

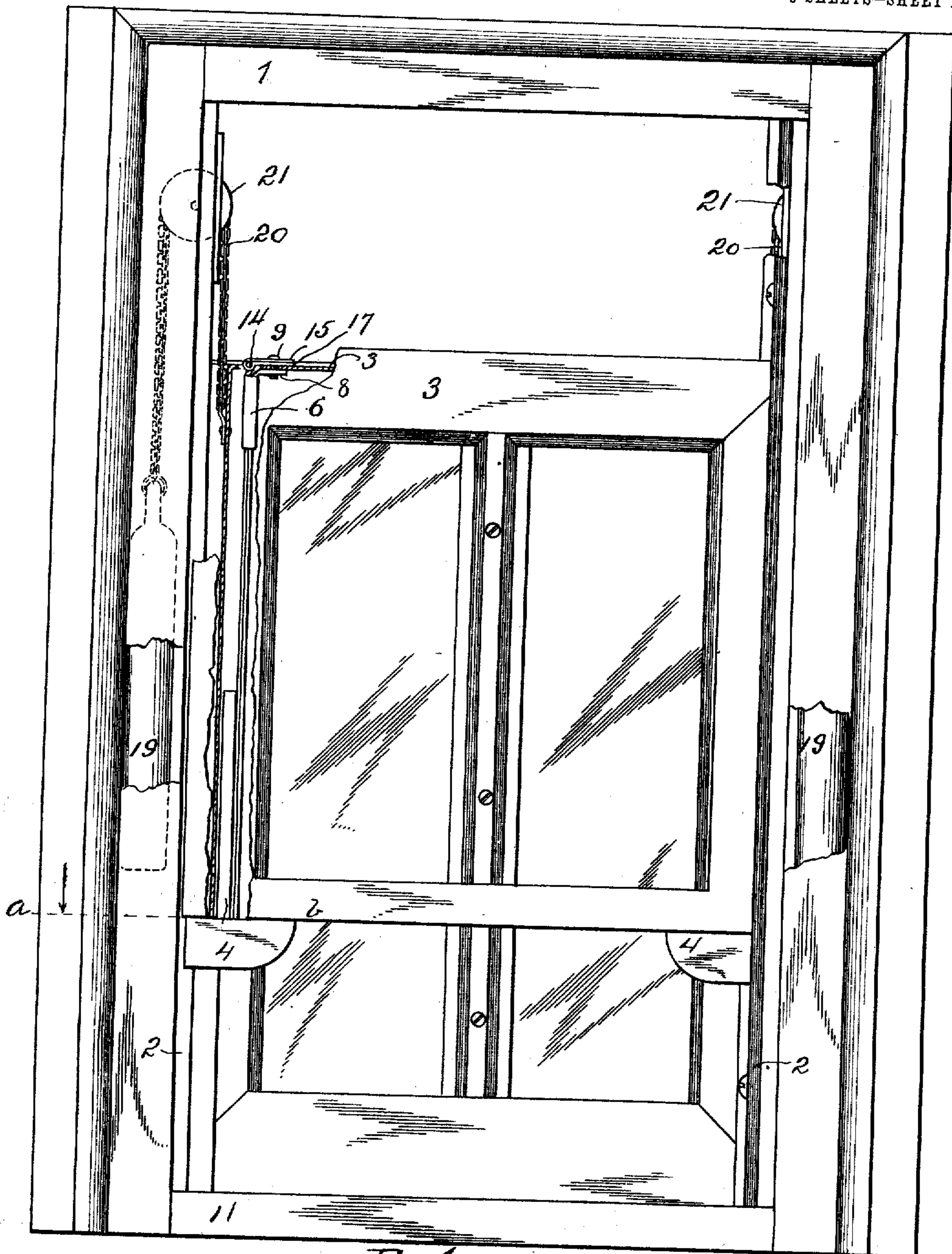
No. 842,369.

PATENTED JAN. 29, 1907.

H. F. ZAHNER.
AUTOMATICALLY CLOSING WINDOW.

APPLICATION FILED JULY 21, 1905.

3 SHEETS—SHEET 1.



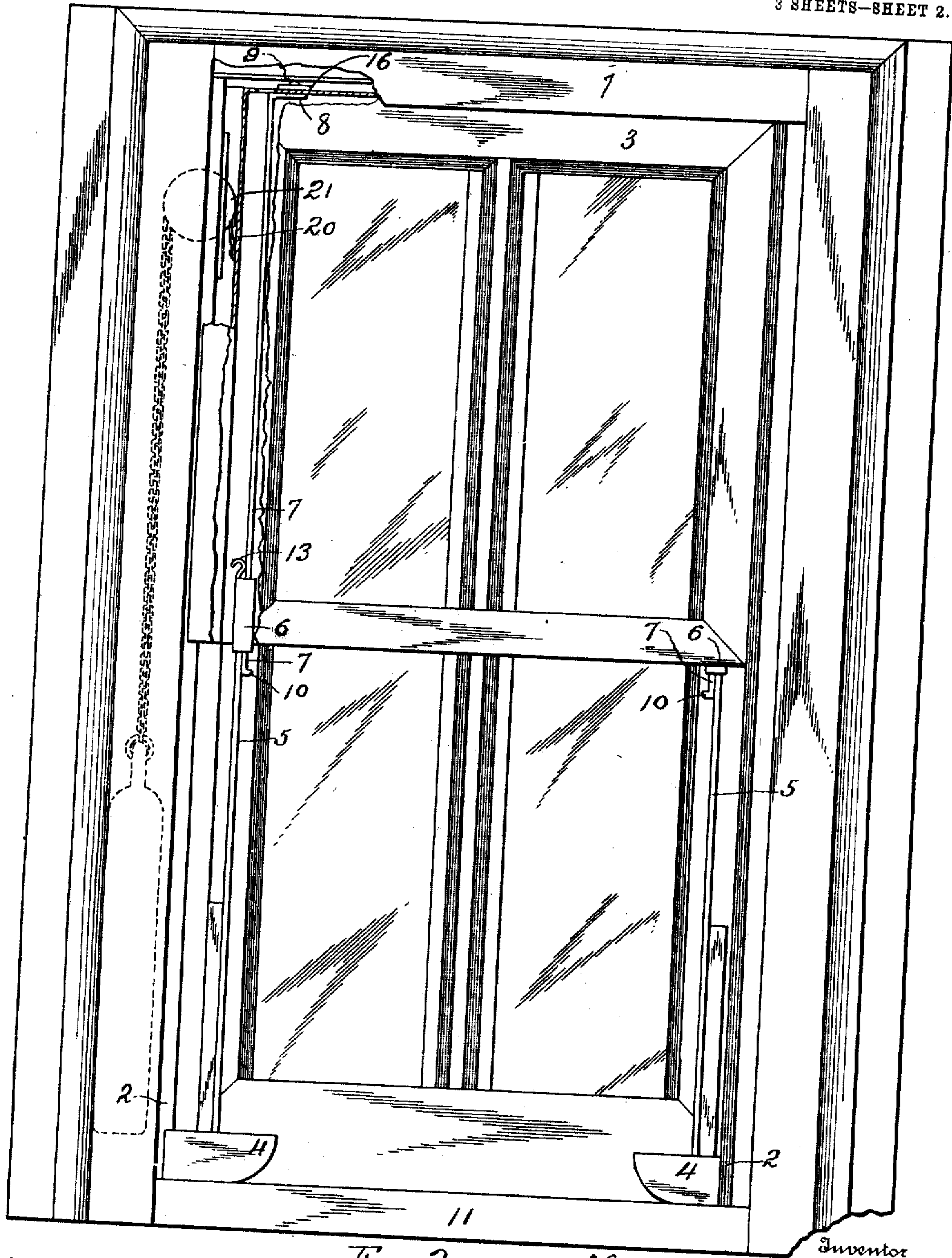
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Witnesses:
R. C. Hamilton
W. A. Lingle

Fig 2

Henry F. Zahner
By *Warren D. House,*
His Attorney

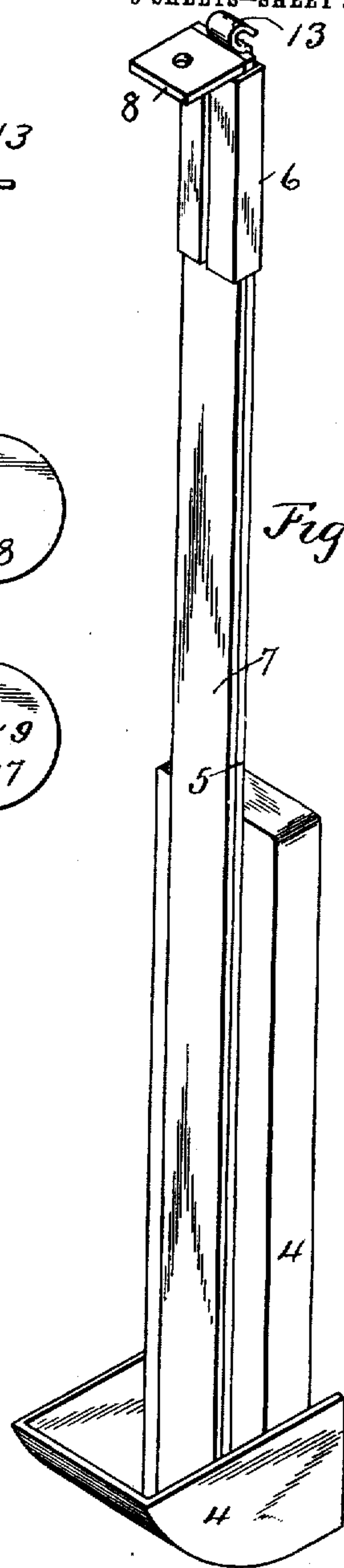
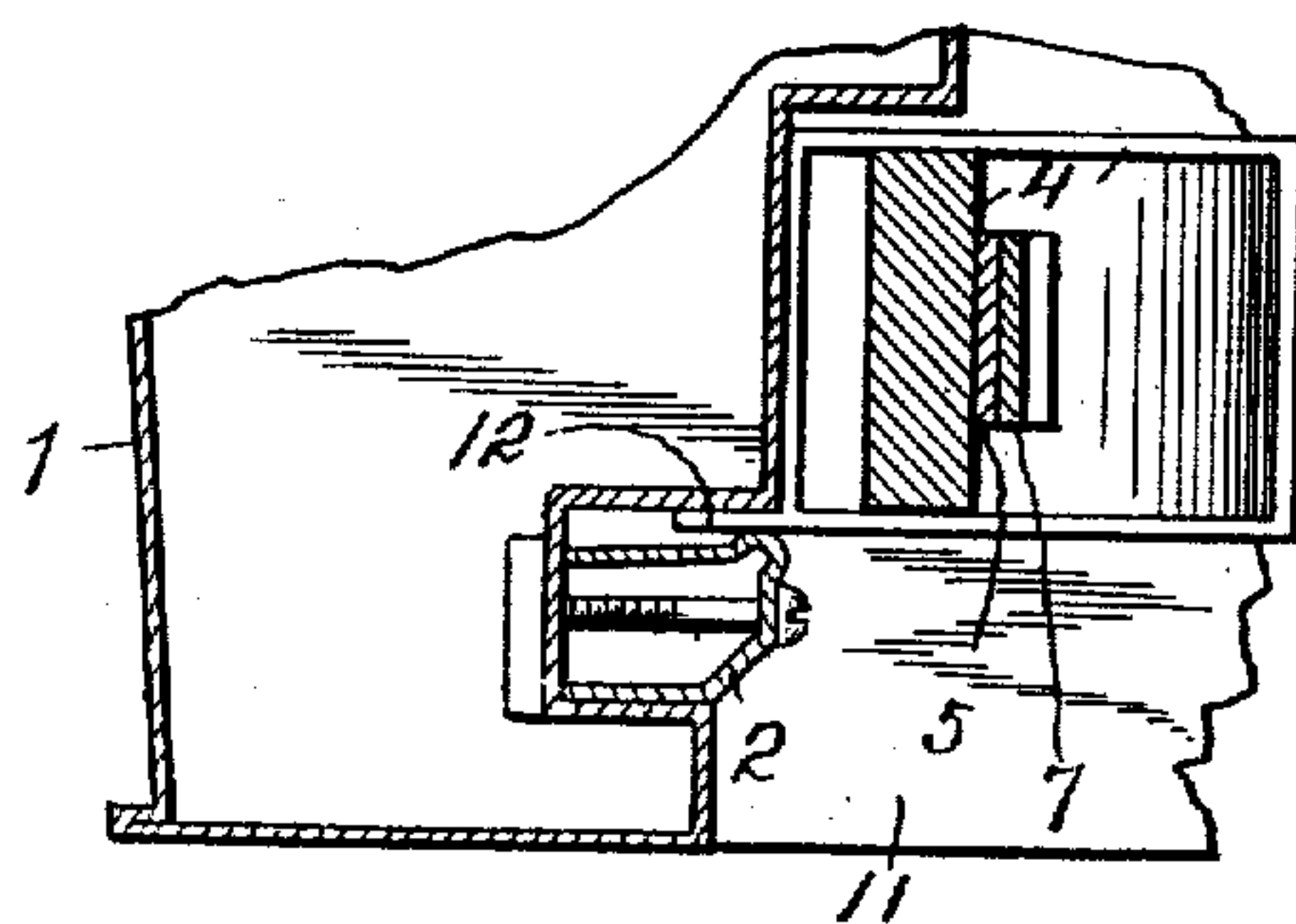
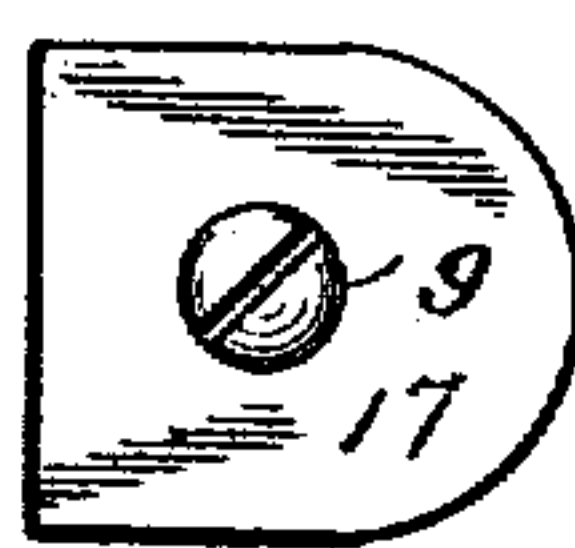
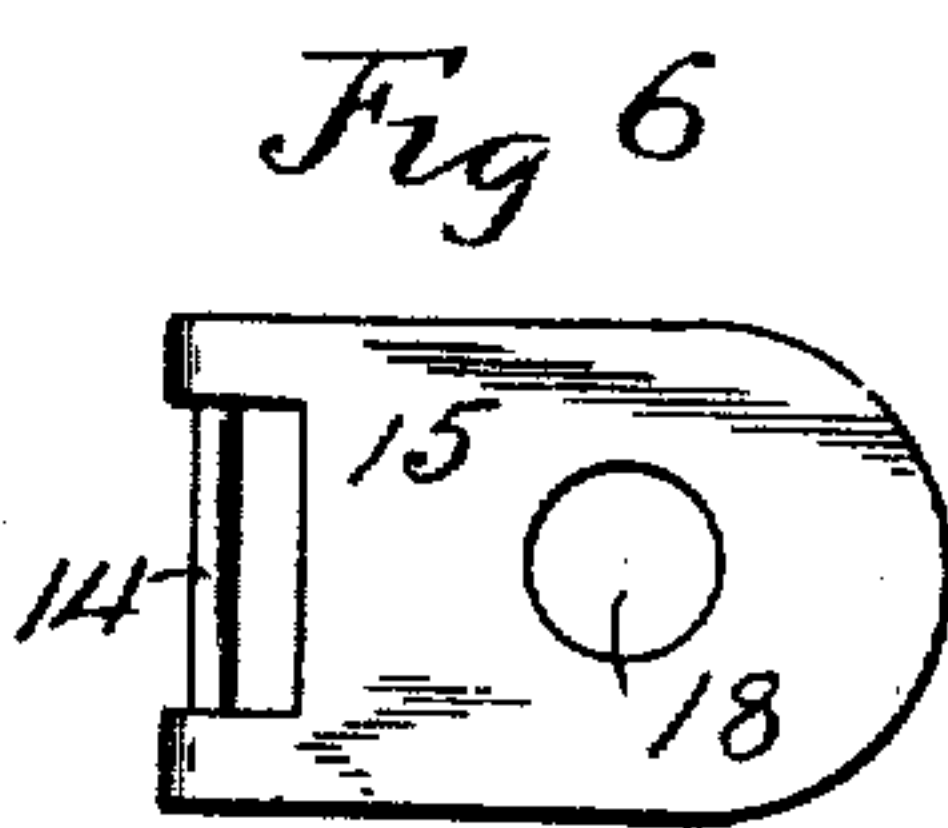
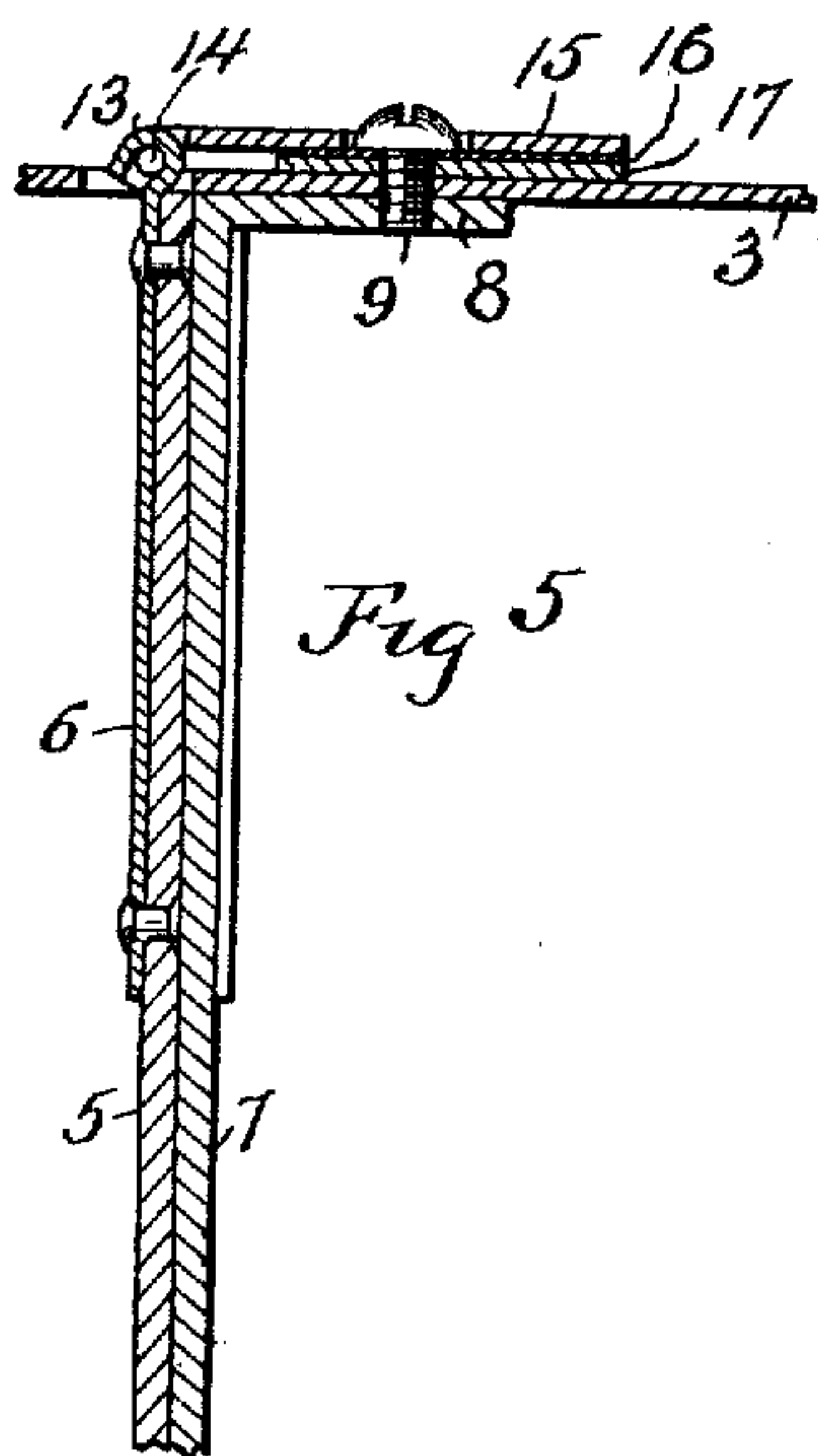
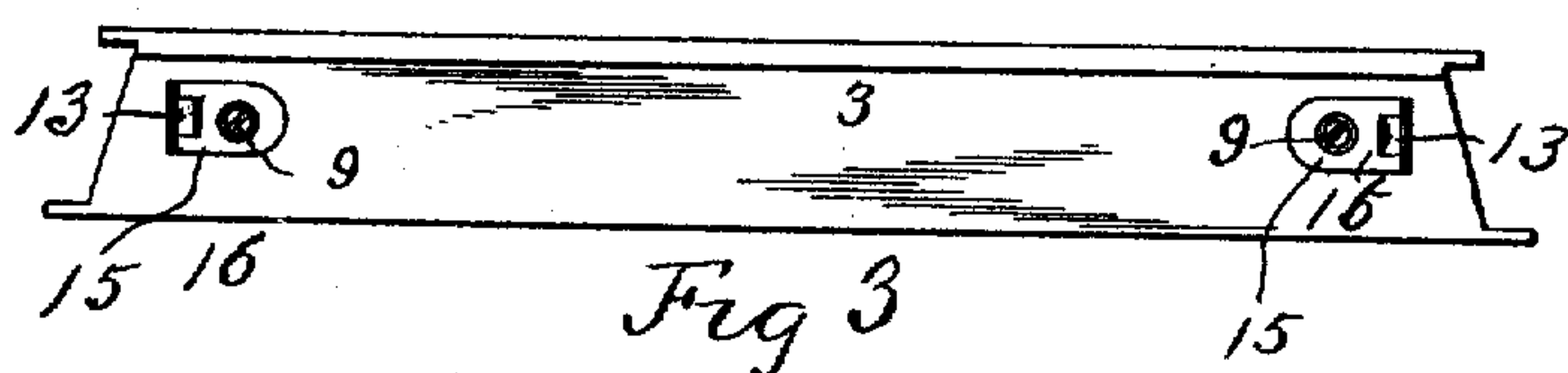
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3 SHEETS—SHEET 3.



Witnesses
R. E. Hamilton
W. C. Lingle.

Henry F. Zahner ^{Inventor}
By Warren D. Stouse,
His Attorney

UNITED STATES PATENT OFFICE.

HENRY F. ZAHNER, OF KANSAS CITY, MISSOURI.

AUTOMATICALLY-CLOSING WINDOW.

No. 842,369.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed July 21, 1905. Serial No. 270,694.

To all whom it may concern:

Be it known that I, HENRY F. ZAHNER, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented new and useful Improvements in Automatically-Closing Windows, of which the following is a specification.

My invention relates to improvements in automatically-closing windows designed for fire protection.

My invention provides a construction of window in which the sash when subjected to a certain degree of heat will be automatically moved from the open to the closed position.

My invention relates particularly to the class of windows in which the sash and frame are made of metal or other incombustible material.

My invention provides a sash movable to and from an open position in the window-frame, counterbalancing means normally tending to move the sash to the open position, said means being released by heat from action on the sash, and means for counterbalancing the weight of the sash and the first-named counterbalancing means, the second-named counterbalancing means serving to force the sash to the closed position when the sash is released by heat from the first-named counterbalancing means.

My invention provides, further, a window in which the sash normally carries two weights, which at a certain degree of heat are released and permitted to drop from the sash, counterbalancing means being provided to offset the combined weight of the sash and weights and serving to close the window by forcing the sash to the closed position when the sash is released from the weights carried by it.

My invention provides, further, the sash vertically slidable in the window-frame, two supporting devices carried by the sash, two weights carried, respectively, by said devices, and means releasable by heat for retaining the devices in the contracted position and preventing the weights from falling.

My invention provides, further, means for limiting the downward movement of the weights carried by the sash, thus preventing possible injury to person or property when the weights are released by heat from the sash.

Other novel features are hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is an outside elevation view of a window constructed in accordance with the principles of my invention, the upper sash being shown in the open position and broken away at one side to disclose one of the weights carried by the sash and the means for supporting it from the sash. Fig. 2 is a view similar to Fig. 1, the upper sash, however, being shown in the closed position, the weights carried by the sash having been released by heat, and the weight-supporting devices in the lower position. Fig. 3 is a top view of the upper sash. Fig. 4 is a perspective view of one of the devices and the weight carried by it. Fig. 5 is a vertical sectional view of the upper end of one of the weight-supporting devices, a part of the window-sash, and the mechanism for retaining the device in the contracted position. Fig. 6 is a top view of one of the links, which is connected to the sash by the material fusible at a low degree of heat. Fig. 7 is a top view of one of the plates secured to the top of the upper sash, and to which one of the links is soldered. Fig. 8 is a horizontal sectional view taken on the dotted line *a b* of Fig. 1.

Similar characters of reference denote similar parts.

In the preferred form of my invention the sash and window-frame are constructed of sheet metal, thus rendering them incombustible.

Referring to the drawings, 1 denotes the window-frame constructed in any desirable manner and provided with suitable side stops 2, serving to guide the vertically-slidable upper sash 3. Two devices are secured at each side of the sash 3, said devices serving normally to support the two weights 4 from the sash 3. Each device comprises two members disposed vertically and slidable lengthwise one upon the other, one member 5 having secured to its lower end the weight 4 and having secured adjacent its upper end a sleeve 6, in which the other member 7 is vertically slidable. The member 7 at its upper end is provided with a horizontal projection 8, secured, by means of a vertical screw 9 or in any other suitable manner, to the inner side of the upper end of the sash. The lower end of each member 7 is provided with a horizontal projection 10, adapted to limit the downward movement of the adjacent sleeve 6 in

the event that the adjacent weight 4 should fall from the sill 11 of the window-frame when the adjacent weight 4 has been released from support by the sash 3. Each weight 4 has a vertical lateral projection 12, vertically slidable in a guide formed in the side of the window-frame by the adjacent stop 2 in connection with the inner side of the frame. Each member 5 at its upper end is provided with a hook 13, adapted to be engaged by the transverse pin 14, secured horizontally in the outer end of a horizontal link 15, secured, as shown in Fig. 5, by a material, such as soft solder 16, fusible at a relatively low degree of heat, to the upper side of a horizontal plate 17, mounted upon the upper end or top of the sash 3 and secured thereto by any suitable means—as, for instance, the screw 9, which extends through a hole provided in the plate 17, also through a hole provided in the sash 3, and which enter a screw-threaded hole provided in the projection 8. Each link 15 may be provided with a vertical hole 18, adapted to receive the head of the adjacent screw 9. I provide suitable means for counterbalancing the combined weight of the sash 3, the weights 4, and parts connected therewith. This counterbalancing means permits the sash 3 to remain in any position as long as the weights 4 are supported by the sash, but when the weights 4 are released from support by the sash this counterbalancing means will exert a pressure sufficient to force the sash 3 to the closed position. This counterbalancing means comprises in its preferable form two ordinary sash-weights 19, vertically slidable in opposite sides of the frame 1 and connected, respectively, to opposite sides of the sash 3 by means of two chains 20, passing over, respectively, two pulleys 21, mounted in the ordinary manner in the opposite sides, respectively, of the frame 1. The two weights 19 are sufficiently heavy to substantially counterbalance the combined weight of the sash 3, weights 4, and mechanism supporting the weights from the sash.

In the operation of my invention, the parts being in the position shown in Fig. 1, sufficient heat from an adjacent fire will fuse the solder 16, thus releasing the links 15 from the plates 17 and permitting the members 5, sleeves 6, and weights 4 to move downward to the positions shown in Fig. 2, in which position the sash 3 will be relieved from the downward pressure of the weights 4, which weights will fall and rest upon the sill 11. The sash-weights 19 being heavier than the sash 3 will force said sash to the position shown in Fig. 2, thus closing the window and preventing fire from passing through it in either direction. The projections 10 on the members 7 are so located as not to be struck by sleeves 6 when the weights 4 fall upon the sill 11. Ordinarily the stops 2 will prevent the weights 4 from falling from the sill 11;

but should they so fall outwardly from the sill the projections 10 will engage the sleeve 6 and limit the further downward movement of the weights 4. This action would of course again cause the weights 4 to be supported by the sash 3; but at such a time the sash would be in the closed position, held there by the sash-weights 19, and no harm would result.

In the event of the solder being fused by heat from an adjacent fire and the links 15 being released from the plates 17, thus permitting the sash-weights 4 to fall, as just described, the said sash-weights 4 may afterward be restored to their original positions, as shown in Fig. 1, and new links 15 attached to the hooks 13 of the members 5, supporting the weights 4, the new links being soldered to the plates 17 with a solder fusible at a low degree of heat—as, for instance, 120° Fahrenheit.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with the sash, of a weight, a weight-supporting means comprising two members, one supporting the weight and the other secured to the sash, the two members being vertically slidable relative to each other and provided with means for limiting the downward movement of the weight, and means releasable by heat for securing the member carrying the weight in the elevated position relative to the sash.

2. The combination with the sash, of a weight, two members slidable one on the other, one carrying the weight and the other secured to the sash, a link supporting the member secured to the weight, and means released by heat for securing the link to the sash.

3. The combination with the sash, of a weight, two members slidable one on the other, one member being secured to the weight and the other to the sash, a link supporting the member secured to the weight and secured to the sash by solder fusible at a low degree of heat, and means for limiting the lengthwise movement of the two members relative to each other.

4. The combination with the window-frame, of the sash vertically slidable therein, two weights carried by the sash and vertically slidable in the window-frame and adapted, when released from the sash, to fall upon and be supported by the sill of the window-frame, means releasable by heat for supporting the weights from the sash and means connected with the window-frame for counterbalancing the combined weight of the sash and said two weights.

5. The combination with the window-frame, of the sash vertically slidable therein, two weights which when released will fall upon and be supported by the sill of the window-frame, two devices secured to the sash

by solder fusible at a low degree of heat, means for supporting said weights from said two devices respectively, and means connected to the window-frame for counterbalancing the combined weight of the sash and said two weights.

6. The combination with the window-frame, of the sash vertically slidable therein, two weights, means releasable by heat for supporting said weights from the sash, means for limiting the downward movement of said weights when they are unsupported by the sash, and means for counterbalancing the combined weight of the sash and said two weights.

7. The combination with the window-frame, of the sash vertically slidable therein, two weights, two members secured respectively one to each weight, means releasable by heat for securing said two members to the sash, two members secured to the sash and upon which the first-named members are vertically slidable respectively, the second-named members being provided with means for limiting the downward movement relative to the sash of the first-named members, and means for counterbalancing the combined weight of the sash and said two weights.

8. The combination with the window-frame, of the sash vertically slidable therein, two supporting devices carried by the sash, each comprising two members one vertically slidable on the other, two weights supported one upon each of said slidable members, means releasable by heat for retaining the slidable members in the raised position, and means for counterbalancing the weight of the sash and said two weights when the slidable members are in the raised position.

9. The combination with the sash, of two vertically-movable weights, two devices each comprising two members one slidable vertically on the other and one supported by the sash, the two slidable members supporting respectively said weights, and means controlled by heat for retaining said slidable members raised, thereby preventing the downward movement of the weights relative to the sash.

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

HENRY F. ZAHNER.

Witnesses:

WARREN L. HOUSE,
HENRY F. ROSE.