

No. 621,421.

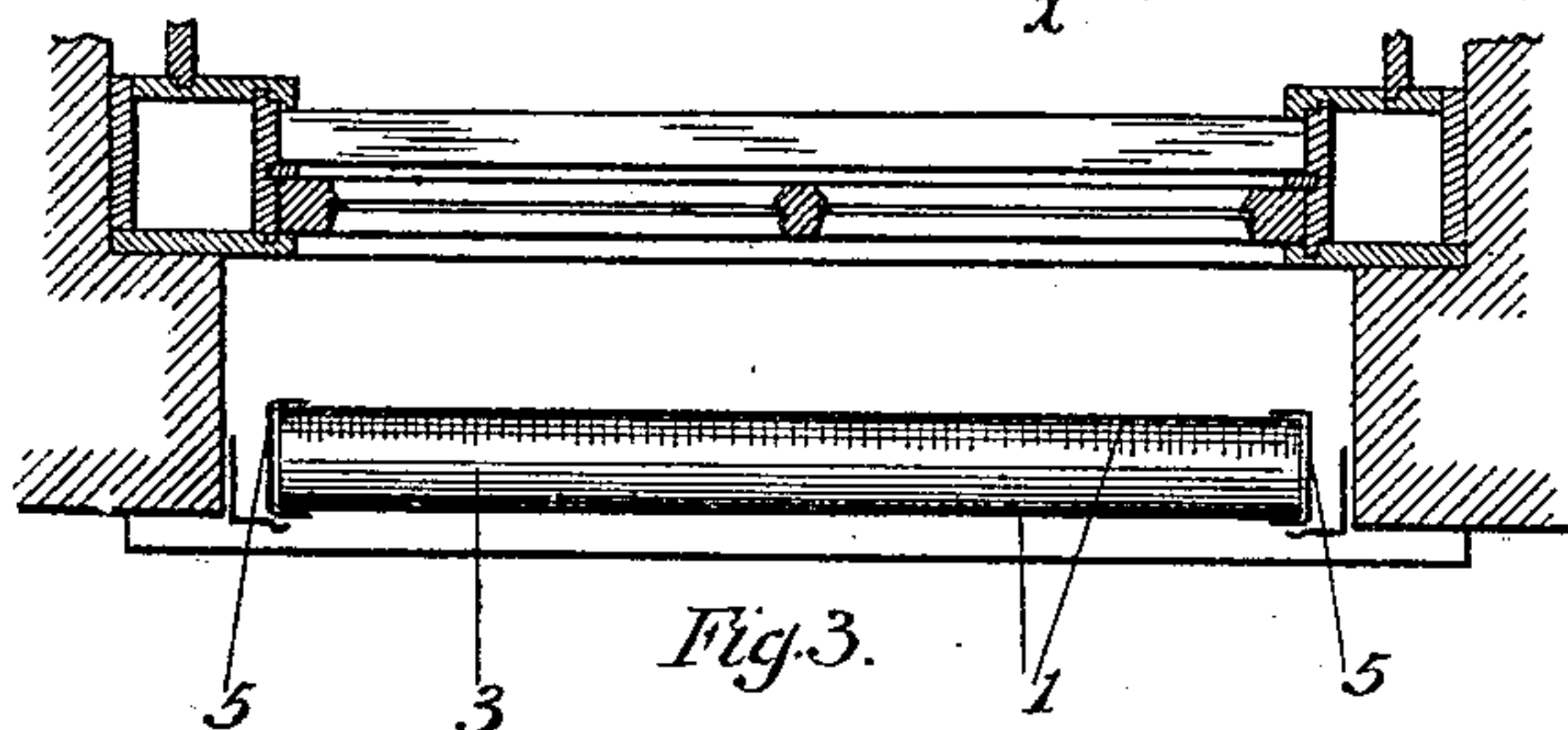
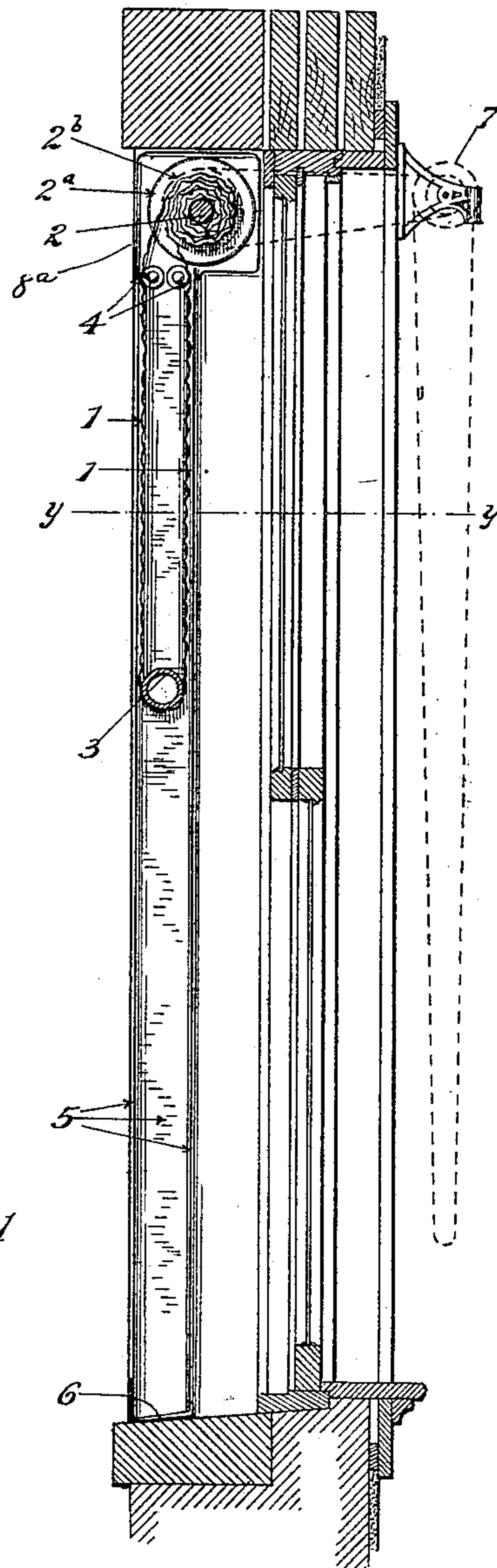
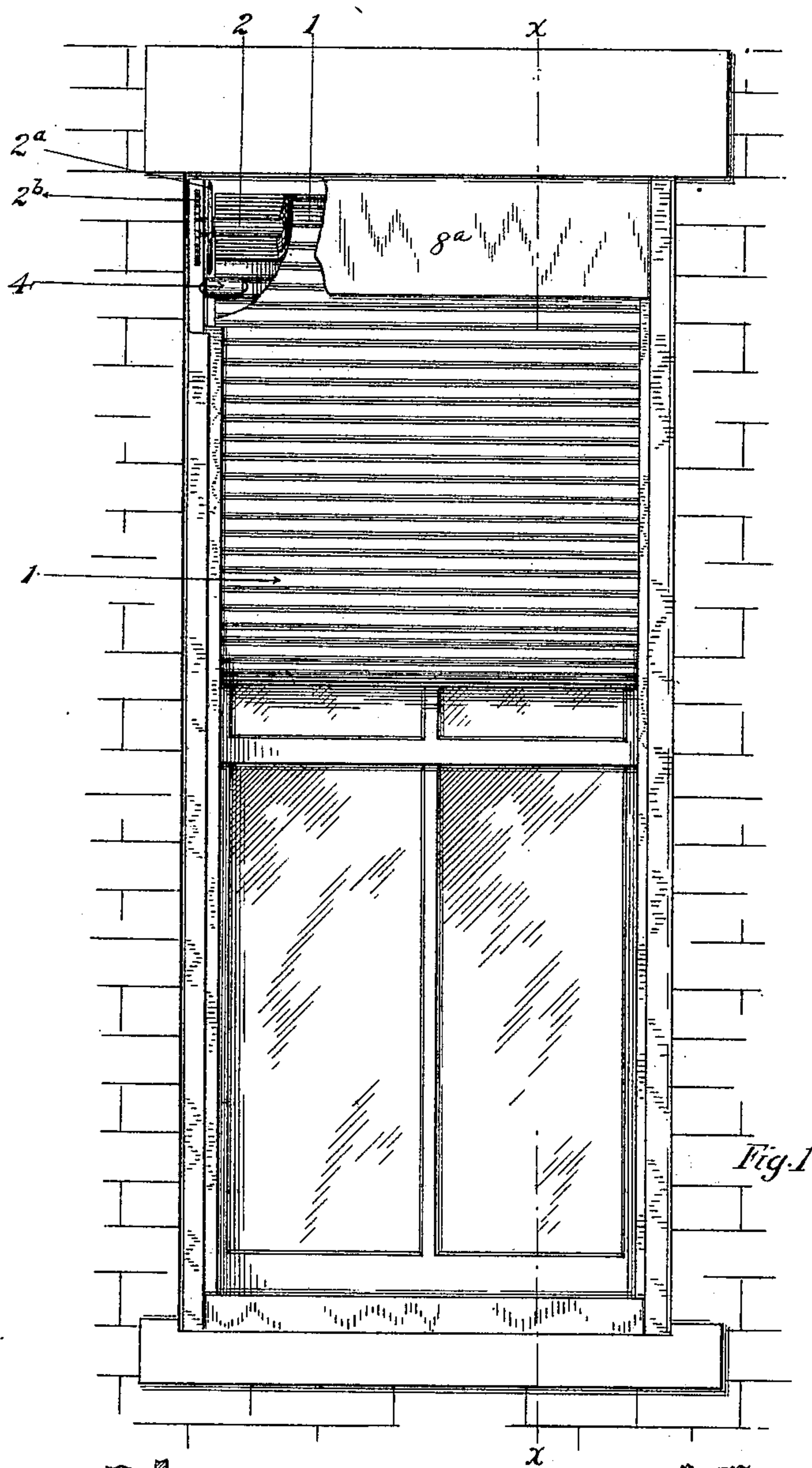
Patented Mar. 21, 1899.

W. R. KINNEAR.  
FIREPROOF CURTAIN.

(Application filed Nov. 12, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses: *Odwin L. Bradford*  
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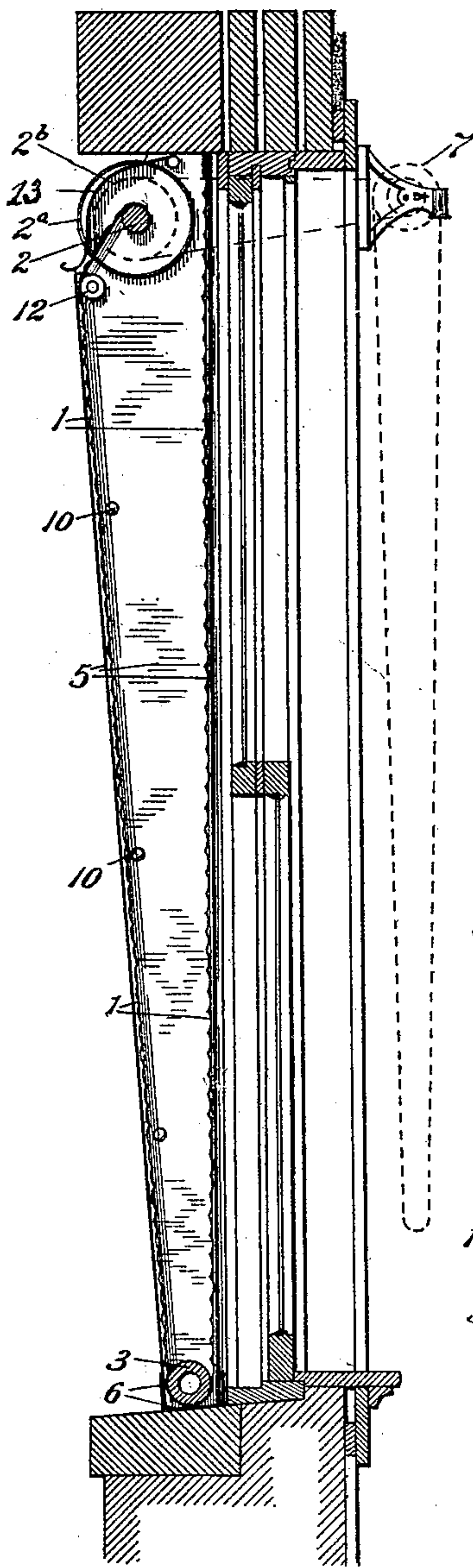


Fig. 4.

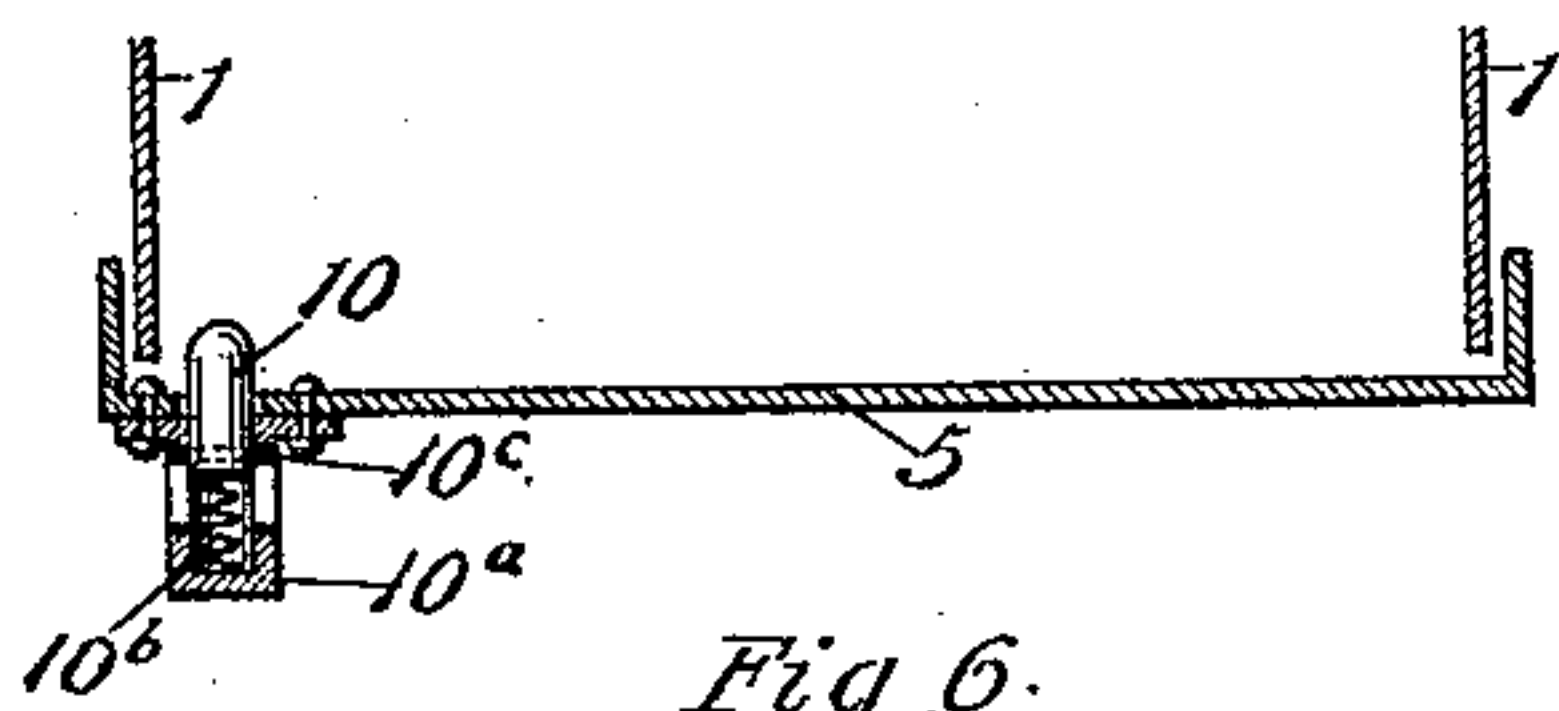


Fig. 6.

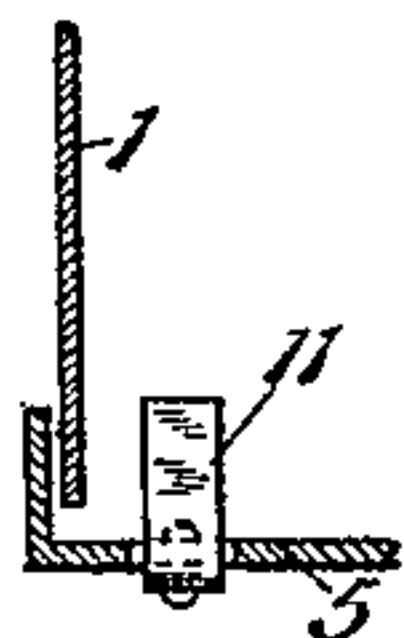


Fig. 7.

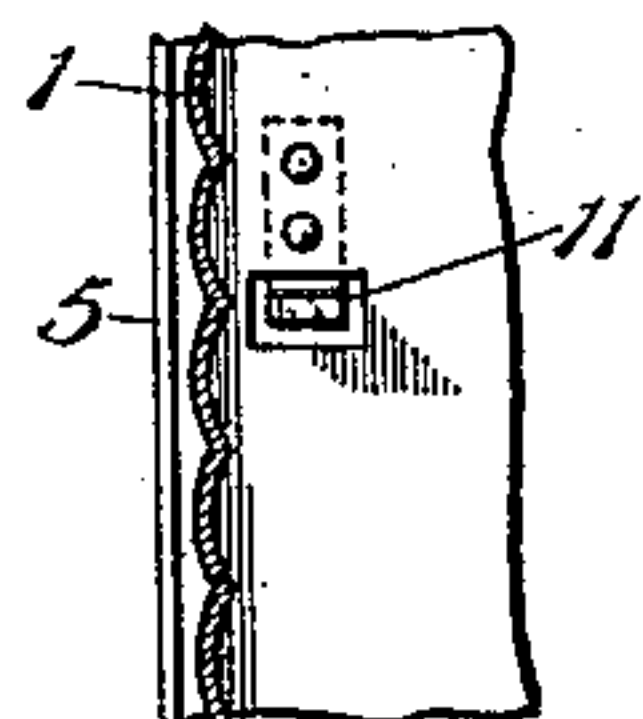


Fig. 8.

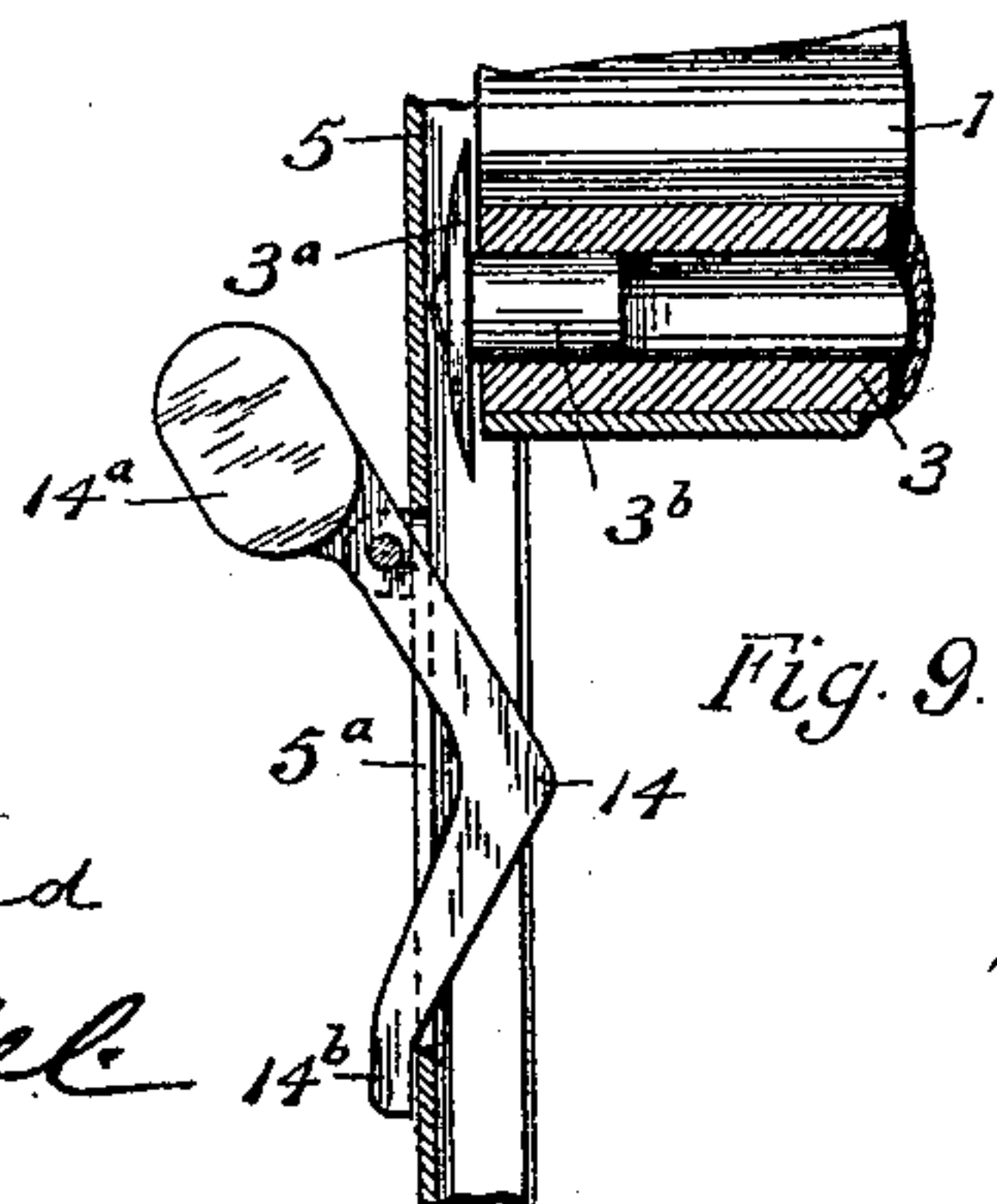


Fig. 9.

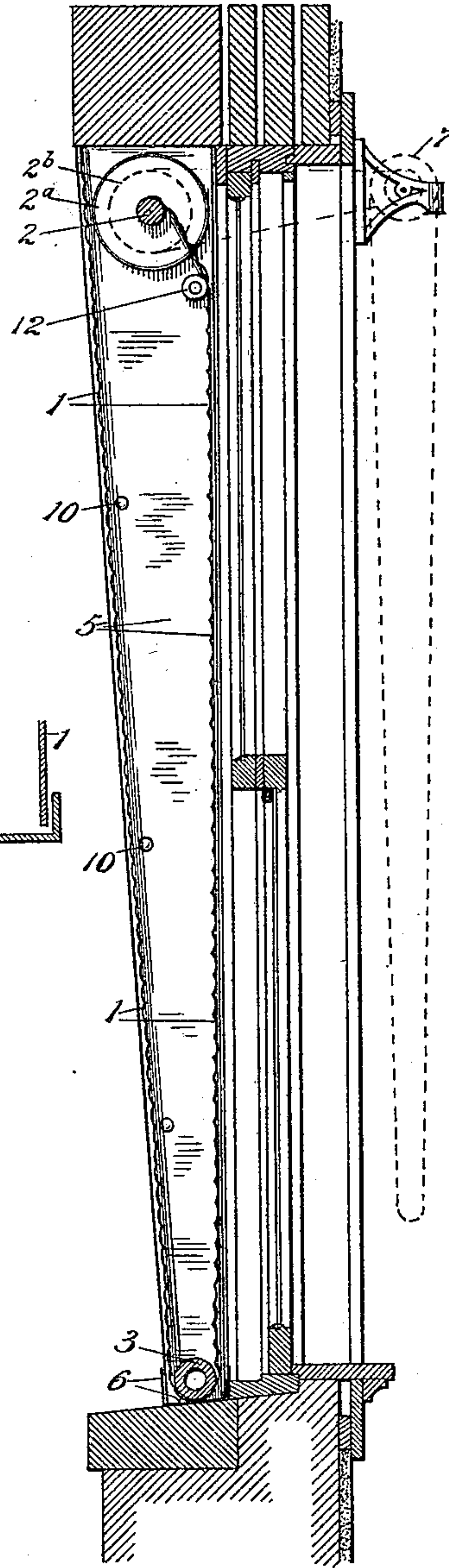


Fig. 5.

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# UNITED STATES PATENT OFFICE.

WILLIAM R. KINNEAR, OF COLUMBUS, OHIO.

## FIREPROOF CURTAIN.

SPECIFICATION forming part of Letters Patent No. 621,421, dated March 21, 1899.

Application filed November 12, 1897. Serial No. 658,297. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM R. KINNEAR, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Fireproof Curtains; 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.

The object of my present invention is to provide an improved rolling fireproof curtain of the kind in which there is a confined air-space to increase the fire-resisting character of the curtain.

My invention consists of a continuous piece of fire-resisting fabric adapted to be rolled upon a roller doubled or folded to form two or more plies with means for separating the plies and maintaining them in separated position, so as to provide a confined body of air between the plies when the curtain is drawn down or extended across the window, door, or other opening.

In the annexed drawings, Figure 1 is a front view of a window provided with my new form of curtain, the upper left-hand corner being broken out to show details. Fig. 2 is a transverse vertical sectional view taken on a plane indicated by the line *xx* of Fig. 1. Fig. 3 is a horizontal sectional view taken on line *yy* of Fig. 2. Fig. 4 is a vertical longitudinal section of a modification. Fig. 5 is a similar view of a further modification. Fig. 6 is a horizontal sectional view of one of the side casings, showing stops to prevent swaying of the curtain. Fig. 7 is a similar view of a modified form of stop. Fig. 8 is a front view of what is shown in Fig. 7. Fig. 9 is a sectional view showing another form of stop.

In the embodiment of my invention shown in Fig. 1 the curtain 1 is composed of a single strip made up of slats flexibly connected together. The ends of this strip are connected to a roller-shaft 2, having heads 2<sup>a</sup>, said roller-shaft being journaled in the upper part of the window-opening. The curtain thus formed is two-ply, but is capable of being compactly rolled onto the roller in substantially the same manner as a single curtain, and the lower end of the curtain forms a loop or pocket, in which is placed a tube or bar 3

of such diameter as shall secure abundant width or depth of air-space and of sufficient weight, if necessary, to keep the curtain distended. The plies of the curtain are kept separated where they leave the roller-shaft by means of two idler studs or rollers 4, journaled in the sides of the upper part of the window opening or frame in which the curtain moves.

Metallic channels are fitted in the sides of the window-opening to receive, guide, and protect the edges of the curtain and prevent the access of fire to the window-frame. A shallow pocket 6 may be provided on the window-sill to receive the end of the curtain when lowered.

The curtain may be operated from the interior of the building through the instrumentality of a chain belt running around a sprocket 2<sup>b</sup> on the shaft of the roller and a sprocket 7 suitably mounted in a bracket at the interior side of the building. This latter sprocket may be operated by any suitable means, there being indicated an endless chain or cord running over a larger sprocket 8, integral with or on the shaft of said sprocket 7.

When wound or unwound, the outer ply of the curtain 1 naturally accumulates on or leaves the roller faster than the inner one; but the loose bar or tube 3 in the pocket or loop accommodates itself to the thus changing loop or pocket.

The upper part of the window-opening where the roller is located may be protected by a shield 8<sup>a</sup>.

In Fig. 4 one end of the flexible curtain is fastened in the upper part of the window-opening, while the other end is fastened to the shaft of a roller in the upper part of the window-opening, thus forming a loop or pocket having an air-space, and this loop or pocket may, as before described, have a loose bar or tube 3, as shown in Fig. 2. In this view, Fig. 4, the channel in the vertical sides of the window-frame is tapering from the upper end downward, the edge near the window being substantially vertical. The advantage in making the channel tapering is twofold—first, to afford abundant room for the roller at the top, and, second, the edges of the curtain when lowered will rest closely by gravity against the outer flange of the channel, thus prevent-



ing or aiding in preventing swaying of the curtain under the influence of strong drafts of air, and to further guard against such horizontal swaying of the curtain I provide  
 5 suitable stops, which, however, are adapted to allow the movement of the curtain when being raised or lowered. These stops are illustrated in Figs. 6, 7, and 8. In Fig. 6 the  
 10 character 10 designates the stop or bolt, that is movable longitudinally in a small barrel 10<sup>a</sup>, riveted to the side of the channel. This stop or bolt is held normally projected through  
 15 a hole beyond the surface of the inner side of the channel by means of a coil-spring 10<sup>b</sup> within the barrel, and a pin 10<sup>c</sup>, passed diametrically through the bolt and into a slot or  
 20 slots in the barrel, suffices to limit the movement of the bolt. The outer end of this bolt or stop is rounded, so that the forcible contact of the ascending and descending edge of  
 25 the curtain throws the stop inward and allows the curtain to pass. In Figs. 7 and 8 these stops are shown to consist simply of small flat pieces of elastic steel standing horizontally  
 30 or with their edges substantially at right angles to the flange of the channel. The reason for so placing the elastic stops is because when the curtain is lowered or raised it presses  
 35 against the edge of the stop, which obviously will not readily bend in that direction.

In Fig. 9 the stop is shown to consist of a small lever pivoted to the side of the channel or casing 5, with an angular portion 14 pro-  
 40 jecting through a slot 5<sup>a</sup> in the side of the channel or casing. The upper end of the lever may be weighted, as shown at 14<sup>a</sup>, if desired, to tend to hold the angular portion within the space in which the curtain moves,  
 45 and the inward projection of this stop may be limited by the engagement of the lower extremity 14<sup>b</sup> of the lever with the outer side of the channel or casing. In connection with  
 50 other forms, I may use in the end of the bar or tube 3 a small round disk or button 3<sup>a</sup>, the shank 3<sup>b</sup> of which enters the opening at the end of the bar or tube. This disk or button  
 55 may be free to turn in its place and the rounded surface makes easy the operation of the yielding stops.

In Fig. 5 the curtain is substantially the form shown in Fig. 4, except that in the form  
 60 of Fig. 5 the fixed end is outside and the wound end inside. In Fig. 4 a small roller

12 serves to keep the upper part of the curtain out against or near the flange of the channel, and in Fig. 5 a similar roller keeps the inner part of the curtain against or near the inner flange or near the window-frame. In  
 65 the form shown in Fig. 4 the curtain-roller is protected by a hood 13, hinged in the upper part of the window-opening.

The means for operating the curtain-rollers in the forms shown in Figs. 4 and 5 may be  
 70 the same as those shown in connection with Fig. 2 or any other approved and suitable means.

What I claim, and desire to secure by Letters Patent, is—

1. A curtain composed of a single piece of  
 75 fire-resisting fabric doubled to form a loop or pocket, a roller onto which the same may be rolled and means for separating the plies of  
 80 the curtain and holding them separated in a window or other opening, substantially as explained.

2. A curtain composed of a single continuous piece of fire-resisting fabric 1, its ends  
 85 being adapted to be attached to a roller, a loose bar 3 in the loop or pocket of said curtain to hold the plies separated at the lower end of the curtain, and means substantially  
 90 as described for keeping the plies separated in the upper part of the curtain.

3. In combination, a looped or folded curtain, a flanged or projecting guide for the edge  
 95 of said curtain, and automatically-yielding stops adapted to prevent the horizontal swaying of said curtain, said stops being operated  
 100 by the edge of said curtain to permit the movement of the curtain when raised or lowered, substantially as described.

4. In combination with a curtain doubled to form a pocket or loop, substantially as de-  
 105 scribed, a bar or tube 3 in said pocket or loop having a rounded end piece or disk 3<sup>a</sup>, substantially as described.

5. In combination with a curtain doubled to form a pocket or loop, a flanged or project-  
 110 ing guide for the edge of the curtain, yielding stops adapted to permit the raising and lowering of said curtain but prevent the horizontal swaying of the curtain, a bar or tube 3 in the pocket or loop of said curtain having a  
 115 rounded end piece or disk 3<sup>a</sup>, substantially as described.

In witness whereof I have hereunto affixed my signature, in the presence of two witnesses, this 28th day of October, 1897.

WILLIAM R. KINNEAR.

Witnesses:

EDWIN F. McMANIGAL,  
 GEO. M. FINCKEL.