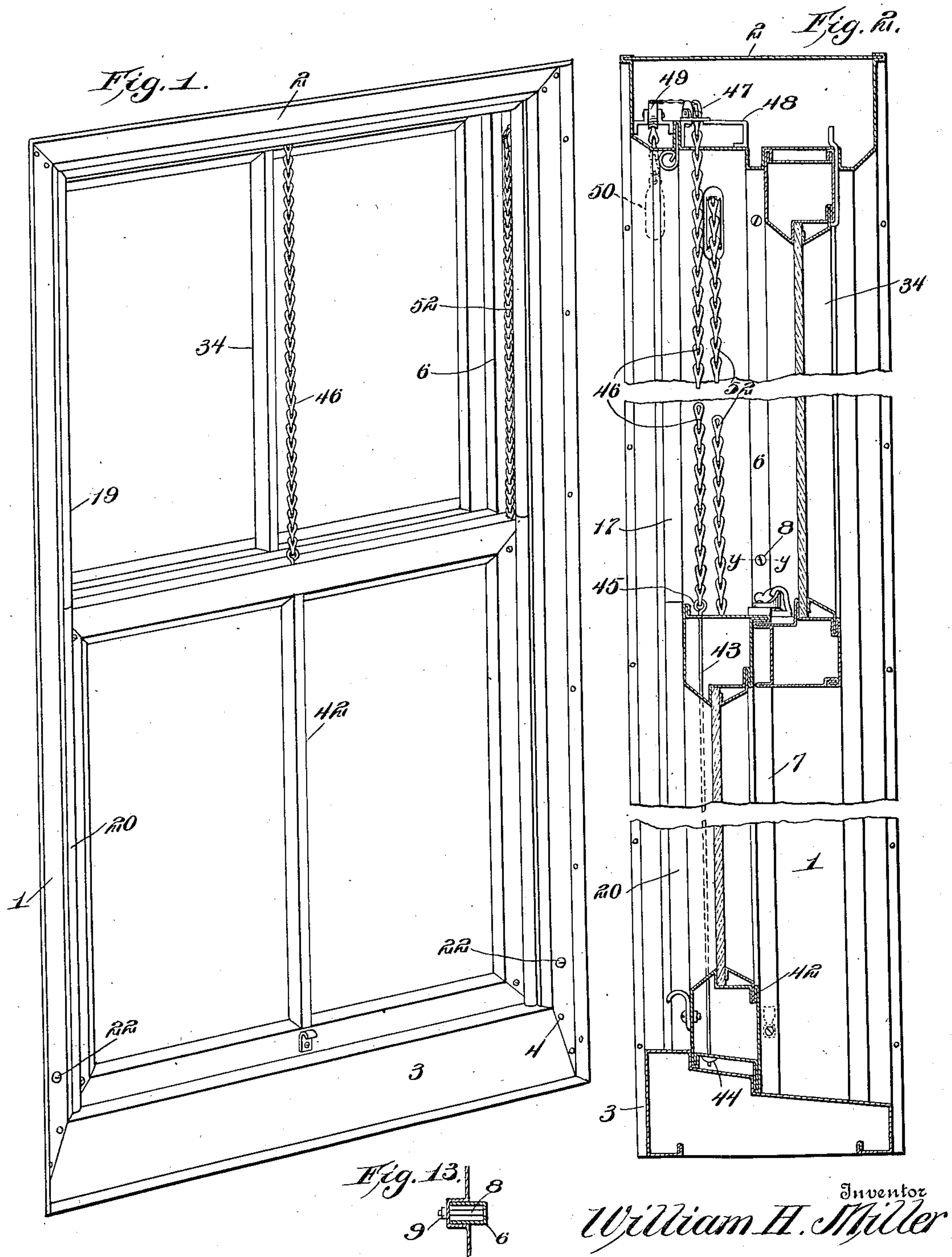


No. 816,242.

PATENTED MAR. 27, 1906.

W. H. MILLER.
FIREPROOF WINDOW.
APPLICATION FILED DEC. 12, 1905.

2 SHEETS—SHEET 1.



Witnesses

Louis R. Kinnicks
Herbert D. Lawson

Inventor
William H. Miller
By W. J. Fitzgerald & Co. Attorneys

No. 816,242.

PATENTED MAR. 27, 1906.

W. H. MILLER.
FIREPROOF WINDOW.
APPLICATION FILED DEC. 12, 1905.

2 SHEETS—SHEET 2.

Fig. 3.

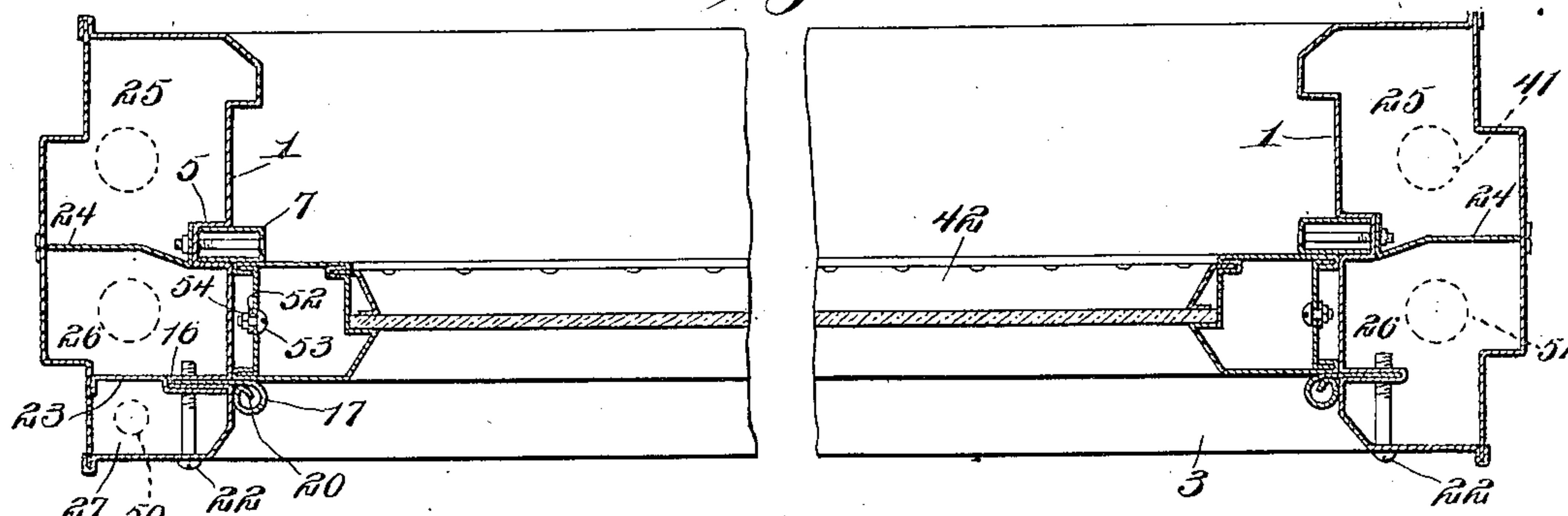


Fig. 4.

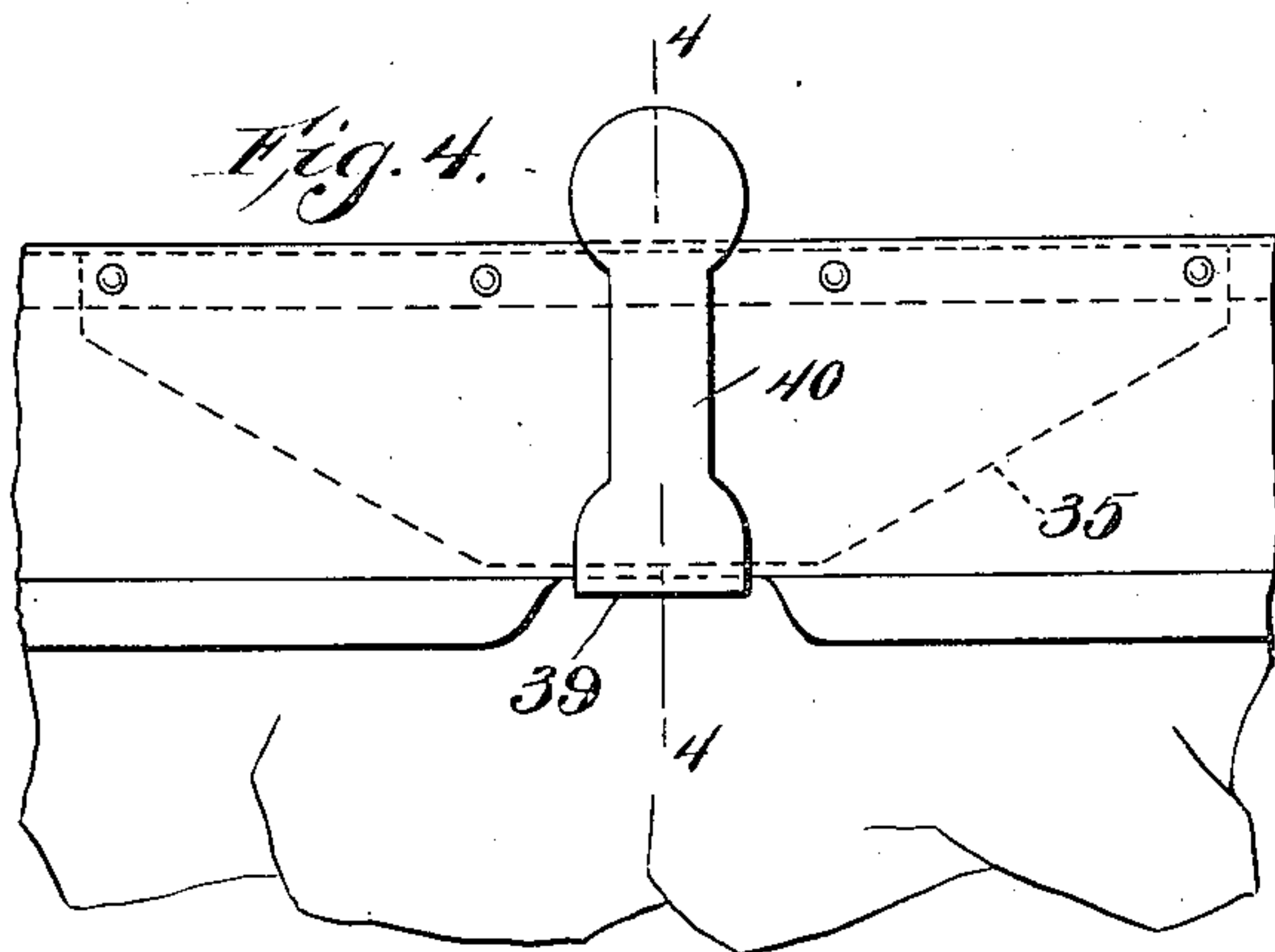


Fig. 8.

Fig. 5.

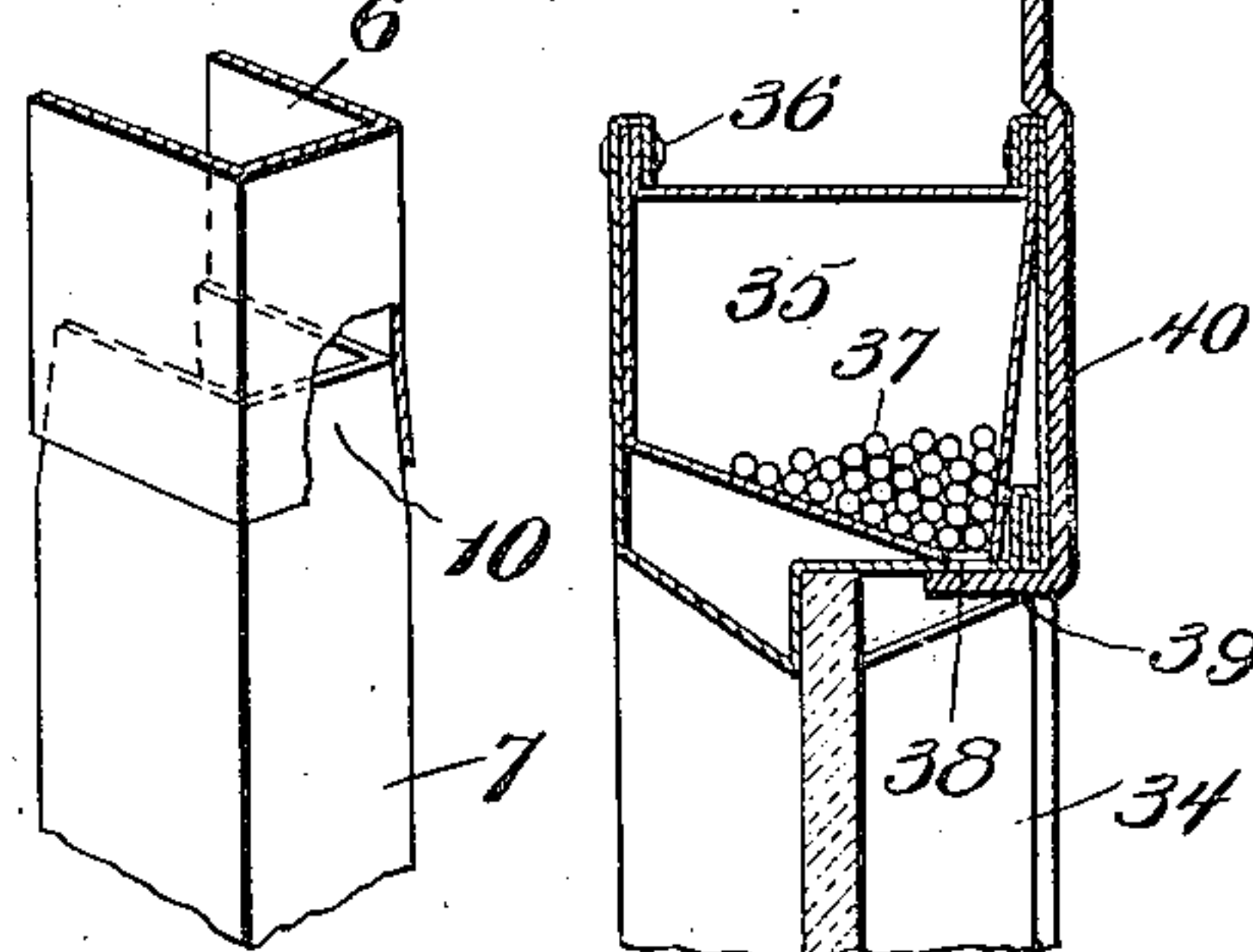


Fig. 6.

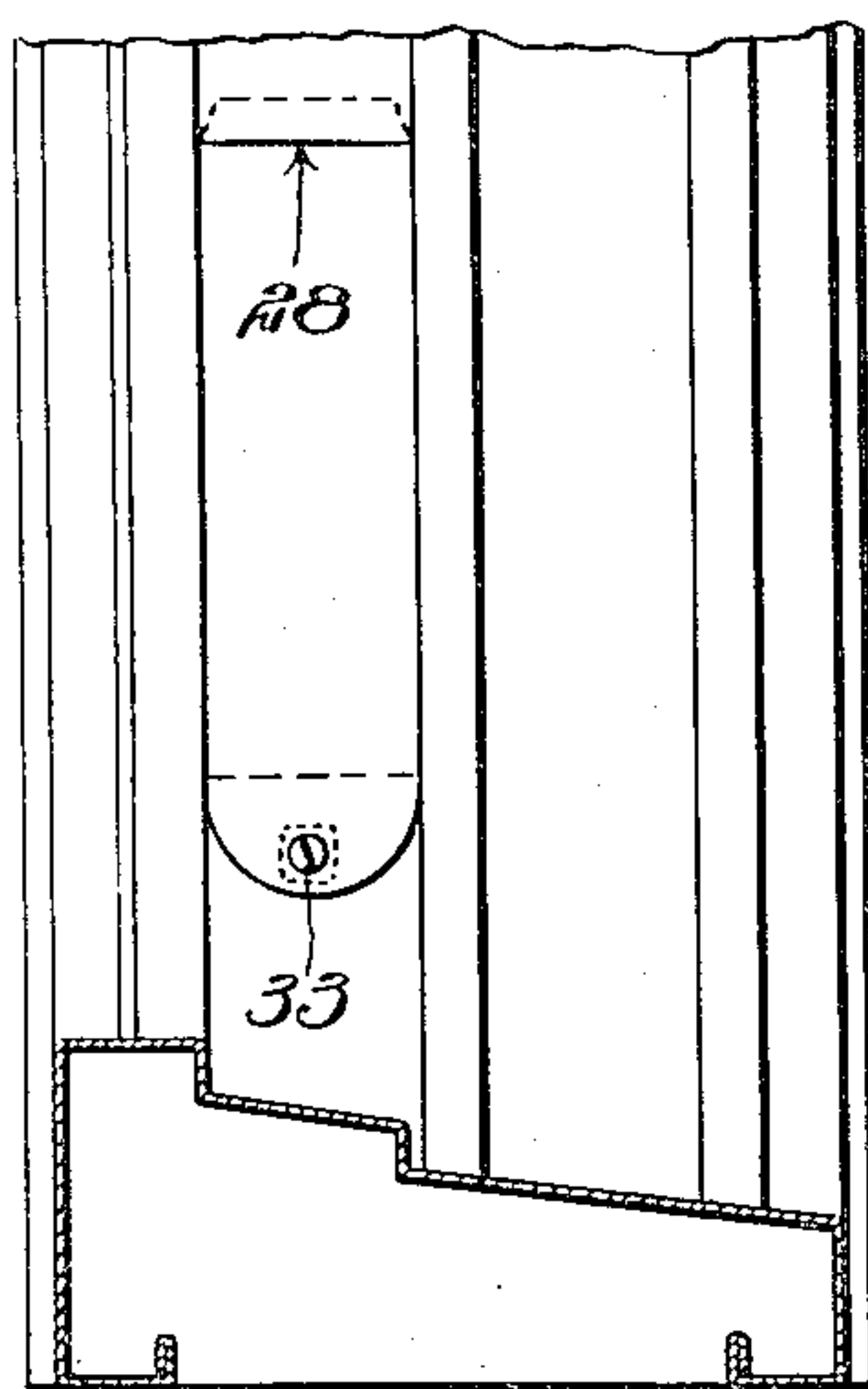


Fig. 9.

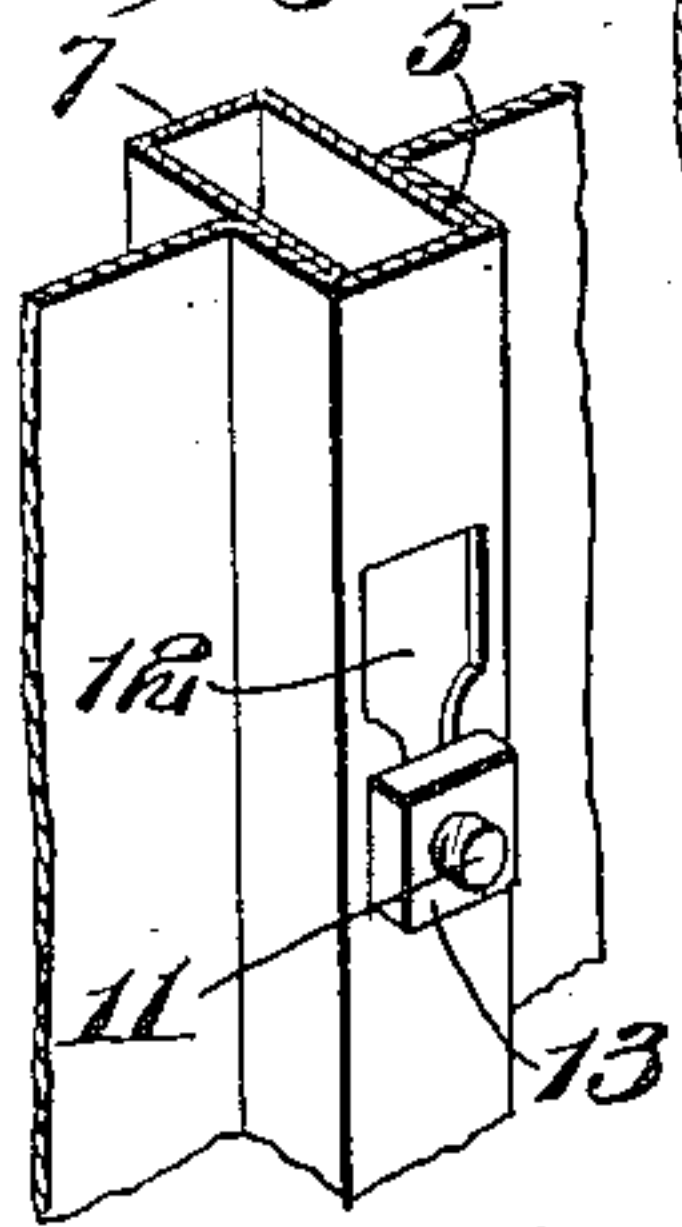


Fig. 10.

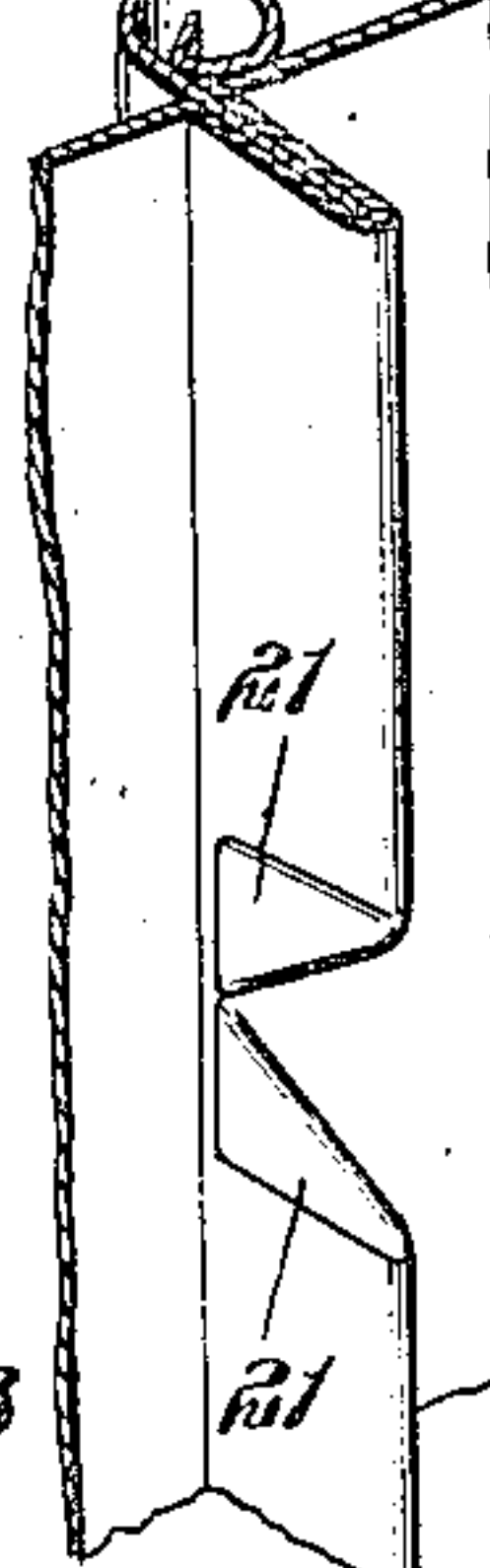


Fig. 7.

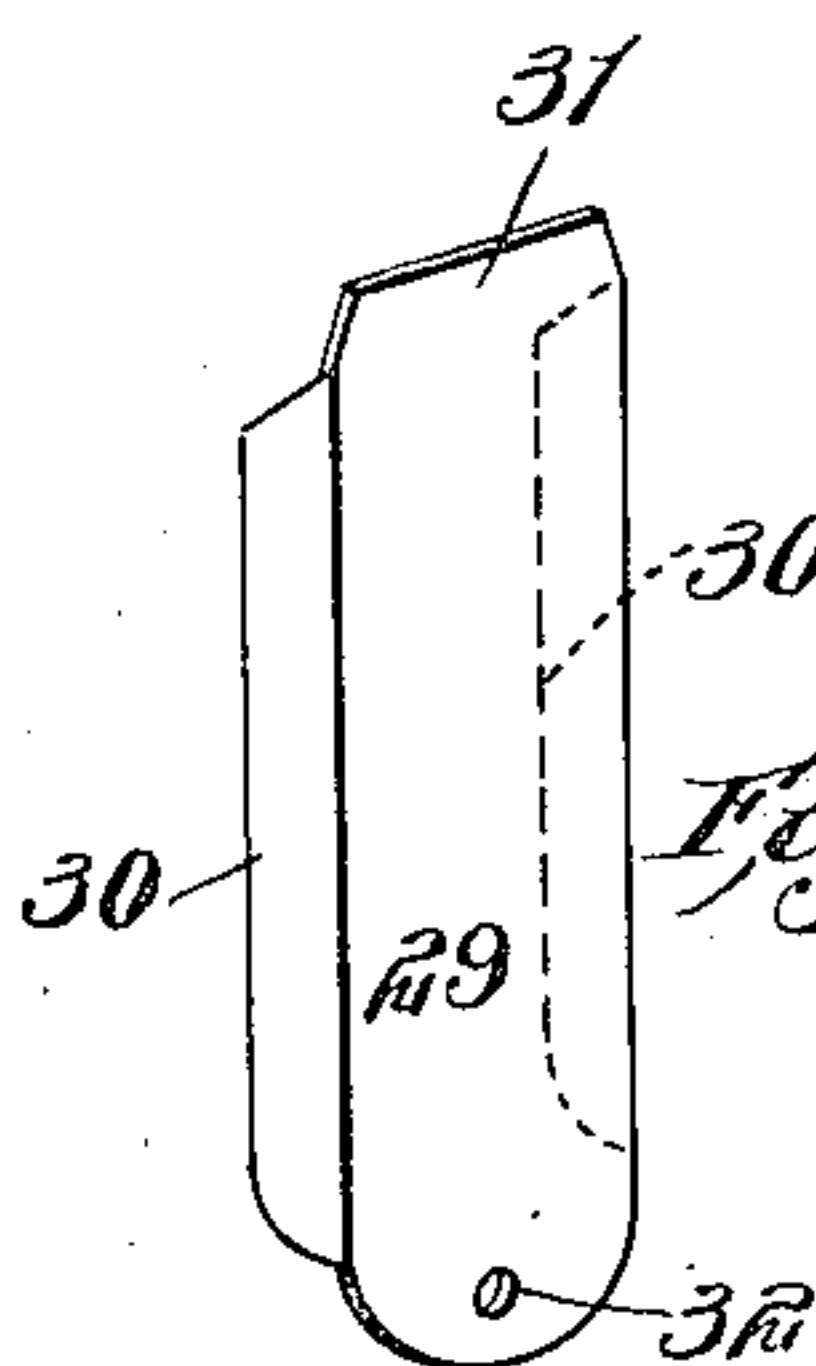
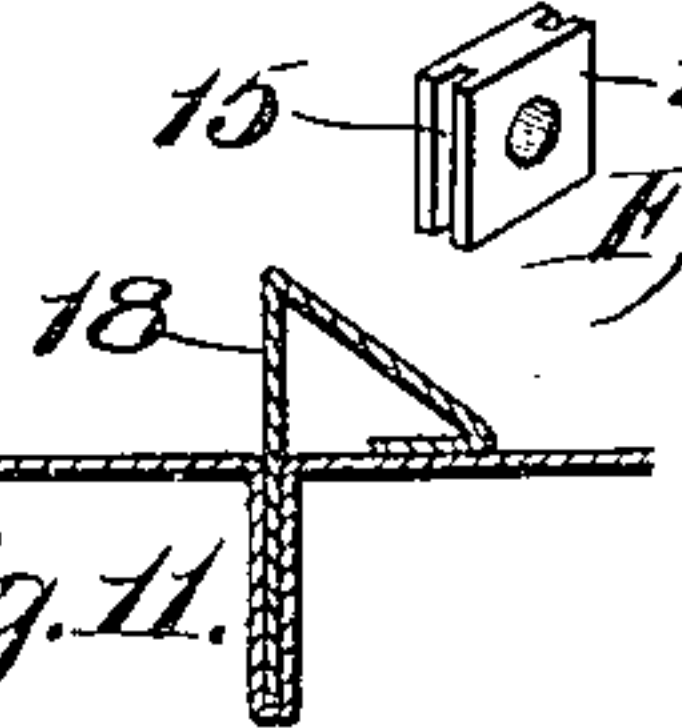


Fig. 11.



Witnesses

Louis R. Kemmicks
Herbert D. Lawson

Inventor
William H. Miller

By W. J. FitzGerald & Co.,
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM HENRY MILLER, OF GALVESTON, TEXAS.

FIREPROOF WINDOW.

No. 816,242

Specification of Letters Patent.

Patented March 27, 1906.

Application filed December 12, 1905. Serial No. 291,443.

To all whom it may concern:

Be it known that I, WILLIAM HENRY MILLER, a citizen of the United States, residing at Galveston, in the county of Galveston and State of Texas, have invented certain new and useful Improvements in Fireproof Windows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in window construction, and it is more particularly an improvement upon the construction disclosed in my application for United States patent filed September 20, 1905, Serial No. 279,317.

The object of the invention is to simplify the construction so that the same can be made at a great reduction in cost.

Another object is to provide means for automatically closing the lower sash when subjected to a predetermined temperature, said sash being prevented from dropping with such violence as to injure it.

With the above and other objects in view the invention consists of certain novel features of construction and combination of parts which will be hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings I have shown the preferred form of my invention.

In said drawings, Figure 1 is a perspective view of a window frame and sashes constructed in accordance with my invention. Fig. 2 is a vertical section therethrough. Fig. 3 is a horizontal section through the lower sash and the adjoining portions of the frame. Fig. 4 is a front elevation of a portion of the top rail of the upper sash and showing in dotted lines the position of the weight-holding receptacle therein. Fig. 5 is a section on line *x x*, Fig. 4. Fig. 6 is a vertical section through the lower portion of the window-frame and showing in elevation the closure in position over the weight-receiving aperture. Fig. 7 is a detail view of said closure. Fig. 8 is a perspective view of the adjoining ends of the fixed and removable section of one of the parting-strips, a portion of the fixed section being broken away to show the end of the removable section therein. Fig. 9 is a perspective view of a portion of the removable section of the parting-strip looking at the same from inside of the window-strip and showing the means for detachably secur-

ing said parting-strip to the window-frame. Fig. 10 is a perspective view of a portion of the window-frame looking at the same from the inside thereof and showing the manner of permanently fastening the bead-strip to said frame. Fig. 11 is a section through a modified form of bead-strip and the adjoining portion of the window-frame. Fig. 12 is a detail view of a nut adapted to be used in connection with the fastening means shown in Fig. 9; and Fig. 13 is a section on line *y y*, Fig. 2.

Referring to the figures by numerals of reference, 1 1 are the sides of the window-frame, and 2 and 3 are the head and sill, respectively, all of said parts being connected at their ends by rivets 4, so that a solidly-constructed frame is produced after the manner described in my application, hereinbefore mentioned.

The inner or adjoining faces of the sides of the window-frame are provided with channels 5, and in each of these channels is disposed a parting-strip formed of two sections 6 and 7, respectively, each of said strips being substantially U-shaped. The upper section 6 is held within the channel by means of bolts 8, which screw into nuts 9, soldered or otherwise permanently fastened inside the side 1 of the window-frame. The upper sections 6 of the parting-strips extend downward to a point close to the center of the window-frame and receive the tapered ends 10 of the lower members 7 of the parting-strips. It is obvious that the upper ends of these members 7 are held securely in place, because they project into the upper members 6. The lower portions of the members, however, are detachably fastened by means of bolts 11, which extend through keyhole-slots 12 in the inner walls of the channels 5 and engage nuts 13, which normally overlap and are soldered to the edges of the contracted portions of slots 12, and therefore prevent the withdrawal of bolts 11. Instead of providing an ordinary form of nut upon the bolts 11, I can use a nut 14, such as shown in Fig. 12, and which has its opposite edges grooved, as shown at 15, to receive the edges of the contracted portion of each slot 12. With this arrangement the nut will be held against rotating, and loosening of the bolt is practically prevented.

Narrow channels 16 are formed within the adjoining faces of the sides 1 for the reception of bead-strips 17. The beads of these strips may be cylindrical, as shown in Figs. 3

and 10, or, if preferred, can be angular, as shown in Fig. 11 at 18. In either case each bead-strip is formed of an upper section 19 and a lower section 20, the upper section being immovably fastened in place by slitting the walls of the channel, as well as that portion of the strip therebetween, and then folding back the walls and strip, as shown at 21 in Fig. 10. The upper sections of the bead-strips are thus permanently secured without the use of solder or other like means.

The lower portions 20 of the bead-strips are adapted to be forced into the channels 16 and can be detachably held by means of bolts 22, which screw through the lower portions of the channels 16 and the strips therein, said screws being inserted into the sides 1 of the frame from the inside faces thereof, as shown particularly in Fig. 3. A partition 23 is located within one of the sides 1 and is riveted or otherwise fastened to one of the walls of said side. Another partition 24 is fastened within each side 1 by means of the bolts 8. It will therefore be seen that one partition is located within one of the sides 1, so as to divide said side into two compartments 25 and 26, while two partitions 23 and 24, respectively, are disposed within the outer side 1 and divide said side into three compartments 25, 26, and 27. The partitions 24 are only employed where the window-frames are very long, and long balance-chains are necessarily employed.

In order that weights may be conveniently connected to the balance-chains, openings 28 are formed in the sides 1 and are of sufficient size to permit an ordinary balance-weight to be inserted therethrough. Each of these openings is located between one of the parting-strips and bead-strips and is adapted to be closed by means of a plate 29, having side flanges 30, which are inserted into the opening and fit snugly against the sides thereof. One end 31 of the plate 29 is inserted under the upper edge of the opening 28, while the opposite end of plate 29 overlaps the lower edge of the opening 28 and has an aperture 32 for the reception of a securing-bolt 33.

Both sashes are constructed after the manner described in my former application, the only exception being that the upper sash 34 has a weight-receptacle 35 in its upper rail, which is secured in place by the same rivets 36 which fasten the parts of the upper rail together. This receptacle is trough-shaped, as shown particularly by dotted lines in Fig. 4, and is adapted to contain a desired quantity of shot 37, adapted to escape through an opening 38, which, however, is normally covered by a fusible closure 39, having a stem 40 extending upward therefrom and above the upper rail of the sash. This upper sash is supported in the ordinary manner by means of balance-weights 41, (shown by dotted lines in Fig. 3,) said weights being con-

nected to the sash by means of chains. (Not shown.) The lower sash 42 has a rod 43 extending vertically through the center thereof, and where a mullion-bar is employed this rod extends therethrough, as shown in Fig. 2, and where no mullion-bar is used the rod is located adjacent one face of the glass. In both instances the lower end of the rod is secured to the bottom of the lower sash by a fusible tip 44, while the upper end of the rod, which projects above the lower sash 42, has an eye 45, to which is secured one end of a chain 46. This chain extends through the head 2 of the frame and over a pulley 47, mounted on brackets 48 within said head, and from this pulley it extends over a second pulley 49 within said head and downward into the compartment 27, where it is connected to a small weight 50.

Ordinary balance-weights 51 (shown by dotted lines in Fig. 3) are connected to the lower sash by means of chains 52, and the weights 50 and 51 combined serve to balance the lower sash and support it in any position to which it may be moved.

The chains 52 are preferably connected to the sashes in the manner shown in Fig. 3, where it will be noticed that the end link of each chain 52 is engaged by the stem of a bolt 53, the head of which is located within the side rails of the sash and is soldered or otherwise fixedly connected thereto, while a nut 54 is disposed on the bolt and serves to clamp the chain-link against the side of the sash.

The partitions 23 and 24 serve to prevent the weights and their chains from becoming entangled, and while the partition 23 is always employed the partition 24 may, as heretofore stated, be dispensed with, except where the balance-chains are of considerable length.

In windows of extremely large size the weights of course can be inserted through openings 28, and in such cases it would be necessary to place them in the sides 1 before the masonry has been built around them.

It is to be understood that under ordinary conditions the sashes are perfectly balanced by their respective weights and can be supported by them in any desired position within the frame.

Should the sashes while open be subjected to a predetermined degree of temperature, the fusible closure 39 will be melted so as to uncover the opening 38, and the shot 37 will escape therethrough and reduce the weight of the upper sash, so that the balances 41 will promptly raise said sash into closed position. At the same time the fusible tip 44 will be melted and release the rod 43 from the lower sash 42. Said sash will therefore be relieved of the support given by weight 50, and as the remaining weights 51 are not sufficient in themselves to support the sash 42

said sash will move downward into closed position, but will be prevented from dropping violently, because it will be retarded by the weights 51.

5 It will of course be understood that various changes in the form and minor details may be resorted to without departing from the scope or spirit of the invention.

What I claim is—

10 1. The combination with a sheet-metal window-frame having channels in the sides thereof and slots in the walls of the channels, each having a contracted portion of a sectional parting-strip in each channel, means
15 for permanently securing one of the sections within the channel, the second section having one end projecting into the permanently-secured section, and means engaging the walls of the slots for detachably securing said second section within the channel.

20 2. The combination with a sheet-metal window-frame having channels in the sides thereof and slots in the walls of the channels, each having a contracted portion of a sectional parting-strip in each channel, means
25 for permanently securing one of the sections within the channel, the second section having one end projecting into the permanently-secured section, a grooved device slidably
30 mounted within the contracted portion of the slot, and means engaging said device for detachably securing the second section within the channel.

35 3. The combination with a sheet-metal window-frame having channels in the sides thereof, of a bead-strip seated within and extending from each channel, the walls of the channel and the strip therein being slit and folded to retain the strip.

40 4. The combination with a sheet-metal window-frame having a channel therein, of a sectional bead-strip within the channel, one of said sections and the walls of the channel adjoining it being slit and folded to hold the
45 section within the channel, and a second sec-

tion of said strip being detachably mounted within the channel.

5. The combination with a sheet-metal window-frame, having a weight-receiving aperture in one side thereof, of a closure comprising a plate having one end adapted to project into the aperture and under one end wall thereof, side flanges upon the plate projecting into the aperture, and an end projection upon the plate adapted to overlap and to be
55 secured to the other end wall of the aperture.

6. The combination with a sheet-metal window-frame, of a parting-strip adapted to be secured thereto and comprising channeled sections, one of said sections having a reduced
60 end adapted to be inserted into the other section.

7. The combination with a window-frame having partitioned sides forming compartments, and pulleys within the head of the
65 frame, of a sash within the frame, a rod slidably mounted therein, fusible means for holding the rod against movement in the sash, balances within the frame and permanently connected to the sash, a chain connected to
70 the rod and extending over the pulleys into one of the compartments, and an auxiliary weight suspended in said compartment by the chain.

8. The combination with a sheet-metal
75 sash having a top rail formed of interlocking metallic strips; of a trough-shaped receptacle in the top rail of the sash and having an opening in the bottom thereof and through the bottom of the rail, the edges of said re-
80 ceptacle being permanently secured within the interlocking portions of the rail; and a fusible closure for the opening.

In testimony whereof I have signed my name to this specification in the presence of
85 two subscribing witnesses.

WILLIAM HENRY MILLER.

Witnesses:

W. B. KINKEAD,

JAMES J. MONTGOMERY.