

A. GEHRI.

WINDOW.

APPLICATION FILED APR. 26, 1911.

Patented Dec. 31, 1912.

3 SHEETS-SHEET 1.

1,049,224.

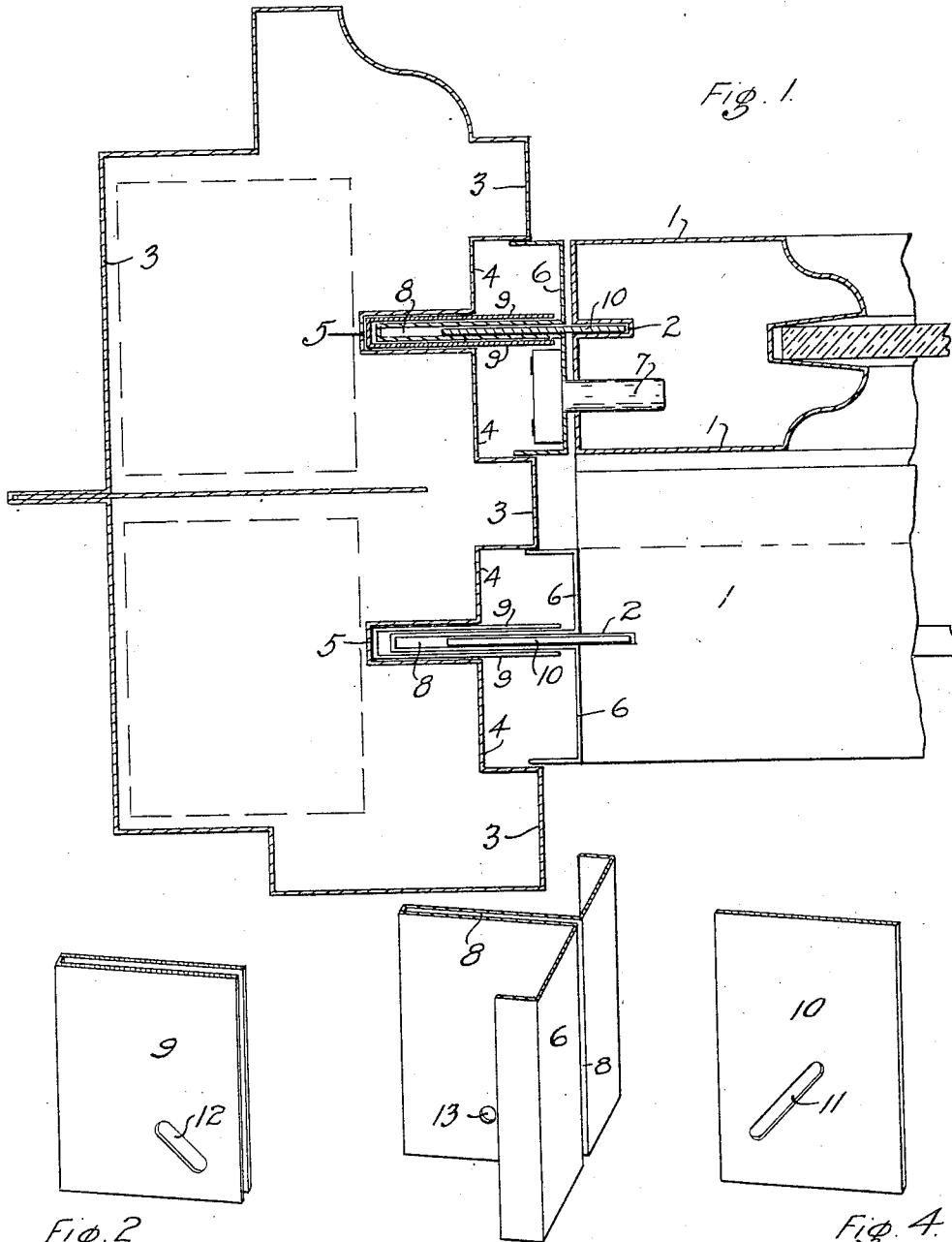


Fig. 2

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Fig. 3

Fig. 4.
INVENTOR

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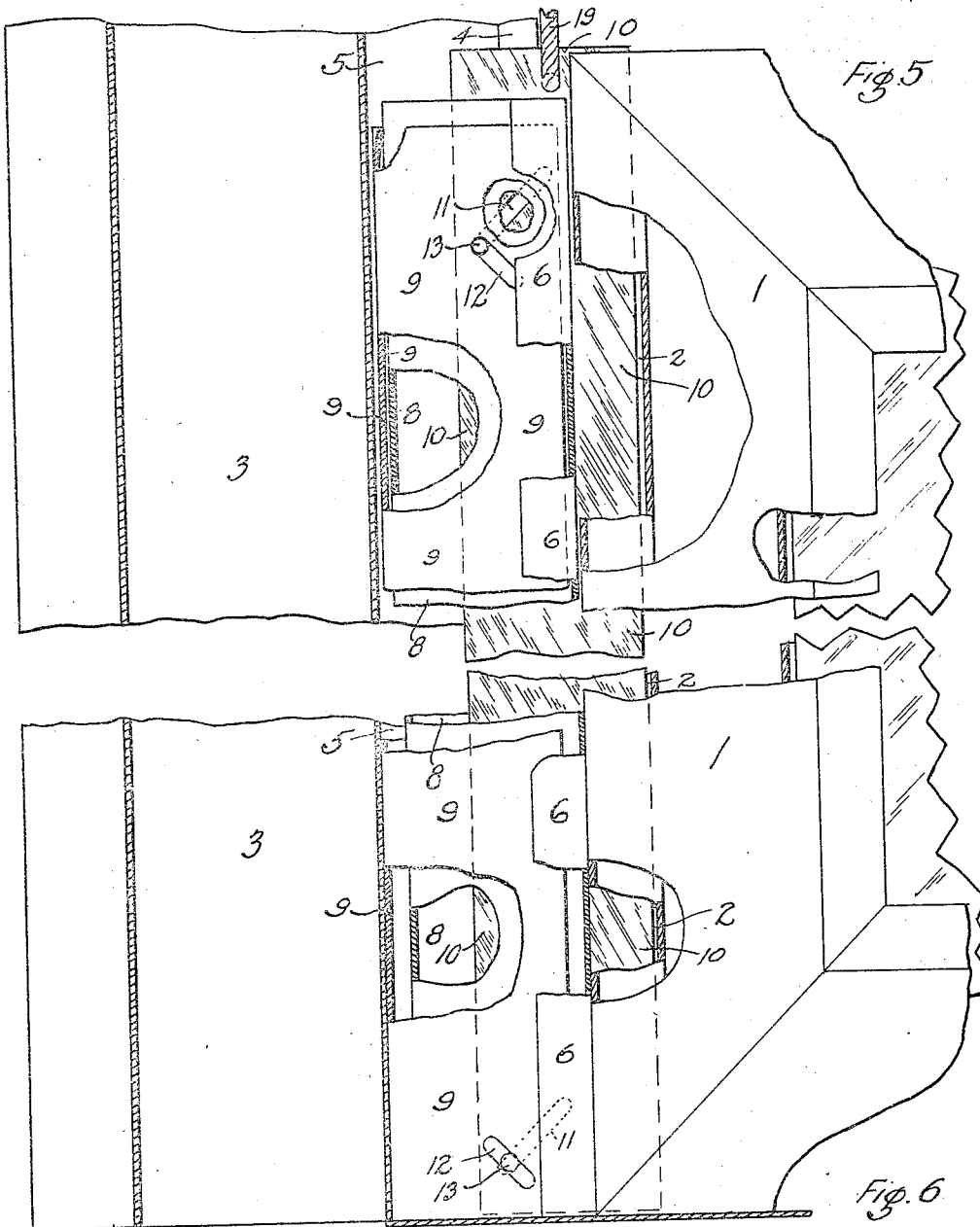
WINDOW.

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3 SHEETS-SHEET 2.

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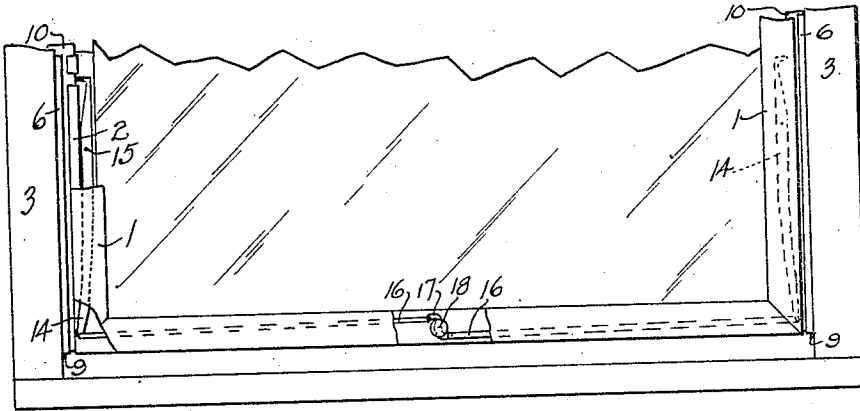


Fig. 7

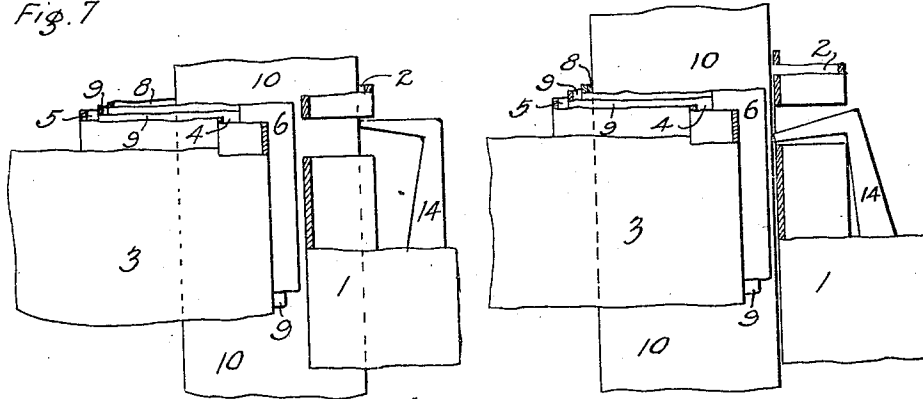


Fig. 8.

Fig. 9

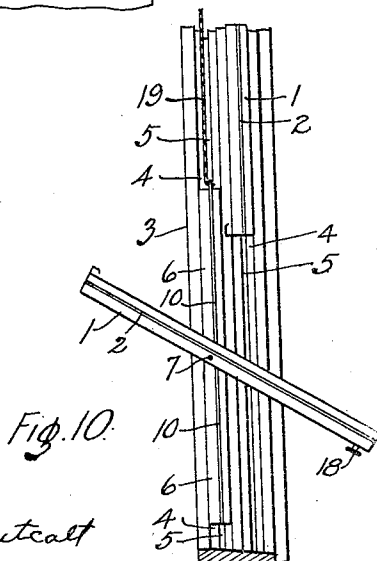


Fig. 10.

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UNITED STATES PATENT OFFICE.

ADOLF GEHRI, OF TACOMA, WASHINGTON.

WINDOW.

1,049,224.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed April 26, 1911. Serial No. 623,364.

To all whom it may concern:

Be it known that I, ADOLF GEHRI, a citizen of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented a new and useful Window, of which the following is a specification.

This invention relates to windows, and especially to metal fire-proof windows, and has for its objects to provide a window which can slide vertically in the frame and which can also be rotated on a horizontal axis; which is normally locked to move only vertically; which, when it is closed, is dust, rain, wind and fire-proof; which, when it is unlocked, is easily swung on its pivots; which automatically locks itself in the vertical position after it has been tipped; and which is simple and cheap to make. I attain these and other objects by the devices, mechanisms and arrangements illustrated in the accompanying drawings, in which—

Figure 1 is a horizontal section through one side of the window frame and through the upper sash in contact therewith, and showing the lower sash in plan view; Fig. 2 is a perspective view of the lower end of the U-shaped piece; Fig. 3 is a similar view of the main hanger plate; Fig. 4 is a similar view of the locking strip; Figs. 5 and 6 are side elevations, partly in section and partly broken away of the upper and lower corners respectively of the lower sash, in engagement with the window frame; Fig. 7 is an elevation of the inner side of the lower part of the lower sash showing portions broken away to reveal the unlocking mechanism; Figs. 8 and 9 are views of portions of the sash showing, respectively, the window locked and unlocked; and Fig. 10 is a section of the frame showing the sashes in elevation and the lower sash tipped on its pivots.

Similar numerals of reference refer to similar parts throughout the several views.

The sash 1 of this window is provided with a deep narrow slot 2 running vertically from end to end on each side. The distance between the side faces of the sash is slightly less than the distance between the sides of the frame. The frame 3 is provided with two broad, shallow, grooves 4 corresponding with the two sashes of the window in width and position. Each of these grooves 4 has a narrow and deep groove 5 therein. The grooves 4 and 5 extend from top to bot-

tom of the sides of the frame. As above stated, the sashes are narrower than the space within the frame and this difference is made up, on each side of the sash, by the vertically-sliding compound hanger plates. These hanger plates consist of three pieces loosely secured together as hereinafter described. The main hanger plate 6 is formed with an outer face adapted to engage the side face of the sash 1. This plate 6 is provided with a pivot 7, secured thereto and extending into the side of the sash 1, another similar pivot being correspondingly secured on the hanger plate on the other side of the frame. The plate 6 fits in the broad shallow groove 4 in the frame, and has a deep narrow groove 8 therein. This groove 8 is positioned opposite the groove or slot 2 in the sash and is of substantially the same width but is much deeper. The second member of the hanger consists of a U-shaped piece 9 extending around the metal of the plate 6 forming the groove 8, and is adapted to engage in the deep groove 5 in the frame. The upper and lower ends of the base of this piece 9 are cut and are adapted to be bent inward whereby the distance that the groove 8 may pass thereinto may be adjusted so that slight variations in the width of the window frame may be compensated for. The third member of the hanger consists of a straight strip of metal 10 which normally lies in the two grooves 2 and 8, locking the sash against rotation on its pivots, but which is narrow enough to admit of its being pushed out of the groove 2 and deeper into the groove 8 thus freeing the sash from its control and allowing it to be readily swung on its pivots. The three members 6, 9 and 10 are secured together at the top and bottom so as to have relative lateral motion as follows:—The strip 10 is provided with an inclined slot 11 near each end and extending upwardly as it approaches the sash; the U-shaped piece 9 is provided with an oppositely inclined slot 12; and a pin 13 passes through both of these slots 11 and 12 and through a hole in the plate 6. The sash is supported by the usual chain, or cord, 14 secured to the upper end of each of the strips 10. When the window is raised the U-shaped piece 9 extends slightly below the sash so as to strike the sill before the window is fully closed. When the sash is raised the weight thereof is transmitted through the pivot 7

to the plate 6 and then through the two pins 13 and the lower edge of the slot 11 to the strip 10 which is supported by the usual cord 19. When the sash is in this position 5 the U-shaped piece is drawn toward the sash because its weight causes it to slide on the pins 13 and the directions of the slots 12 is such as to draw it away from the frame, thus loosening the window and making it easy to raise or lower. Now, if the 10 strip 10 is forced out of the groove 2, the sash is supported as before but is free to be rotated on its pivot 7. When, however, the window is lowered the lower edge of the U-shaped piece 9 engages the sill and this 15 forces it against the back of the groove 5 and the pins 13 then force the plate 6 outward along the slots 12, bringing the face of the plate 6 tightly against the face of the sash 1, and since the strip 10 crosses the joint between the parts 6 and 1, it is practically impossible for wind, dust or fire to pass between the sash and the frame, or for a stream of water to turn the sash on its 25 pivot or to penetrate the said joint.

The strip 10 is forced out of the groove 2 by a lever 14 pivoted at 15 and extending downward therefrom to a point where it is secured to one of the two cross rods 16 which 30 connects it to the handle operated lever 17 on the bottom rail of the sash. Thus by turning the handle 18 the lever 17 is turned and the rod 16 is pulled, turning the lever 14 on its pivot so that its end, which passes 35 through a suitable opening in the sides of the groove 2, will extend into the said groove and force therefrom the strip 10. As soon, however, as the handle is released the levers 14 return to their normal position and 40 if the window be swung back to the vertical, the strip 10 is immediately forced into the groove 2 by the weight of the window acting through the inclined slots 11, thus locking it in this position.

45 The upper sash is similarly constructed except that the U-shaped piece thereof is reversed so that the slots thereof are in the same direction as the slots in the strips 10 thereof. The action however is the same 50 but the compressing impulse comes from the upward pressure of the U-shaped piece with the top of the frame as the sash is brought to closed position.

Having described my invention, what I claim is:—

1. In a window, the combination with a window frame, having a guide groove therein, and a narrow deep groove within said guide groove; of a sash narrower than said frame and having a deep narrow groove 60 corresponding in position with the similar groove in the frame; a hanger plate to which said sash is attached and engaging in said guide groove in the frame and in said narrow groove in said frame and forming a 65 narrow groove corresponding with the groove in the sash; and a supporting strip attached to said main hanger plate and engaging in the narrow grooves therein and in the sash. 70

2. In a window, the combination with a window frame, having a guide groove therein; a hanger plate engaging in said guide groove and having a narrow groove in its face; a sash attached to said hanger plate 75 and having a corresponding groove therein; a supporting strip attached to said hanger plate and engaging in the narrow grooves therein and in the sash; and a back plate supported by said hanger plate but having 80 an inclined motion relatively thereto and lying between it and the frame and extending below said sash, whereby when said sash is lowered the back plate presses against the frame and presses the hanger 85 plate against the sash.

3. In a window, the combination with a window frame, having a guide groove therein; a hanger plate engaging in said guide groove and having a narrow groove in its 90 face; a back plate supported by said hanger plate and being adjustable relatively thereto and lying between it and the frame; a sash pivotally attached to said hanger plate and having a corresponding groove therein; and a supporting strip attached to said 95 hanger plate but having an inclined motion relatively thereto and engaging in the narrow grooves therein and in the sash to lock the sash from rotation on its pivot, but being removable from the groove in the sash 100 to permit of the said rotation.

ADOLF GEHRI.

Witnesses:

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