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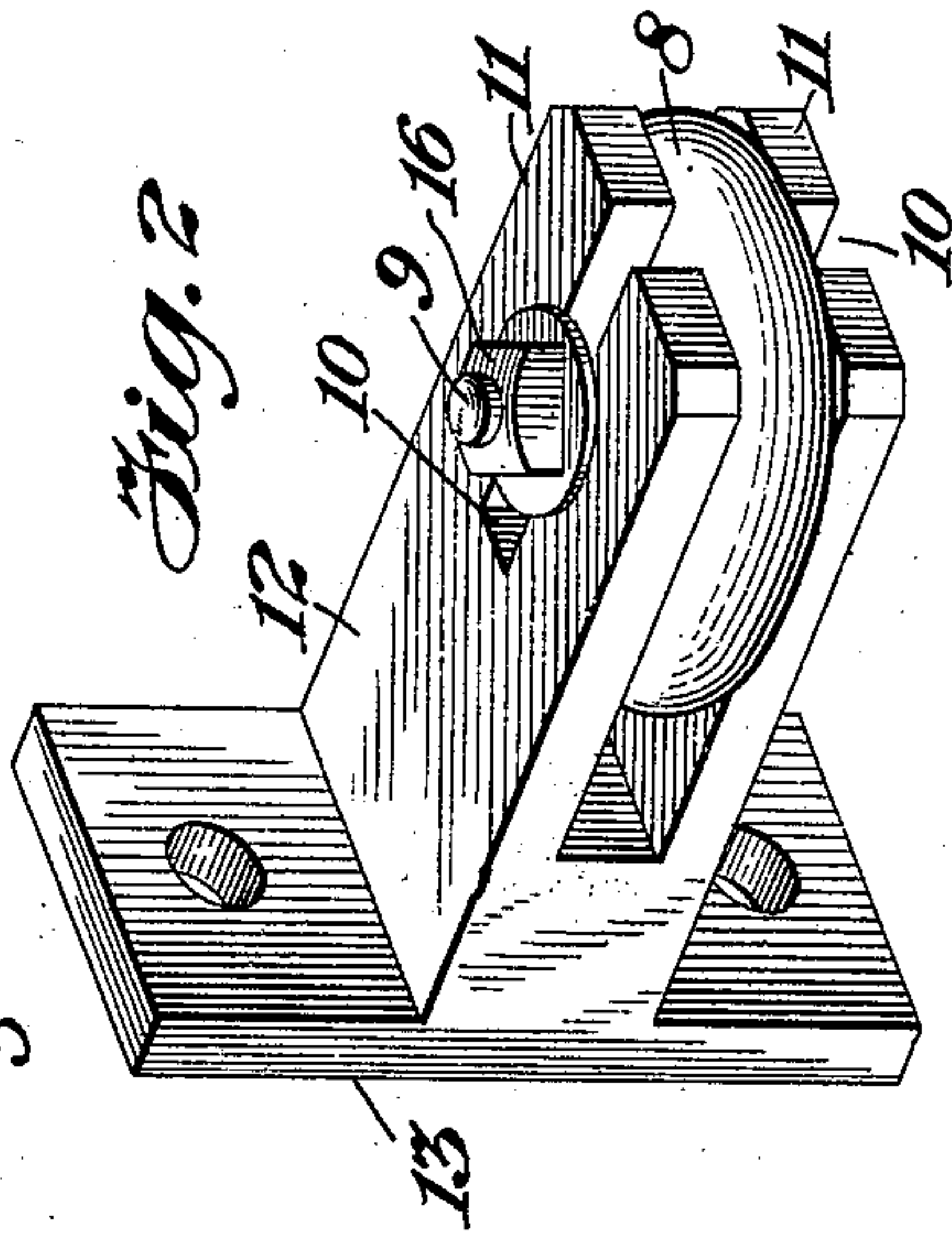
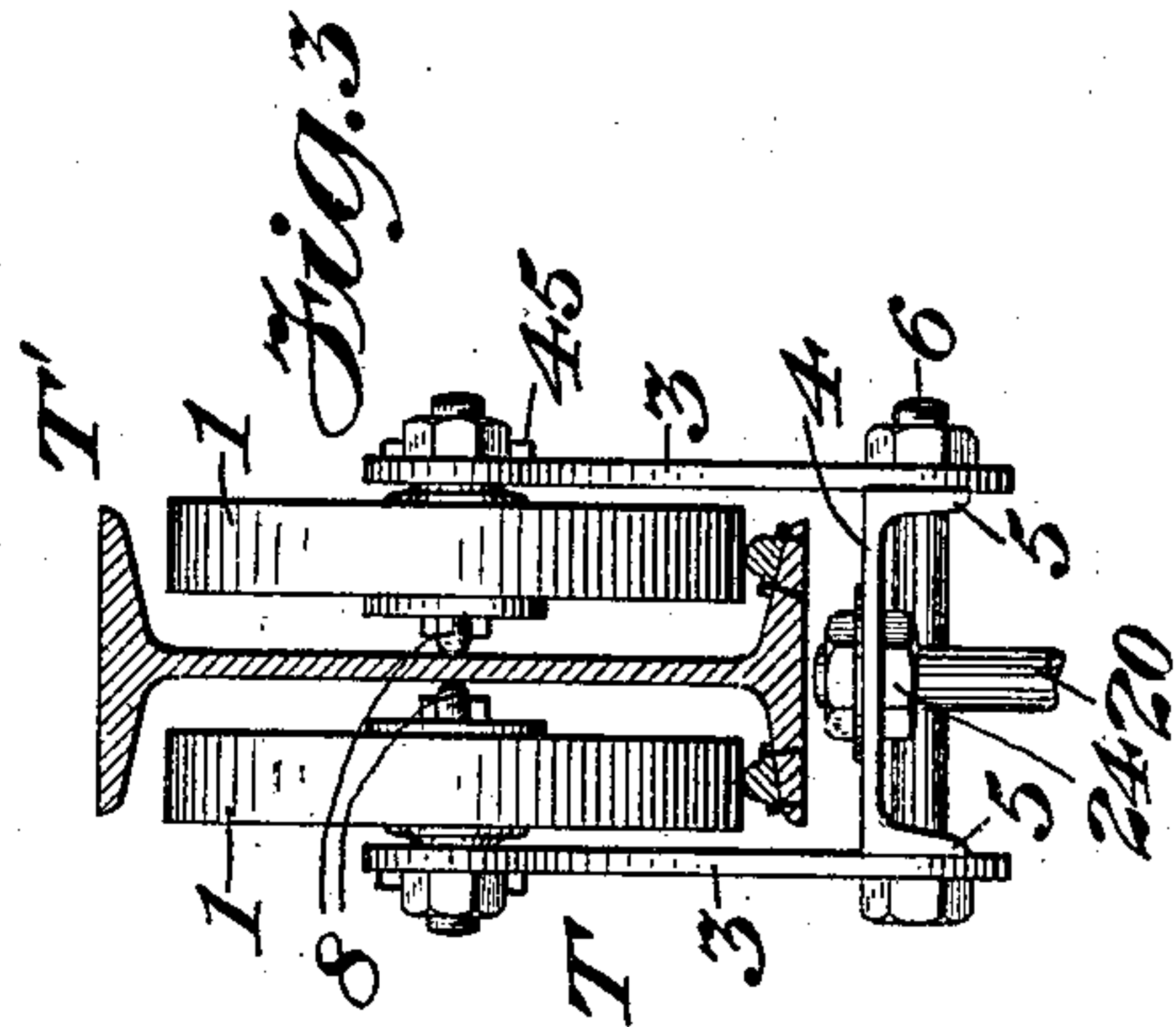
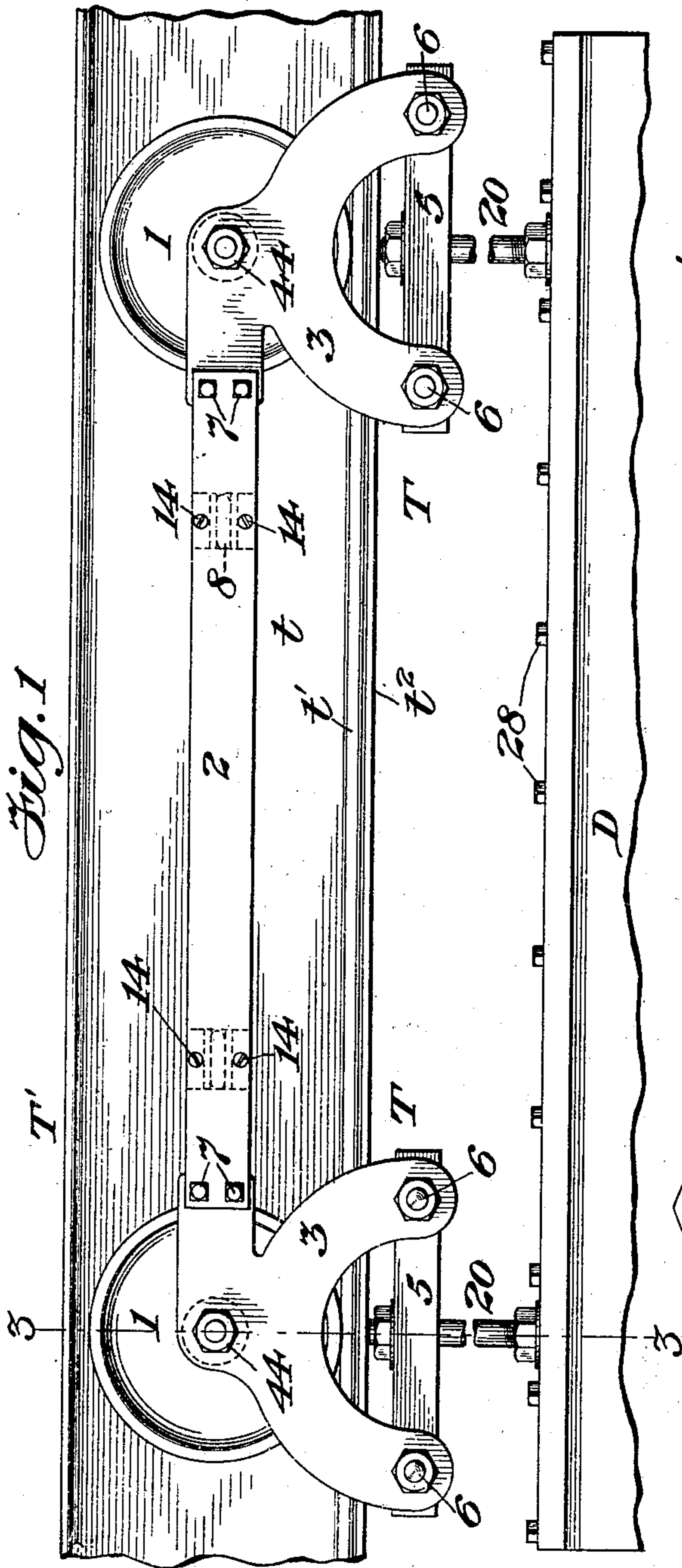
PATENTED APR. 28, 1908.

S. U. BARR.

HANGER FOR EDGEWISE MOVABLE DOORS.

APPLICATION FILED MAR. 29, 1907.

3 SHEETS—SHEET 1.



WITNESSES
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3 SHEETS—SHEET 3.

Fig. 6

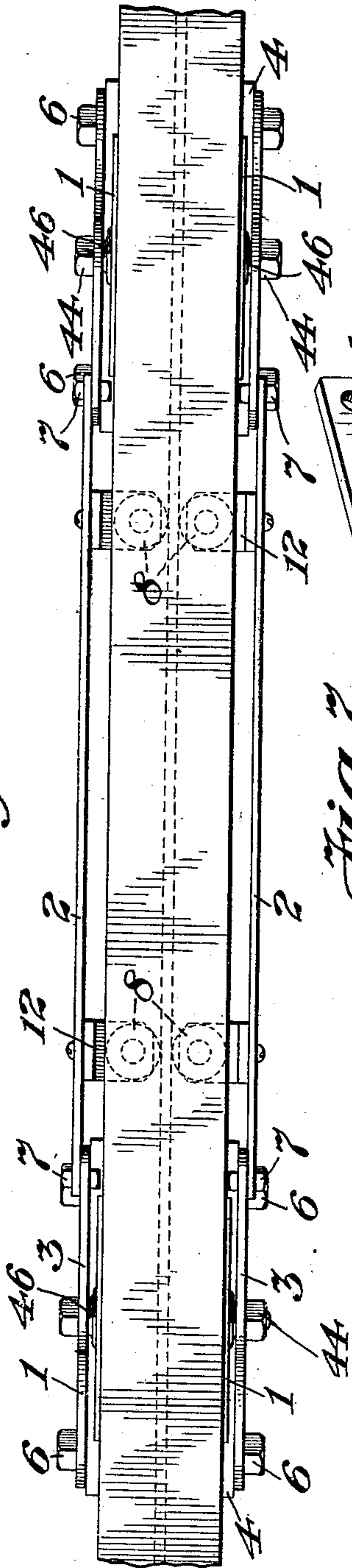


Fig. 7

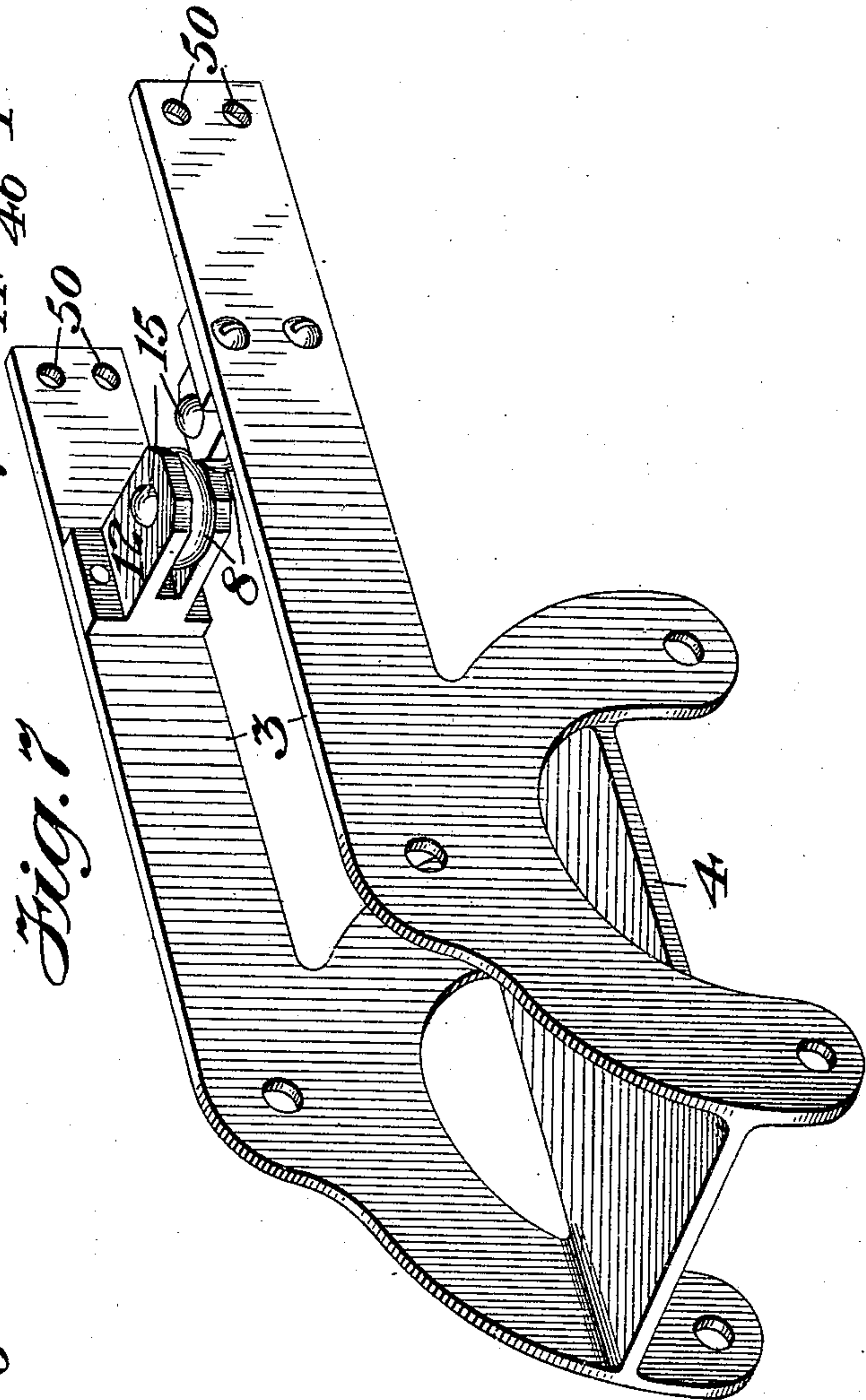
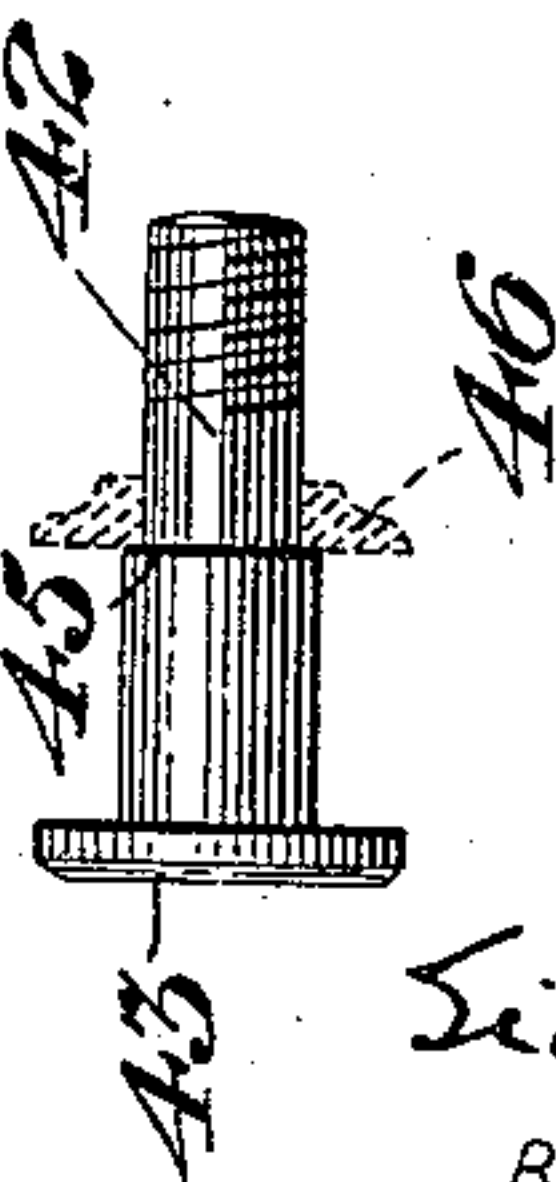


Fig. 5a



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UNITED STATES PATENT OFFICE.

SIDNEY U. BARR, OF NEW YORK, N. Y., ASSIGNOR TO WM. H. JACKSON COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

HANGER FOR EDGEWISE-MOVABLE DOORS.

No. 885,970.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed March 29, 1907. Serial No. 365,351.

To all whom it may concern:

Be it known that I, SIDNEY U. BARR, citizen of the United States of America, residing at No. 229 West Twenty-eighth street, in the city and county of New York and State of New York, have invented certain new and useful Improvements in Hangers for Edgewise-Movable Doors, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to hangers for edgewise sliding doors.

The objects of my invention are to produce a strong, simple and durable door-hanging mechanism which (1) operates with a minimum of friction; (2) is adapted for the suspension of a sliding-door varying in weight from 100 pounds or so to 10 tons or more; (3) is readily adapted not only for raising and lowering the attached door, but also to fit doors of varying widths; and (4) is of a novel construction that compels the door to run in a straight line.

In the accompanying drawings, illustrating the principle of my invention and the best mode now known to me of applying the same, Figure 1 is a side elevation of a part of an overhead track; of my new door-hanger mounted on the track, and of part of a door; Fig. 2 is a perspective view of one of the four horizontal, truck-centering wheels in its supporting bracket; Fig. 3 is a vertical transverse sectional view at line 3—3 of Fig. 1 looking to the left, and shows the overhead track in one section and an end view of one of the trucks provided with a pair of interiorly mounted and oppositely disposed vertical supporting-wheels, and shows also a pair of the horizontally mounted truck-centering wheels, one of which, with its supporting bracket, is shown in Fig. 2. Fig. 3 also shows a vertical post through the base of the truck for attachment to a door; Fig. 4 shows, in side view, a part of a door attached to the base of one truck; also shows a part of an overhead track and a part of one of the two horizontal, parallel side-bars by which each pair of trucks is connected together; and further shows details of the adjustable devices by means of which the door is adjustably connected with its truck; Fig. 5 is a view, principally in vertical transverse section, at a line corresponding to 5—5, of Fig. 4, and shows the overhead track in section, and one of the truck-supporting wheels in section. It

also shows one of the frames of a truck, partly in section, and one of said connecting bars in section. It also shows, partly in section and partly in elevation, a detail of the adjustable devices whereby a truck and door are adjustably secured together, and it also shows, in side elevation, an old form of antifriction bearing which is of peculiar advantage in the door-hanger. Fig. 5^a shows a journal for supporting the ball-bearing of a supporting-wheel. Fig. 6 is a top-plan view of my new door-hanger mechanism shown in Fig. 1. Fig. 7 is a perspective of a modification, in which the truck-frame is shown as a one-piece casting, and provided with arms in which the horizontal, truck-centering wheels are journaled and to which the parallel side-bars are attachable.

As shown in the drawings, my new door-hanger is made up of a pair of trucks T, each provided with a pair of interior, oppositely disposed, track wheels 1. The pair of trucks are connected together by horizontal and parallel connecting bars 2, 2, the ends of which, respectively, are secured to side-frames 3, 3 of the trucks T. The side-frames of each truck are spaced apart by a base 4, the distance between the inner walls of the side-frames being sufficient for mounting the truck-supporting wheels 1, on the inner sides of the frames 3, at a sufficient distance apart to receive between them the vertical web *t* of the track T'. Each pair of side-frames 3 and their base 4 may be integral, if desired, but each truck-frame is preferably formed, as shown, of a pair of side-frames 3 and an intermediate base 4, which has at each of its sides a downwardly-extending web 5, through which, and the lower portions of the side-frames 3, bolts 6 are passed to clamp the side-frames and the base rigidly together. The ends of each horizontal connecting bar 2 are preferably detachably bolted at 7 to a side-frame 3; and one side-bar 2 with a side-frame 3, at each of its ends, constitutes one of the two parallel side-frames of the complete door-hanger. The side-bars 2 are spaced apart from one another, so that one side-bar is on one side and the other side-bar is on the other side of the intermediate vertical web *t* of the track, when the parts are assembled for use. The side-bars 2 are made detachable from the side-frames 3 in order that the door-hanger may be readily adjusted to doors of different widths by use of side-bars of different lengths. Each side-bar 2 (in the pre-

ferred form of my invention,) is provided with one or more, preferably with two, horizontally mounted, inwardly projecting, truck-centering wheels 8, which are adapted to contact with opposite sides of the vertical web t of the track, when the door is slid in the direction of its width, these truck-centering wheels compelling the door then to travel in a substantially straight line, and if there is any lateral movement of the door, to keep the peripheries of the wheels 1 centered on the rails on which the wheels are run. It is not desirable that the peripheries of the horizontal, truck-centering wheels 8 should actually touch the vertical web t at all times, for such a direct and constant contact would produce unnecessary friction; but it is desirable that, on opposite sides of the web t , these truck-centering wheels 8 should be normally pretty close up to the web t , so that if the door, when being moved, tends to sidewise movement, the trucks will be centered as stated.

The side-bars and trucks constitute a rigid structure, the side-bars keeping the trucks in alinement and being preferably connected, as shown, with their longitudinal axes in line with the lengthwise axes of the journals of the vertical truck-wheels 1 whereby the upper portions of each two side-frames 3, connected by the side-bars, are firmly supported one in relation to the other, and the horizontal truck-centering wheels are supported with their peripheries opposed to the vertical web t of the track, above the pair of convex track-rails on which the flangeless track-rails run.

Preferably, the horizontal, truck-centering wheels 8 are adjustable from and towards the vertical web t in order to accommodate webs of different thicknesses; and for this purpose each truck-centering wheel 8 is conveniently bored centrally for the free passage of its journal 9, the upper and lower ends of which are mounted in the slots 10 of the upper and lower horizontal arms 11 of a bracket 12, the right-angular base 13 of which is bolted, at 14, on the inner wall of the side-bar 2. In the preferred form of my invention as illustrated, each side-bar is provided with two of these wheel-carrying brackets 12, one bracket with its wheel being mounted on a side-bar near one end thereof, and the other wheel-carrying bracket being similarly mounted on the same side-bar towards the other end thereof. The horizontal, truck-centering wheels 8 of one side-bar are preferably disposed opposite the corresponding truck-centering wheels carried by the other side-bar. Said journals 9 (conveniently in the form of bolts,) are provided with heads 15 and with nuts 16, so that they may be clamped in any desired adjusted position, on the upper and lower arms 11, each wheel 8 running loose on that part of its journal which lies between said horizontal arms 11.

An important feature of my invention con-

sists in the rails t' , t' , for the supporting-wheels 1. The tops of these rails are preferably half-round, as shown; that is, they have convex tops.

Track T' (conveniently in the form of an I-beam, as shown,) is, in accordance with this invention, provided at its lower part with horizontally extending, parallel webs t^2 , t^2 , one on one side and the other on the other side of the vertical web t , so as to present, cross-sectionally considered, the form of an inverted T-beam. The track member may, of course, be made in many different ways, and of as many pieces as desired; but, as a matter of economy and strength, and practice, I prefer to use an ordinary I-beam or an inverted T-beam. The half-round rails t' , t' are fastened at 17 through their side-flanges 18 to the upper sides of the lateral webs t^2 , the convex surfaces or tops of the rails being upwards. The use of the truck-centering wheels 8 make it unnecessary to use supporting-wheels having flanges, and consequently the supporting-wheels 1 are shown without flanges, and this is desirable in order to eliminate the friction that would otherwise arise from contact of the inner surfaces of the flanges with the sides of the rails. The peripheries of the wheels 1 are flat, and contact with the apices of the convex rails t' , in practice, to the extent of only about one-sixteenth of an inch, and consequently the friction between the supporting-wheels and the rails is reduced to a minimum; and herein lies a striking advantage of my invention.

Each base 4 of the truck-frame has a central aperture for passage of a post 20, the upper end of which is threaded for the reception of an adjusting nut 21, the bottom of which is above the upper side of the base 4. As shown, nut 21 rests on a washer 22, which rests on the upper surface of the base 4. It is desirable to clamp the nut 21 on the post when the nut is in its desired position. On this upper threaded part of post 20 there is also mounted an adjusting nut 24, similar to nut 21, and also adapted to be clamped in place by a set-screw, this nut 24 bearing on the under surface of base 4. By proper adjustment of nuts 21 and 24, the post 20 is raised or lowered relatively to base 4. The lower end of stud 20 is connected with a door D, the upper end or edge of which is preferably grooved, lengthwise, at 25, between its side corners, to receive a plate 26, which overlies the two counter-sunk recesses 27 wherein the lower ends of the studs 20 extend, one stud being connected with one base 4 and the other stud being connected with the other base 4. Plate 26 is secured to the upper end of the door in any suitable way, as by the lag-screws 28, which pass through the plate and into the door. The lower end of each post 20 is screw-threaded to receive the nut 29, which is provided with

a horizontal peripheral shoulder 30, which underlies and engages with the under surface of said horizontal plate 26, so that the door is suspended directly on the shoulders 30 of the two nuts 29. By turning this nut 29, a second or further adjustment of the height of the door may be had.

The wheels 1 are advantageously mounted on a cage 40, bearing anti-friction rolls 41, the interior peripheral surfaces of the anti-friction rolls contacting directly with the journal 42 on which wheels 1 are indirectly mounted. This anti-friction bearing is not new with me, but its present application is new; and in applying this preferred form of anti-friction device, the journal 42 is provided with a head 43 on the inner side of the hub of wheel 1; and the outer end of the journal is screw-threaded for reception of a nut 44. The journal is provided with a shoulder 45 (see Fig. 5^a), against which the washer 46 abuts when forced against it by nut 44. The thickness of the hub of each supporting-wheel 1 is a little less than the length of the journal between the opposed surfaces of head 43 and washer 46, so that the wheel rotates easily when the parts are in working position. The inner surface of the cage-receiving aperture of the wheel 1 comes in direct contact with the peripheries of the anti-friction rolls carried by the cage, and the result is that the supporting-wheels 1 rotate with a minimum of friction. The truck-centering wheels 8 are also free to run easily, and the advantages of the construction in its entirety are that the friction is minimized at all points; suitable strength of structure at the same time is secured; the wheels 1 are kept automatically centered on the rails t' , t' , in consequence of the action of the truck-centering wheels 8 on the vertical web t if the door is subjected to a lateral shift; and the pair of trucks provided for the door compel it to run in true alinement by reason of the connecting bars 2.

In Fig. 7, showing a modification, the truck-frame is a one-piece casting; that is, the side-frames and intermediate base 4 are integral. The side-frames 3 of this construction are also extended sufficiently far beyond the path of the oppositely disposed wheels 1, to permit the horizontal, truck-centering wheels 8 being journaled in the side frames 3, instead of being carried by the side-bars 2 as in the preferred construction. In this modification, the side-bars 2 may be attached to the side frames at 50, the side-bars in such case not carrying any horizontal truck-centering wheels unless desired.

What I claim is:—

1. A door-hanger comprising, in combination, a pair of wheeled trucks each having opposite side-frames spaced apart and connected at their bottoms by a base and the wheels of each truck being mounted at the inner walls

of said side-frames and spaced apart; a pair of side-bars spaced apart and each connecting at its opposite ends with two of said side-frames; and a pair of horizontal, truck-centering wheels operatively mounted, spaced apart and projecting inwardly of said side-bars.

2. A door-hanger comprising, in combination, a pair of wheeled trucks each having opposite side-frames spaced apart and connected at their bottoms by a base, and the wheels of each truck being mounted at the inner walls of said side-frames and spaced apart; a pair of detachable side-bars spaced apart and each connected at their opposite ends with two of said side-frames; and a pair of horizontal truck-centering wheels spaced apart, one wheel of said pair being supported by one of said side-bars and the other wheel of said pair being connected to the other of said side-bars.

3. A door-hanger comprising, in combination, a pair of wheeled trucks each having opposite side-frames spaced apart and connected at their bottoms by a base, and the wheels of each truck being mounted at the inner walls of said side-frames and spaced apart; a pair of detachable side-bars spaced apart and each connected with two of said trucks; and a plurality of horizontal truck-centering wheels carried by each of said side-bars and projecting inwardly thereof.

4. A door-hanger comprising, in combination, a pair of wheeled trucks each having opposite side-frames spaced apart and connected at their bottoms by a base, and the wheels of each truck being mounted at the inner walls of said side-frames and spaced apart; a pair of detachable side-bars spaced apart and each connected at its opposite ends to a pair of said side-frames, and a plurality of pairs of horizontal truck-centering wheels adjustably mounted on brackets attached to the inner sides of said side-bars.

5. The combination of a pair of wheeled trucks having side-frames spaced apart; side-bars spaced apart and each connected at its opposite ends with two of said trucks; horizontally mounted truck-centering wheels carried by the side-bars, a track comprising a vertical web between opposed peripheries of the horizontal wheels and also comprising a pair of parallel rails the tops of which are convex and support the truck wheels.

6. The combination of a pair of wheeled trucks; a pair of side-bars spaced apart and each connected at its opposite ends with two of said trucks; horizontally mounted truck-centering wheels carried by the side-bars; a track comprising a vertical web between opposed inner peripheries of the horizontal wheels and also comprising a pair of rails the tops of which are convex and on which the truck wheels run; a door; and means whereby the door is suspended from said trucks.

7. The combination of a pair of trucks having flangeless wheels with parallel side-bars spaced apart, and horizontally mounted truck-centering wheels projecting inwardly of the side-bars; a track comprising a vertical portion between opposed inner peripheries of the truck-centering wheels, the rails having convex upper bearing-surfaces; a door; and means for adjustably suspending the door from the bases of said trucks.

8. The combination of a door-hanger comprising a pair of wheeled truck-frames, each having side-frames spaced apart and connected by a base; journals mounted in and clamped to said truck-frames and extending inwardly thereof; truck-wheels mounted thereon, and spaced apart; anti-friction devices between said journals and the wheel-hubs; a pair of side-bars, each of which connects two of said side-frames, the bars extending in the direction of the length of the door-hanger; a pair of horizontally mounted truck-centering wheels carried by said side-bars and spaced apart; an adjustable post connected to each base; a door suspended on

said posts; and a track comprising a vertical portion between said truck-centering wheels.

9. A truck-frame consisting of a pair of side-frames and an intermediate base provided with webs on its opposite edges and transverse bolts which clamp said side-frames on said webs.

10. In a door-hanger, the combination of a pair of wheeled trucks, the wheels of which are flangeless; parallel side-bars spaced apart, and each connected at its opposite ends with two of said trucks; horizontally mounted truck-centering wheels carried by the side-bars; a track comprising a vertical web between opposed peripheries of the horizontal truck-centering wheels, and also comprising a pair of rails on which the flangeless truck-wheels run; a door; and means for suspending the door from said pair of trucks.

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

SIDNEY U. BARR.

Witnesses:

H. C. REYNOLDS,
H. W. HEYER.