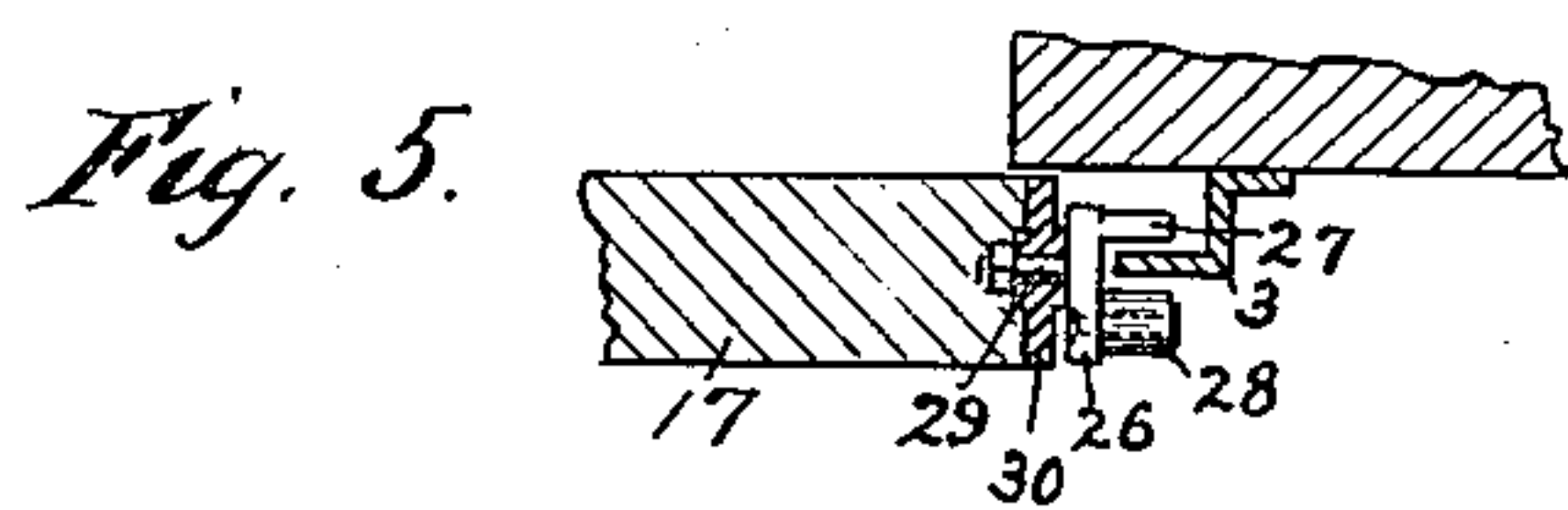
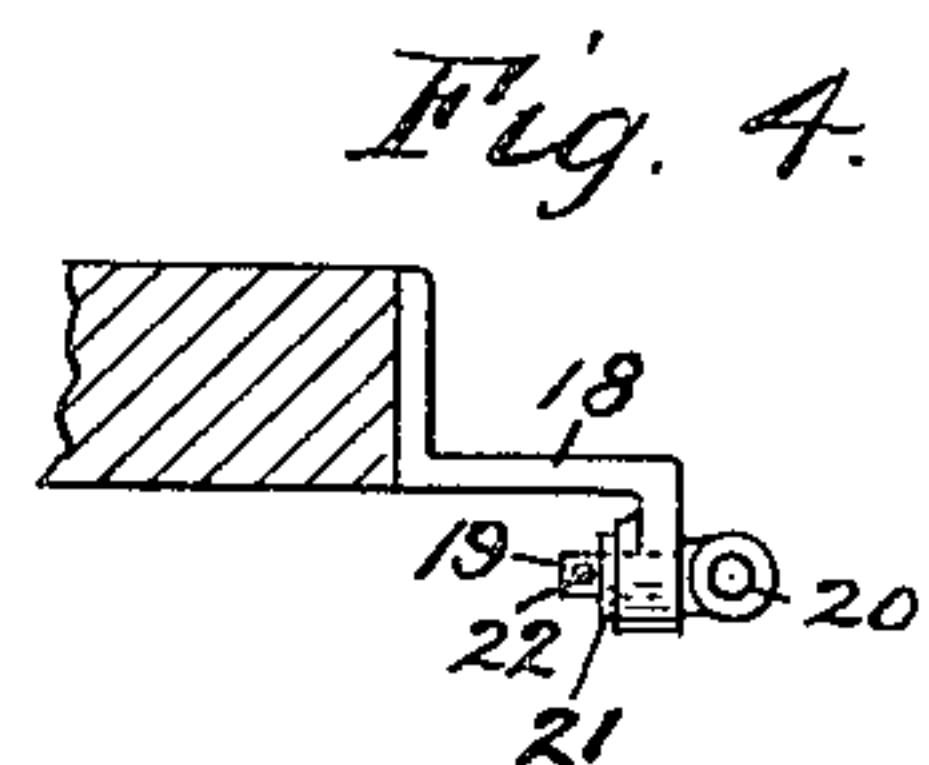
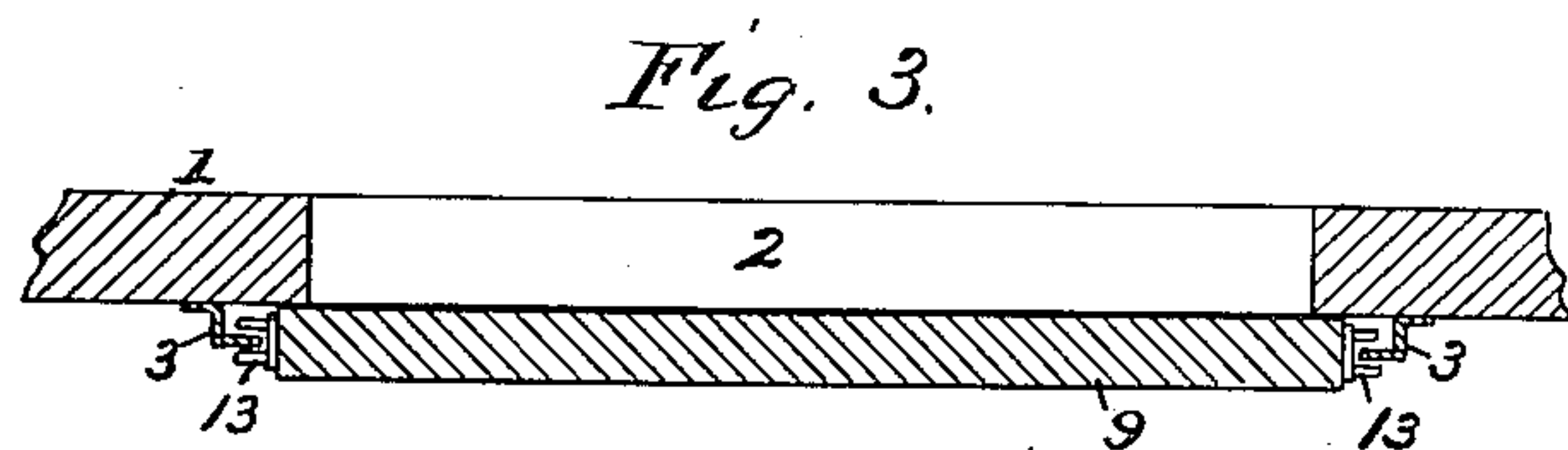
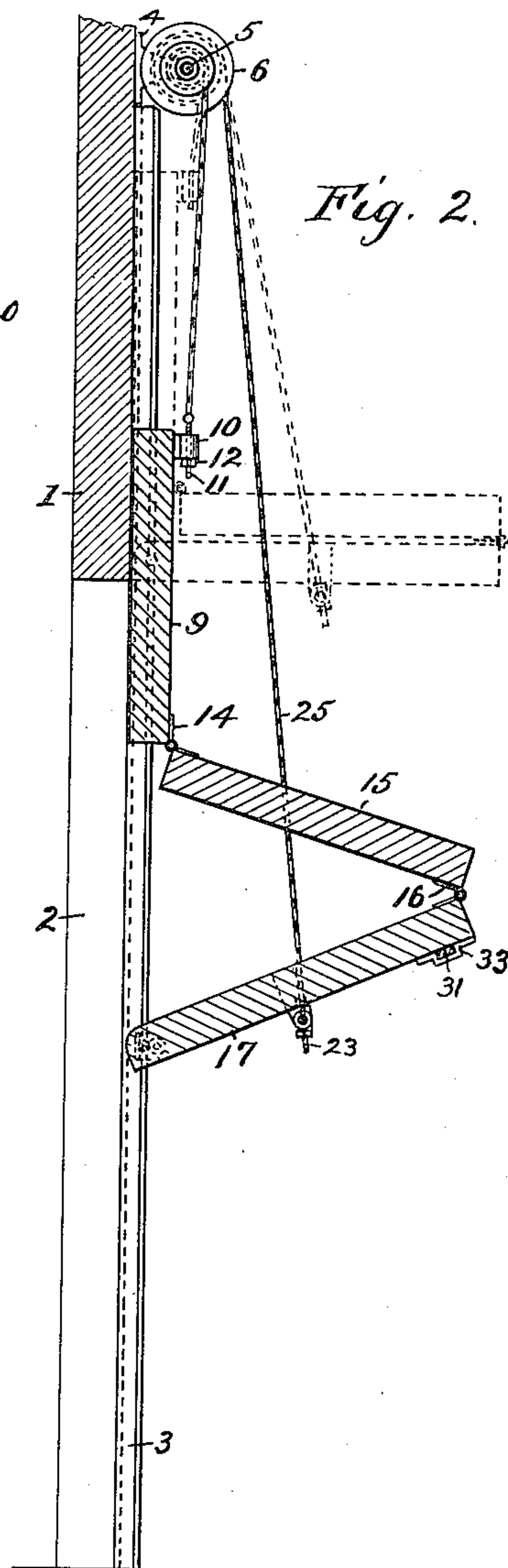
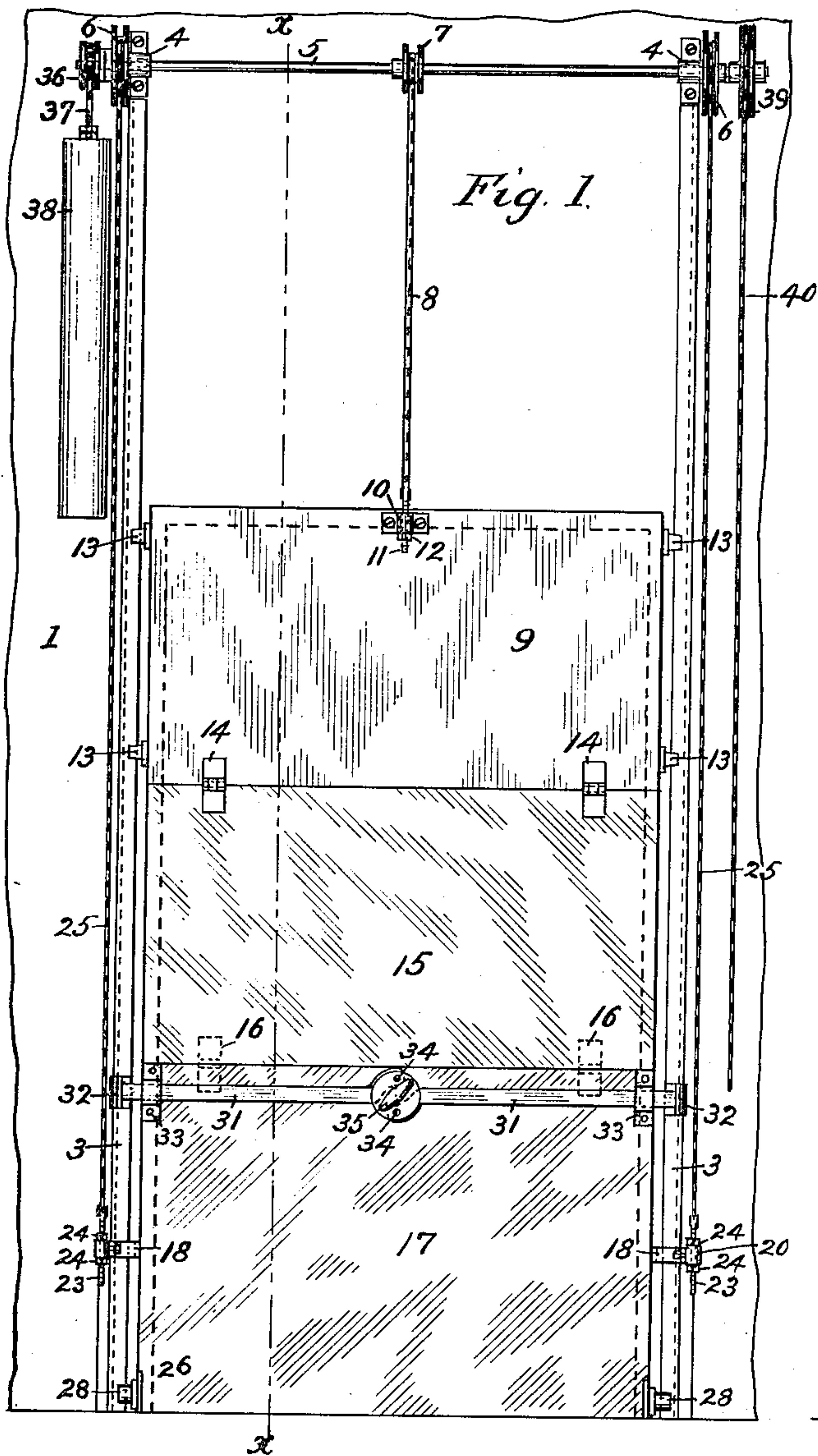


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SECTIONAL FOLDING DOOR.  
APPLICATION FILED OCT. 11, 1909.

990,589.

Patented Apr. 25, 1911.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOSEPH RASHKIN, OF BROOKLYN, NEW YORK, ASSIGNOR TO CALEB M. PEELE, OF  
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## SECTIONAL FOLDING DOOR.

990,589.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed October 11, 1909. Serial No. 522,105.

*To all whom it may concern:*

Be it known that I, JOSEPH RASHKIN, a subject of the Czar of Russia, and resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Sectional Folding Doors, of which the following is a specification.

The invention relates to improvements in sectional folding doors, especially adapted to situations requiring doors of considerable size; and the objects of the invention are to provide a construction in which the sections may be reduced in size to prevent their excessive overhang or projection when folded up to open the door, and to arrange the supporting parts in relation therewith for convenience in latching when the sections are unfolded or closed; and a further object of the invention consists in certain details of construction hereinafter set forth.

In describing the invention in detail reference is had to the accompanying drawing, forming a part of this specification, and wherein like characters of reference are used to designate corresponding parts in the several views, and in which:—

Figure 1 is a front elevation of an unfolded or closed door embodying the present invention; Fig. 2, a vertical section taken on line  $x-x$ , Fig. 1, showing the door in a partial open position in connection with the supporting-wall and doorway; Fig. 3, a transverse sectional plan of the door, with guides and supporting-wall; Fig. 4, an enlarged detail view of a connection-bracket for supporting the lower door-section; and Fig. 5 is an enlarged detail view of a swivel guide-bracket for the same door-section.

In the drawings numeral 1 designates the wall of a building, and 2, a doorway therein. Upon the wall on opposite sides of the doorway are secured the guide-bars 3, and above the doorway, the hangers 4 are fixed to the wall and rotatably support the shaft 5, having the fixed differential chain-wheels 6 and 7, the latter carrying the connection-chain 8 for adjustably supporting the upper section 9 of the door by means of the bracket 10, secured thereon and having an eye or perforation formed therein to receive a screw-end 11, connected at one end to the chain, and the opposite end provided with an adjusting-nut 12.

Guide-brackets 13 are fixed upon the opposite side edges of the upper door-section 9, and slidably engage the rails 3 to guide the movement of this door-section in a right or vertical plane. Secured to the upper door-section by means of the hinges 14, is an intermediate door-section 15, and secured to the latter in like manner by hinges 16, is a lower door-section 17. To the opposite side edges of the lower door-section are fixed the connection-brackets 18, having terminal perforations to rotatably receive the pins 19 of the swivel eye-bars 20, which are retained in position in the brackets by the washers 21 and the stop-pins 22. The eye-bars receive the screw-ends 23, which are adjustably secured thereto with nuts 24, the screw-ends serving as connection-ends for the chains 25, which are attached at their opposite or upper ends to chain-wheels 6 for supporting and raising the lower door-section. Also connected to the opposite side edges of the lower door-section at the lowermost portion thereof, are swivel guide-brackets, clearly shown in Fig. 5, and each comprising a base-plate 26, having a projecting bearing-lug 27 and a friction-roller 28, for engagement on opposite sides of the guide-rail 3, the friction-roller being rotatably mounted upon a pin fixed in the base-plate, in the usual manner.

The base-plate is provided with a pintle 29, mounted to turn in the plate 30, fixedly secured to the side edge of the lower door-section, the parts constituting the swivel guide-brackets being so arranged as to guide the lower portion of this door-section in a straight line while the upper portion thereof is free to swing outward and fold against the adjacent door-section. The lower door-section is further provided near its upper portion with a latch of common construction, and as herein shown comprises two laterally-extending latch-bars 31, the outer ends of which engage slots formed in the latch-plates 32, secured to the guide-rails 3. The outer ends of the latch-bars are slidably supported by guide-plates 33, fixed upon the door-section, and the inner ends of the latch-bars are pivotally secured with pins 34 to the base of the actuating-handle 35, which latter is mounted for a rotatable movement in the lower door-section, and further provided with a spring, not shown, for normally



projecting the latch-bars into engagement with the latch-plates for locking the door. The shaft 5 is also provided with a fixed chain-wheel 36, carrying a chain 37 for supporting the counterweight 38, the chain-wheel being preferably of reduced diameter to limit the vertical movement of the counterweight with respect to the movement of the door. An actuating chain-wheel 39 is fixed upon the opposite end of shaft 5, and provided with a manually-operated chain 40, which serves to conveniently rotate the shaft for opening or closing the door. In order to provide for the variation in the relative movements of the upper and lower door-sections, the supporting chain-wheels 6 and 7 are of different sizes, the latter wheel being of a diameter to afford the necessary vertical movement of the upper door-section 9, and the former wheels 6 of a correspondingly larger diameter to jointly raise and fold the hingedly connected lower and intermediate door-sections through their increased vertical distance, as indicated by the dotted lines.

The connection-brackets 18 are centrally disposed with relation to the lower door-section in order that the supporting-chains 25 may receive the greater part of the weight of the projecting sections, and thereby relieve the strain upon the hinge-connections when the door is in an open position. A further object of this disposition of the connection-brackets 18 with respect to the lower door-section, is to facilitate the operation of the latch-bars by causing the intermediate and lower sections to normally assume an approximate straight-line position when closed. Upon the disengagement of the latch-bars, the door may be readily raised or lowered by the operating-chain 40, and securely held at any desired height by the supporting-chains.

It is to be understood that while I illustrate and describe the preferred embodiment of the invention, it is susceptible of various changes as regards its form, proportions, detail construction, and arrangement of parts without departing from the essential spirit and scope or sacrificing any of the advantages of the invention.

What I claim as my invention and desire to secure by Letters Patent, is:—

1. In a sectional folding door, the combination of an upper door-section arranged for vertical movement, an intermediate door-section having its upper end hingedly secured to the upper door-section and its lower end arranged for outward movement, a lower door-section having its upper end hingedly secured to the lower end of the intermediate door-section and its lower end arranged for vertical movement, a shaft rotatably mounted above said door-sections and provided with actuating means, a chain-wheel fixed to said shaft and having a chain connection to the upper door section, and a pair of chain wheels of increased diameter fixed to said shaft and having chain connections to the lower door-section, whereby a folding movement of the intermediate and lower door-sections may be positively effected during the upward movement of the upper door-section.

2. A door comprising three sections hingedly secured together, means for vertically guiding the upper section and the lower portion of the lower section of said door, a shaft rotatably mounted above said door and provided with actuating means, a chain-wheel secured to said shaft and having a chain connection to said upper door-section, and a pair of chain-wheels of larger diameter secured to said shaft and having chain connections leading to said lower door-section.

3. The combination of a foldable door comprising a plurality of hingedly-connected sections, vertical guide-bars engaged by said door, a shaft rotatably mounted above said door, chain-connections between said shaft and the upper section of said door, chain-connections between said shaft and the lower door-section, and a counterweight operatively connected to said shaft in opposition to said door.

Signed at New York, in the county of New York and State of New York this 7th day of October A. D. 1909.

JOSEPH RASHKIN.

Witnesses:

M. O. FAHNESTOCK,  
C. W. LOVELL.