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PATENTED NOV. 22, 1904.

J. BOGENBERGER.
METALLIC WINDOW FRAME AND SASH.

APPLICATION FILED NOV. 23, 1903.

NO MODEL.

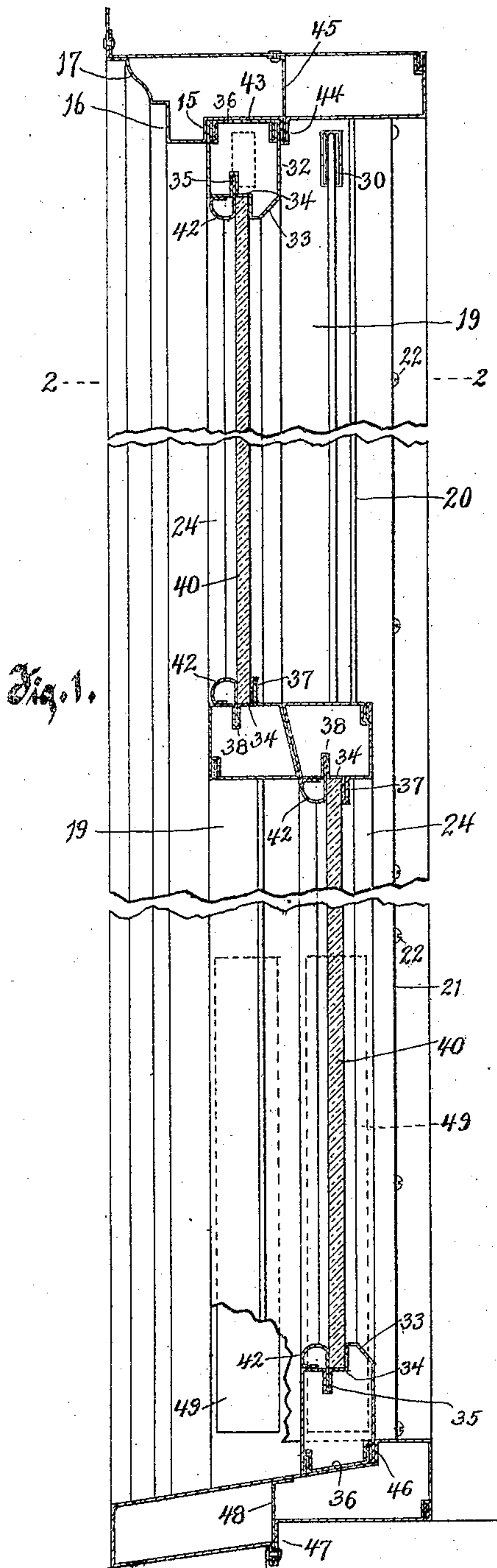


Fig. 1.

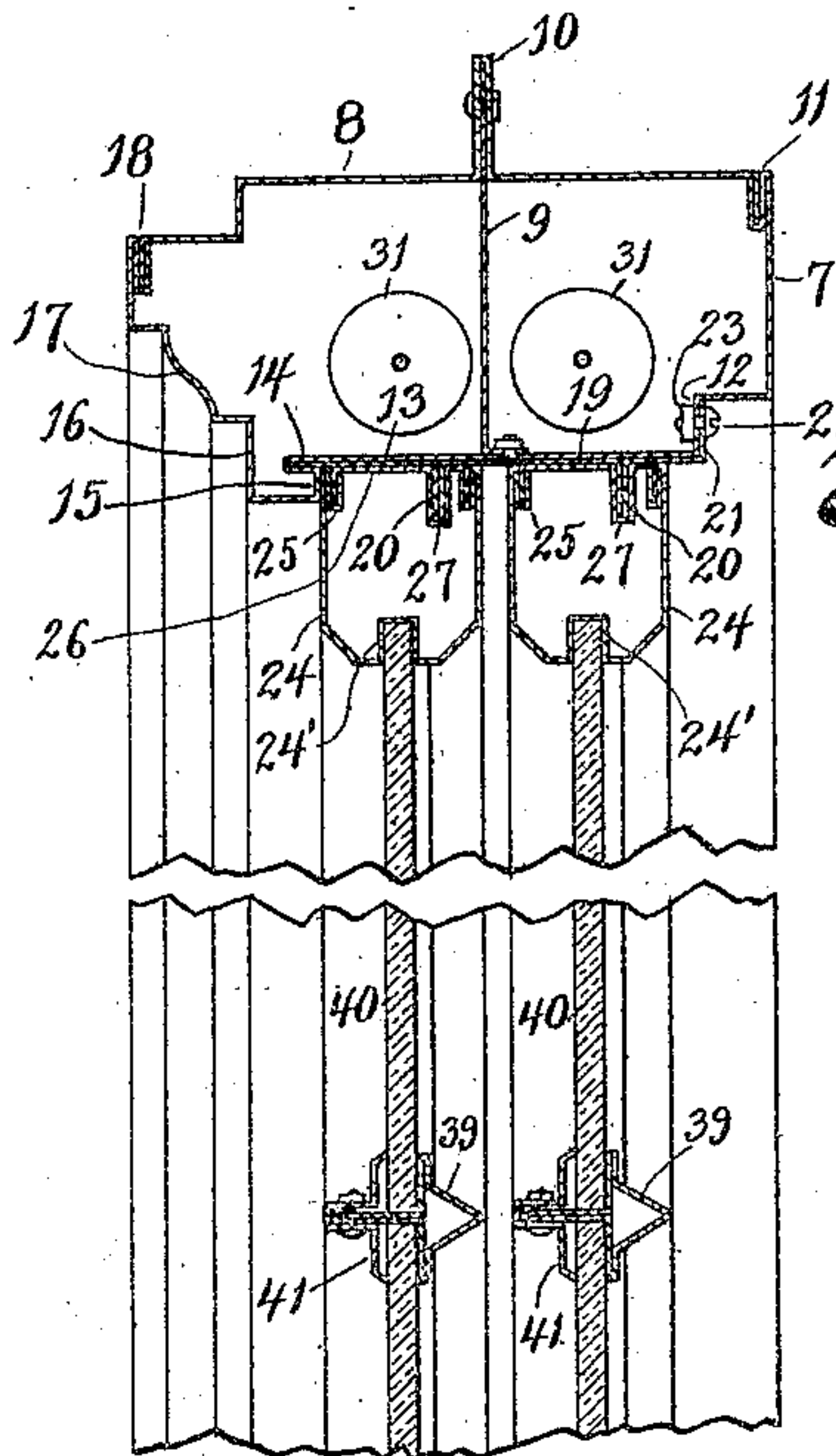


Fig. 2.

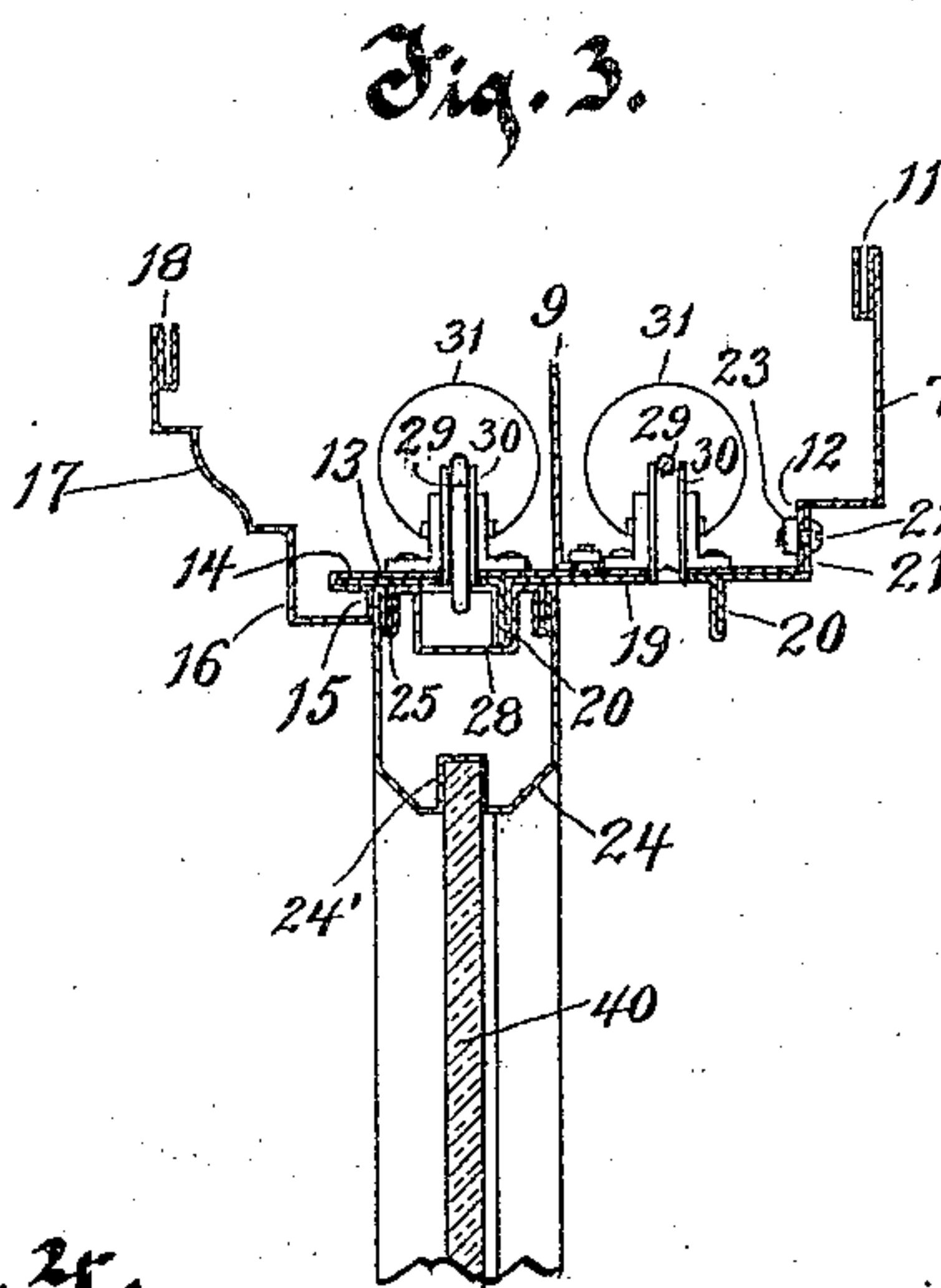
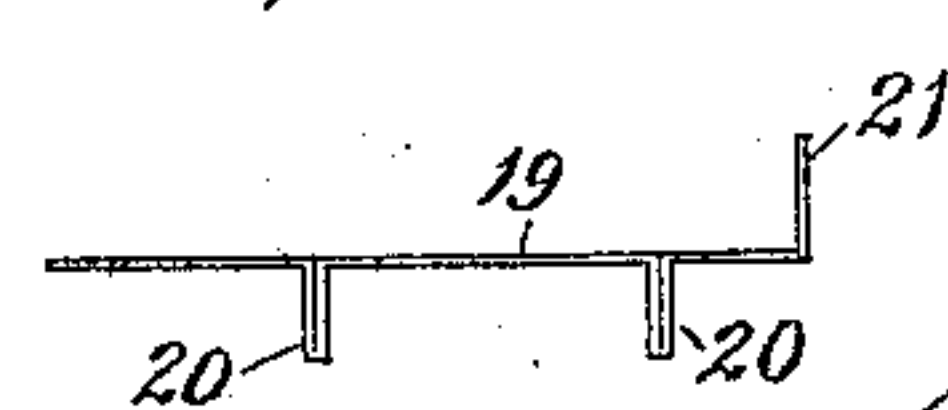


Fig. 3.

Fig. 4.



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METALLIC WINDOW FRAME AND SASH.

SPECIFICATION forming part of Letters Patent No. 775,668, dated November 22, 1904.

Application filed November 23, 1903. Serial No. 182,237. (No model.)

To all whom it may concern:

Be it known that I, JOHN BOGENBERGER, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented
5 a new and useful Improvement in Metallic Window Frames and Sashes, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

10 My invention relates to metallic window frames and sashes, and has for its object to provide a weather-tight vertically-sliding sash-window with features adapting the sash to be readily removed for any purpose.

15 A further object of this invention is to produce such a window of tubular sheet-metal construction thoroughly braced throughout.

With the above and other objects in view the invention consists of the devices and parts
20 or their equivalents, as hereinafter set forth.

Referring to the accompanying drawings, in which like characters of reference indicate the same parts in the several views, Figure 1 is a vertical section of a window frame and sash
25 embodying my invention. Fig. 2 is a horizontal section of one side of the window-frame, showing both sashes sectioned. Fig. 3 is a similar view taken above the sash-pulleys and showing only one sash, and Fig. 4 is an end
30 elevation of the sliding track-plate.

In the drawings, 7 represents the vertical side shells of the window-frame, which with their back plates 8 produce tubular columns or side frames braced by the core-plates 9, which are
35 bolted to the sides 7 and riveted in the central creases 10 of the back plates. Each side piece 7 is bent into shape along vertical parallel lines as follows: Starting with the inner slip-joint 11 after a short distance of plane
40 surface it is bent in three reverse right angles to produce a shoulder 12 and then continues in a straight plane bearing-surface 13 to a point where it bends back upon itself a short distance to form a groove 14. Here it bends
45 at right angles away from the bearing-surface 13 to form the sash-stop 15 and then in a pair of successive right angles to form the blind-stop 16, from which an ornamental molding 17 brings it to its other edge in an outer slip-
50 joint 18. The back plate 8 completes the tu-

bular structure of the side frame by its side flanges forming part of the slip-joints 11 and 18, and the core-plate 9, fitting in the central rib or crease 10, where it is riveted, extends across the tubular structure and is bolted at its an-
55 gular edge to the middle portion of the straight bearing-surface 13, performing the functions of bracing the side pieces, tying the back plate 8 in place, and dividing the tubular structure into partitioned weight-compartments. 60

A removable sliding track-plate 19, formed of a strip of sheet metal with a pair of parallel guiding tracks or flanges 20 bent therein and an angular side flange 21, fits against the straight bearing-surface 13, with its
65 straight side edge fitting in the groove 14 and its side flange 21 fitting against the shoulder 12, to which it is secured by bolts 22, whose nuts 23 are soldered or otherwise permanently fastened in place within the side shell 7. 70

The tubular side stiles of the two sliding sashes are of the same construction, having the U-shaped shell member 24 with the glass-retaining groove 24' at its bend and provided at its edges with slip-joints 25, connecting it
75 with the edges of a bearing-plate 26, of non-corrosive sheet metal, such as brass, having a deep groove 27 bent therein to receive one of the tracks or flanges 20 of the track-plate 19. At the upper end of each sash the bear-
80 ing-plates have their grooves 27 broadened, so as to provide a channel 28 for the reception of the weight-cord 29, which is attached to the sash-frame in any suitable manner and passes over the usual weight-pulley 30, mounted in-
85 side the side shell 7, and suspends the usual sash-weight 31 in its separate weight-compartment.

The top bar of the upper sash and the bottom bar of the lower sash are formed tubu-
90 lar and approximately alike, having the shell member 32 provided with the shoulder 33 on one side of the glass-seat 34 and a groove 35 on the other side thereof, and an end plate 36 is connected to the shell member
95 32 at its edges by slip-joints. The bottom bar of the upper sash and the top bar of the lower sash are also tubular and substantially alike, being formed of a single piece of sheet metal bent in an angular form, with a folded
100

flange 37 on one side of the glass-seat 34 and a groove 38 on the other side thereof, the edges of the blank being connected by a slip-joint and the meeting edges of the two bars 5 being made inclined to produce a weather-joint.

Each sash has a vertical mid-rail 39 extending from its top bar to its bottom bar and provided in cross-section with a flanged head 10 portion and a projecting stem portion. Window-lights 40, preferably of wire-glass, are fitted in the sashes by having one edge passed into the groove 24' and then swung into the seats 34 of the top and bottom bars and against 15 the head portion of the mid-rail 39. A cap-strip 41 of sheet metal is then clamped to the stem of the mid-rail 39, and cleats 42 are slipped into grooves 35 and 38 and the lights are secure.

20 The top of the window-frame is tubular and bent to continue the ornamental molding 17, the blind-stop 16, and the sash-stop 15, and then it forms a bearing-surface 43 for the upper sash and a depending folded flange 25 44, holding within it a core-plate 45, which is riveted to the top part of the tubular section. The flanges 44 and core-plate 45 do not extend the full width of the window-frame opening, but stop short of the sliding track-plates 19 in order that such track-plates may 30 not be engaged thereby and prevented from performing the functions for which they are intended. The sill of the frame is also tubular and is inclined on its upper surface, the 35 end plate 36 of the lower sash being inclined to fit therewith. Said sill is formed with a shoulder 46 as a lower sash-stop and has its bottom stepped with a folded depending anchor-flange 47, in which is riveted a core-plate 48, supporting the upper part of the sill. 40

The side plates 7 are provided with weight-openings 49 in the lower part of their bearing-surfaces 13, through which the sash-weights 31 may be removed in the usual manner. These 45 weight-openings, however, are normally covered by the sliding track-plate 19 and are only exposed by removing said track-plate.

From the foregoing it will be seen that besides producing a fireproof window which is 50 practical in its construction and strong and rigid throughout my invention further possesses a feature of great importance in the weatherproof slidable track-plate 19, by which the sashes are made removable in a simple manner. When it is desired to remove 55 the sashes, they are lowered and the bolts 22 removed. Then the sliding track-plates 19 may be sprung at their upper ends over the slightly-projecting edges of the pulleys 30 and drawn out, carrying the sashes with them. 60 When the sliding plates 19 are removed from the bearing-surface 13, the weights 31 may be detached, if desired, and so entirely disconnect the sashes when necessary. It will 65 also be seen that perfect weather-tight joints

are provided for both sashes by the tracks 20, the flange 44, the sash-stops 15 and 45, and the inclined weather-joint between the meeting-rails of the sashes. The close fit of the edge of the sliding track-plate 19 in the groove 70 14 also makes it impossible for air to pass back of said track-plate.

While I have described the sliding track-plates as being provided on both sides of the window-frame, it is obvious that it may be 75 possible to dispense with one of them and allow the sashes, after the single track-plate has been removed, to swing on their tracks by their natural play or by slightly springing the metal until their other sides clear the 80 frame, when they may be released from their tracks. This being so it is to be understood that my invention and claims are intended to cover such construction, as well as other obvious adaptations of the invention as described. 85

What I claim as my invention is—

1. In a device of the character described, side frames having plane bearing-surfaces, a groove at one edge of the bearing-surface and a shoulder at the other edge thereof, slidable 90 track-plates removably mounted on the bearing-surfaces with one edge fitting in the groove and the other edge bent over the shoulder and attached thereto, and sashes having grooves to ride on the tracks of the track-plates. 95

2. In a device of the character described, side frames formed of sheet metal bent to produce a shell with a plane bearing-surface having an overlapping sash-stop to form a groove at one edge of the bearing-surface and a shoulder at the other edge of the bearing-surface, 100 slidable track-plates removably mounted on the bearing-surfaces with one edge fitting in the groove and the other edge bent over the shoulder and attached thereto, and sashes having 105 grooves to ride on the tracks of the track-plates.

3. In a device of the character described, side frames having a plane bearing-surface and weight-openings in said bearing-surface, a 110 slidable track-plate removably mounted on the bearing-surface and covering the weight-openings, said track-plate having its edge fitting in a groove of the side frame in extension of the bearing-surface, sashes having grooves 115 to ride on the tracks of the track-plate, and sash-weights connected with the sashes and located inside the side frames.

4. In a device of the character described, a window-frame formed of sheet metal and bent 120 to form side frames comprising shells having plane bearing-surfaces with a groove at one edge of said bearing-surface and a shoulder at the other edge thereof, a back plate having slip-joint connections with the edges of the 125 shell, a core-plate held in a fold of the back plate and secured to the shell, a track-plate removably mounted on the bearing-surface with one edge fitting in the groove and the other edge bent over the shoulder and attached 130

thereto, sashes formed of tubular frames with non-corrosive bearing-plates provided with grooves riding on the tracks, a tubular top frame provided with a sash-stop and a flange
5 fitting the top of the upper sash, said flange containing a core extending through the top frame, and a tubular sill having a sash-stop and a stepped bottom with an anchor-flange containing a core extending through the sill.
10 5. In a device of the character described, side frames formed of sheet metal bent to produce a shell with a plane bearing-surface having an overlapping sash-stop to form a groove

at one edge of the bearing-surface and a shoulder at the other edge of the bearing-surface, 15 a slidable track-plate removably mounted on the bearing-surface with one edge fitting in the groove and the other edge bent over the shoulder and attached thereto, and a sash slidably mounted on the track-plate. 20

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

JOHN BOGENBERGER.

Witnesses:

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ALMA KLUG.