S. C. MONBERG.

METAL DOOR AND WINDOW FRAME.

APPLICATION FILED JUNE 28, 1909.

958,663.

Patented May 17, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

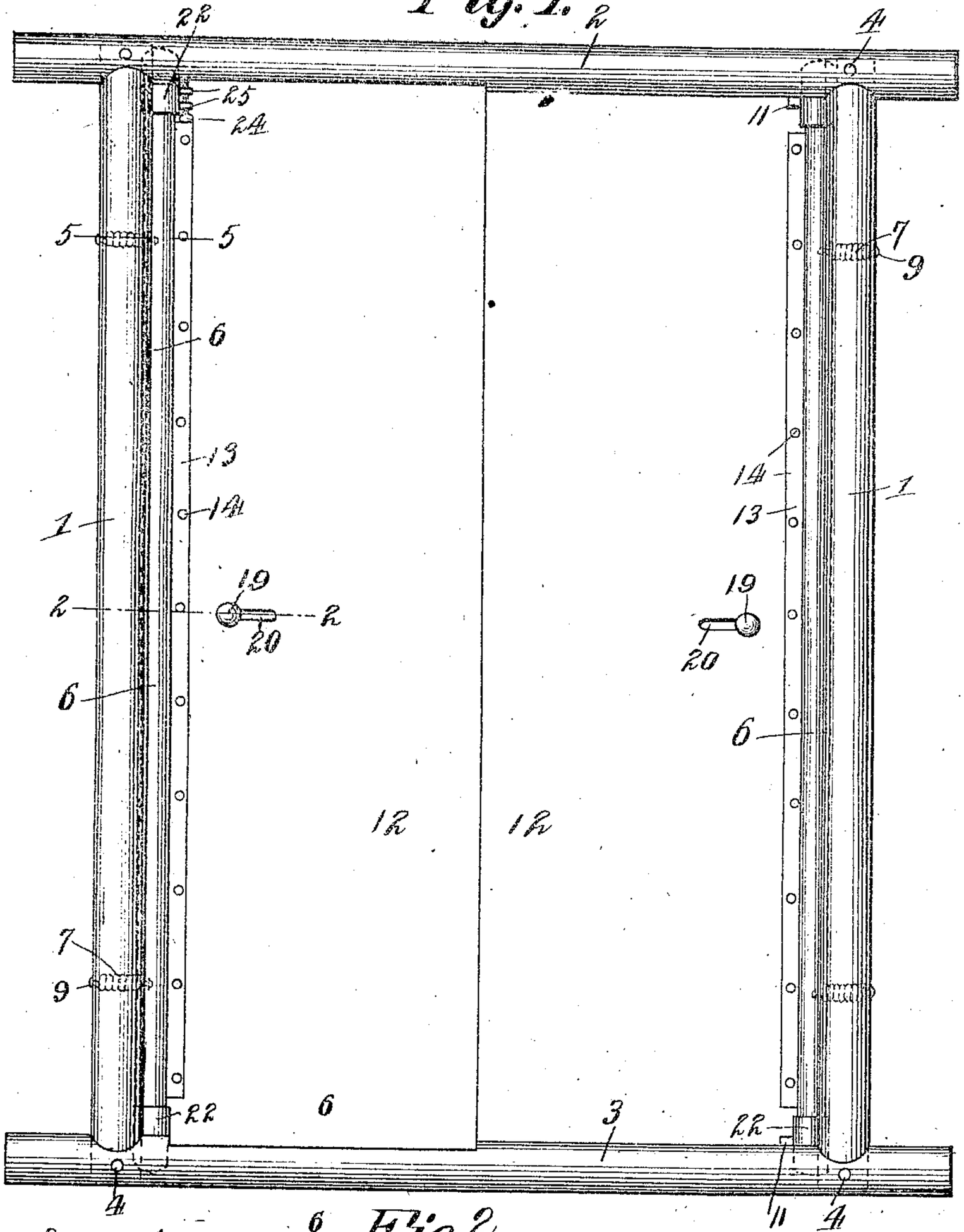

Fig. 2.

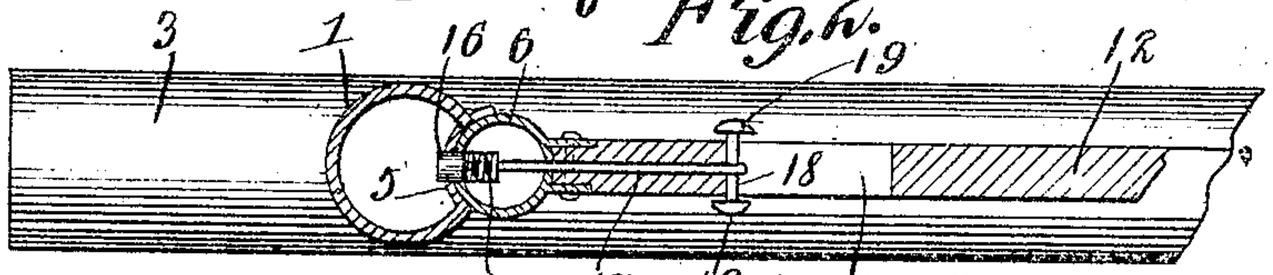

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Fig. 3.

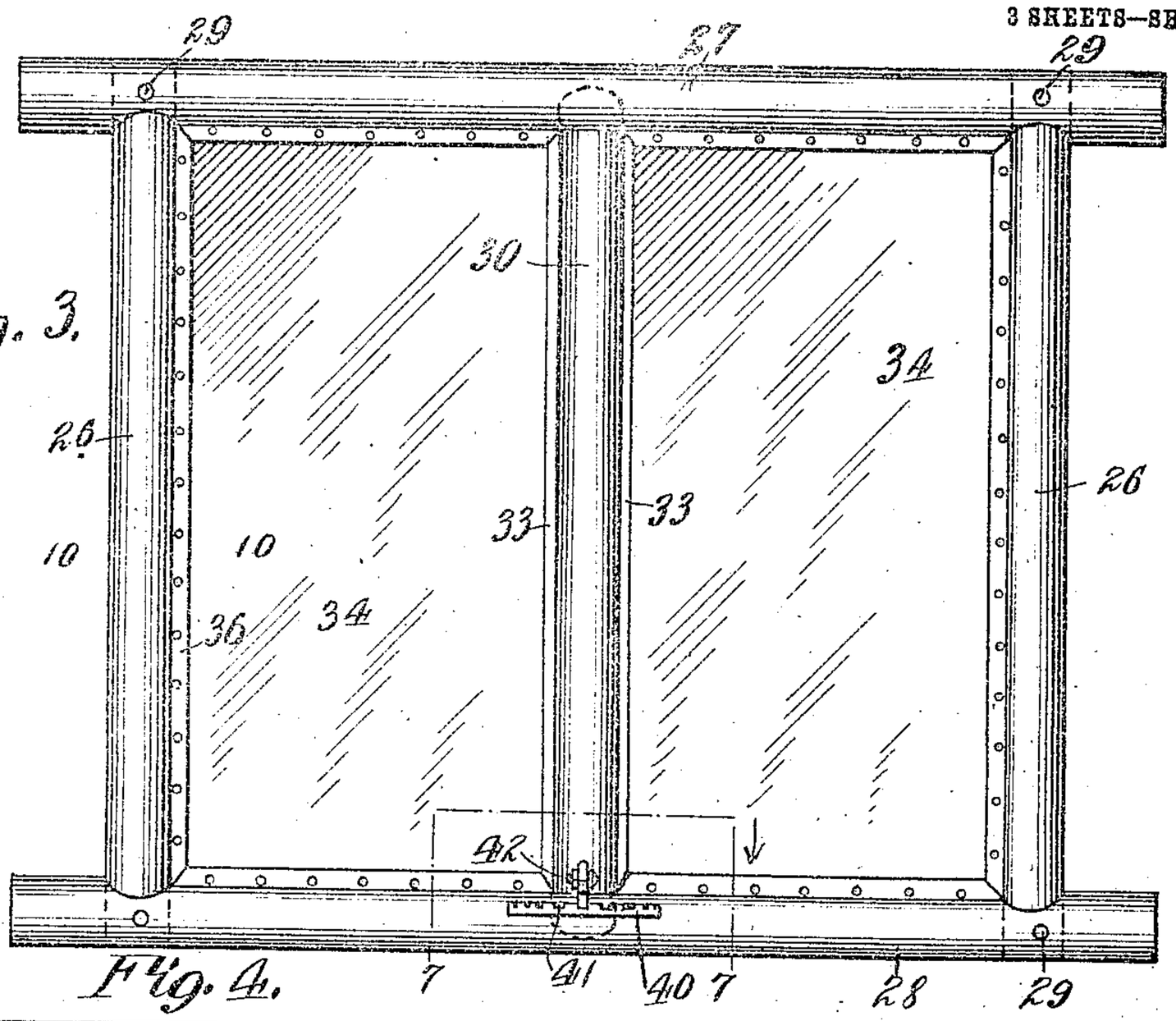


Fig. 4.

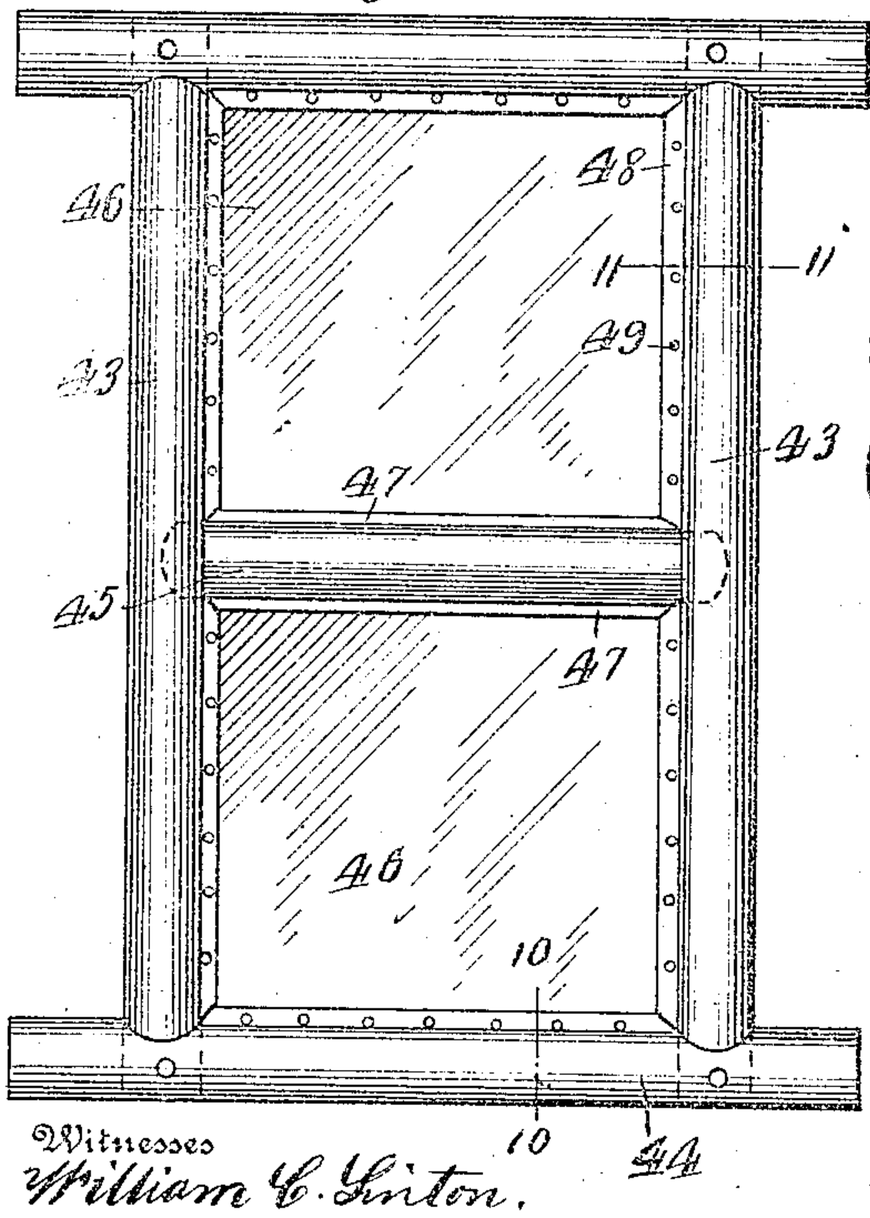


Fig. 5.

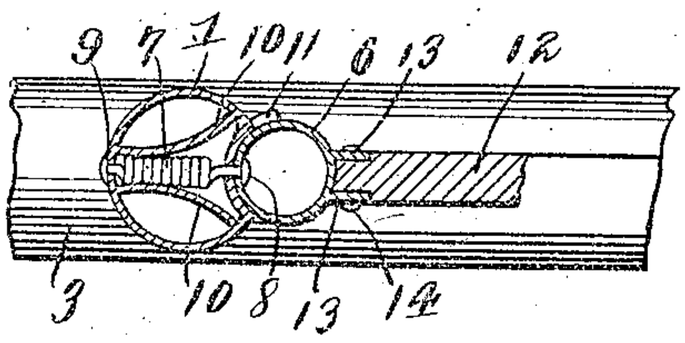
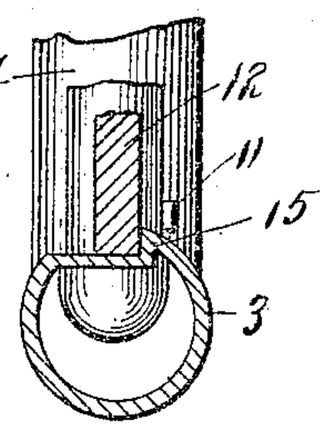


Fig. 6.



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3 SHEETS—SHEET 3.

Fig. 7

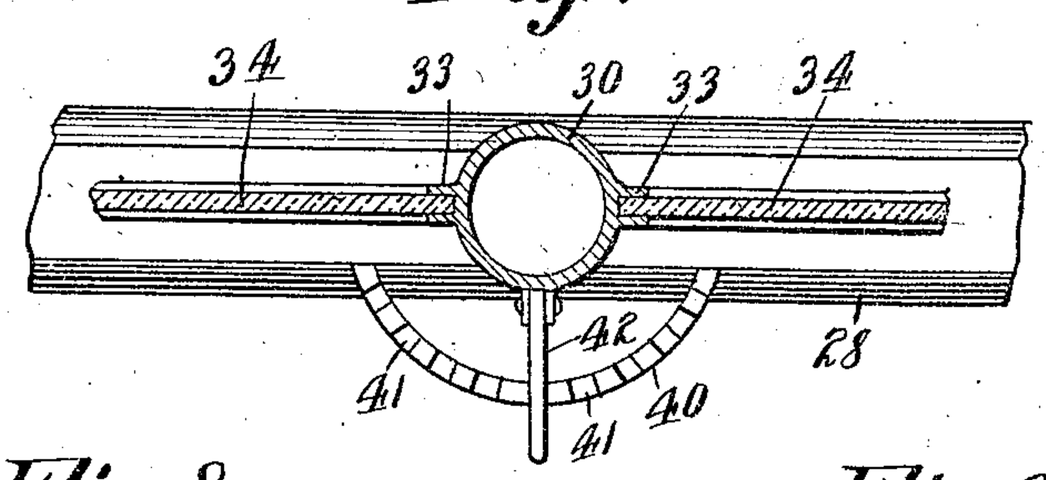


Fig. 8.

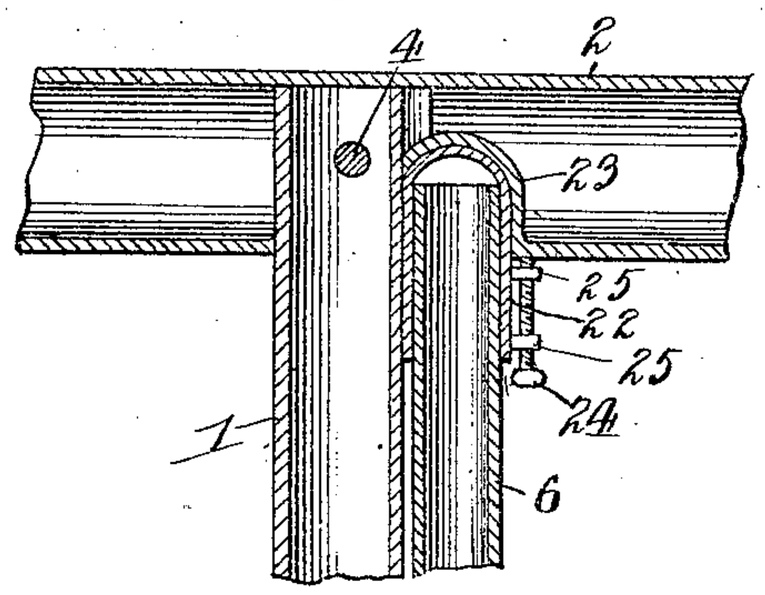


Fig. 9.

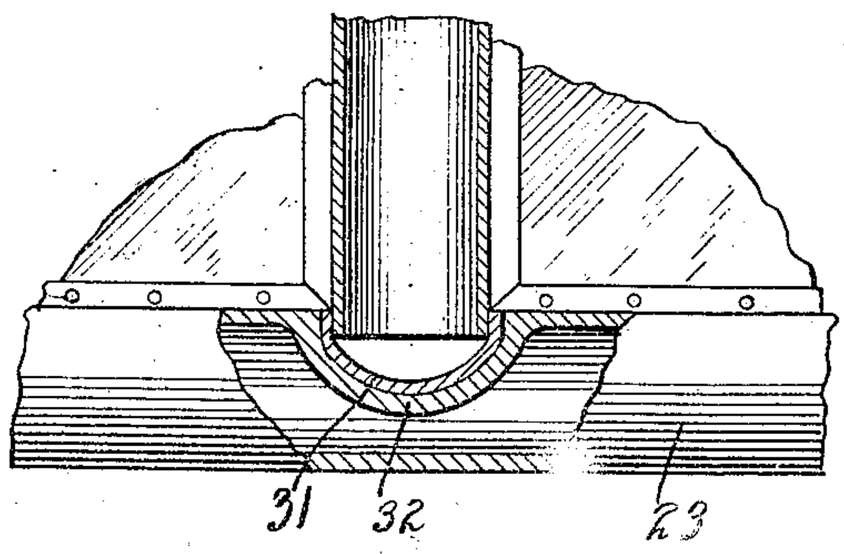


Fig. 10.

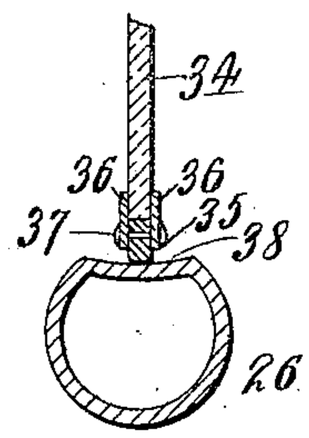
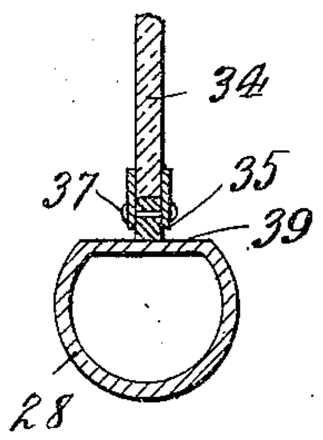


Fig. 11



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UNITED STATES PATENT OFFICE.

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METAL DOOR AND WINDOW FRAMF

958,663. Specification of Letters Patent. Patented May 17, 1910.

Application filed June 28, 1909. Serial No. 504,800.

To all whom it may concern:

Be it known that I, SOREN C. MONBERG, a citizen of the United States of America, residing at Leadville, in the county of Lake and State of Colorado, have invented new and useful Improvements in Metal Door and Window Frames, of which the following is a specification.

This invention relates to metal door and window frames, and one of the principal objects of the same is to provide hollow tubular metal frames for doors and windows and to provide simple and reliable means for hinging the doors or windows to the frames.

Another object of the invention is to provide a metal door frame of tubular form having means for hinging the door or doors in the frame so that it will automatically close.

Still another object of the invention is to provide a metal door frame having spring mounted doors connected thereto and means for locking the doors to the frame.

Another object of the invention is to provide a tubular metal window frame and a window mounted to rotate on a central tubular member, means being provided for locking the window at any point within the location of the central window-sustaining tube.

These and other objects may be attained by means of the construction illustrated in the accompanying drawings, in which,—

Figure 1 is a front elevation of a door made in accordance with my invention. Fig. 2 is a horizontal sectional view on the line 2—2 of Fig. 1. Fig. 3 is a front elevation of a window made in accordance with my invention. Fig. 4 is a similar view of a modified form of the same. Fig. 5 is a horizontal sectional view on the line 5—5 of Fig. 1. Fig. 6 is a vertical sectional view on the line 6—6 of Fig. 1. Fig. 7 is a horizontal sectional view on the line 7—7 of Fig. 3, looking in the direction indicated by the arrow. Fig. 8 is a detail section illustrating the manner of mounting the upper end of one of the doors. Fig. 9 is a detail elevation and partial section of the manner of mounting the central tubular post of the window. Fig. 10 is a detail vertical sectional view on the line 10—10 of Fig. 4. Fig. 11 is a detail sectional view on the line 11—11 of Fig. 4.

Referring to Figs. 1, 2, 5, 6 and 8 of the drawings, the numerals 1 designate the side posts of the door frame, and 2, 3 are the upper and lower horizontal members of the door frame. These parts are formed of tubular metal, and the vertical members 1 are secured to the top and bottom members 2 and 3 by means of bolts or rivets 4, said members 1 extending through holes formed in said members 2 and 3. The members 1 are provided with concave inner edges 5 and secured in said concave edges are similar vertical tubes 6, said tubes being hinged to the tubes 1 by means of springs 7, said springs having one end extended through the member 1 and into the tube 6 where it is headed up, as at 8. The opposite end of the spring 7 is headed up, as at 9, upon the outer side of the member 1, as shown in Fig. 5. Curved partitions 10 may be formed in the tubular members 1, as shown in Fig. 5, and upon the tube 6 a stop lug or lugs 11 may be provided. Secured to the tube 6 upon either side is the door 12 which may be of metal or any suitable material, said door being extended at its edge between projecting flanges 13 and secured therein by means of rivets 14. The lower member 3 is provided with a shoulder 15 to form a stop for the door 12. To lock the doors in closed position a sliding spring bolt 16 is mounted centrally in the door, said bolt having a connecting rod 17 extending horizontally through a portion of the door 12 and connected at its end to a sliding bar 18 having buttons 19, one upon each end thereof. A slot 20 is formed in the door to permit the connecting bar 17 to be operated to actuate the bolt 16. A spring 21 is connected at one end to the bar 17, the other end being connected to the bolt 16, as shown more particularly in Fig. 2. As shown in Figs. 1 and 2, folding doors are illustrated, but it will be obvious that a single door may be operated by the same mechanism. The tubes 6 are mounted at their upper and lower ends in hollow caps 22 fitted over the ends of the tubes 6 and seated in inwardly extending hollow bosses 23 in the tubes 2 and 3, as shown more particularly in Fig. 8. For adjusting the tubes 6 relatively to the tube 1 set screws 24 are provided, said set screws extending through brackets 25 and bearing against the lower surface of the member 2.

The window shown in Figs. 3, 7, 9, 10 and 11 comprises the side members 26, the upper member 27 and the lower member 28, all formed of metal tubes or piping. The members 26 are secured to the members 27

and 28 by means of bolts or rivets 29. Pivotally mounted centrally in the frame is a tubular member 30, the lower end of said member being seated in a hollow cap 31 mounted in a boss 32 formed in the upper side of the member 28, as shown more particularly in Fig. 9. Secured to the member 30 by means of spaced flanges 33 are the window panes 34, said panes at their top and bottom and outer edges being provided with weather strips 35, said strips being preferably formed of rubber and secured to the panes 34 by means of metal strips 36 connected by rivets 37 to said weather strips. As shown in Fig. 10, the members 26 are provided with curved inner surfaces 38 to permit the windows 34 to swing horizontally with the member 30. As shown in Fig. 11, the bottom member 28 is provided with a flat upper edge 39 upon which the weather strip bears. Connected to the inside of the member 28 is an arcuate rack 40 provided with notches 41, and upon the inside of the member 30 is a pivoted latch 42 adapted to be moved across the rack 40 and secured in any one of the notches 41 to hold the window opened or closed. Upon reference to Fig. 4 it will be seen that the side members 43 have connected upper and lower members 44 of similar construction, and pivotally mounted centrally between the members 43 is a hollow muntin 45 which carries the window panes 46, said window panes being connected to the muntin 45 by flanges 47, and said panes being provided with rubber weather strips secured to the panes by metal strips 48 and rivets 49. This window is adapted to swing on the horizontally pivoted muntin 45 in an obvious manner.

From the foregoing it will be obvious that door or window frames made in accordance with my invention are comparatively light, can be made at low cost and that the doors or windows can be mounted without requiring expensive trimmings.

I claim:—

1. A window frame having tubular side and end members, a rotatable muntin journaled in the side members, panes mounted on the muntin, the end members being provided with concaved recesses on their inner faces, the side members being provided with flat faces, and weather strips mounted on the free edges of the panes and adapted to engage the concaved and flat faces of the side and end member.

2. A window frame having tubular side and end members, a rotatable muntin journaled in the side members and carrying panes, clamping strips disposed on opposite sides and near the free edges of the panes, and weather strips secured between said clamping strips, the side members having concaved recesses and the end members having flat faces on their inner sides adapted to be engaged by said weather strips.

3. A window frame comprising tubular side and end members, the end members having reduced ends, the side members having openings near their ends, and adapted to receive the said reduced ends, fastening elements passing through the side members and reduced portions, and a rotatable muntin journaled in the frame and carrying windows.

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

SOREN C. MONBERG.

Witnesses:
ANTON F. NELSON,
TIMOTHY D. LOOMER.