(No Model.)

A. H. REDHEFFER & J. P. HIGLEY.

WINDOW.

No. 538,466. Patented Apr. 30, 1895.

Fig 1

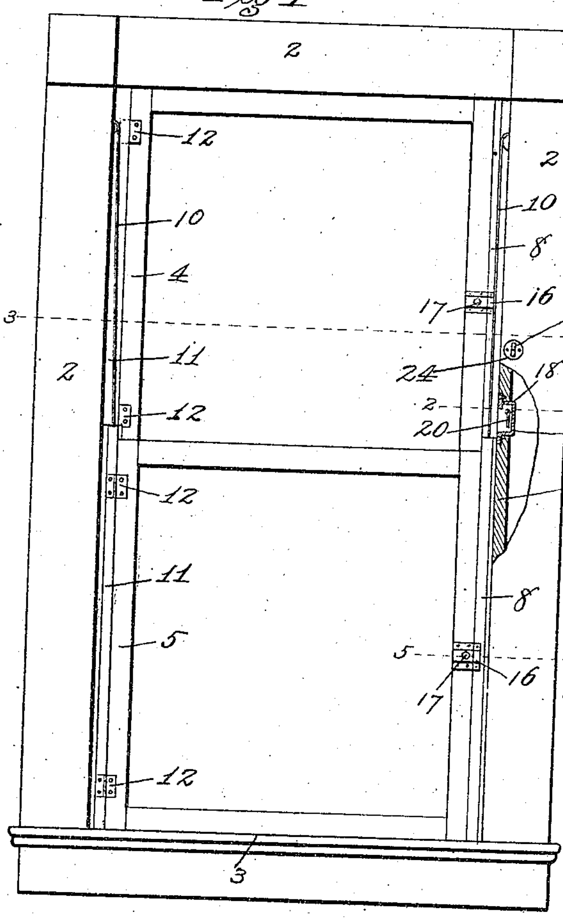


Fig 2

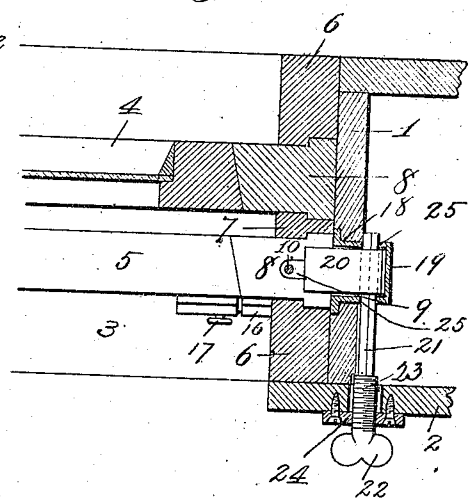


Fig 3

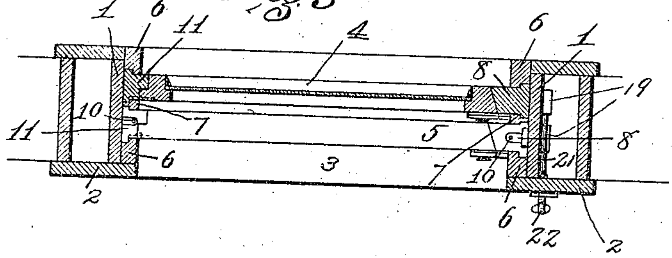


Fig 4

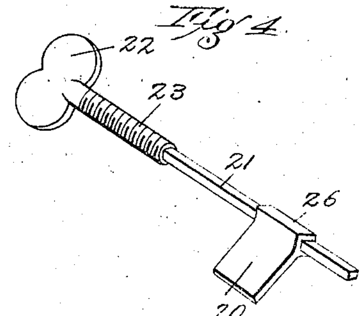


Fig 5

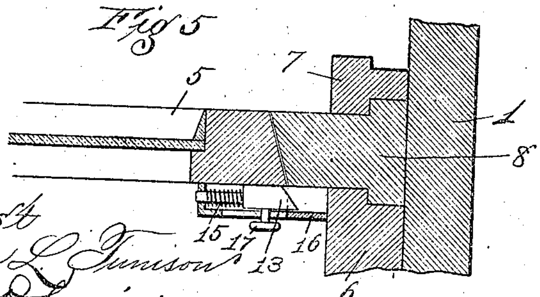


Fig 6

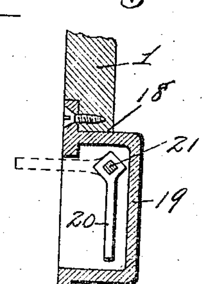
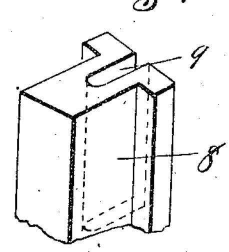


Fig 7



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UNITED STATES PATENT OFFICE.

AGNES H. REDHEFFER AND JOHN P. HIGLEY, OF ST. LOUIS, MISSOURI.

WINDOW.

SPECIFICATION forming part of Letters Patent No. 538,466, dated April 30, 1895.

Application filed February 25, 1895. Serial No. 539,656. (No model.)

To all whom it may concern:

Be it known that we, AGNES H. REDHEFFER and JOHN P. HIGLEY, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Windows, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

The object of our invention is to provide improved means, whereby window-sash may be opened inwardly.

The invention consists in the novel construction, combination and arrangement of parts, hereinafter specified and designated in the claim.

In the drawings, Figure 1 is an elevation of a window having our invention applied thereto, looking from the interior of a room, parts being broken away and shown in section. Fig. 2 is an enlarged sectional plan view taken on the line 2 2 of Fig. 1, but with the locking-key blade of the lower sash in a different position. Fig. 3 is a sectional plan view on the line 3 3 of Fig. 1, but with the locking-key blade of the lower sash in the same position as shown in Fig. 2. Fig. 4 is a detail view, in perspective, of our improved locking-key. Fig. 5 is an enlarged sectional plan view taken on the line 5 5 of Fig. 1. Fig. 6 is an enlarged sectional elevation through the casing of the locking-key and its adjacent parts. Fig. 7 is an enlarged view, in perspective, of the upper end of one of the sliding bars.

1 indicates the usual jambs of the window-frame; 2, the inside finish of the same; 3, the sill; 4, the upper sash, and 5 the lower sash.

Secured upon the jambs 1 are guide-strips 6 and parting-stops 7. A T-shaped groove is formed between the inner edge of the strips 6 and the parting-stops 7, alike on each side of the window. Mounted within the T-shaped grooves on one side of the window are T-shaped sliding bars 8, one for the upper sash and one for the lower sash. The sliding bars 8 are provided in their upper ends with the usual cord-groove 9 and the usual cord 10, and counter-balancing weights are connected to the sliding bars for the purpose of counter-balancing the sash. The extent of the groove 9 in said sliding bars is indicated by dotted lines in Fig. 7.

On the opposite side of the window from that upon which the sliding bars 8 are mounted, are additional sliding bars 11 which are also T-shaped in cross-section and mounted to slide in the T-shaped grooves of the frame. The bars 11 are also fitted with the usual counter-balancing cords and weights in a manner similar to that just described in connection with the bars 8.

One edge of the upper sash 4 is hinged by means of common hinges 12 to the upper one of the bars 11, and the lower sash 5 is hinged at one edge to the other one of the bars 11 by means of hinges 12, so that said sash may swing inward. Vertical projections on the said bars 11 fit into vertical recesses in the adjacent edges of said sash, to form a tight joint and exclude dust and rain. The opposite edges of said sash are beveled and adapted to engage a beveled face formed on the adjacent edge of the bars 8.

A spring-bolt 13 is mounted in a suitable casing 14 one upon the front face of each sash, and is normally urged outward by means of a suitable spring 15, to engage the keeper 16, for the purpose of locking the sash to the adjacent bar 8, so that during the operation hereinafter mentioned, the said sash and bar will slide together. The bolt 13 is provided with a suitable knob or handle 17 by means of which said bolt may be retracted when it is desired to open the sash. The outer end of said bolt is beveled in the usual manner, so that in closing the sash said beveled end may engage the keeper 16, and the bolt thereby be automatically retracted.

Mounted in a suitable recess 18 formed in the window jamb 1 at a point slightly above the plane of the upper end of the sliding bar 8 of the lower sash is a key-casing 19, in which operates the blade 20 of the locking-key 21. The outer end of the key 21 is provided with a suitable handle 22 which projects into the room, and the inner portion of said key is angular in cross-section, while the portion immediately adjacent the handle 22 is provided with screw-threads 23.

The screw-threaded portion of the key 21 is threaded through a metal face-plate 24 which is secured in position upon the face of the inside finish 2, and the said key passes through a suitable aperture formed in said finish and is mounted in suitable bearings 25 formed in the opposite walls of the key-casing 19.

The key-blade 20 is provided at one end with an angular boss 26, which has within it a horizontal passage which is angular in cross-section and which corresponds in size to the size of the angular portion of the key 21, so that said blade is loosely mounted to slide upon said key a limited distance. The blade is mounted upon said angular portion of said key and is adapted to be moved within said key-casing in a manner hereinafter described. The key-casing is secured in position by means of suitable screws or other common fastenings.

We have just described the specific construction of the key for the lower sash. The key for the upper sash is identical and is located as indicated in Fig. 1, in a plane a slight distance above the key for the lower sash.

The operation is as follows: With the sash in the relative positions in which they are shown in Fig. 1, when it is desired to swing the sash inward, the blade 20 of the key for the lower sash is removed from its normal vertical position and thrown outward until its free end projects over and into the path of the sliding bar 8 of said lower sash, as indicated by dotted lines in Fig. 6. This may be readily done by means of the handle 22. Then the bolt 13 of the lower sash is retracted, and said sash is swung inward. Of course as soon as the said bolt is retracted, the weight attached to the bar 8 of said sash will cause said bar to move upward until its upper end comes in contact with the overhanging blade 20, which will prevent the further upward movement of said bar. Then the upper sash is slid downward until its bar 8 is below the plane of its key-blade 20, and its key-blade is then thrown outward in the manner just described, and its bolt 13 is retracted and said sash swung open. When it is desired to close the sash, the upper sash is first swung inward and its bolt 13 will automatically be retracted by contact of its beveled end with its keeper 16, and then said bolt will be sprung into said keeper by its spring 15, and said sash will thereby be locked to its bar 8. Then the key-blade 20 of said sash should be thrown downward to its normal position, which is that in which the key-blade 20 of the lower sash is shown in Fig. 1, and then said upper sash may be moved up and down as usual. The lower sash may now be closed and operated in a similar manner. In assembling the key 21 and its blade 20, the blade is first inserted in the casing 19, and then the key 21 is screwed into the face-plate 24 and its inner portion inserted in the angular passage of the said blade.

What we claim is—

In an improved window, the combination of a window-frame, opposite bars 8, 11 mounted to slide vertically, a sash hinged to the bar on one side of the window and fitted for detachable connection to the bar on the opposite side of said window, a bolt for making such connection, suitable means for retaining said bars, and holding the same against removal laterally when the sash is swung to an open position, a locking-key 21 having an inner portion that is angular in cross-section, and said key horizontally mounted in bearings at a point adjacent the upper end of one of said bars when the latter is near the limit of its downward movement, and a flat-faced blade 20 having an angular passage and loosely mounted upon the angular portion of said key, to lock one of said bars against vertical movement when the sash is swung open, substantially as herein specified.

In testimony whereof we affix our signatures in presence of two witnesses.

AGNES H. REDHEFFER.
JOHN P. HIGLEY.

Witnesses:
M. G. IRION,
JOHN C. HIGDON.