

No. 687,035.

Patented Nov. 19, 1901.

W. R. & R. H. KINNEAR.
FIREPROOF BLIND OR DOOR.

(Application filed Apr. 4, 1901.)

(No Model.)

2 Sheets—Sheet 1.

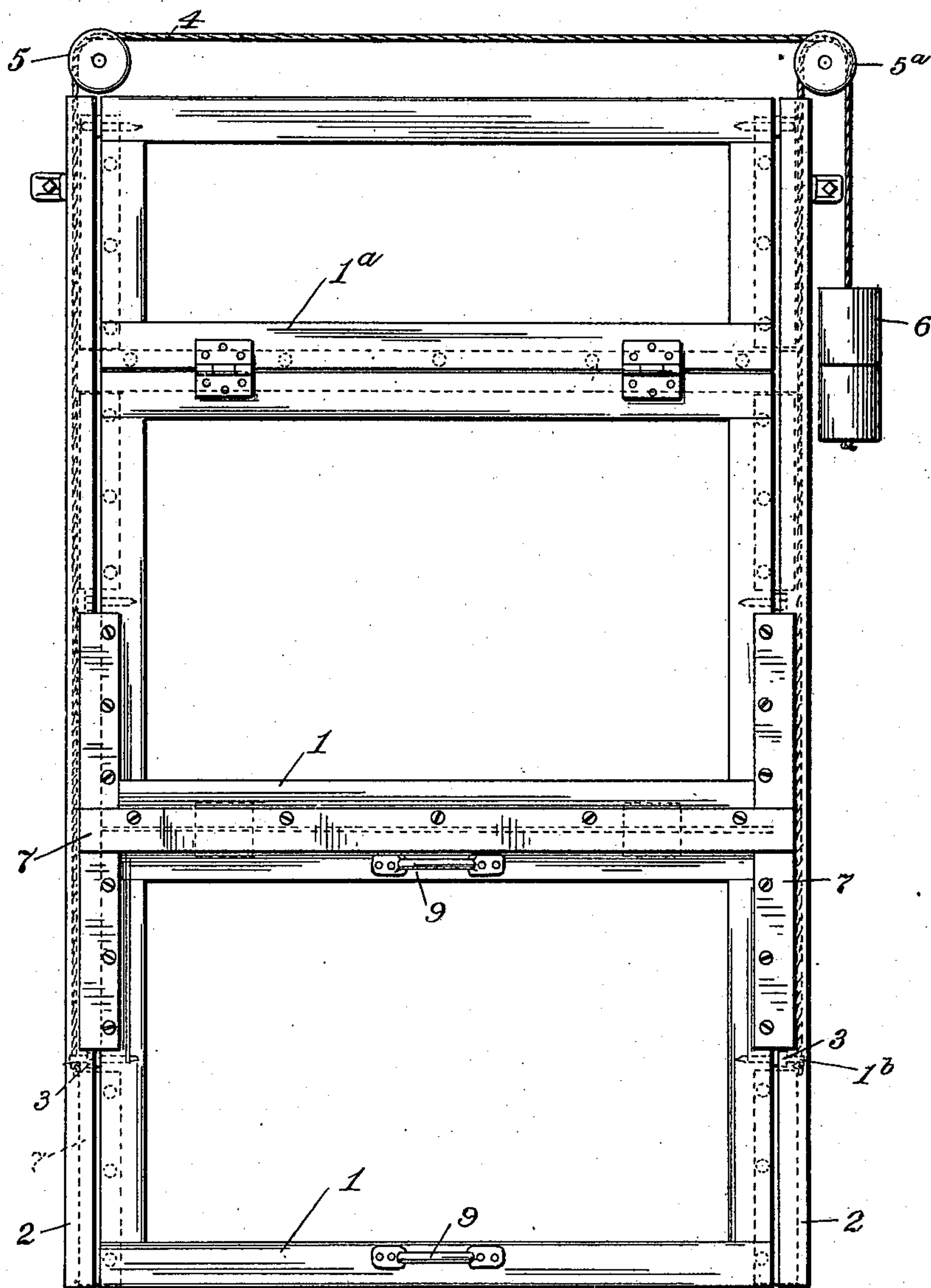


Fig. 1

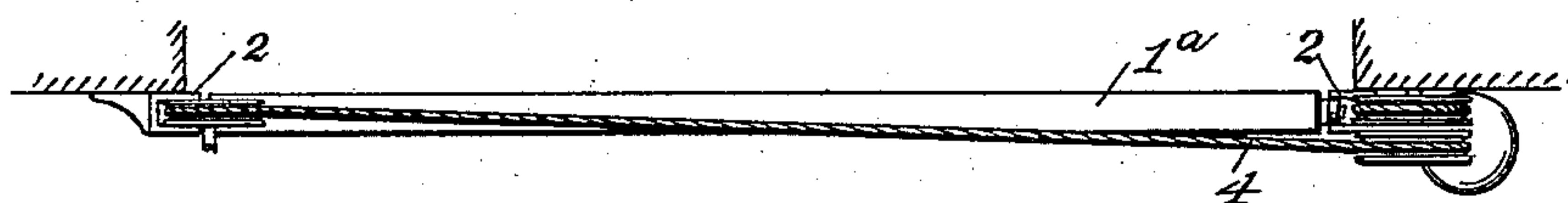


Fig. 2

Witnesses

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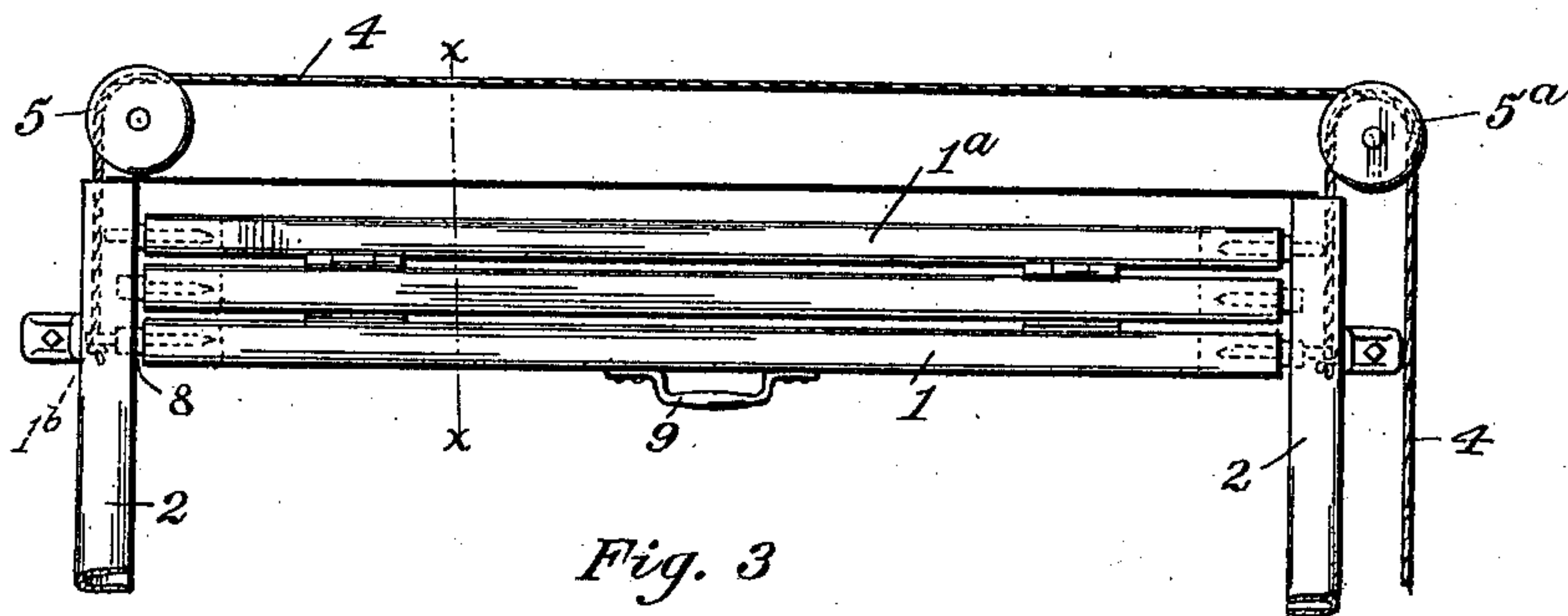


Fig. 3

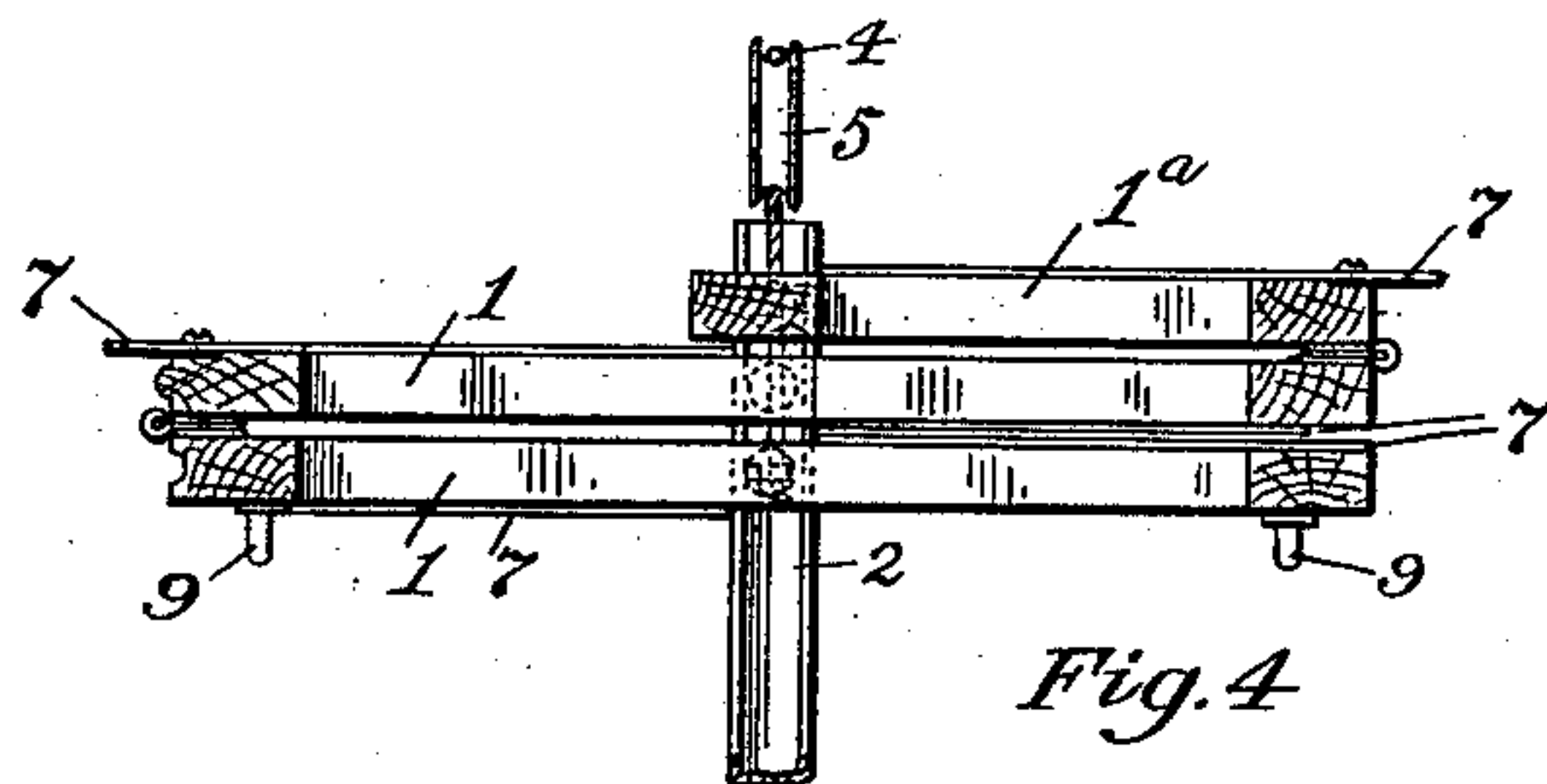


Fig. 4

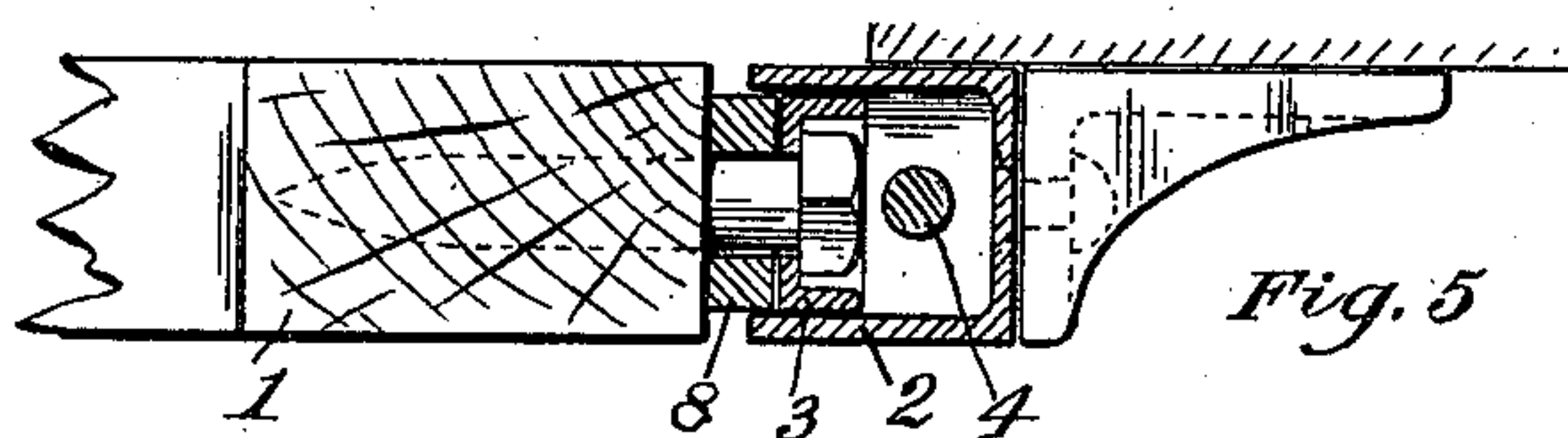


Fig. 5

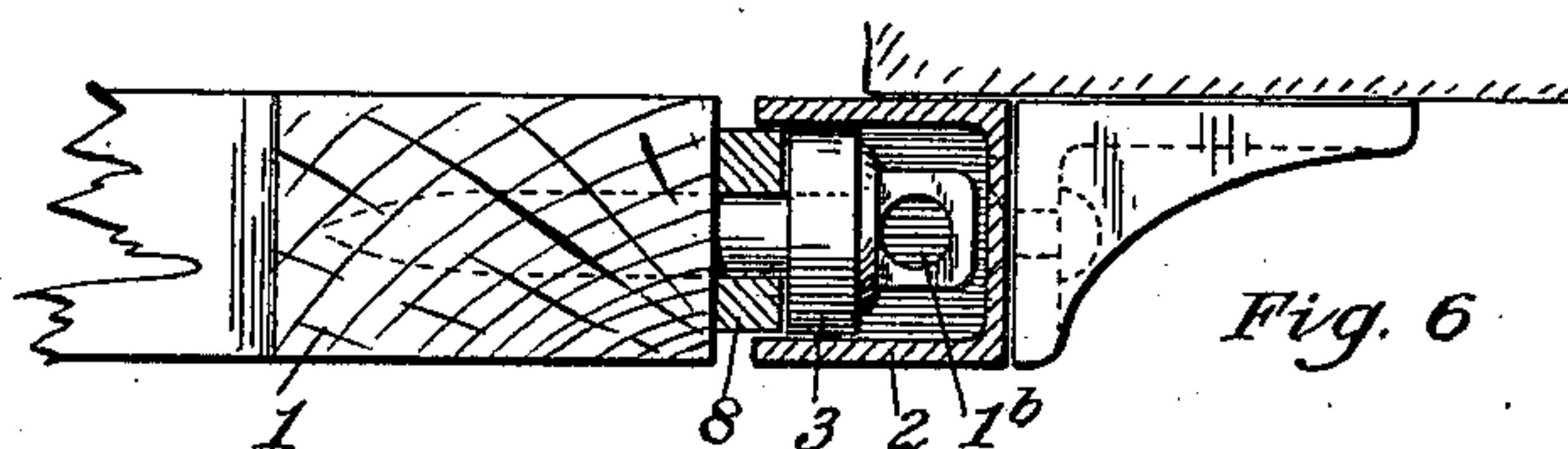


Fig. 6

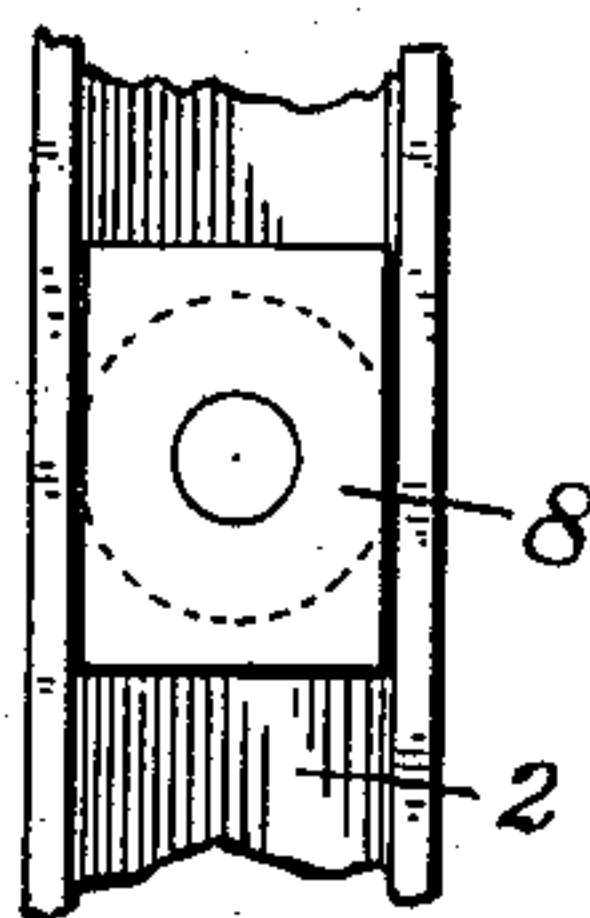


Fig. 7

Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM RAYMOND KINNEAR AND RAYMOND HENRY KINNEAR, OF
COLUMBUS, OHIO.

FIREPROOF BLIND OR DOOR.

SPECIFICATION forming part of Letters Patent No. 687,035, dated November 19, 1901.

Application filed April 4, 1901. Serial No. 54,268. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM RAYMOND KINNEAR and RAYMOND HENRY KINNEAR, citizens 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 Blinds or Doors; and we 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 this invention is to provide an improved folding door or window especially adapted to be made fireproof and for use in warehouses or other large buildings.

The invention consists principally of a door constructed in sections or leaves hinged together, so that the leaves fold upwardly, the main or principal sections being provided at their ends with centrally-arranged pins or bearings to run in guiding grooves or channels, combined with a counterbalancing or operative device to aid in folding said sections.

The invention also resides in details of construction, as hereinafter described and claimed.

Figure 1 is an elevation looking toward the inner side of the door. Fig. 2 is a view showing the top of the construction. Fig. 3 is a view showing the door folded up. Fig. 4 is a sectional view taken on a plane indicated by the line $x x$, Fig. 3. Fig. 5 is a detail of the middle pinion. Fig. 6 is a detail of the lower pinion, showing also the eye into which the cord of the counterbalancing-weight is knotted. Fig. 7 is a detail of a block sliding in the channel.

In the views, 1 1 and 1^a denote the sections comprising the door or blind. The upper section 1^a is shown to be of approximately half the size of the sections 1.

2 denotes the channels or runways in which the pintles of the leaves or sections project. The upper section 1^a of the door or blind is pivotally secured at the upper ends of the channels 2. The several sections are hinged so as to be foldable together with an accor-

dion fold. The sections 1 and 1 have runners or pinions 3, that engage and move in the channels 2.

To facilitate the operation of the door or blind, we attach to an eye or projection 1^b at each of the opposite ends of the lowermost section a weighted cord or chain 4, and by passing these cords or chains over pulleys 5 and 5^a at the opposite upper corners of the door-frame one weight 6 can serve for both sides of the door or blind. To close the openings between the hinged edges of the sections and between the sections and the channels, we provide projecting flanges or lips 7, which when the door is down lie across such openings and exclude the ingress of flame. These flanges along the sides of the sections can extend from the corners not quite to the middle; otherwise the sections could not oscillate in the opening and closing movements of the door. Therefore to close the small openings at the middle of the sides we place upon the shaft of the pin of the runners 3 a block 8, having parallel sides that slide in the channels 2 as the door is folded or opened.

It will be observed that by reason of the construction herein shown and described the blind or door is well balanced and is therefore easily manipulated by means of the handles 9, secured to the lower section.

In the drawings we have shown only the frames of the sections of which the door or window can be constructed. When these frames are of wood, they are of course to be covered with sheet metal or other material adapted to resist fire, or where it is unimportant that the doors be fireproof the frames can be paneled of wood like ordinary doors.

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

1. A door or blind comprising vertically-foldable sections with pinions or runners at approximately the middle points of the ends of said sections combined with a counterbalancing or operative device to aid in folding said sections.

2. A door or blind comprising vertically-foldable sections with pinions or runners at approximately the middle points of the ends

of the principal of said sections combined with a counterbalancing or operative device to aid in folding said sections.

3. In combination with a grooved channel
5 or runway a blind or door composed of foldable sections, with pinions or runners to engage and move in said channel or runway, and flanges projecting from the ends of said sections adapted to lap over the opening be-
10 tween the sections and runways or channels, substantially as described.

4. In combination with channels or runways, a blind or door composed of hinged foldable sections having pinions or runners
15 to engage and move in said channels or runways, of flanges on the opposite sides of the ends of such sections adapted to lap over the opening between the sections and the channels or runways.

5. In combination with channels or runways, a blind or door composed of hinged foldable sections having pinions or runners to engage and move in said channels or runways, flanges projecting from the ends of said sections adapted to lap over the openings be-
25 tween the sections and the channels or runways, and a flange projecting from the hinged edge of a section to lap over the opening between it and the adjoining section, substantially as described. 30

In testimony whereof we affix our signatures in presence of the same two witnesses.

WILLIAM RAYMOND KINNENAR.
RAYMOND HENRY KINNENAR.

Witnesses:

GEORGE M. FINCKEL,
SAMUEL W. LATHAM.