

E. H. McCLOUD.

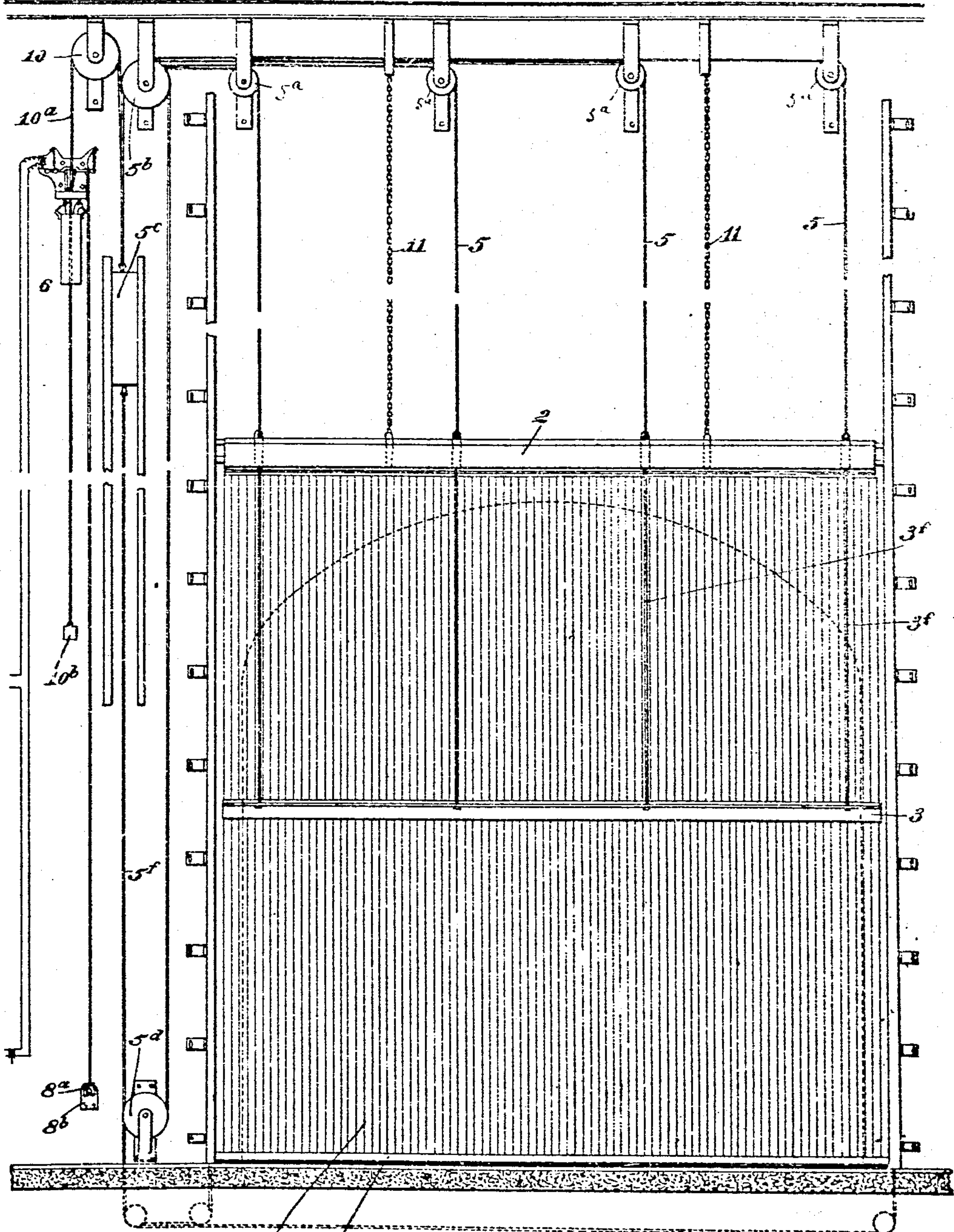
FIRE RESISTING CURTAIN.

APPLICATION FILED JULY 2, 1904. RENEWED NOV. 16, 1905.

899,460.

Patented Sept. 22, 1908.

5 SHEETS-SHEET 1.



Witnesses

Ben. Finkel
Oliver Ross

1^c Fig. 1.

Inventor

Edward H. McCLOUD

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5 SHEETS—SHEET 2.

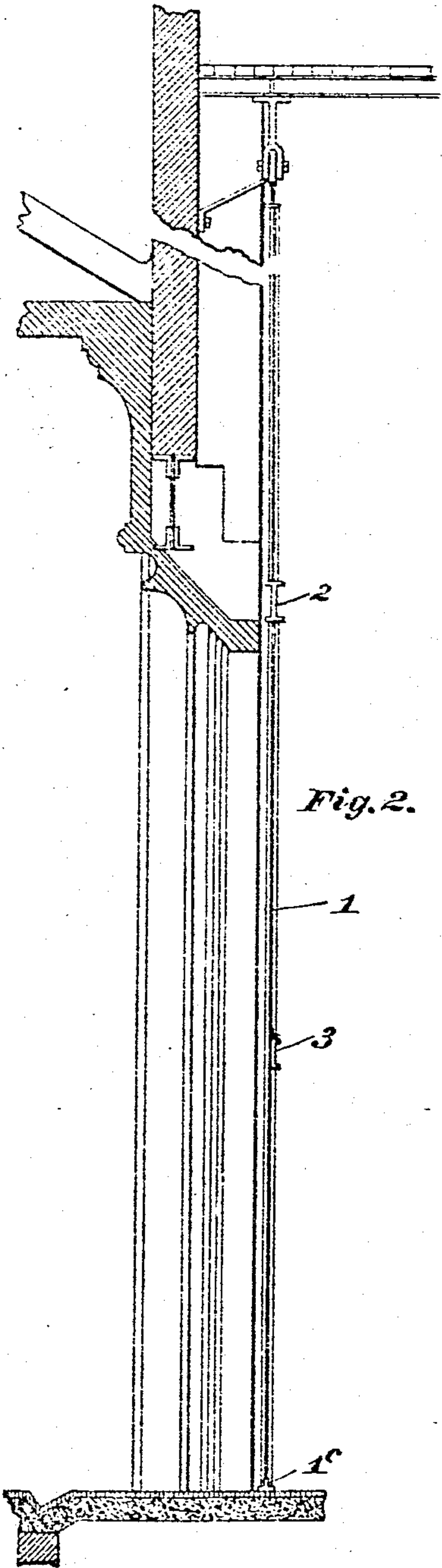


Fig. 2.

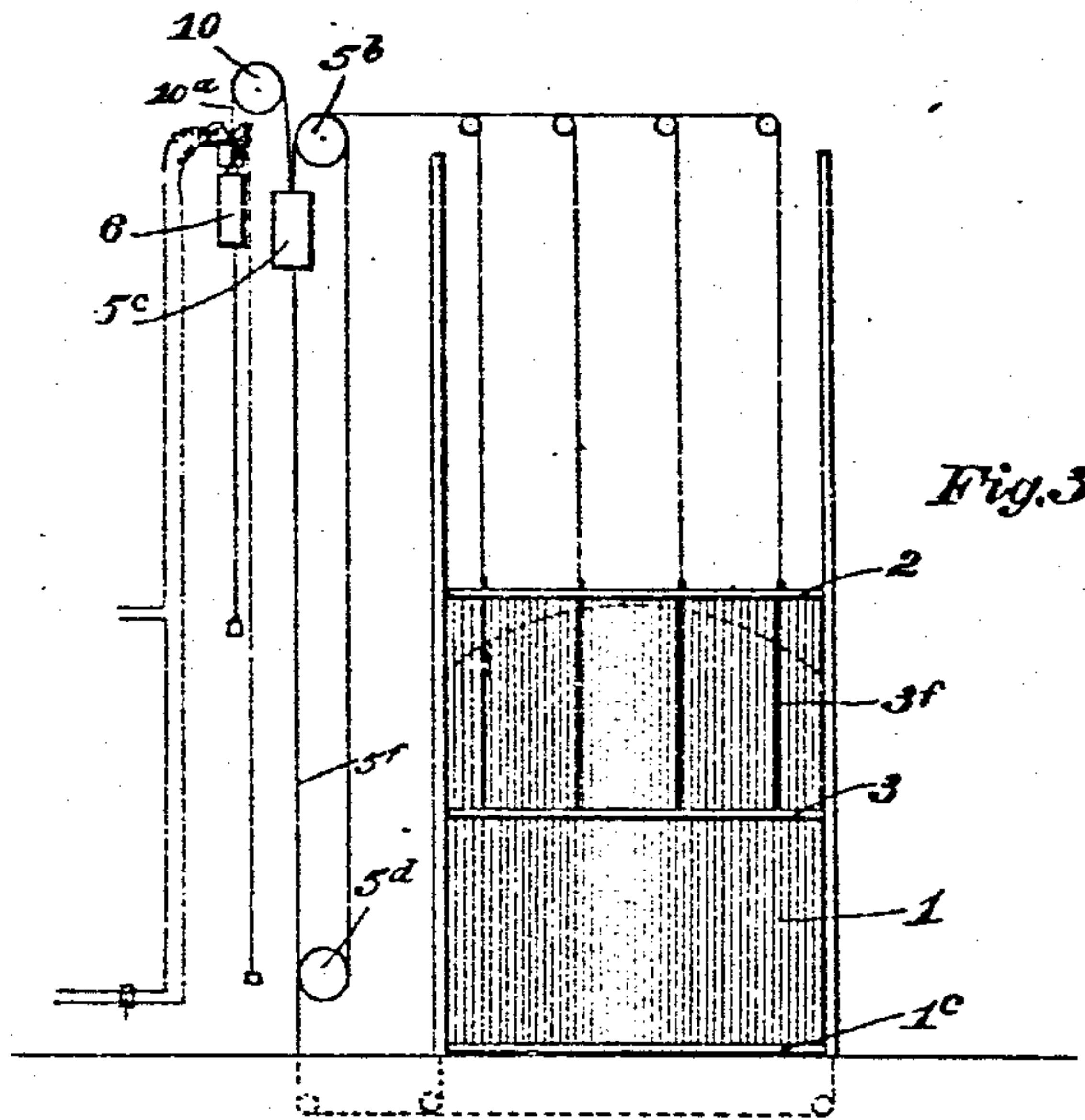


Fig. 3.

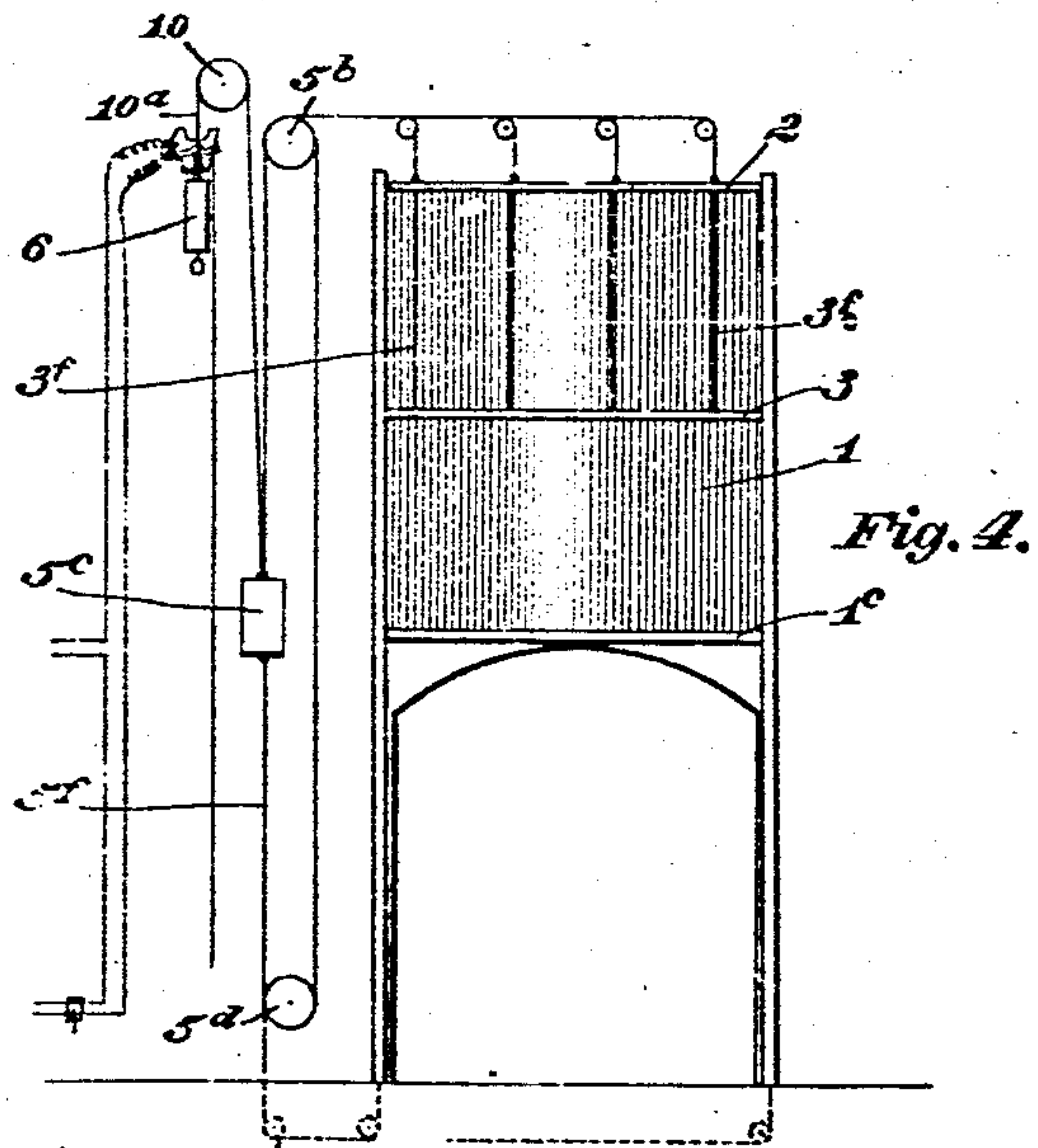


Fig. 4.

Witnesses

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5 SHEETS-SHEET 3.

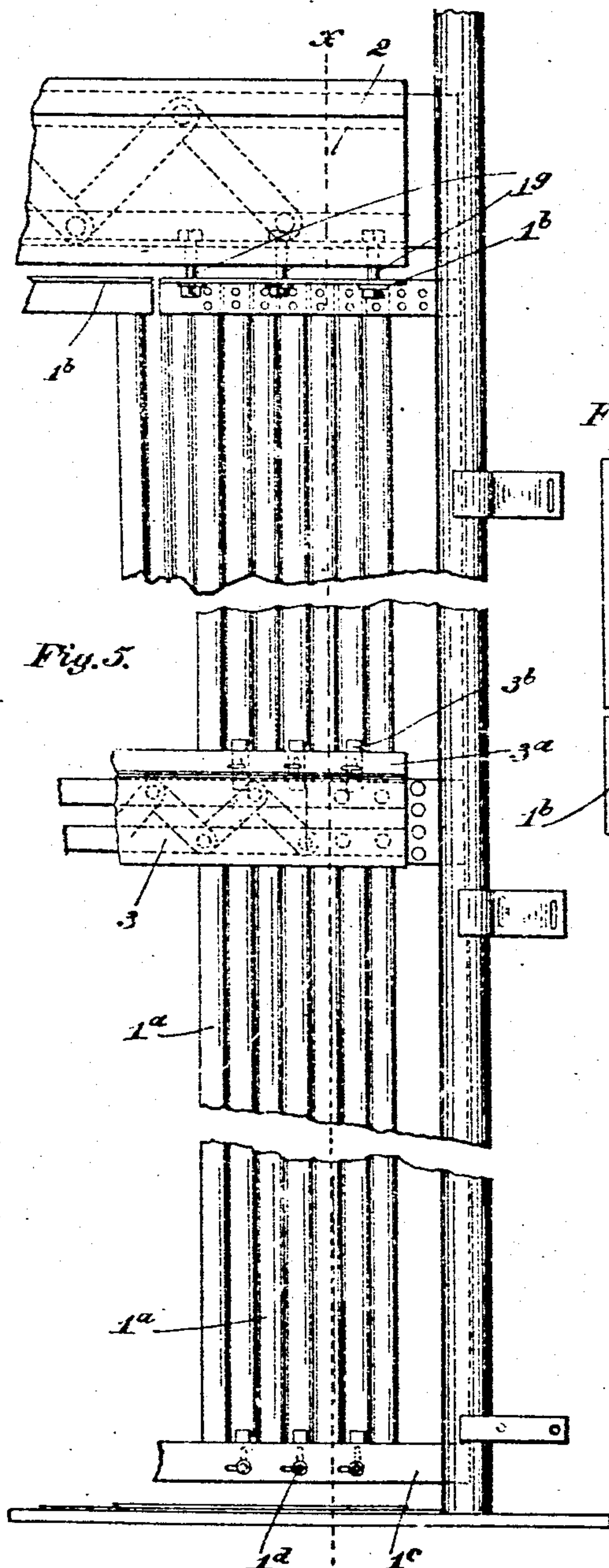


Fig. 5.

Fig. 5a.

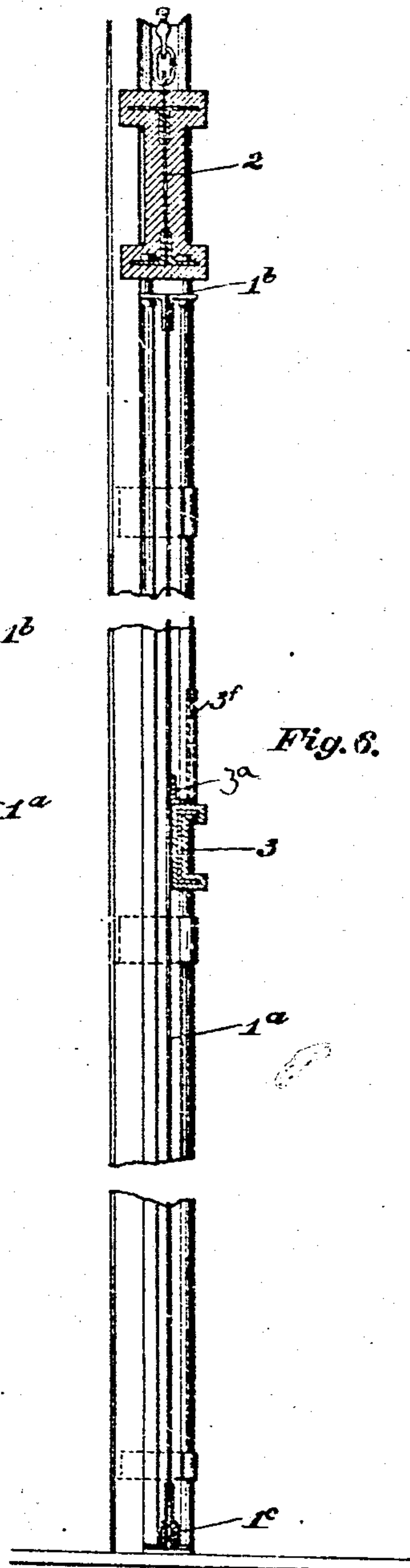


Fig. 6.

Witnesses

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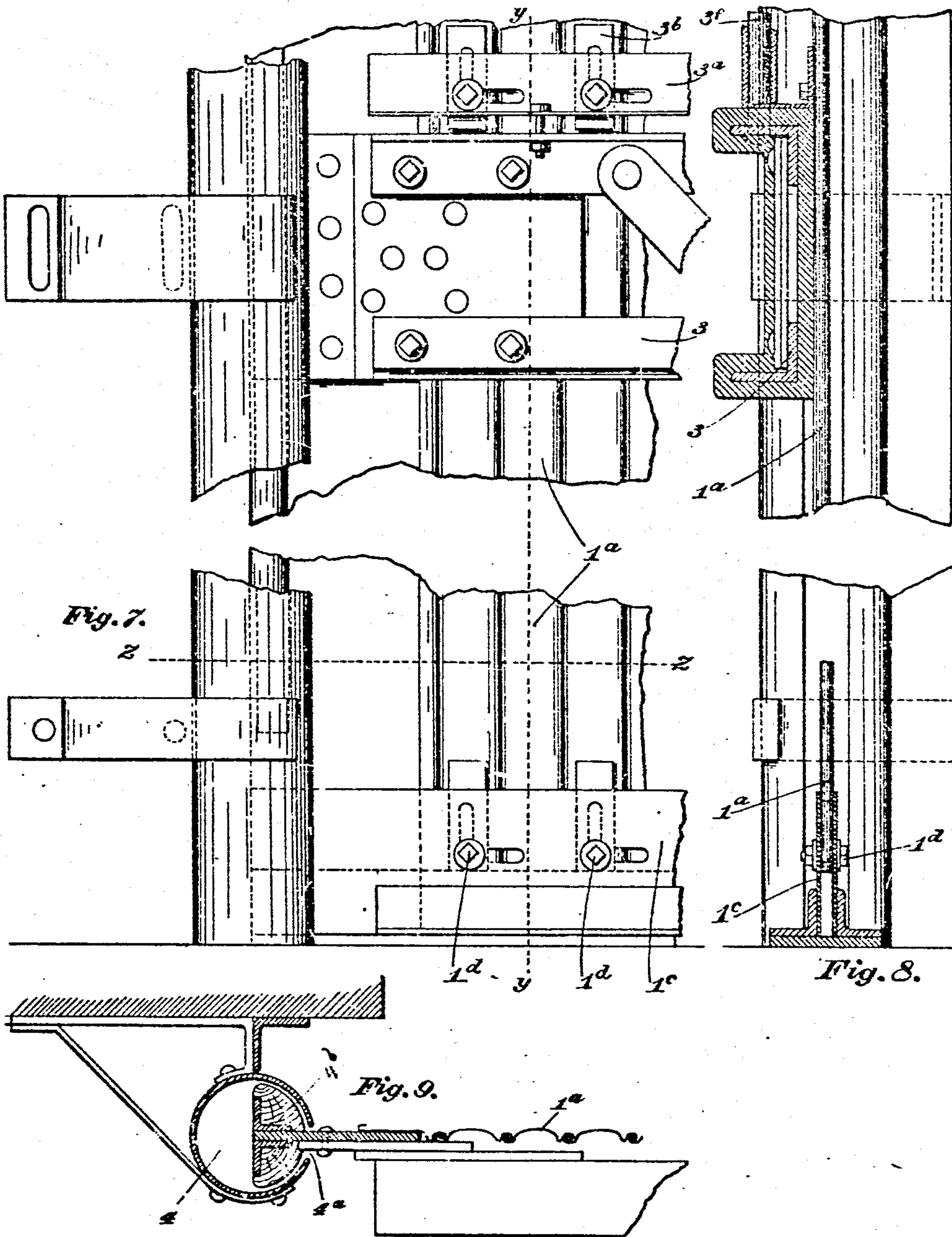
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5 SHEETS—SHEET 4.



Witnesses

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FIRE RESISTING CURTAIN.

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899,460.

Patented Sept. 22, 1908.

5 SHEETS—SHEET 5.

Fig. 10.

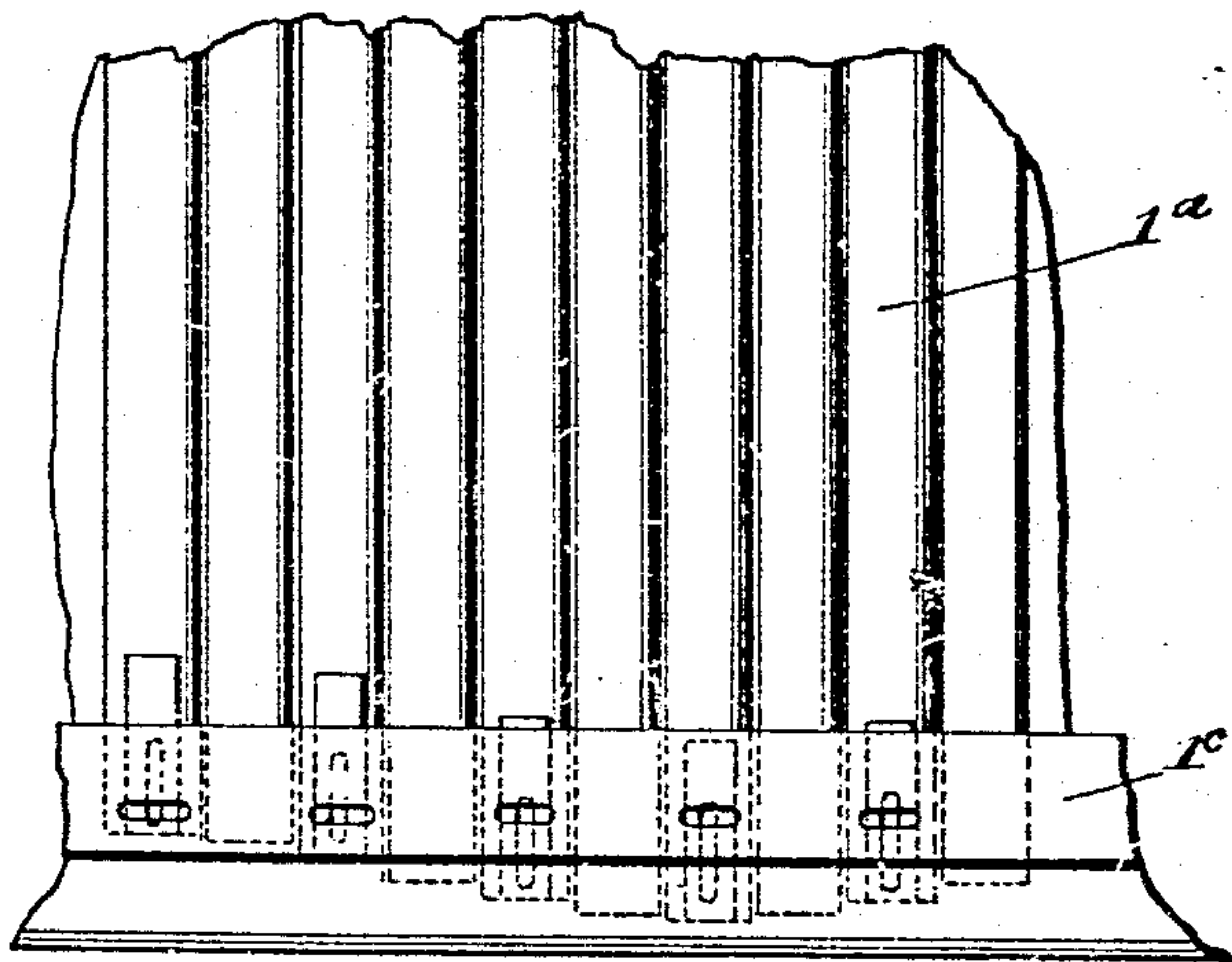


Fig. 11.

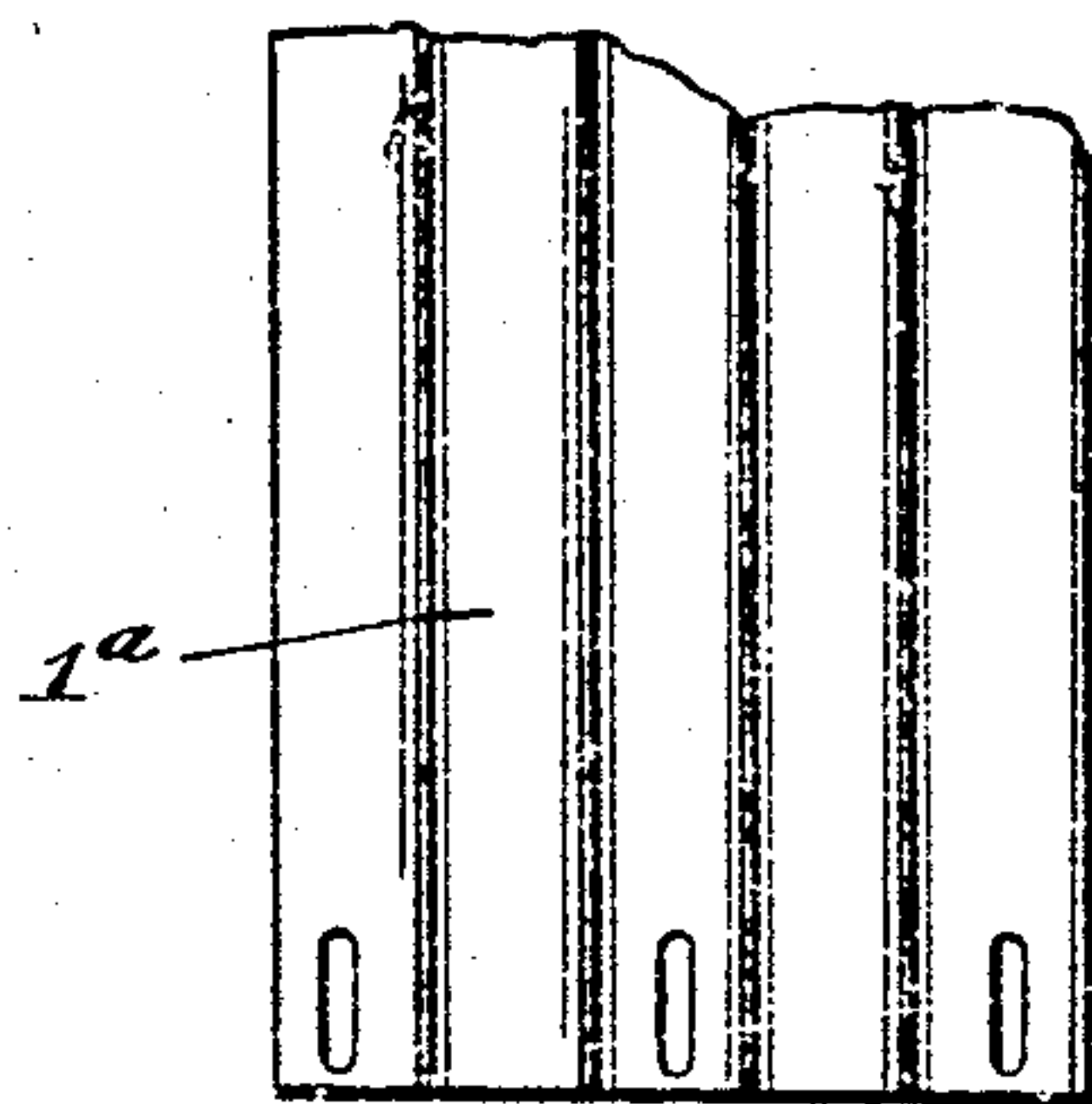


Fig. 12.

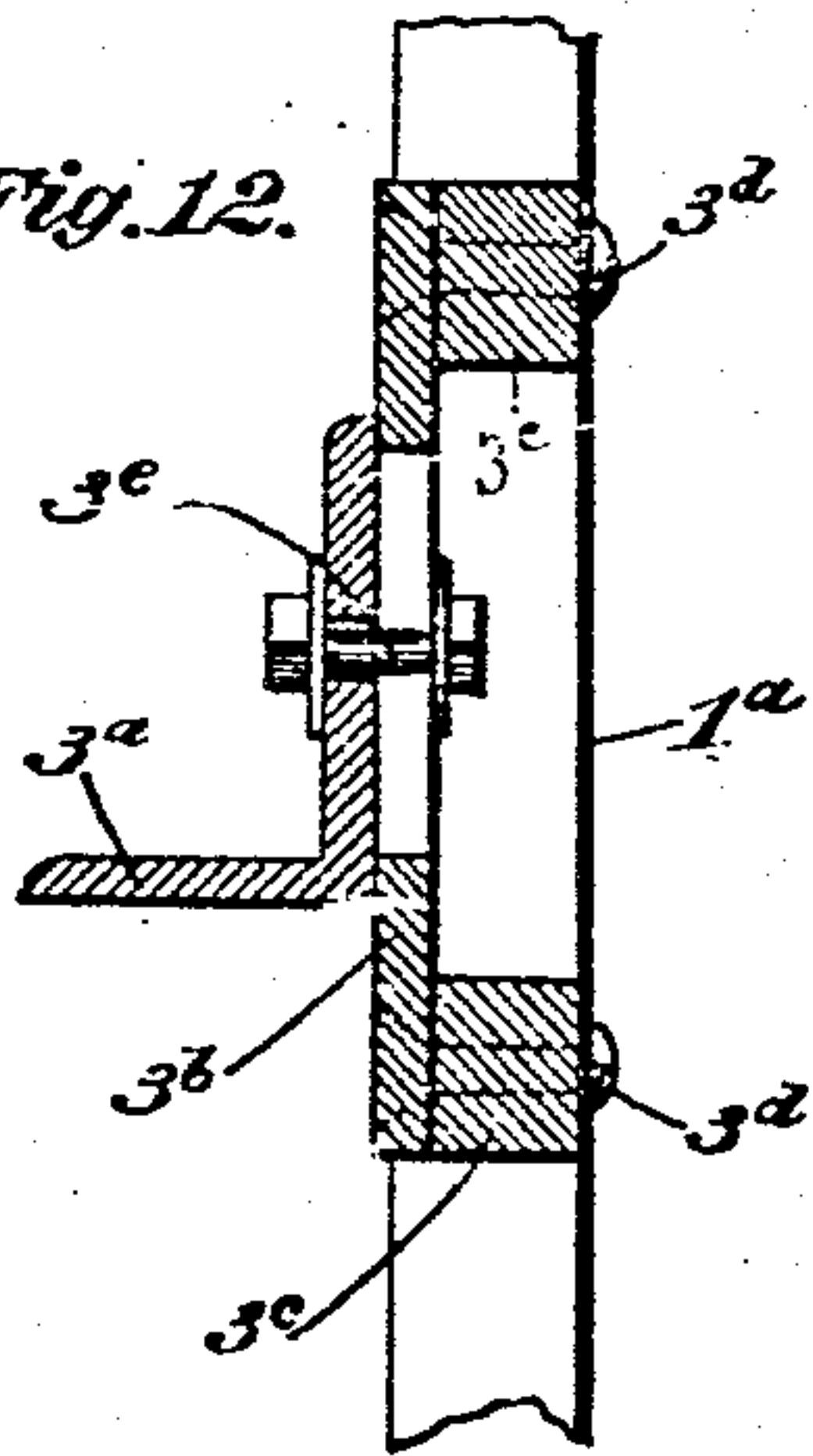
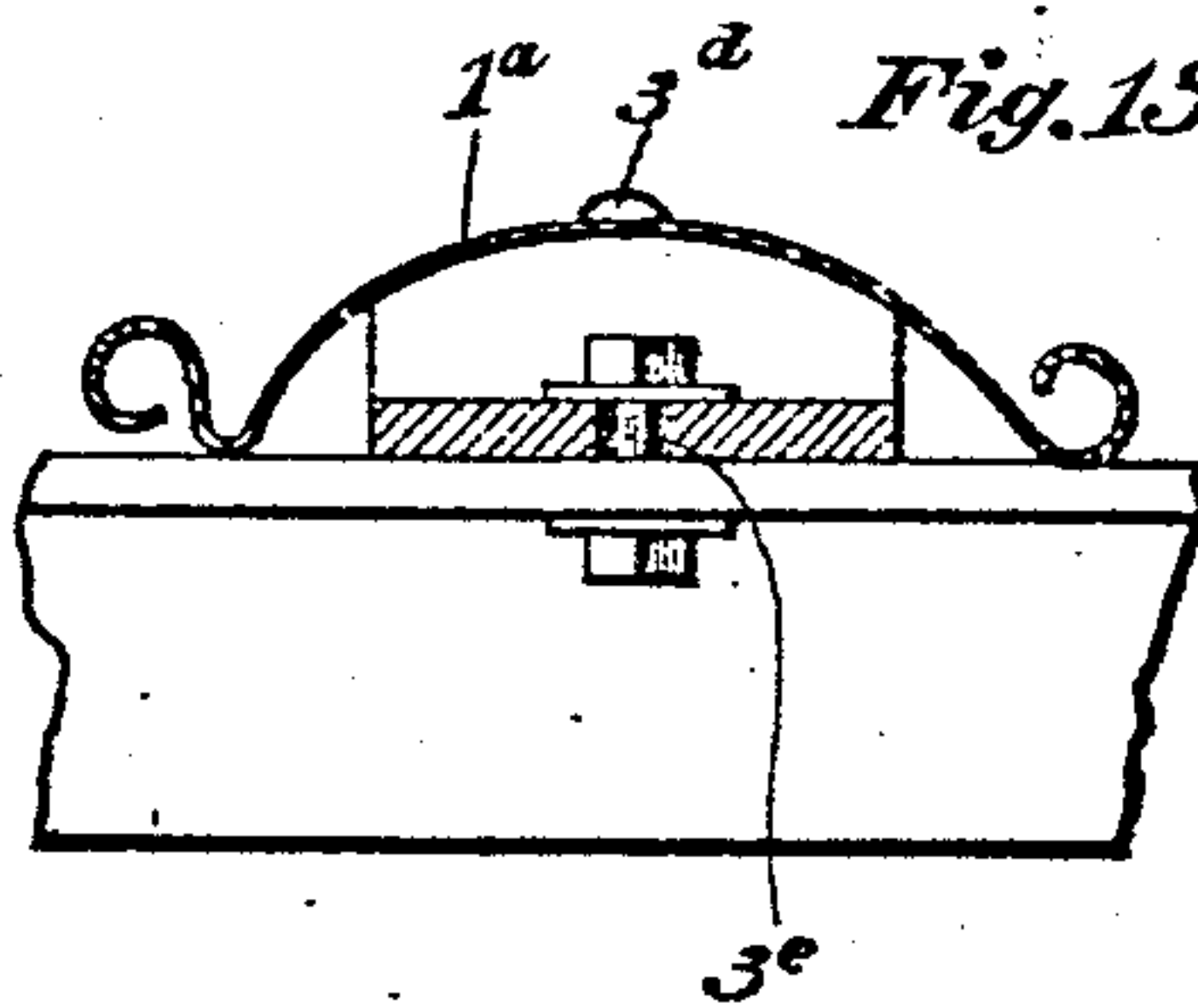


Fig. 13.



Witnesses

Ray Finckel
Oliver J. Ross

Inventor

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His Attorneys

UNITED STATES PATENT OFFICE.

EDWARD H. McCLOUD, OF COLUMBUS, OHIO.

FIRE-RESISTING CURTAIN.

No. 899,460.

Specification of Letter Patent.

Patented Sept. 22, 1908.

Application filed July 2, 1904. Serial No. 215,124. Renewed November 16, 1905. Serial No. 287,677.

To all whom it may concern:

Be it known that I, EDWARD H. McCLOUD, 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 Fire-Resisting 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 special object of this invention is to provide a fire resisting curtain for theaters, auditoriums and other buildings having stages but it is not confined in its use to buildings having stages.

The invention consists in an improved construction of the body of the curtain proper and in the runners and channels by which the curtain is guided in raising and lowering it.

In the accompanying drawings, in which I have illustrated an embodiment of the invention—Figure 1 is a general view in elevation looking at the stage side or rearside of the curtain; Fig. 2 is a vertical sectional view of the proscenium arch; Figs. 3 and 4 are general views in elevation illustrating respectively the lowered and raised positions of the curtain and of the weights in the normal operation of the curtain; Fig. 5 is a view in elevation on a larger scale of fractions of the curtain proper showing more particularly details of construction; Fig. 5* is a detail top view of the sections suspending the curtain to the top strut; Fig. 6 is a vertical section on the line *x—x* Fig. 5; Fig. 7 is a detail in elevation of fractions of the curtain on a still larger scale with the fire proofing of the middle strut removed to show details of construction; Fig. 8 is a vertical section on the line *y—y* Fig. 7 excepting that fire proofing of the strut is replaced; Fig. 9 is a horizontal section on the line *z—z* Fig. 7; Fig. 10 illustrates the construction at the lower edge of the curtain; Fig. 11 is a detail illustrating the construction of the lower ends of the units of which the main body of the curtain is constructed; Figs. 12 and 13 are vertical and horizontal views respectively, showing the devices whereby the units composing the curtain body proper are attached to the middle strut.

The body proper 1 of the curtain is made up preferably of vertically arranged and longitudinally expansible units. These units are preferably in the form of slats 1* joined

together at their edges so as to be longitudinally expansible when subjected to heat, with respect to each other. These units, at the upper edge of the curtain are riveted or otherwise secured in groups to sectional duplex T-bars 1^b, each section being made up of two angle bars having their faces placed toward each other against the units as indicated in Figs. 5 and 5*, suitable blocks being interposed, if necessary to make an even surface. And each of the duplex sectional T-bars is secured by three bolts 1^c passed through the horizontal flanges of the T-bar and secured to the top strut 2. The hole for the middle bolt 1^c can be made circular while the holes for the end bolts are made elongated (see Fig. 5*) so that said T-bars can expand toward their ends when subjected to heat. The sectional suspending T-bars are spaced to allow for their longitudinal expansion. The top strut 2 is of any appropriate construction, preferably of I-beam form in cross-section, built up of angle iron and lacing pieces all suitably inclosed in asbestos, cement or other material refractory to fire to prevent warping of the metallic parts.

The lower ends of the curtain units project into a channel bar or strip 1^c, the alternate units being provided with vertical slots through which bolts or pins 1^d are passed to effect the connection between the said bar and the units constituting the curtain. The slots in the units permit them to expand when subjected to high heat and the grooved bar is also provided with horizontal slots to permit it to expand longitudinally.

To brace and stiffen the curtain at its middle it is provided with a horizontally arranged center strut 3. To tie the center strut to the curtain I first secure, according to the plan proposed in my drawing, an angle bar 3*. To afford proper seats for the vertical flange of the bar I secure to the alternate curtain units, small flat vertical pieces 3^b mounted on blocks 3^c adapted to the units, the vertical pieces and blocks 3^c being secured thereto by rivets 3^d. These pieces 3^b are slotted vertically while the angle bar 3* is slotted in its vertical flange horizontally, and bolts are passed through these slots to secure the bar to the pieces 3^b and therefore to the curtain or perhaps more properly the curtain to it. The center strut 3 is attached to the horizontal flange of the angle bar by means of bolts 3* located at suitable intervals on

the strut. This center strut is also incased in fire proofing material to insure its rigidity when subjected to fire. This center strut, as before intimated, braces and stiffens the curtain and prevents it from bellying and bursting open when subjected to a draft of wind. The struts 2 and 3 can be connected by rods 3^a and suspending cables 5, can be secured to the upper ends of these rods, or at points in the upper strut directly above them so that the strain of suspension of the curtain will be more equally distributed in the curtain.

Curtains of the class referred to are usually raised and lowered bodily in a vertical plane behind the proscenium arch and not rolled up and unrolled as with some varieties of fire curtain. To effectively secure the curtain at its edges and insure its smooth, noiseless running I provide at each side of the proscenium opening a vertical tubular channel 4 having at its inner side a slit or opening 4^a, and attach to the vertical edges, the curtain runner 4^b made up of a T-iron with wood-filled corners and of semi-cylindrical form, the wooden parts of the runner to stand adjacent the inner sides of the tube so that sliding contact therewith shall not make much noise.

The curtain is suspended for operation by means of several cables 5 running over pulleys 5^a. These cables 5 all run to and over a common pulley 5^b the ends of the cables being provided with a heavy weight 5^c nearly counterbalancing the curtain. Running from the lower end of the weight down under a drum 5^d near the floor and thence over the pulley 5^b to the upper end of the weight is a cable 5^f by means of which the curtain can be raised and lowered in ordinary circumstances.

To effect the lowering of the curtain in case of fire I provide an emergency weight 6 adapted to counterbalance or partially counterbalance the main curtain counterbalancing weight 5^c, suitable means being provided to release the emergency weight 6 so that the weight of the curtain shall largely preponderate and automatically fall to closed position. Such a means I shall claim in an application for patent pending concurrently herewith.

I provide in addition to the cables 5, chains 11 connecting the curtain with fixed points above for the purpose of limiting the descent of the curtain. The reason for doing this is that the strip at the lower edge of the curtain is loose on the slotted lower ends of the units thereof and when the curtain is lowered these units should have room to expand with respect to the bottom strip. The chains 11, therefore, will preferably be made of such length that the bottom strip will touch and rest on the floor, but the ends of the units will be supported slightly above the floor.

Attached to the lower end of the weight 5^c

and running over appropriate pulleys beneath the floor to the opposite lower corners of the curtain can be two cables for the purpose of holding the curtain to move truly in its channels and prevent it from being tilted and caught when raised or lowered.

The operation of the curtain can be readily gathered from what has already been said, but to recapitulate, the curtain in its normal operation is raised and lowered by operating the belt cable 5^f preferably by turning the drum 5^d which can be provided with a gearing and crank or any appropriate and well understood means for effecting its rotation. In Fig. 3 I have shown the parts in normal position when the curtain is down, and in Fig. 4 I have shown the normal position of the same parts when the curtain is up, and it will be observed that when the curtain is raised and lowered in normal circumstances the cord 10^a moves freely up and down through the perforated emergency weight 6. When a fire takes place on the stage and the curtain happens to be up it may be promptly lowered by detaching the cord 8 from its fastening thus allowing the duplex lever to rise and release the emergency weight suspending-hooks thereby relieving the curtain of portion of the effect of the main counterbalancing weight and allowing the curtain to descend by gravity. If, however, the fire is so located or so violent in its progress that the cord 8 is not safely accessible for hand operation the electric circuit will effect the automatic release thereof.

What I claim and desire to secure by Letters Patent is:

1. In a curtain for theaters and the like, the body thereof composed of slats extending vertically lengthwise, and means for connecting the slats to permit longitudinal expansion thereof independently of each other.

2. In a curtain for theaters and the like, the body thereof composed of slats extending vertically lengthwise, and means for connecting the slats whereby they are held at their upper ends and free to expand independently of each other at their lower ends.

3. In a curtain for theaters and the like, the body thereof composed of lengthwise vertically extending slats connected by sliding joints.

4. In a curtain for theaters and the like, the combination with the body thereof composed of lengthwise vertically extending slats expansible independently of each other, of a transverse bracing strut, and means for connecting the strut and slats to permit the longitudinal expansion of the latter.

5. In a curtain for theaters and the like, the combination with the body thereof composed of lengthwise vertically extending slats expansible independently of each other, of a transverse bracing strut, and means for connecting the strut and slats to permit the ex-

pansion of the slats and also to permit the expansion of the strut.

6. In a curtain for theaters and the like, the combination with the body thereof composed of lengthwise vertically extending slats expansible independently of each other, of a horizontally arranged bracing strut intermediate the upper and lower ends thereof, and means for connecting the curtain with the strut to permit the expansion of the curtain with respect to the strut.

7. In a curtain for theaters and the like, the combination with the body thereof, of runners at the edge thereof comprising a metallic T-bar and strips of sound deadening material secured in the corners thereof, and tube-like channels in which said runners travel.

8. In a curtain for theaters and the like,

the combination with a curtain body composed of vertically arranged expansible units, of a strut from which the same is suspended and means connecting the curtain body with the strut adapted to expand horizontally independently of the curtain.

9. In a curtain for theaters and the like, the combination with the body thereof, of a strut from which the same is suspended and means connecting the curtain body with the strut including a divided or sectional bar the sections of which are independently expansible.

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

EDWARD H. McCLOUD.

Witnesses:

OLIN J. ROSS,

GEO. M. FINCKEL.