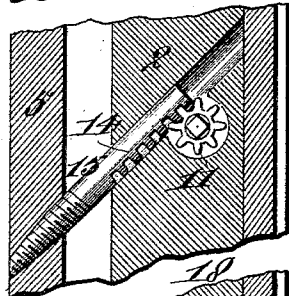
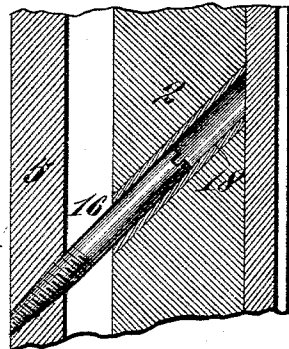


Fig. VI.



Inventor:
Joseph Lehnbeuter
By Wm. L. Bro. Atty.

UNITED STATES PATENT OFFICE.

JOSEPH LEHNBEUTER, OF ST. LOUIS, MISSOURI.

REMOVABLE WINDOW-SASH.

SPECIFICATION forming part of Letters Patent No. 561,800, dated June 9, 1896.

Application filed September 30, 1895. Serial No. 564,088. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH LEHNBEUTER, of the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Removable Window-Sashes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to provide an arrangement which will permit of the removing of the window-sash in a manner convenient for cleaning the window without rendering it necessary for the operator to expose himself to the danger of standing on the outside sill and which at the same time will allow the entire window to be opened for the free access of air when needed.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, Figure I is a vertical longitudinal section of the window-frame, showing the sashes open. Fig. II is an enlarged cross-section showing one strip withdrawn from the rabbet and the other strip inserted in the rabbet. Fig. III is an enlarged detail view of the front of the sash, part in section and part in elevation. Fig. IV is a vertical longitudinal section through the line IV-IV of Fig. III. Fig. V is a detail view showing the ratchet-and-pawl device for operating the strip. Fig. VI is a similar view showing the ratchet-and-pawl device and also the guide-pins, the strip operated thereon being extended. Fig. VII is a longitudinal section showing the device on which the sash is pivoted when opened. Fig. VIII is a transverse section of the same, taken on line VIII-VIII, Fig. VII. Fig. IX is a similar view, the sash being lowered to the pin forming the pivot and partially open. Fig. X is a detail view showing the manner in which the weight-cord is attached to the sash. Fig. XI is a vertical section taken through the line XI-XI, Fig. X. Fig. XII is a similar view to that shown in Fig. X, excepting that the sash is partially open. Fig. XIII is an elevation of the pulley round which the sash cord or band passes. Fig. XIV is a view similar to that shown in Fig. XI, a cord being used to suspend the weight instead of a band or tape.

Fig. XV is a side view of a guiding-pulley to compel the weight-cord to remain upon the pulley. Fig. XVI is an edge view of a modification in which a cord is used to suspend the weight instead of a tape or band. Fig. XVII is an edge view showing the method of attachment to the sash.

The same numbers designate the same or similar parts throughout the several figures.

1 represents the window-frame.

2 represents the sash. 3 is a recess in the edge of the said sash to allow openings between the sash and frame for the weight-cord.

The sash and frame may be of any ordinary construction. Those usually furnished by mills may be used, as my device is adapted to be attached to any frame.

4 represents a strip of wood attached, as shown, to the front of the sash-stile. 5 is a second strip, having a projection 6, said strip being adapted to move back and forth by means of the device to be hereinafter described.

7 is the rabbet within the window-frame, into which the strip 5 engages and which serves as a guide to the sash. 8 are the recesses in the sash into which the glass is inserted.

Attached to either side of the sash by means of a plate 9 is a device for operating the strip 5. This consists of a crank 10, which operates a cog-wheel 11. This cog-wheel 11 is placed in a recess in the strip 4 and beneath the plate 9, Fig. IV. The crank 10 is held in place by means of a projection 12 on its under side, which is adapted to engage in a slot on an incline 13 on the plate 9.

To the strip 5 are secured pins 16, which are preferably screwed into the said strip. These pins are placed at an angle and work in holes drilled in the stationary strip 4. There are ordinarily three such pins to each strip, the upper and lower ones working in holes 18, furnished with a housing to prevent wear and to make a close fit. The center pin is furnished with a rack 14, adapted to be operated by the cog-wheel 11. It will thus be seen that the turning of the crank 9, which is placed on the outside of the window-sash, will advance or withdraw the pin 15, which, conjointly with the guide-pins 16, will insert or withdraw the strip 5 into or

from the rabbet 7. When the said strip 5 is thus withdrawn from the rabbet 7 and it is desired to remove the window from the frame, the operator first withdraws a pin 20, which is carried in a housing 19 and placed within the frame 1 near the bottom of the sash. A stop-plate 21 prevents the pin from retreating. At the bottom of the sash is a recess 22, which, when said sash is lowered, engages the pin 20, thus forming a pivot upon which the sash revolves. The strips 5 being withdrawn from the rabbets 7 the window may be lowered by merely drawing in the top, revolving it about the pivot-pin 22.

23 is the pulley within the frame over which runs the weight-cord 24. Its sash end is attached slightly above the center of said sash by means of the following-described device: At the place of attachment the sash is recessed to receive a block 26, secured in place by a plate 25, but which is allowed to revolve therein. The weight cord or band is fastened to the block 26.

I prefer to construct the cord or band 25 of steel or copper tape; but the ordinary cord may be used. The method of attaching the sash end of the said cord is shown in Figs. X, XI, XII, XIV, and XVII. A guide-pulley 27, Fig. XV, may be attached just below the main pulley, Fig. XVI, to prevent the cord leaving said pulley.

As the window is revolved about the pivot-pin 20 the block 26 will turn in its housing, thereby preventing the twisting or crimping of the band or cord. The flanges on the pulley 23 will ordinarily prevent any trouble there; but, if desired, the guide-pulley 27 may be used, as described. As the sash is suspended but a trifle above its center scarcely any effort will be needed to revolve it. In fact, it will swing of itself after the impetus is once given. The pivot-pins 20 may be placed at any point in the frame below the sash to enable the sash to be swung at any desired plane.

Assuming that the window is in its normal position, the device is operated by first with-

drawing the pins 20 and lowering the sash so as to allow its bottom to rest upon said pin. Next the cranks 9 (placed on either side of the sash) are turned so as to withdraw the strips 5 from the position shown in Fig. VI to that shown in Fig. V. The sash is then revolved about the pivot-pins 20 and the cords are allowed to leave the perpendicular without twisting by means of the device by which the sash end is secured. Thus the window may be cleaned on the outside without the operator leaving the room, and in hot weather the entire window-space may be opened for the circulation of air.

My device is inexpensive to construct and may be attached without difficulty to any window-frame. It is constructed without springs or intricate mechanism and is therefore very durable.

I claim as my invention—

1. The combination of a movable strip, and a means of operating same consisting of a cog-wheel secured to the sash and a pin secured to the strip, said pin bearing a rack adapted to engage said cog-wheel, substantially as described.

2. The combination consisting of a stationary strip adapted to be secured to the front of the sash-stile, a movable strip adapted to engage the rabbet when advanced, and a means of moving same consisting of a cog-wheel and crank secured to the stationary strip, and a pin bearing a rack carried on the movable strip adapted to engage said cog-wheel, substantially as described.

3. The combination consisting of a movable strip, inclined pins secured thereto, a stationary strip provided with sockets to receive said pins, mechanism adapted to move said movable strip, and a pin placed in the window-frame adapted to serve as a pivot for the sash, substantially as described.

JOSEPH LEHNBEUTER.

In presence of—

W. FINLEY,
STANLEY STONER.