H. D. WILSON.

REVERSIBLE WINDOW.

APPLICATION FILED JULY 20, 1914.

1,193,101.

Patented Aug. 1, 1916.

5 SHEETS—SHEET 1.

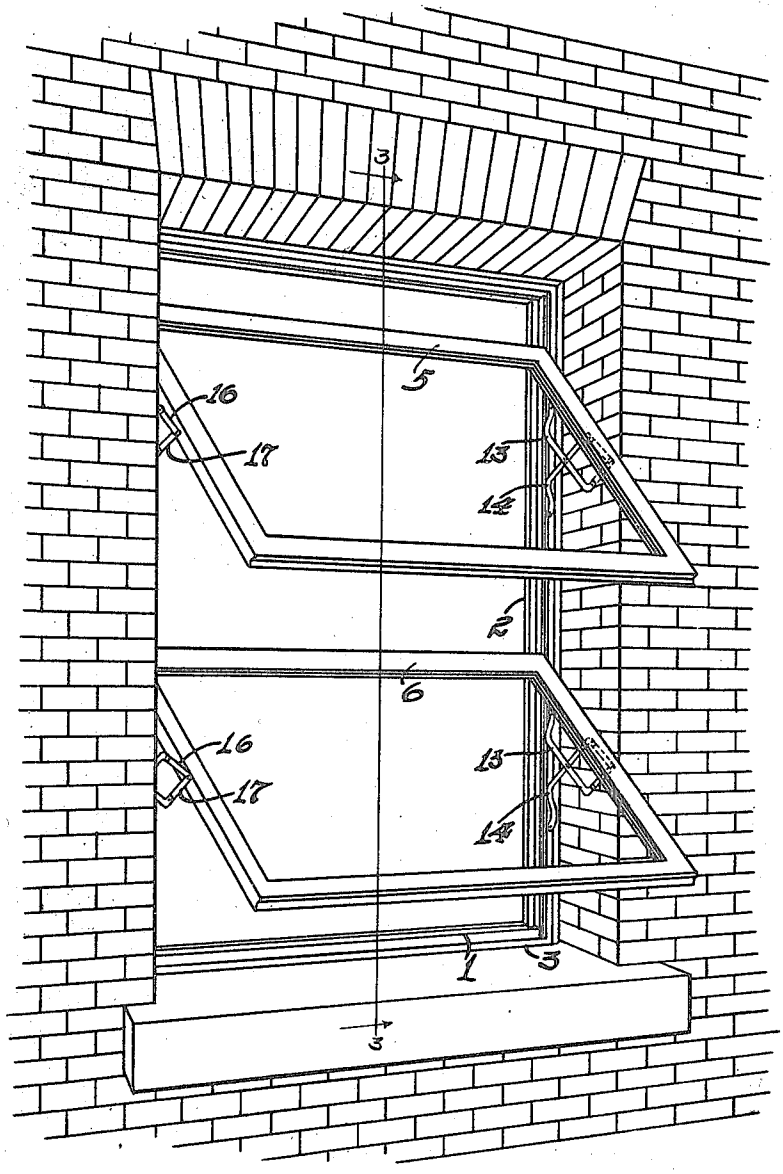


Fig. 1

WITNESSES

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5 SHEETS—SHEET 2.

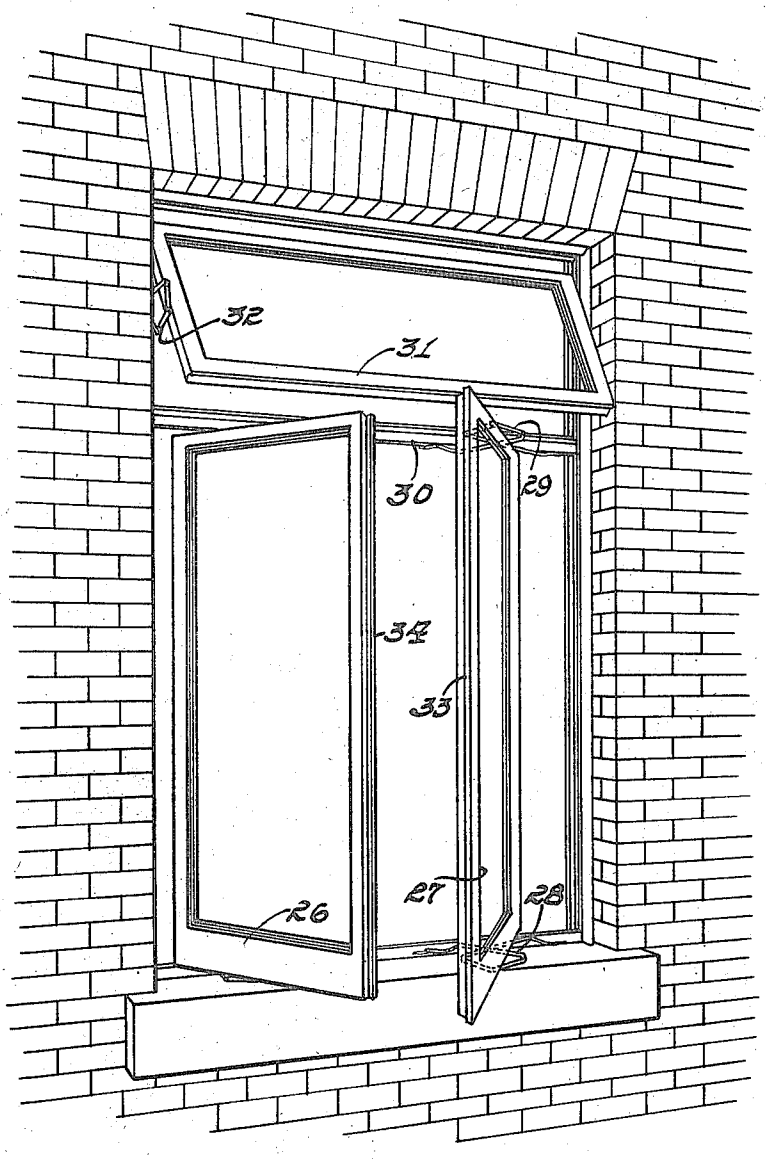


Fig. 2

WITNESSES

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5 SHEETS—SHEET 3.

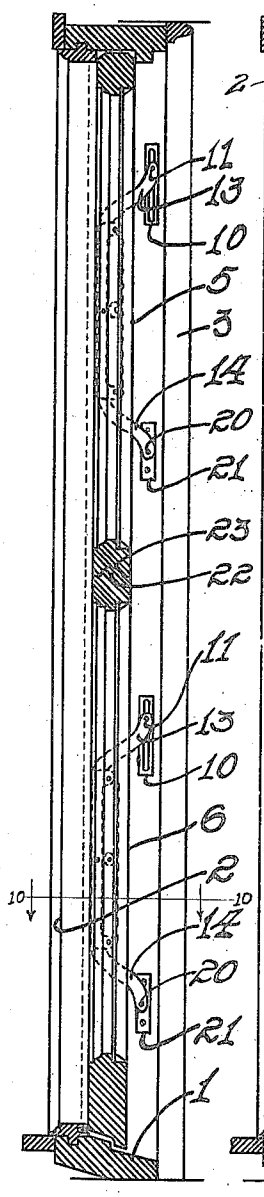


Fig. 4

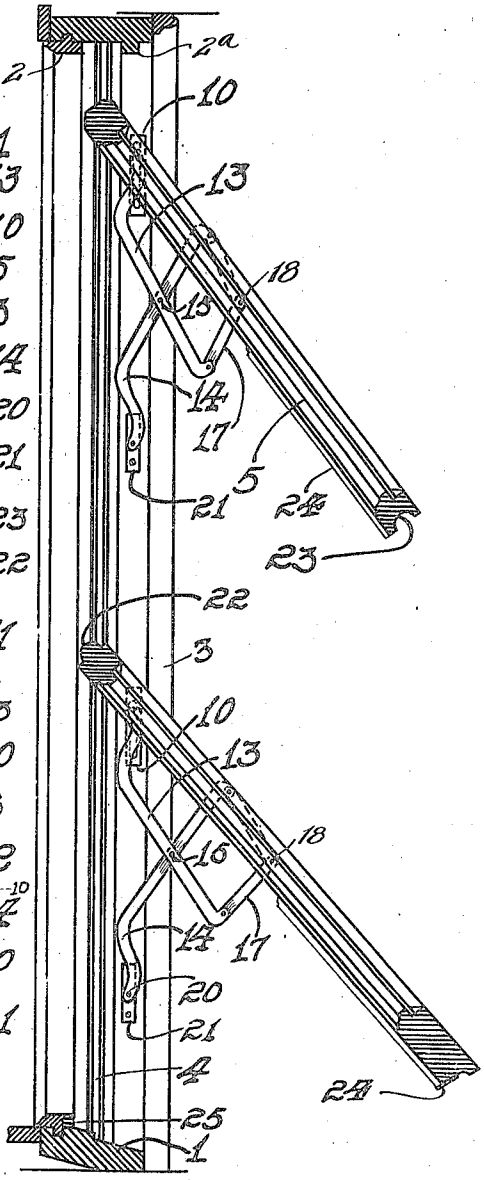


Fig. 3

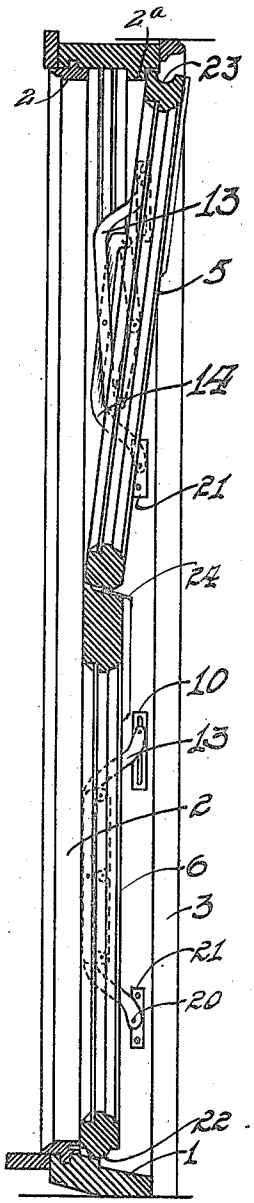


Fig. 5

WITNESSES

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5 SHEETS—SHEET 4.

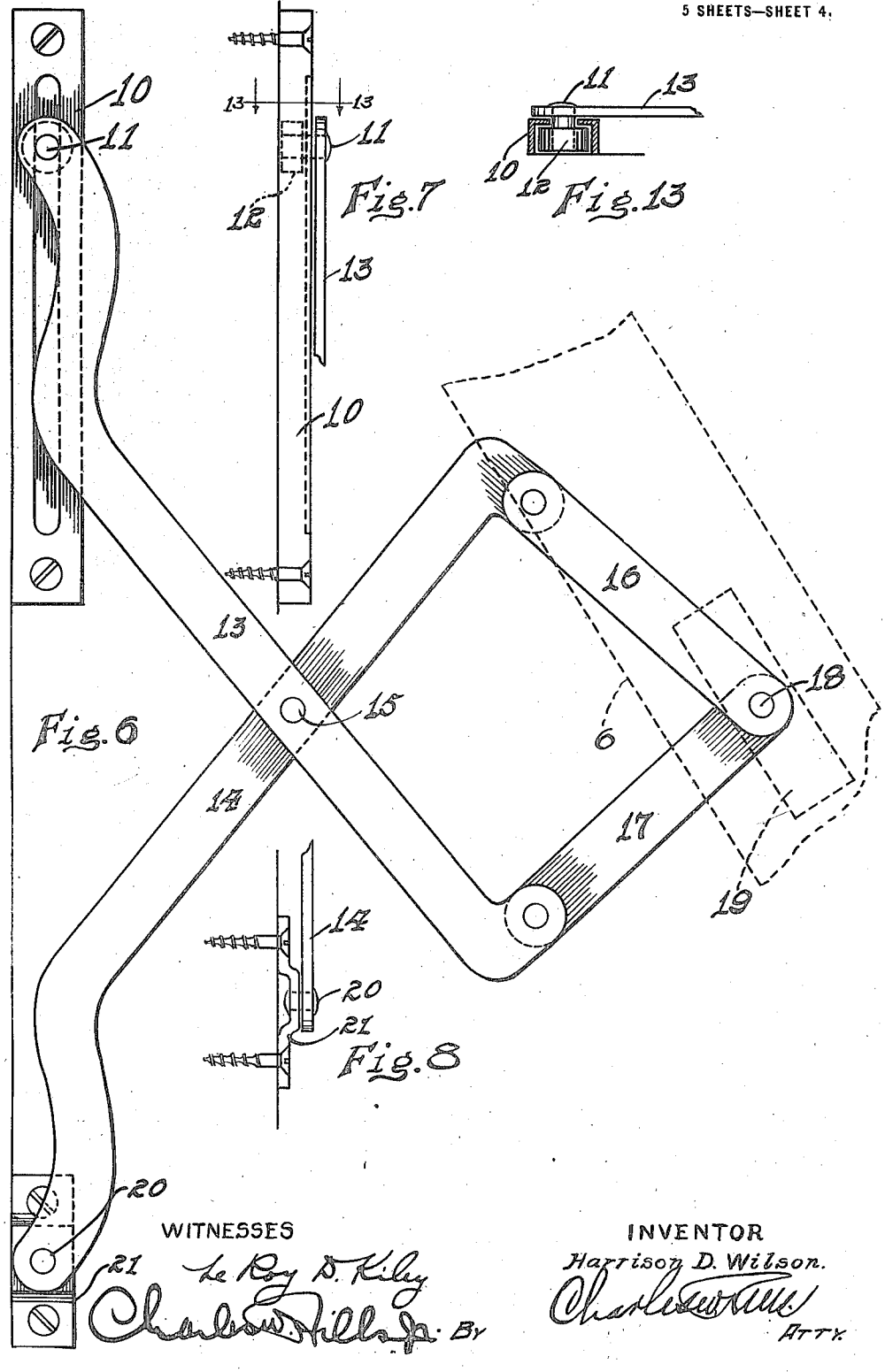


Fig. 6

Fig. 7

Fig. 13

Fig. 8

WITNESSES

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APPLICATION FILED JULY 20, 1914.

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5 SHEETS—SHEET 5.

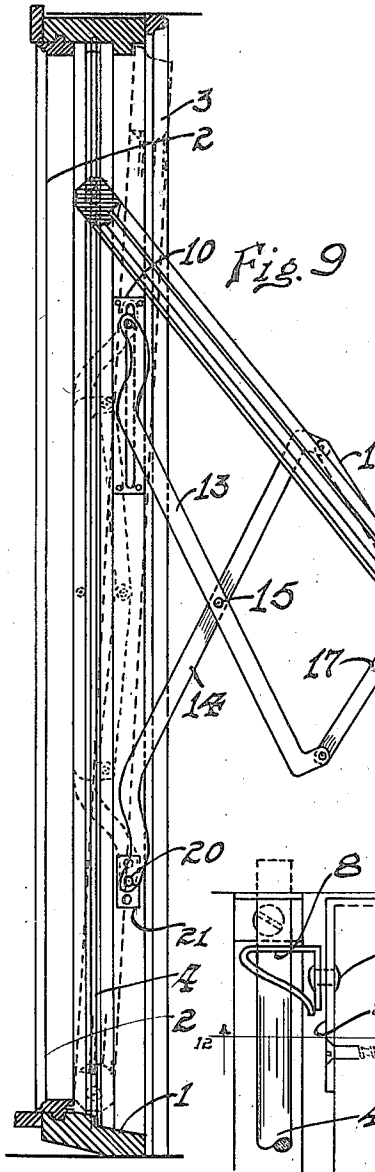


Fig. 9

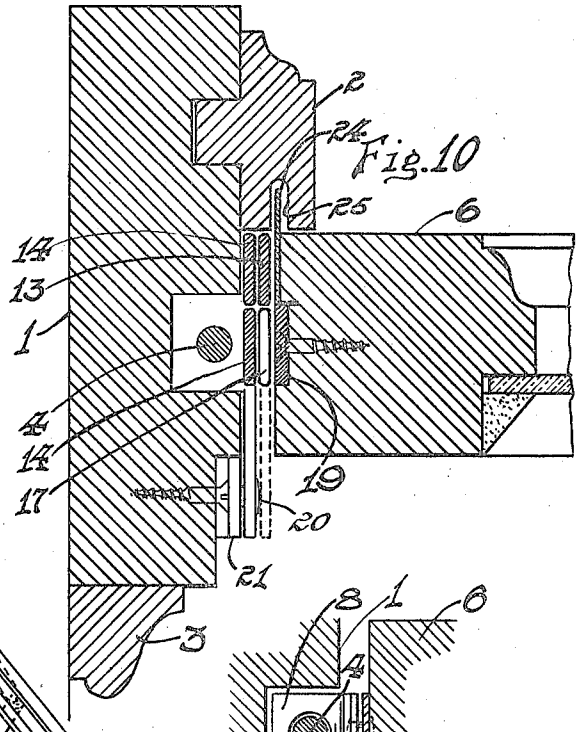


Fig. 10

Fig. 12

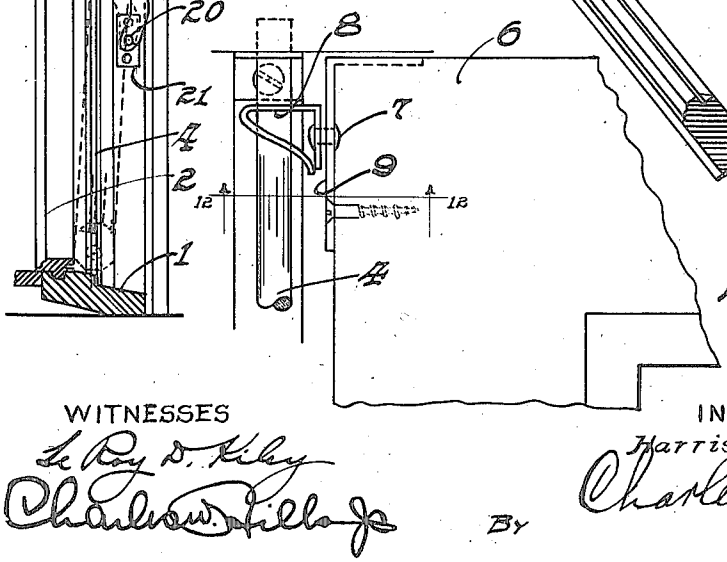


Fig. 11

WITNESSES

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Atty

UNITED STATES PATENT OFFICE.

HARRISON D. WILSON, OF CHICAGO, ILLINOIS.

REVERSIBLE WINDOW.

1,193,101. Specification of Letters Patent. Patented Aug. 1, 1916.

Application filed July 20, 1914. Serial No. 852,126.

To all whom it may concern:

Be it known that I, HARRISON D. WILSON, 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 new and useful Improvements in Reversible Windows; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

A great variety of different types of window sashes have been constructed for movement in the window frame other than by sliding in the familiar manner, but generally they have proved objectionable for many reasons. For instance, in some cases where the objectionable window cords and weights have been dispensed with and hinged or jointed connections have been substituted for swinging the sashes either horizontally or vertically outwardly from the window frame, it has been almost impossible to effectually clean the outer surface of the window pane when desired from the inside of the building. Then, too, it has been found difficult not only to adjust hingedly mounted window sashes, but where such have been used, bracing means have been required to hold the sashes in adjusted position, so that a complication of parts has resulted and it has required more or less skill to effect a proper adjustment of the sashes.

This invention relates to hingedly mounted window sashes, each operatable independently of the other and capable of reversal in the window frame, so that access to both surfaces thereof is readily afforded for cleaning the same.

It is an object of this invention to construct a window wherein the sashes are adjustably mounted independently of one another and each capable of complete rotation about a horizontal axis to permit access to both sides of the glass therein for cleaning.

It is also an object of this invention to construct a window wherein the upper and lower sashes are mounted independently of one another upon lazy tongs, which are automatically extended as the sashes are rotated to project the sashes outwardly from the window.

It is also an object of this invention to construct a window the upper and lower sashes of which are slidably and pivotally connected at one end on each side of the window frame upon vertical guide rods provided for the purpose, and are also pivotally mounted upon lazy tongs secured to the window frame, which act when said sashes are rotated to swing the same outwardly from the window frame, permitting rotation thereof, thus affording access to both surfaces of the window pane.

It is also an object of this invention to construct a window provided with rotatable sashes mounted upon lazy tongs secured on the window frame and with weather stripping means associated with said sashes and coöperating with means formed in the window frame, to effectually seal the sashes in the window frame when the same are in closed position.

It is also an object of this invention to construct a window having a pair of rotatable reversible sashes mounted upon lazy tongs, said sashes capable of independent adjustment and yet when in closed position so arranged that the lower sash holds the upper sash from movement.

It is furthermore an important object of this invention to construct a window provided with upper and lower sashes, each independently adjustable and movable outwardly from the window frame and capable of reversal therein and acting when in closed position to effectually seal the window frame.

It is finally an object of this invention to construct a window having sashes adjustably mounted therein capable of reversal, and so mounted and disposed that the weight thereof is balanced upon the supporting members, so that to move the sashes into various positions of adjustment requires but little effort, and no inconvenience whatsoever.

The invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

In the drawings: Figure 1 is a perspective view illustrating a window embodying the principles of my invention in a building. Fig. 2 is a similar view of a modified form of my device. Fig. 3 is a vertical central section taken on line 3—3 of Fig. 1. Fig. 4 is a similar section showing the sashes in closed position. Fig. 5 is a view similar to Fig. 4, but showing each of the sashes reversed. Fig. 6 is an enlarged fragmentary detail showing one of the sets of lazy tongs connected on one side of each of the win-

dow sashes. Fig. 7 is a fragmentary side view of the mounting of the upper diagonal arms of the lazy tongs upon the window frame. Fig. 8 is a similar view of the mounting of the lower diagonal arms thereof. Fig. 9 is a modified construction wherein only one sash is used, showing the same in reversed position in dotted lines and in an adjusted position in full lines. Fig. 10 is a fragmentary detail section taken on line 10—10 of Fig. 4. Fig. 11 is a fragmentary elevation of one corner of one of the sashes, showing the connection thereof to the window frame. Fig. 12 is a fragmentary detail section taken on line 12—12 of Fig. 11. Fig. 13 is a section taken on line 13—13 of Fig. 7.

As shown in the drawings: Mounted in the window apertures in the wall of a building is a window frame, denoted as a whole by the reference numeral 1, and provided with an inner molding or stop 2, and an outer molding 3, extending therearound. The side members of said window frame are each provided with a vertical recess in which are mounted guide rods 4. An upper sash 5, and a lower sash 6, each has pivotally secured thereto by means of a rivet 7, a bracket 8, apertured to slidably engage one of said rods and said rivet being secured in a corner piece 9, screwed or otherwise rigidly secured upon the sash member. Each of the sashes 5 and 6 is similarly mounted in the window frame, so that a description of the mechanisms and operation of one thereof will suffice.

A slotted channel bracket plate 10, is secured upon the window frame, one on each side thereof for each sash, and engaged therethrough is a stud 11, with a roller 12, on the inner end thereof within said channel, and with an upper diagonal lever 13, of a pair of lazy tongs secured to the outer end thereof. The other lever of said lazy tongs is denoted by the reference numeral 14, and is pivotally connected to the lever 13, by means of a pin or rivet 15. Pivotally secured to the outer ends of said diagonal levers 13 and 14, are links 16 and 17, which are pivoted to one another by means of a stud 18, said stud pivotally engaging in a plate 19, secured in a recess in the stile of the sash member. The lazy tong lever 14, is also pivoted by means of a rivet or stud 20, to a bracket plate 21, which is secured on the side of the window frame below said plate 10.

As clearly shown in Figs. 3, 4, and 5, the top rail of the lower sash is provided with a rounded tongue 22, and the lower rail of the upper sash is provided with a rounded groove or recess 23, so that when said sashes are swung into the closed position shown in Fig. 4, said tongue and groove interfit with one another, effectually sealing the joint between the sashes and likewise holding the upper sash from adjustment until the lower sash has been first moved. Weather stripping means are also provided associated with said sashes, consisting of inwardly projecting resilient plates 24, which are secured upon the stiles and lower rail of the lower sash, and upon the stiles of the upper sash, and the inner molding 2, of the window frame is provided with a groove or recess 25, to receive the projecting margins of said plates therein, thus effecting a seal for the sashes when closed into the window frame.

In the modification of my invention illustrated in Fig. 2, I have shown a pair of vertically disposed sashes 26 and 27, the lazy tong connection therefor being denoted as a whole by the reference numerals 28 and 29, respectively, the former at the lower end of the sashes and the latter at the upper end thereof, connected upon a cross piece 30, extending horizontally of the window frame near the top thereof. A horizontal sash 31, is mounted in the window frame above said vertical sashes 26 and 27, and is mounted similarly to the construction already described, that is upon lazy tong levers 32, connected upon the stiles of the sash and the side members of the window frame.

In the construction illustrated in Fig. 9, I have shown the window frame closed by only one sash instead of two, in the present instance the sash being denoted as a whole by the reference numeral 35, but the operating and connecting parts thereof, as well as the parts of the window frame, inasmuch as the construction is identical with that already described, being denoted by the reference numerals of the previously described forms of the device.

The operation is as follows: When the sashes are in the closed position illustrated in Fig. 4, in order to open one or both of the same, the operator pushes outwardly on the lower rail of the lower sash, causing the same to swing into any one of the adjusted positions similar to that shown in Fig. 3. The top rail of said sash remains engaged upon the guide rods 4, in the window frame, but of course sliding thereon an amount dependent upon the extent of adjustment of the sash outwardly from the window. The pivot point of rotation of the sash is about the studs 18, at the ends of the lazy tong connection between the sash and the window frame, so it is apparent that a complete rotation of said lower sash may be effected, whereby the outer surface of the pane is moved inwardly into a position within the window frame, as clearly shown in Fig. 5. While I have shown in said Fig. 5 the upper sash, as not completely closed, this is due merely to the fact that the window frame 1 is provided with an outer sash stop 2^a, which alone prevents the movement of the upper

end of the upper sash 5 to the full closed position. By omitting said stop 2^a, the upper sash 5 can move to the full closed position just as does the lower sash 6.

The upper sash of the window frame is mounted, and is capable of adjustment, in an exactly similar manner, but as shown in Fig. 5, due to the molding or stop formed upon the window frame across the top thereof, said sash cannot be rotated completely into the plane of the window frame. However, such molding can be readily omitted from the construction, so as to permit complete reversal of the upper sash if so desired, but inasmuch as the reversal is only for convenience in cleaning, it is not essential that the sash move completely into the plane of the window frame.

The tongue 22, formed on the top rail of the lower sash, engages the groove on the lower rail of the upper sash when the sashes are in closed position, as shown in Fig. 4, and it is apparent therefore that the upper sash cannot be adjusted until the lower sash has first been moved to disengage the tongue from the groove. The inwardly projecting strips of metal 24, secured upon each of said sash members, engage the respective grooves 25, formed in the molding 2, on the window frame, so that an effectual weather seal is afforded when the sashes are in closed position. Of course when the sashes are adjusted the upper lever 13, of each of the lazy tong connections slides downwardly in the slotted bracket plate 10, and the center of rotation, that is the pivot 18, on the sash, is moved outwardly from the window frame, so that at no time does any part or portion of the sash or the operating mechanisms thereof project inwardly within the window frame to form an inconvenient obstruction or give the device an unsightly appearance.

In the modified form of my invention illustrated in Fig. 2, the operation is exactly similar, but in place of the co-acting tongue and groove of the construction referred to in the foregoing, the sash 27, is provided with an extended edge or margin 33, which overlaps a similar inner extended edge 34, on the sash 26, when the sashes are in closed position. Of course the horizontal sash 31, operates in an exactly similar manner to the sashes 5 and 6, already described, and likewise the sash 35, is constructed and operates, as illustrated in Fig. 9, in the manner of the sashes described.

Other numerous modifications falling well within the scope of my invention will readily suggest themselves to those skilled in the art, as it is easily apparent that sashes of different sizes or shape mounted in various positions, may be readily connected one within the other or in fixed window frames to obtain any desired effect, either for a more efficient distribution of light and air, or for ornamental purposes. I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:

1. In a device of the class described, the combination with a window frame, and a rotatable sash mounted therein and having sliding connections with said frame at one end, of a lazy tongs having one arm pivoted to and the other arm slidably connected with said frame out of alinement with the sliding connection of the sash therewith, and links connecting said lazy tongs with said sash.

2. In a device of the class described, the combination with a window frame, and a sash mounted therein and having pivotal and sliding engagement therewith, of toggle levers pivotally and slidably connected to the window frame out of alinement with the sliding connection of said sash therewith and pivoted at a common pivot point on said sash, said levers acting to project the sash outwardly and permitting complete inversion of the sash and supporting the sash in all adjustments.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

HARRISON D. WILSON.

Witnesses:

CHARLES W. HILLS, Jr.

O. MARKAM.