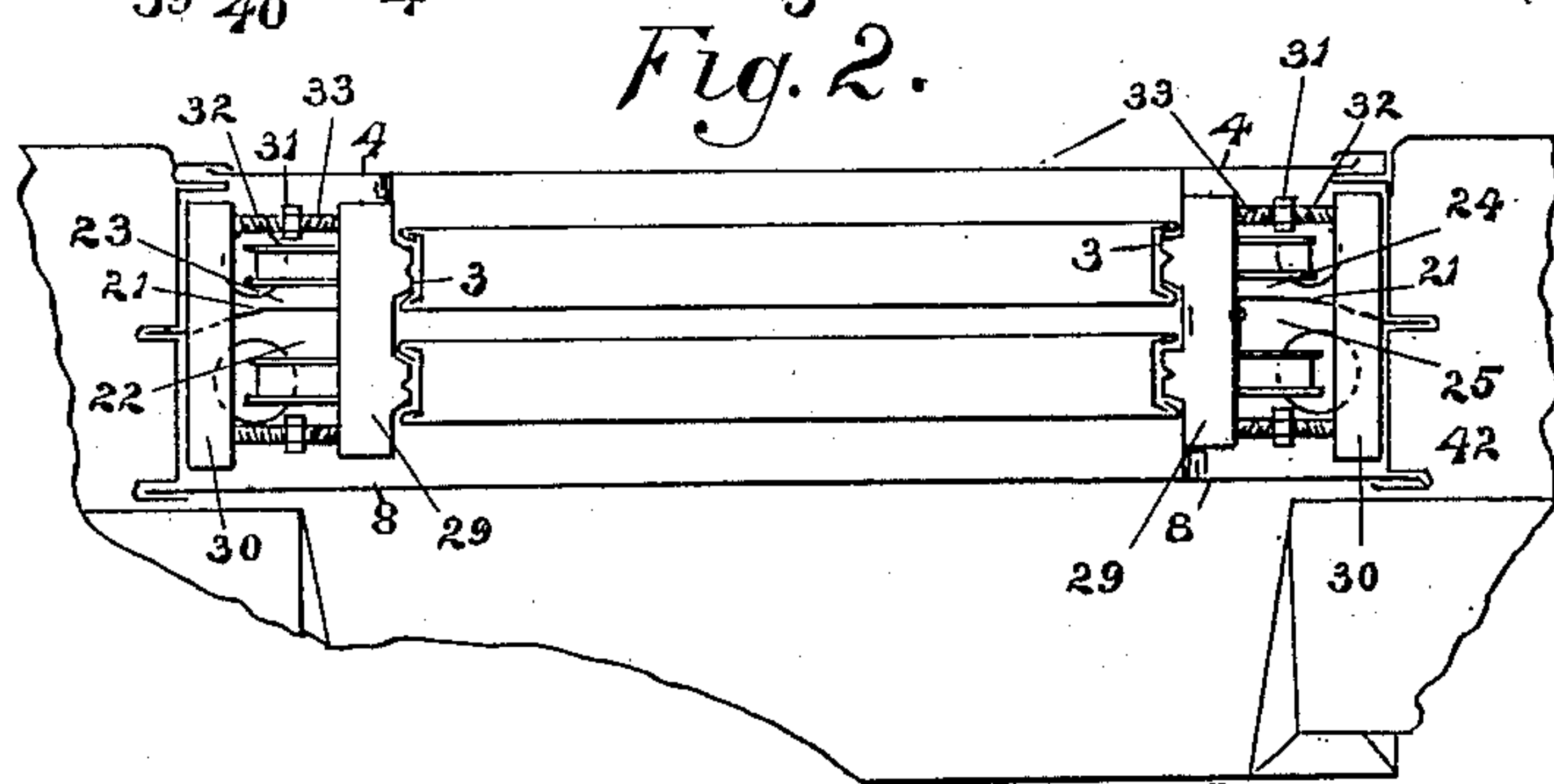
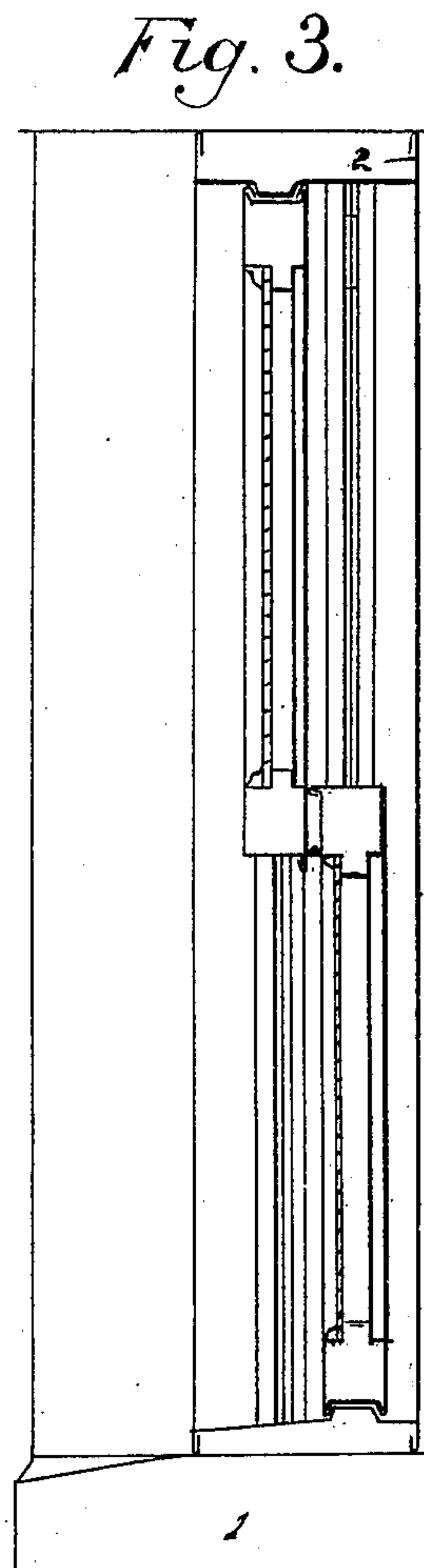
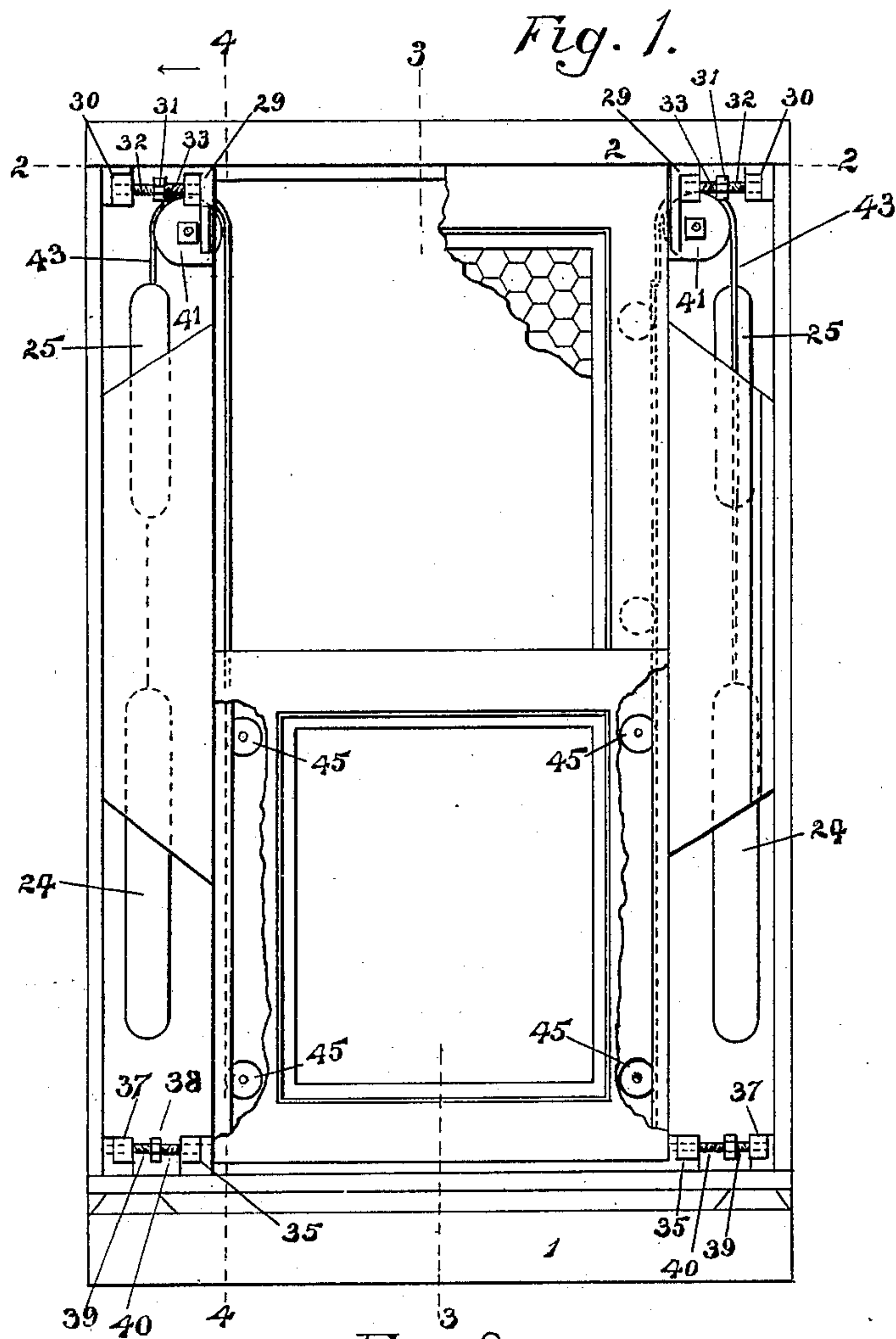


O. E. CLUSS.
WINDOW.

APPLICATION FILED AUG. 2, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



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NO MODEL.

3 SHEETS—SHEET 2.

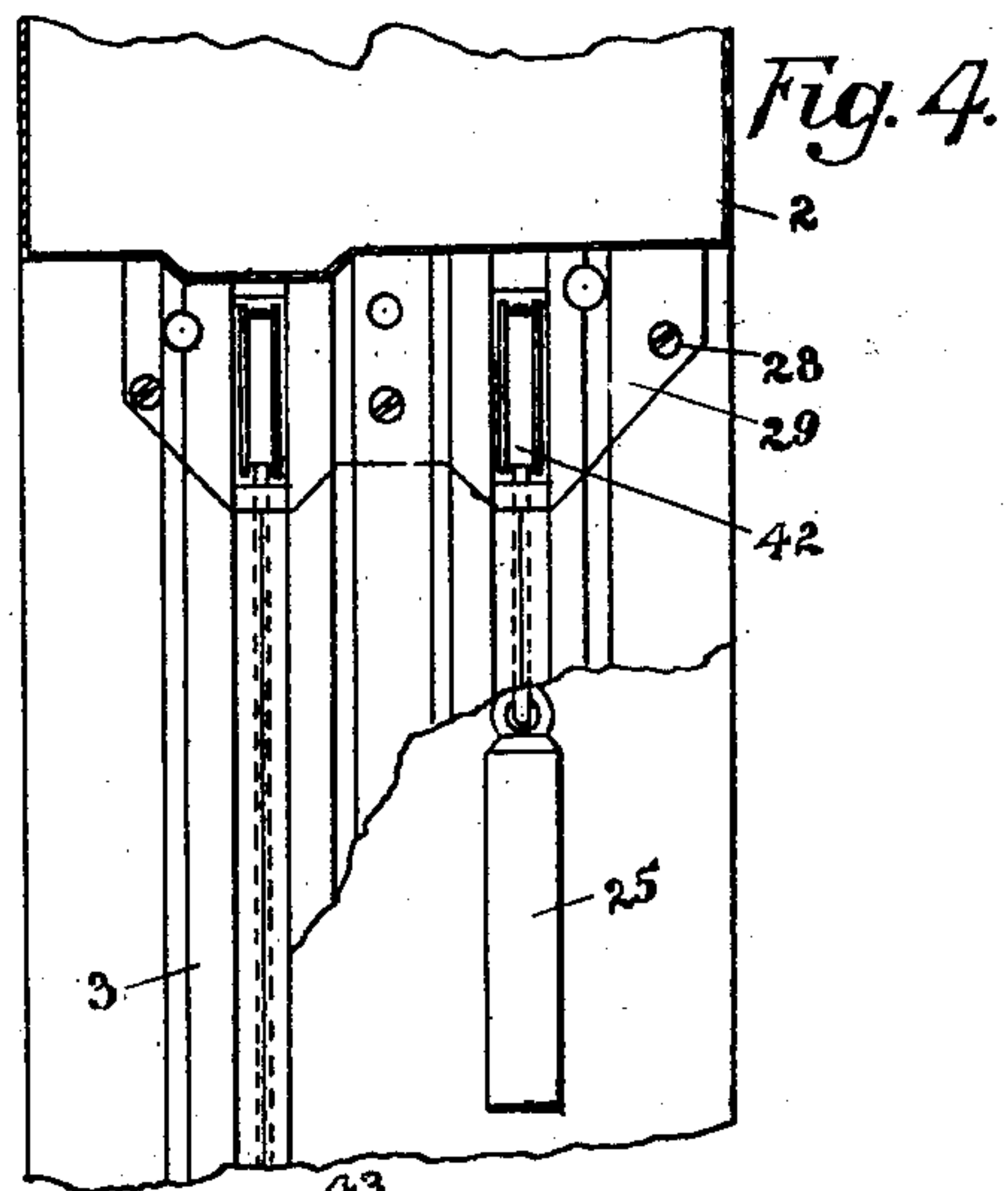
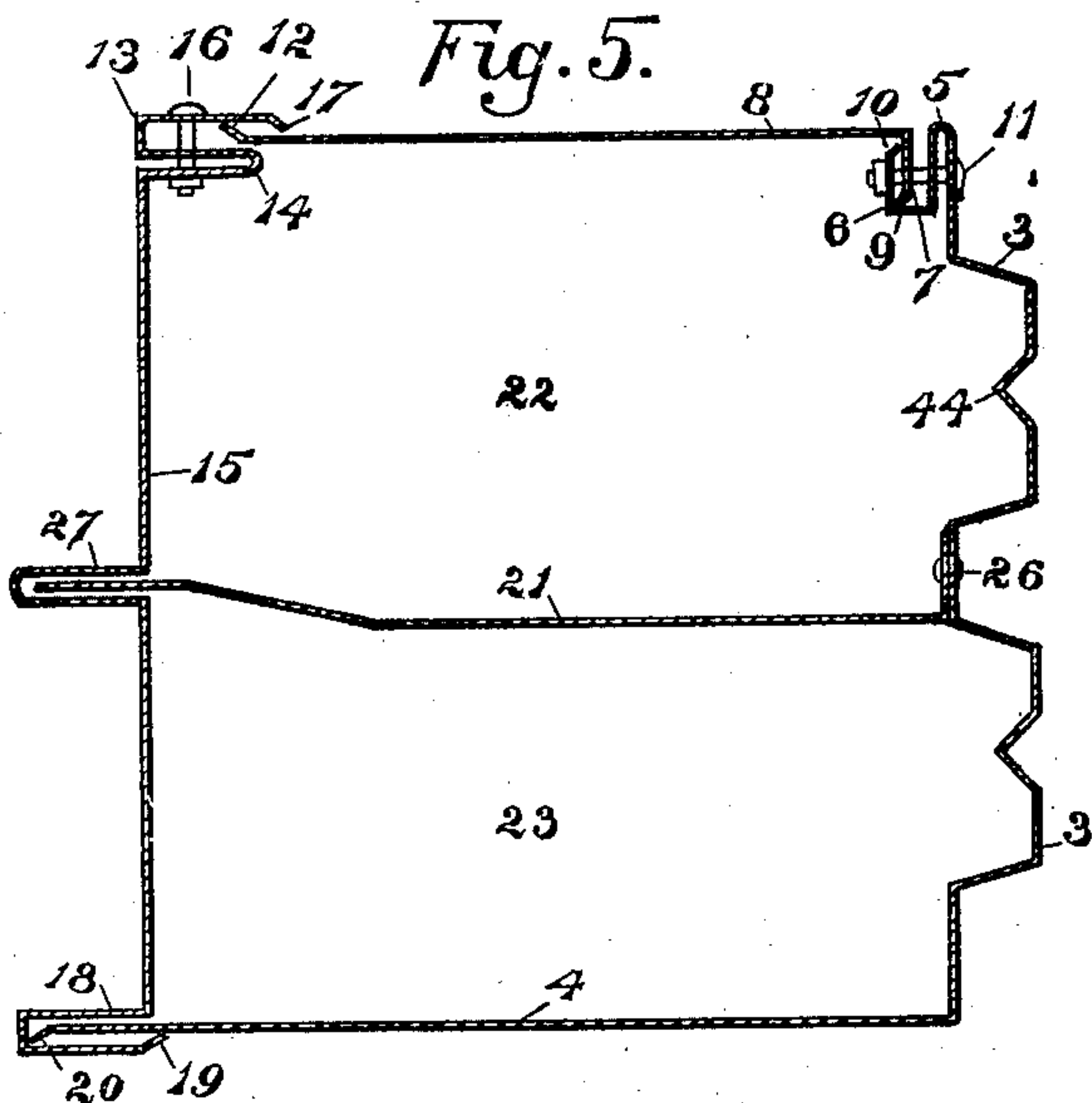


Fig. 6.

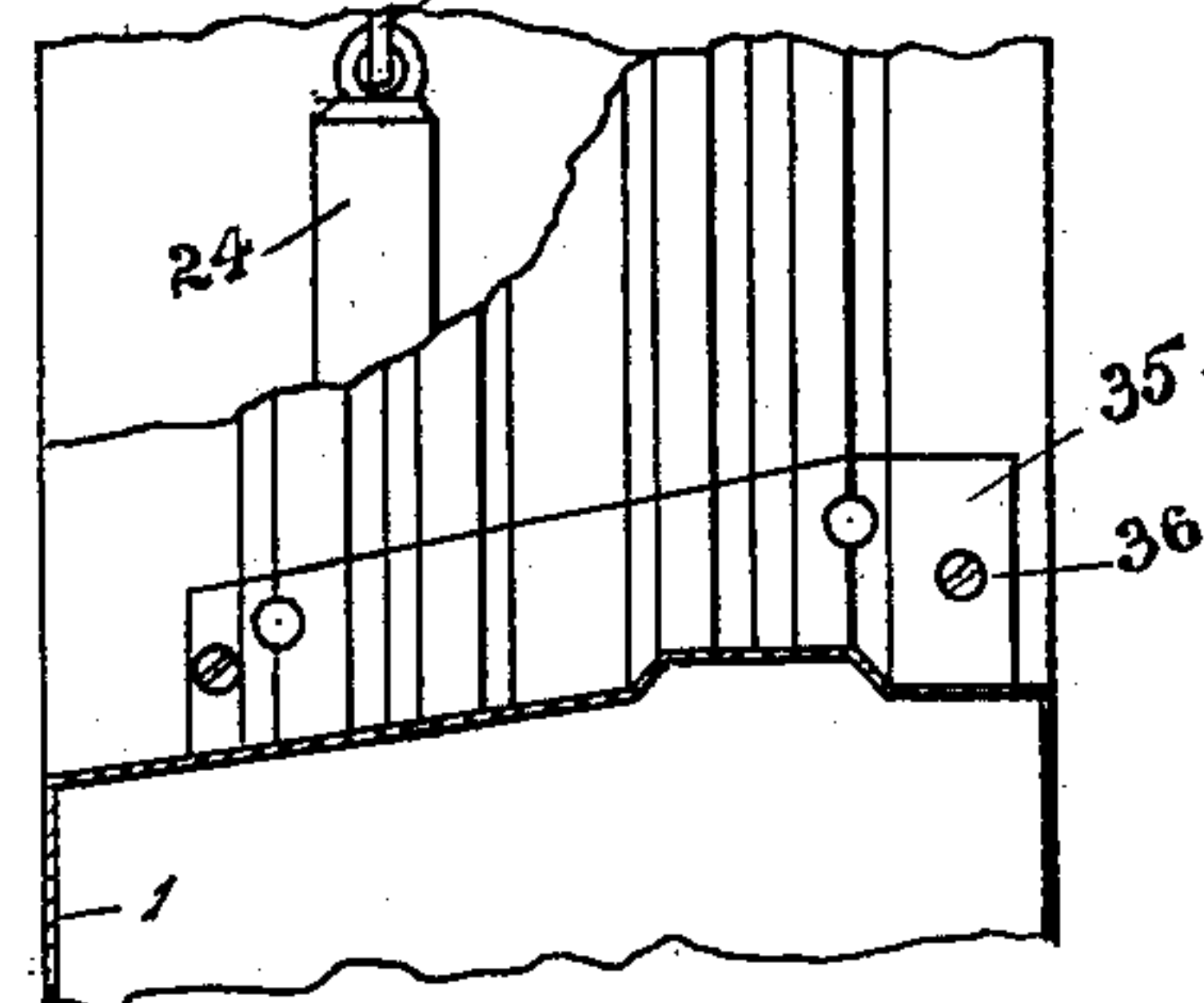
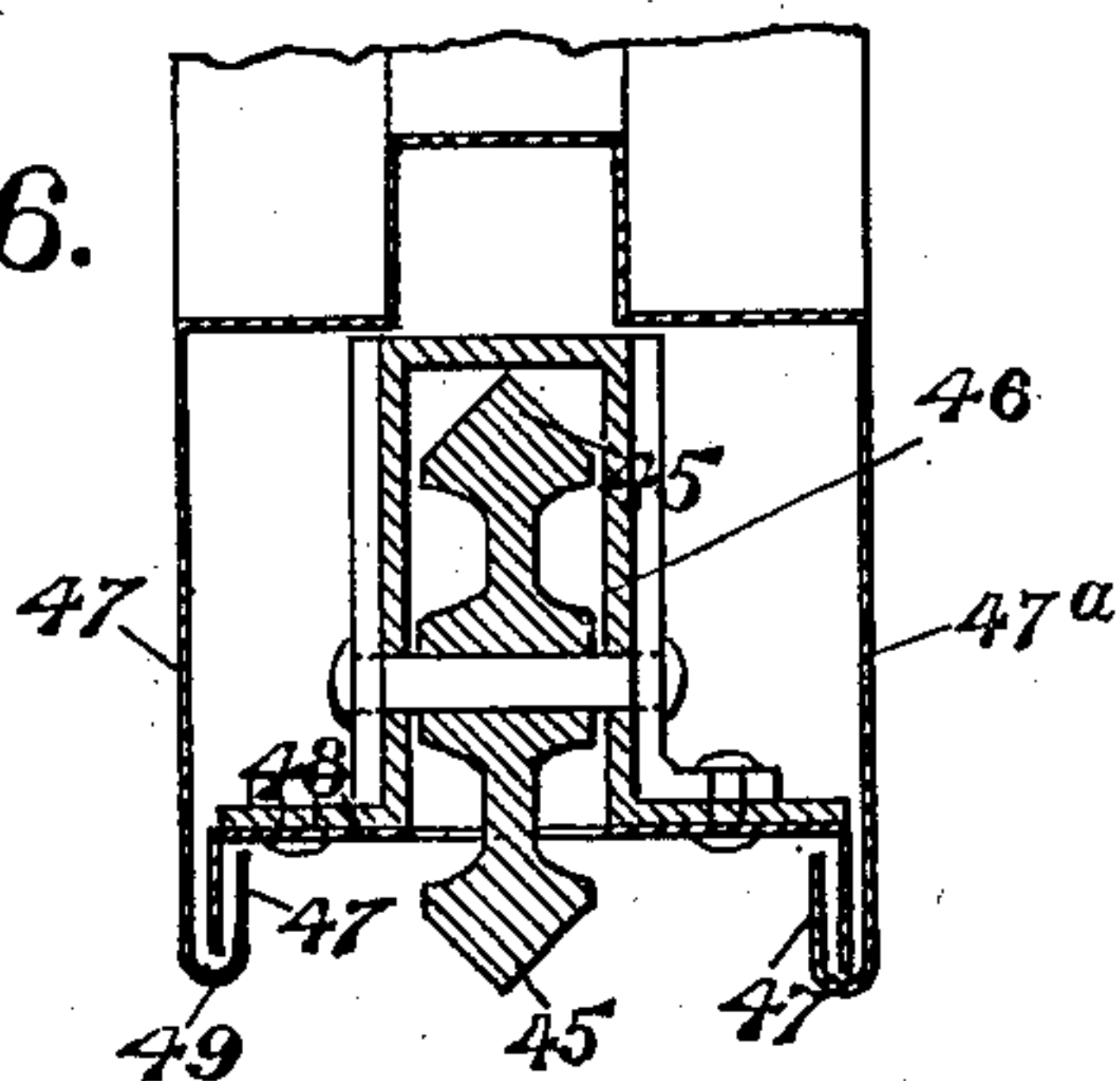


Fig. 7.

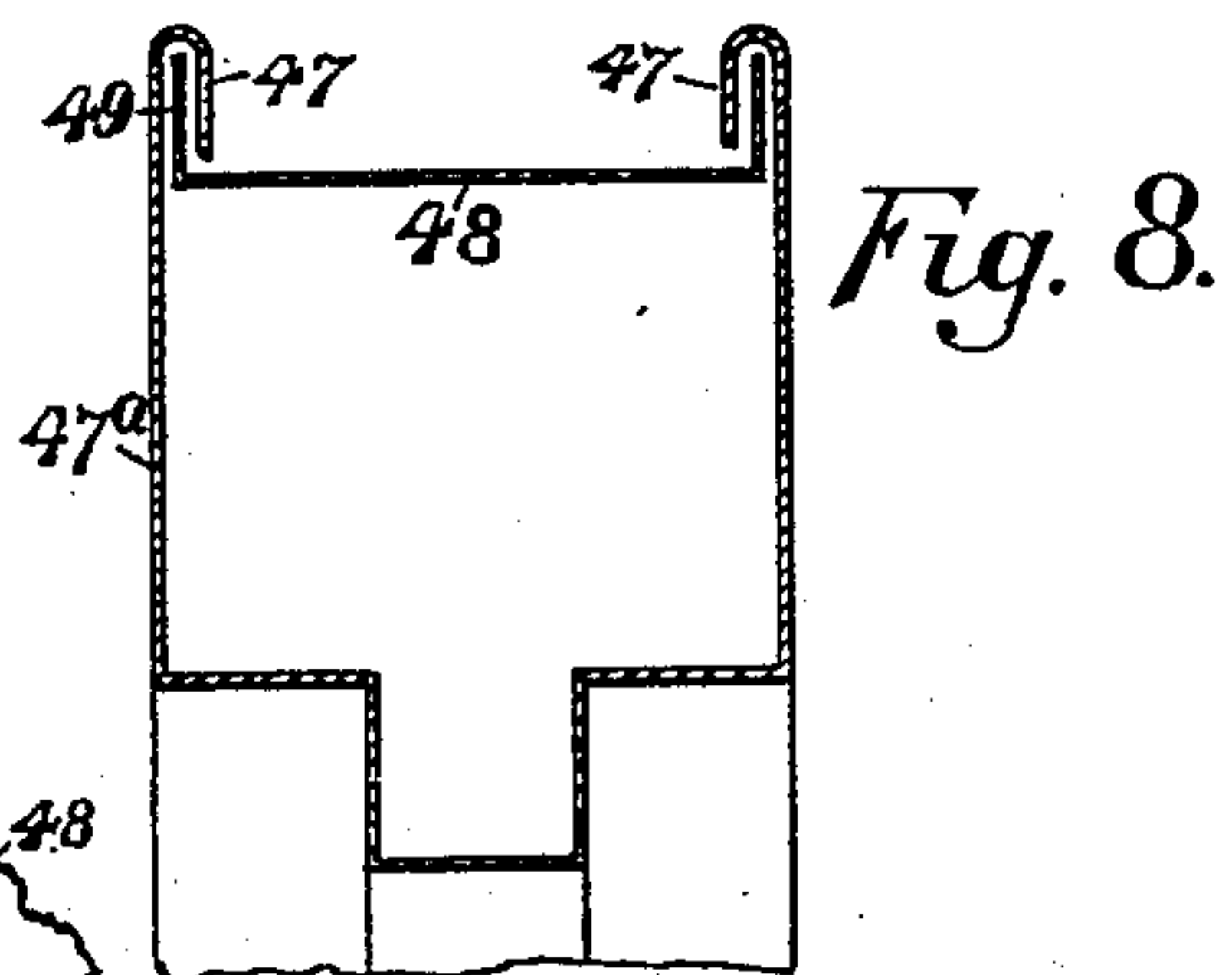
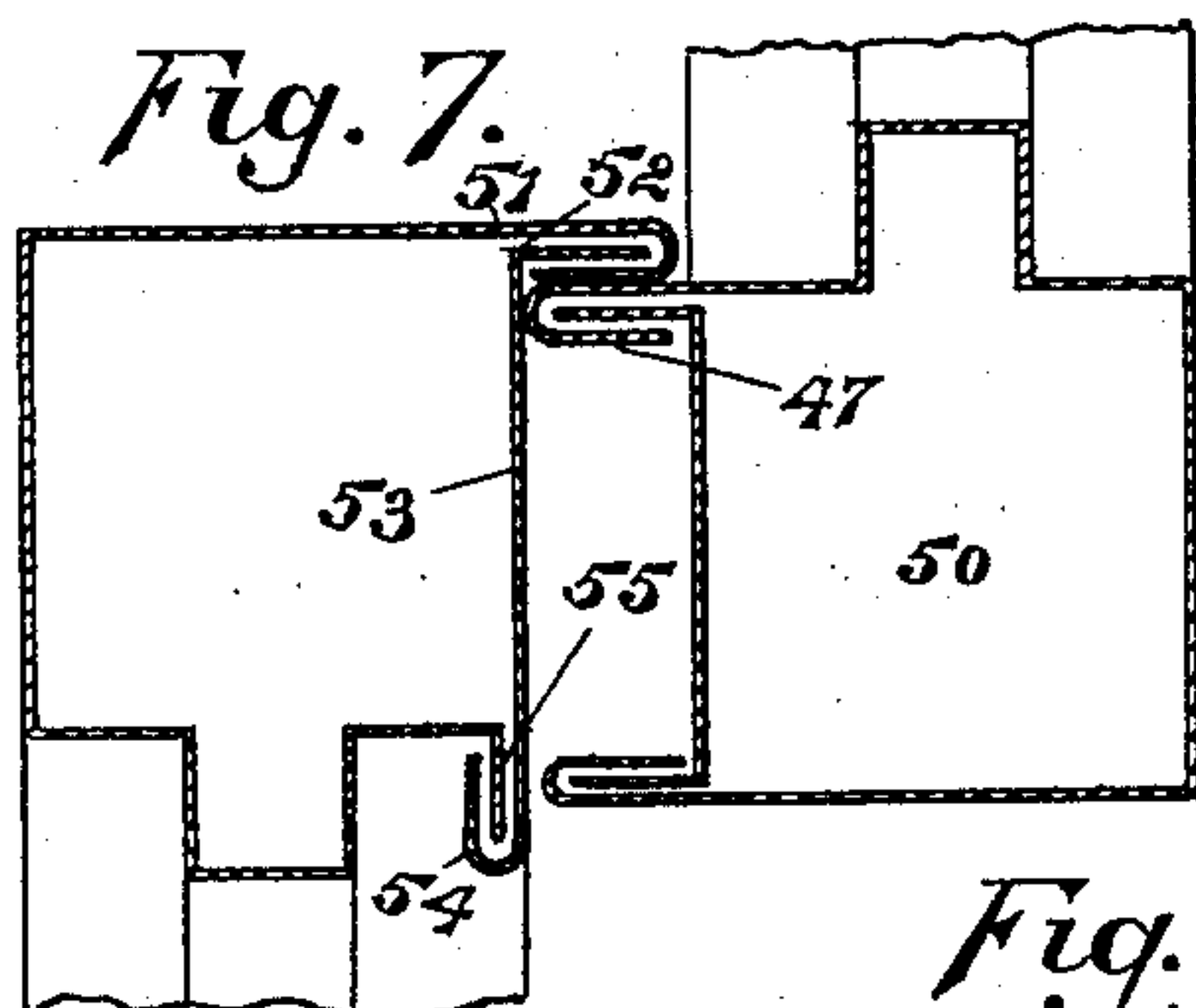
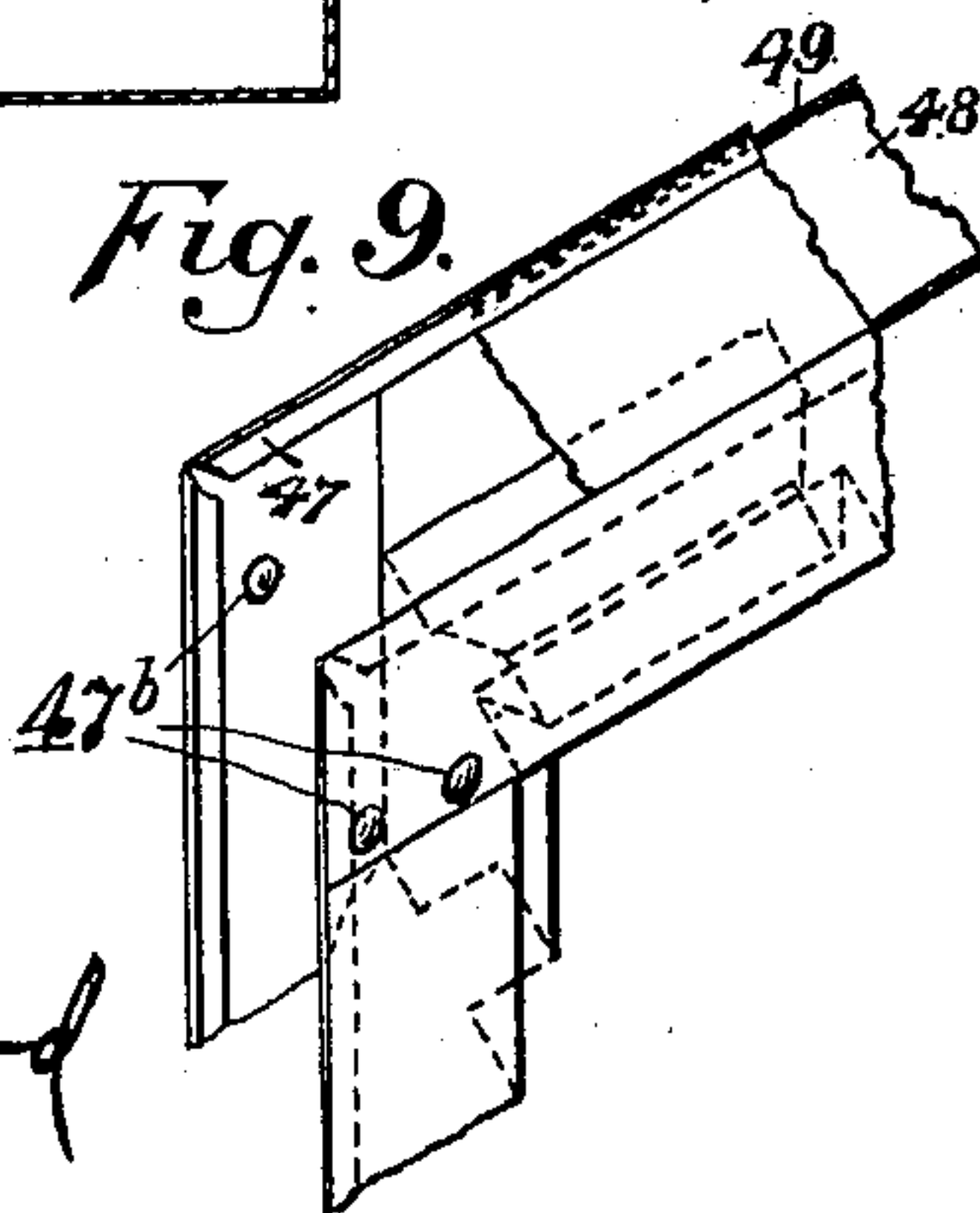


Fig. 9.



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No. 754,425.

PATENTED MAR. 15, 1904.

O. E. CLUSS.
WINDOW.

APPLICATION FILED AUG. 2, 1902.

NO MODEL.

3 SHEETS—SHEET 3.

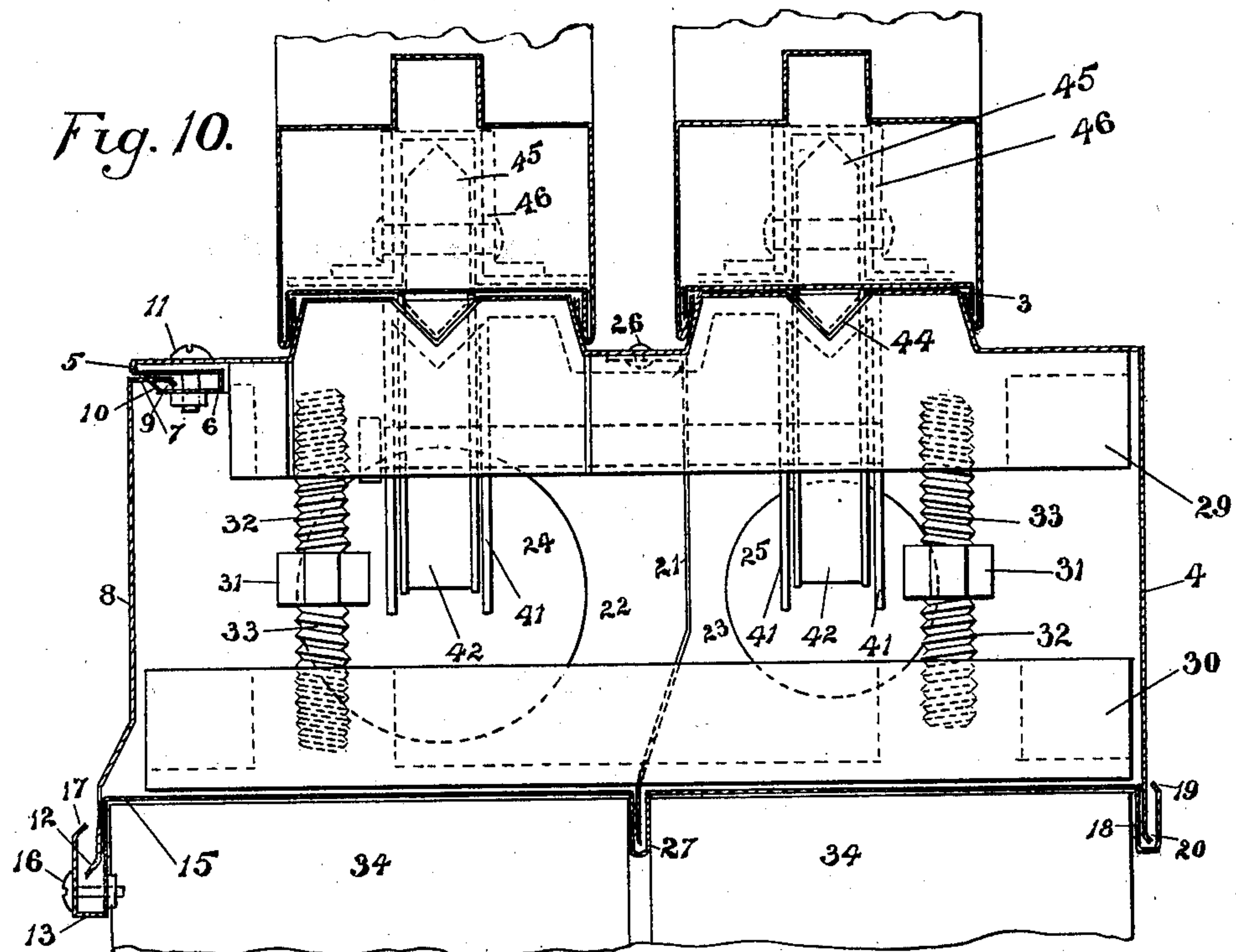
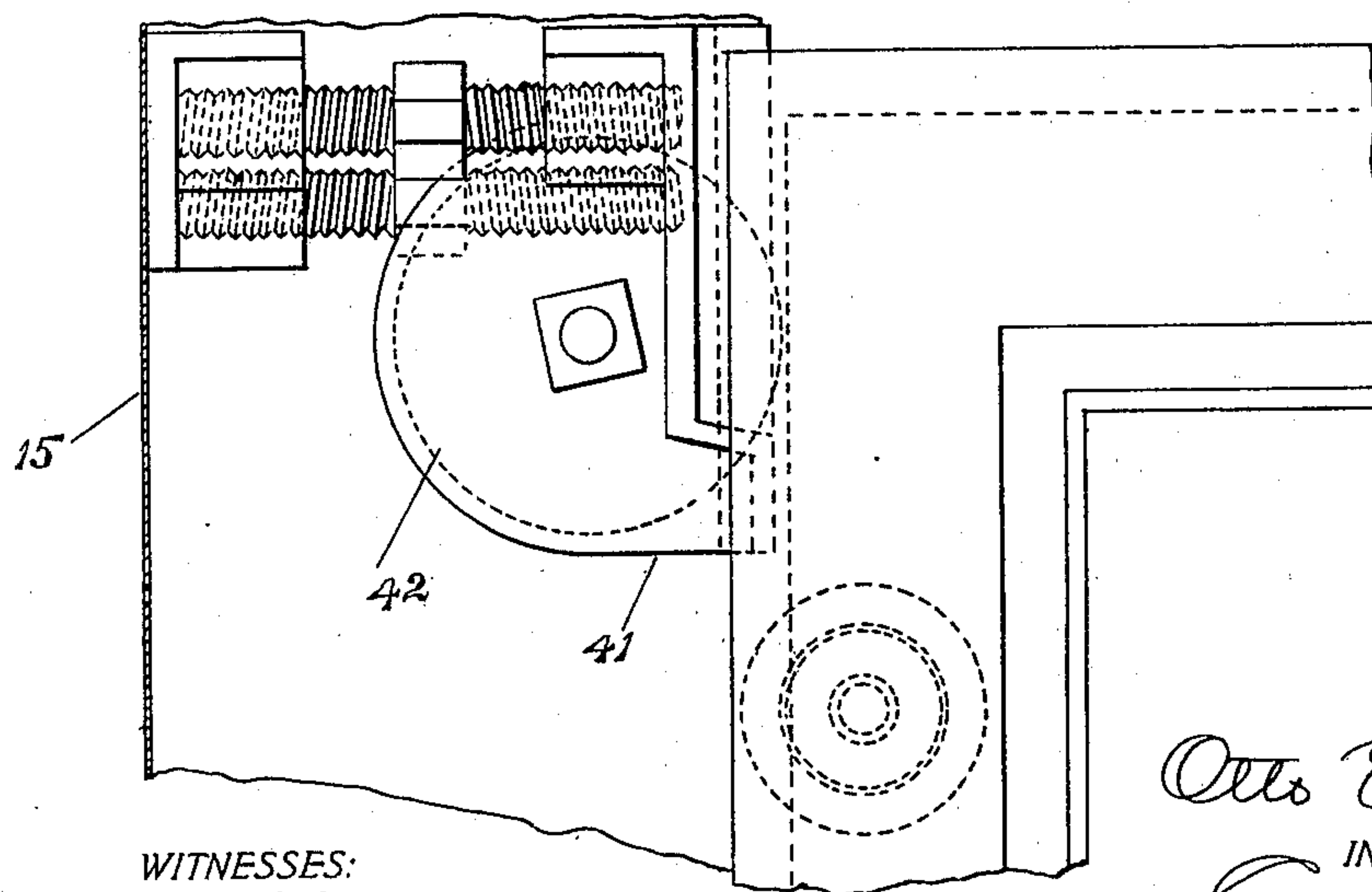


Fig. 11.



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UNITED STATES PATENT OFFICE.

OTTO E. CLUSS, OF ST. LOUIS, MISSOURI.

WINDOW.

SPECIFICATION forming part of Letters Patent No. 754,425, dated March 15, 1904.

Application filed August 2, 1902. Serial No. 118,038. (No model.)

To all whom it may concern:

Be it known that I, OTTO E. CLUSS, a citizen of the United States, residing at 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 specification.

My invention relates more particularly to metallic or sheet-metal windows especially adapted for fireproof buildings; but, as will hereinafter appear, some features of my invention are also applicable to other forms of windows.

One of the objects of my invention is to provide improved means for adjusting the pulley-stile and sash relatively, so that if for any cause it may be found necessary after the sash is put in place to move the stile laterally in order to compensate for the settling of the building or for miscalculation it may be conveniently accomplished and the sash caused to accurately fit therewith.

Another object of my invention is to provide guide-rollers between the sash and the pulley-stile or some other part of the window-frame for guiding the sash in its rising and falling movements and relieving it of undue friction against the stile or frame and at the same time holding the sash from being pushed in or out.

Another object of my invention is to provide improved and simple means for the attachment of the guide-rollers to a metallic sash whereby the rollers may be secured to the edges of the sash before the edges are put in place and when in place will serve as a housing for partially inclosing the rollers and their supporting brackets or bearings.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a front elevation of my improved window, partly broken away. Fig. 2 is a plan view thereof with the top or head of the window-frame removed.

Fig. 3 is a vertical sectional view taken on the line 3 3, Fig. 1. Fig. 4 is an enlarged vertical section on the line 4 4, Fig. 1, with the sash removed, the middle portion being broken away. Fig. 5 is an enlarged transverse section of one side of the window-frame. Fig. 6 is an enlarged transverse section of one of the vertical bars of the sash. Fig. 7 is a transverse section of the upper and lower horizontal bars of the upper and lower sash, respectively. Fig. 8 is a transverse section of the upper bar of the upper sash. Fig. 9 is a perspective view of one corner of the sash with the edge strip withdrawn. Fig. 10 is an enlarged plan view of the sash and the upper end of one side of the frame, showing the means for adjusting the pulley-stiles at the head; and Fig. 11 is a side or face elevation thereof.

The sill 1 and head 2 of the window-frame may be constructed in the usual or any suitable way; but in the example of the invention shown in the drawings they are composed of sheet metal bent to the proper form. The sides of the frame, which constitute the stiles, the back lining, and the stile-pockets for the sash-weights, are preferably constructed of sheet metal, as shown at Fig. 5, which illustrates one side, the opposite side being the duplicate of this. In this construction of frame the pulley-stiles are shown as composed of a sheet or strip of metal bent outwardly or embossed in the form of a truncated cone in cross-section, as shown at 3, one of these cones for each of the stiles which extend vertically throughout the height of the side members of the window-frame. One edge or side of this aforesaid sheet of metal is bent at right angles to the pulley-stile, as shown at 4, constituting one face of the frame, while the opposite side is bent inwardly against itself in a return-bend 5 and thence outwardly again to constitute a small U-shaped socket 6, with the opening thereof presented outwardly, and in this socket engages an intumed end or edge 7, formed on one edge of a plate or sheet 8, the inner edge of the bend 7 and the outer edge of one branch of the U 6 being provided with flanges or lugs 9 10, respectively, turned toward each other, so that after bend 7 has been inserted in the socket 6 it will be held against

withdrawal by the engagement of these lugs or flanges 9 10, the sides of the U or socket 6 being subsequently clamped together against the bend 7 by means of a bolt or rivet 11.

5 The other vertical edge of the plate or strip 8 is provided with a flange or lug 12, which is inserted in a U-shaped socket formed by two return-bends 13 14, extending throughout one of the vertical edges of the back lining 15, the return-bends 13 14 being likewise provided with bolts or rivets 16 passing through them for clamping the flange or lug 12 and preventing the same being pulled outwardly past a similar lug or flange 17, formed along the outer edge of one branch of the return-bend 13.

15 The free end of the bend 4 on the opposite side of the frame is inserted in a U-shaped socket or return-bend 18, formed on this edge of the back lining 15 and having at its free end or edge a lug or flange 19, turned inwardly to engage a similar lug or flange 20, turned outwardly along the vertical edge of the bend 4.

20 21 is a parting-strip or partition for dividing the window-frame into two pockets 22 23 for the sash-weights 24 25, respectively. One edge of this partition or parting-strip 21 is secured by rivets 26 to the pulley-stiles, while the inner edge is received by a socket 27, constituted by a return-bend in the back lining 15.

25 30 By the means described it will be seen that the pulley-stiles are capable of a considerable range of adjustment with relation to the back lining 15 after the window-frame has been put in place by virtue of the sockets 13, 18, and 27, and consequently the pulley-stiles may be adjusted at the top or at the bottom, or at both top and bottom, as may be necessary, to cause them to fit properly against the sash. This adjustment may be effected in any suitable way, by hand or by mechanism, but preferably by the mechanism which I have shown in the drawings and which will now be described. Secured to the head of the pulley-stile against the inner face thereof by means of rivets or screws 28 or any suitable devices

35 40 45 50 55 60 65

is a casting 29, which preferably conforms to the truncated-cone shape of the stiles, as better shown in Fig. 10, and directly opposite this casting 29 is arranged a casting 30, which is secured in any suitable way to the upper end of back lining 15. Between these castings extend set-screws 31, access to which may be had through the openings in the side of the frame (see Fig. 1) before said openings are closed, provided with right and left threads 32 33, threaded in castings 29 and 30, respectively, so that when they are rotated in one direction the castings will be forced asunder and in the opposite direction will be drawn together; but the back lining 15 having firm abutment against the brick or masonry jambs 34 the casting 29 alone will undergo motion, and consequently the pulley-stile may be adjusted as desired at the head or upper end.

In order that the pulley-stile may be like-

wise adjusted at the sill or lower end a casting 35 is secured thereto adjacent to the sill 1 by means of screws or rivets 36, and opposite this casting is located a casting 37, which is secured to the back lining 15, the two castings 35 37 being connected together by set-screws 38, having right and left threads 39 40 threaded in the castings 37 35, respectively, for forcing them apart or drawing them together, and thereby adjusting the pulley-stiles at the sill. The upper castings 29 also carry brackets 41, in which the pulleys 42 for the sash-weight ribbons or cords 43 are journaled, so that as the pulley-stiles are adjusted the pulleys will undergo like adjustment.

As better shown in Figs. 5 and 10, the pulley-stiles are provided with vertical grooves 44, which are preferably V-shaped, and in these grooves run guide-rollers 45, journaled in suitable brackets 46, supported on the sash in any suitable way.

The peripheries of the rollers 45 are V-shaped also or complementary in shape to the shape of the grooves in the pulley-stile, whereby the rollers will not only serve as anti-friction devices for relieving the sash of undue friction, but will perform a more important function of guiding the sash and holding the same against inward and outward movement.

The bars constituting the sash or the outer frame portion thereof are preferably composed of sheet-metal, and the pulley-brackets 46 are housed within the vertical bars, so that the peripheries of the pulleys will project through into engagement with the grooves 44 in the pulley-stiles. The sash may be best constructed as shown in Figs. 6 to 9, inclusive. From Fig. 9 it will be seen that the faces of the sash-bars are constituted by plates or strips whose edges are formed with inturned flanges or bends 47, and the edges of the sash-bars are constituted by separate strips 48, having outturned bends or flanges 49, which are adapted to engage in the sockets constituted by the bends 47, as shown more clearly in Figs. 6 and 9, the strips 48 being inserted endwise after the face members 47^a of the sash-bars have been secured together at the corners by rivets 47^b or any other suitable means. Hence it will be seen that the brackets 46 for the guide-rollers 45 may be riveted or otherwise secured to the inner faces of the strips 48 and the latter then inserted into place, the horizontal strips 48 being inserted afterward. This construction also produces at the edges of the sash two outwardly-projecting flanges, as clearly shown in Figs. 6 and 10, which embrace the embossed truncated cone-shaped stiles 3, and thereby make the window dust and weather proof.

The construction of sash just described has reference to the vertical side rails or bars of both sash and to the horizontal bars at the lower end of the lower sash and the upper end of the upper sash; but the two horizontal bars

at the meeting ends of the sash are preferably constructed as shown in Fig. 7. In this figure it will be seen that the lower horizontal bar 50 of the upper sash is constructed substantially the same as the vertical bars, excepting that the intumed flanges 47 are on the side or face instead of on the edge, and the upper one of these return-bends of flanges 47 constitutes the lock edge of the upper sash.

10 The horizontal top rail of the lower sash is formed by two strips, one of which has a horizontal return-bend 51, constituting the lock edge of the lower sash, which overlaps the lock edge of the upper sash, and in this return-bend 51 engages an angle 52, formed on a strip 53, which constitutes one face of the horizontal top rail of the lower sash and which has at its lower end a return-bend 54, embracing an angle 55, extending downwardly thereinto from the lower edge of the piece on which the return-bend 51 is formed.

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

25 1. In a window the combination of a pulley-stile and a sash, one of said parts being provided with V-shaped vertical grooves, and antifriction-rollers on the other having V-

shaped peripheries engaging in said grooves, substantially as set forth. 30

2. In a window the combination of hollow sash-bars comprising separate strips forming the outer edges thereof, roller-brackets secured to the inner sides of said strips within said hollow bars, rollers journaled in said brackets and projecting through said strips and a window-frame having a part against which said rollers run for guiding the sash, substantially as set forth. 35

3. In a window the combination of a sash, a pulley-stile, and set-screws operatively connected to the upper and lower ends of said pulley-stile for adjusting the same relatively to the sash, substantially as set forth. 40

4. In a window the combination of a sash, a pulley-stile having a compressible socket at one side thereof, a strip having a flange embraced by said socket, constituting one face of the window-frame, and a back lining having a compressible socket at one edge receiving and embracing said strip, substantially as set forth. 45 50

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Witnesses:

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