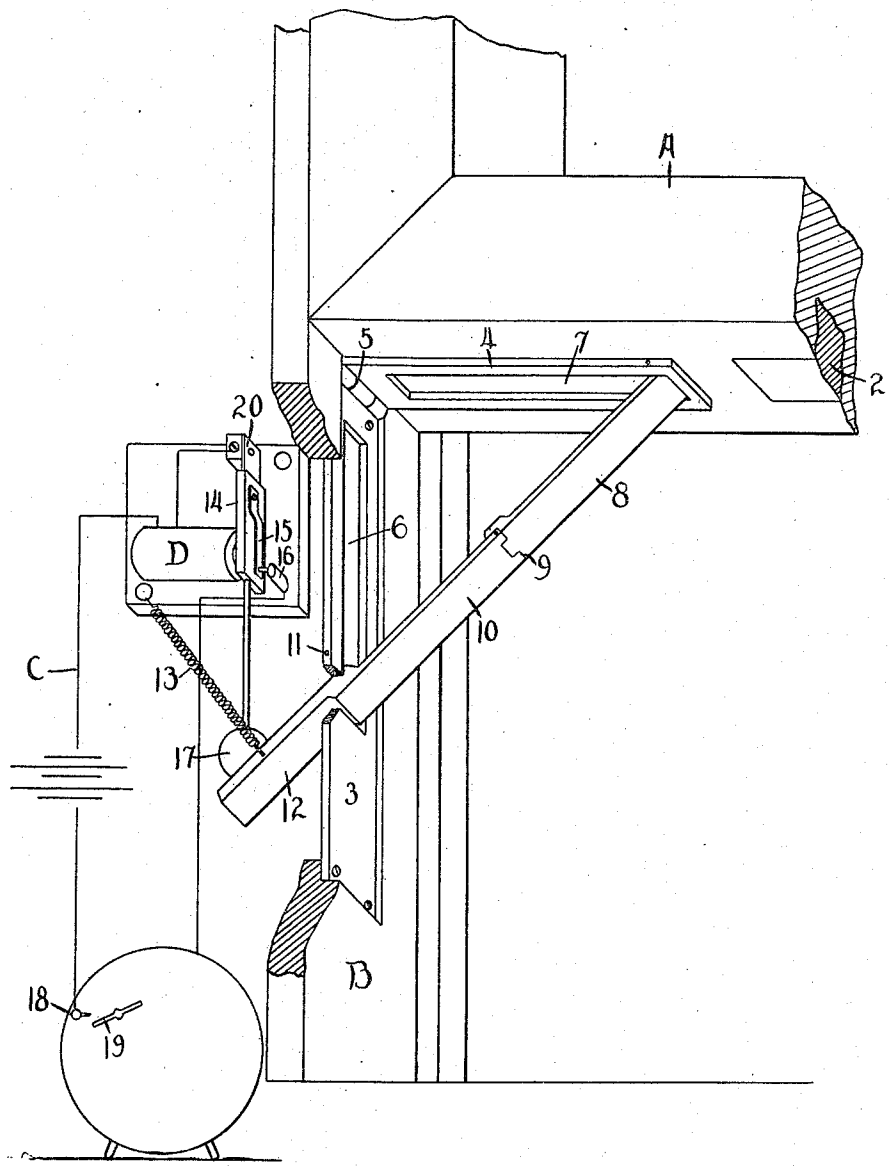
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ELECTRICALLY OPERATED SASH HOLDER.

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1,189,760. Patented July 4, 1916.



Witnesses

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WILLIAM WEISKOPF, OF ST. PAUL, MINNESOTA.

ELECTRICALLY-OPERATED SASH-HOLDER.

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To all whom it may concern:

Be it known that I, WILLIAM WEISKOPF, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Electrically-Operated Sash-Holders, of which the following is a specification.

My invention relates to improvements in electrically-operated sash holders and has for its object to provide an improved collapsible device for holding a window sash in open position and electrically actuated means for collapsing the same so as to allow the window sash to move into closed position, whereby the closing of the window can be controlled from any point in the room or building, and if desired can be under time regulated control.

To this end the invention consists in the construction, combination, and arrangement of parts hereinafter described and claimed.

In the accompanying drawing forming part of this specification is shown a perspective view of an embodiment of the invention with the window frame and sash partly broken away and the sash supported in raised position.

In the drawings A represents the lower horizontal member of a window sash of usual construction which has sliding support in the side members B of the window frame, only one of which is shown. When not supported or stopped by the devices hereinafter described the sash is free to drop by gravity upon the sill below, so as to close the window opening. If desired, its weight may be increased by means of a block or strip 2 of lead or other heavy material incorporated therein or secured thereto at any convenient point.

To support the window in open position I have provided a collapsible structure comprising a stationary metal plate 3 secured within one of the side members of the window frame and depressed or countersunk below the surface thereof, and a swinging plate 4 hinged to the upper end of the plate 3 by means of a hinge 5, so that this plate can swing down against the plate 3 and lodge within the countersunk or depressed portion of the side member B, when the window is lowered. The stationary side plate 3 is formed with a vertically slotted opening 6 and the movable plate 4 with a longitudinally slotted opening 7 to receive the lever and link structure about to be described.

To hold the swinging plate 4 in horizontal or sash supporting position I have provided a lever and link structure comprising a link 8 pivoted within the slotted opening of the plate 4 near the outer end thereof and having hinge connection 9 at the other end with a lever 10 which passes through the lower end of the slotted opening in the plate 3, at which point it is pivoted to the plate by means of a pivot 11. At the point where it passes through the opening the lever is offset to form an extension arm 12 which works in the space behind the plate, and may be held normally under upward tension by means of a spring 13. The openings 6 in the side plate 3 and 7 in the top plate 4 are large enough to receive the lever 10 and link 8, respectively, when the hinge 9 is bent inwardly. Thus, when the hinge 9 is bent inwardly, the support for the window will be removed, so that the window will move down and carry with it the top plate 4. As it moves down the link 8 will fold within the slot in the top plate 4, and the lever 10 will fold within the slot in the side plate 3, so as to oppose no obstruction to the downward descent of the window, while the top plate itself will fold into the depression on the outside of the side plate.

As a means of collapsing the lever and link structure at a predetermined time to allow the window to drop, I have provided an electric circuit C passing through an electromagnet D. The electromagnet has a vibrating spring armature 14 which is in circuit with the electromagnet. On its outer face the armature has a spring contact 15 which stands normally in engagement with a contact 16 also arranged in the circuit C. Extending downwardly from the armature is a hammer 17 in position to strike the offset arm 12 of the lever 10 when the armature 14 is released from the control of the electromagnet. One side of the circuit C leads to a stationary contact 18 in position to be periodically engaged by a clockwork driven rotary contact 19 also arranged in the circuit C. Thus when the circuit is closed through the contacts 18 and 19, the magnet D will be energized and the armature 14 attracted and drawn away from the

contact 16, thereby breaking the circuit through the spring 15 and contact 16. As soon as the circuit is broken the hammer 17 will fly back under the tension of the armature spring 20 and strike the offset arm 12 of the lever 10, thereby turning the lever 10 upon its pivot 11 and causing it to bend the hinge 9 inwardly toward the window frame and break the support for the window, which, thus released, will drop as heretofore described.

The device here shown is particularly useful with bedroom windows where it is desired to have the window open during most of the night, but to close it in the early morning hours. By the use of the present invention this closing can be accomplished automatically while the occupant of the room is still in bed.

When the window is supported in open position the parts will stand in the position shown in the drawing with the swinging plate 4 raised to horizontal position and held in that position by means of the link 8 and lever 10, which will then stand in alinement, with the downward thrust of the window coming upon the pivot 11. When, in the rotation of the clockwork, the contact 19 engages the stationary contact 18 the electromagnet D will be energized so as to draw back the armature 14 and break the circuit through the contacts 15 and 16, thereby deënergizing the electromagnet and releasing the armature which will spring forward and throw the hammer 17 against the lever arm 12. The impact of the hammer will swing the lever 10 sufficiently to break the hinge 9 against the tension of the spring 13. As soon as the hinge 9 is thus bent inwardly the weight of the unsupported window will cause it to descend. As it descends the links 8 and 10 will fold back within the slotted openings in the plates 4 and 3, respectively, and the plate 4 will fold down against the plate 3 and within the depression in the window frame on the outside of the plate 3, as above described, so that none of these members will offer any obstruction to the downward movement of the window. When it is desired to open the window it is pushed up by hand in the usual manner and the plate 4 swung up until it reaches a horizontal position and causes the link 8 and lever 10 to move out into alinement as shown in the drawings, or, if a spring 13 is used the spring will act upon the lever to throw out the hinge 9 and thereby lift the plate 4 to horizontal position.

It will be obvious that the invention is applicable to any structure that can be opened and closed like a window, and the term "window" or "window sash" as herein used is therefore meant to include any movable element that will operate in the same manner as a window sash strictly so called.

I claim as my invention:

1. The combination with a window frame and sash, of a hinged element supported upon the window frame and engaging the sash to hold it in up-lifted position, and electrically actuated means for breaking the hinge whereby to remove the support and allow the window sash to move down by gravity.

2. The combination with a window frame and a sash having vertically sliding support therein, of a collapsible support for the sash comprising two alining members hinged together at their meeting ends, one of said members bearing against the under side of the sash at a point spaced apart from the side member of the window frame and the other member having pivotal support upon said side member of the frame, said hinge being constructed to bend inwardly toward said frame member.

3. The combination with a window frame and a sash having vertically sliding support therein, of a stationary side plate secured within one of the side members of the frame, a swinging plate pivotally connected with the upper end of the stationary plate in position, when raised, to abut against the under side of the window sash, a link pivotally suspended from the outer end of said swinging plate, a bar hinged to the lower end of said link and pivotally connected with the stationary plate, and means for bending the hinge in order to collapse the support for the window.

4. The combination with a window frame and a sash having vertically sliding support therein, of a stationary plate secured within one of the side members of the frame, a swinging plate pivotally connected with the upper end of the stationary plate and adapted, when raised, to engage the under side of the sash, a link pivotally suspended from the outer end of said swinging plate, a lever hinged to the end of said link, said lever being fulcrumed upon the stationary plate and passing freely through a hole therein, and means engageable with the free lower end of said lever for bending the hinge between said lever and link, whereby to collapse the support for the window sash.

5. The combination with a window frame and a sash having vertically sliding support therein, of a vertically slotted plate countersunk within one of the side members of the frame, a longitudinally slotted movable plate pivotally connected with the upper end of said stationary plate and adapted when swung up to engage the window sash, and when swung down to lodge within the countersunk portion of the frame member, a link pivotally suspended from the outer end of said movable plate and capable of

folding within the slot therein, a lever hinged to the end of said link and passing through the slot in the stationary plate, said lever having fulcrum support on the stationary plate and being foldable within the slot therein, and means acting on the free lower end of said lever for turning the same whereby to bend the hinge between said link and lever and collapse the support for the window.

6. The combination with a window frame and a sash having vertically sliding support therein, of a collapsible support for the sash comprising two alining members hinged together at their meeting ends, one of said members bearing against the under side of the sash and the other member having pivotal support upon the side member of the frame and extending through the same to form an operating arm, said hinge being constructed to bend inwardly toward said member of the frame, and means for moving the extended arm of said lower hinge member, whereby to bend the hinge connection between said supporting members.

7. The combination with a window frame and a sash having vertically sliding support therein, of a stationary side plate secured within one of the side members of the frame, a sash supporting plate pivotally connected with the upper end of the stationary plate in position, when raised, to abut against the under side of the window sash, a link pivotally connected with the outer end of said swinging plate, and a bar hinged to the lower end of said link and pivotally connected with the stationary plate at a point remote from the upper end thereof, said hinge being constructed to bend inwardly toward said stationary plate, whereby to allow the window to close.

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

WILLIAM WEISKOPF.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."