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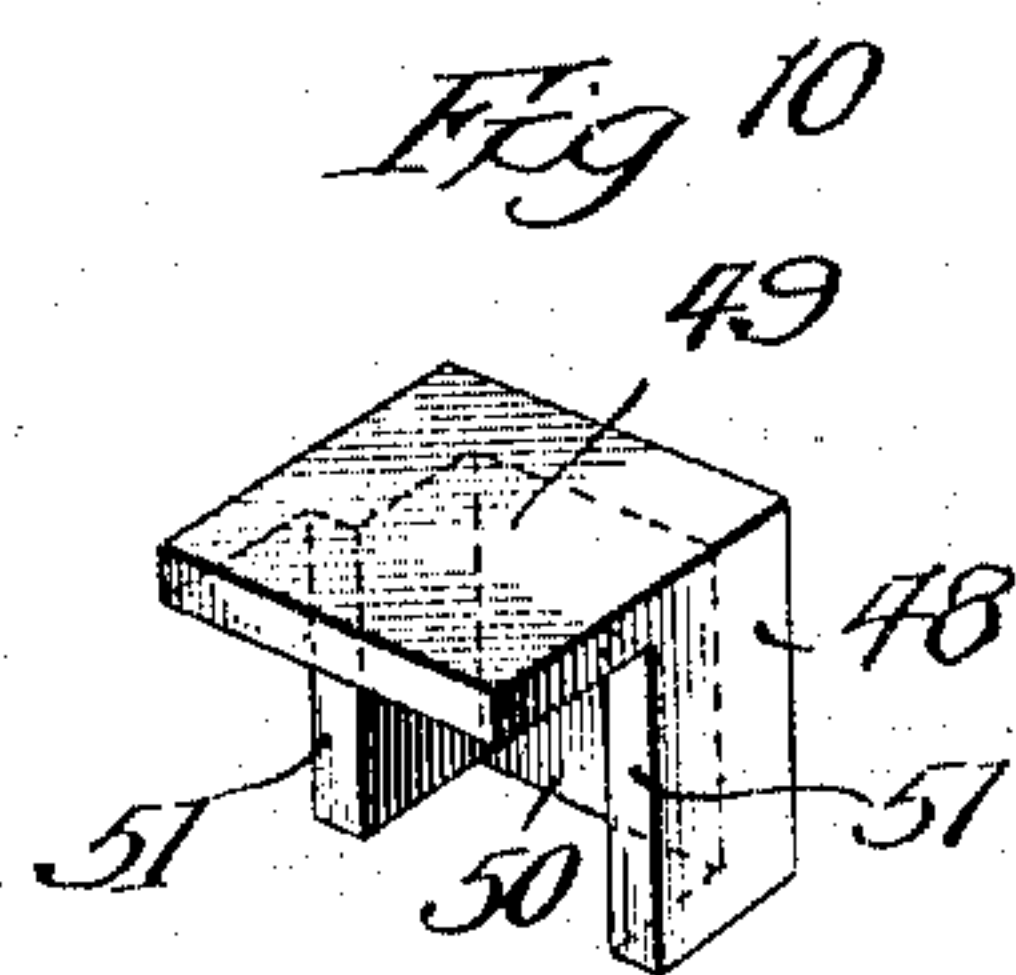
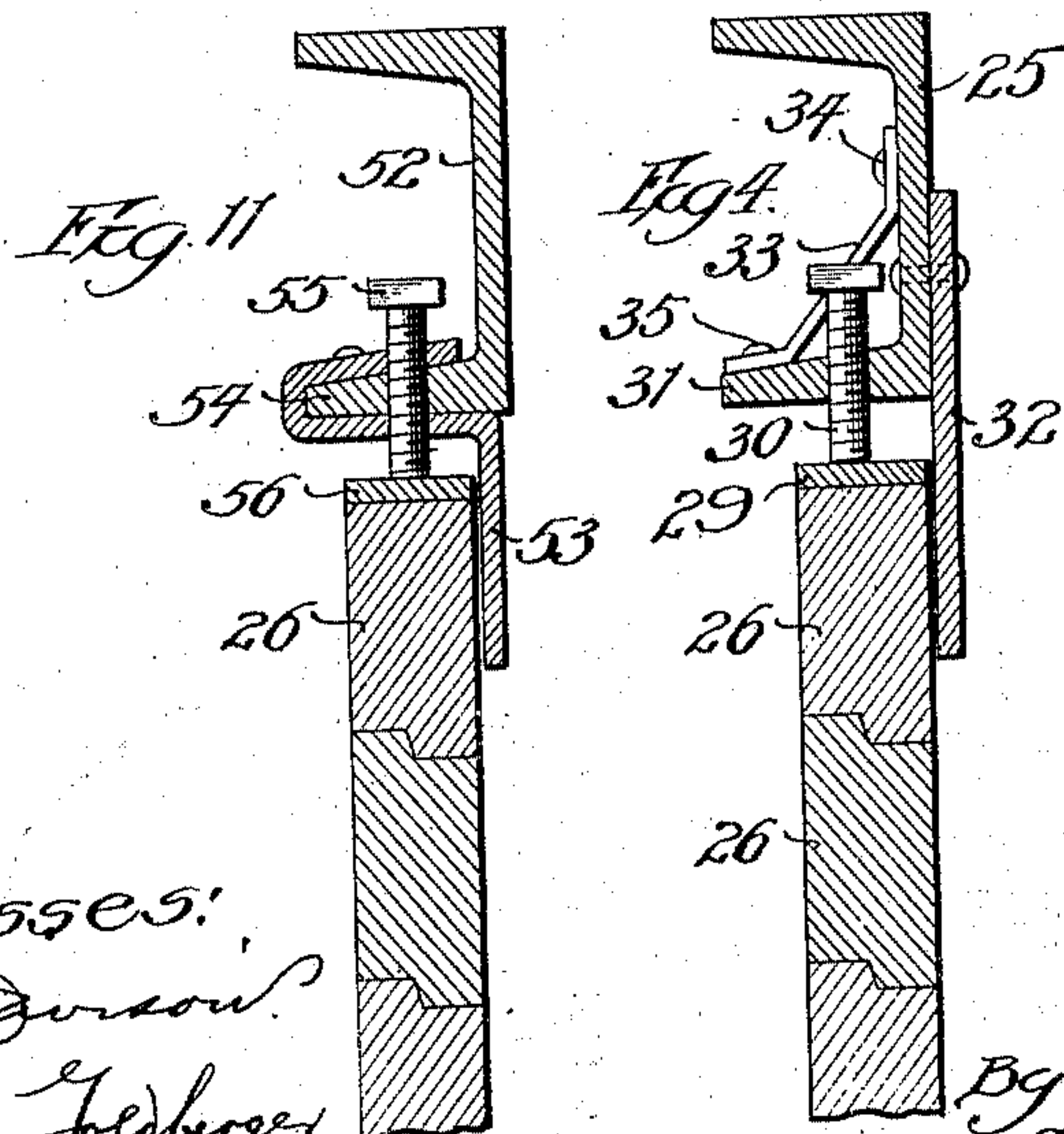
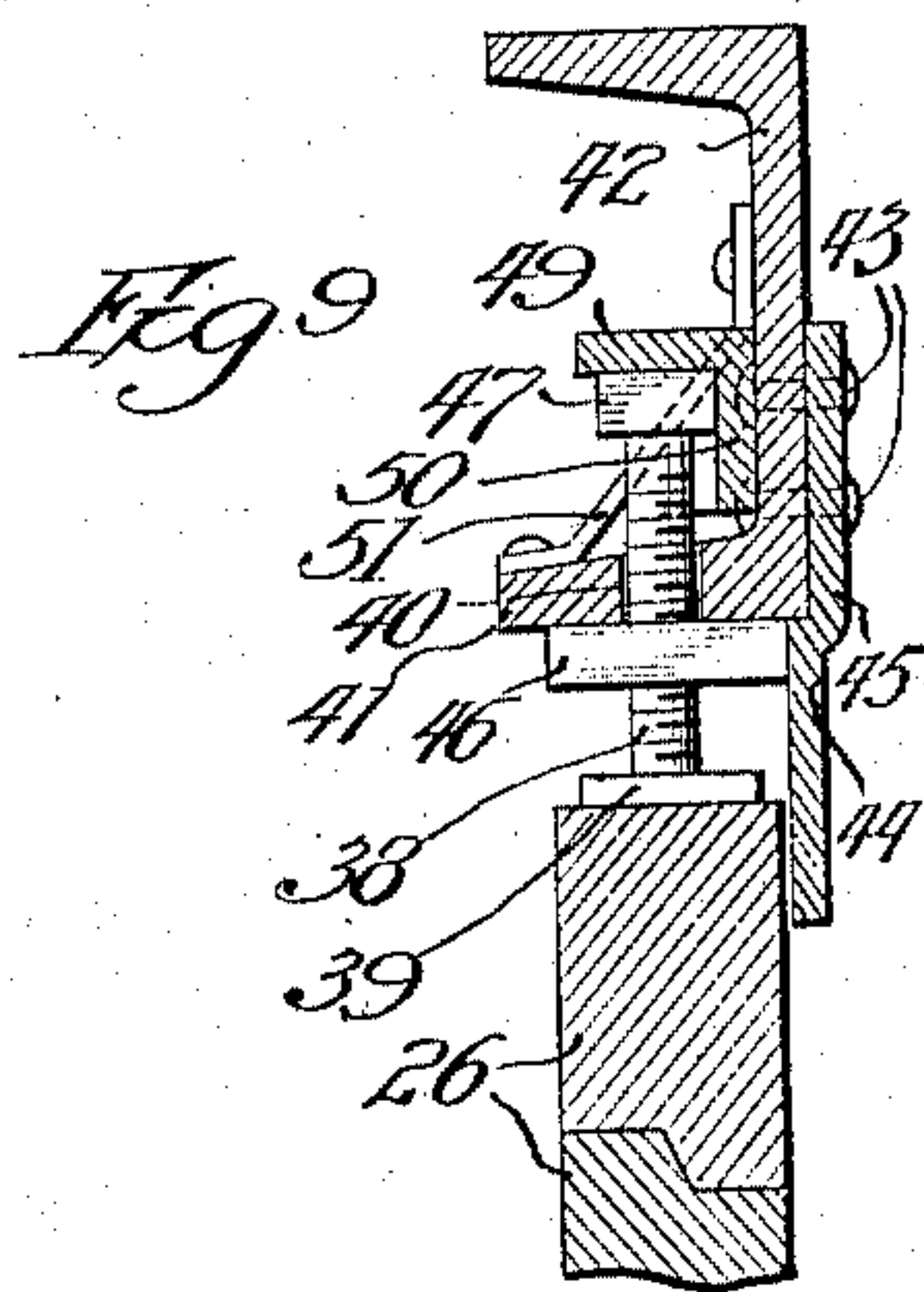
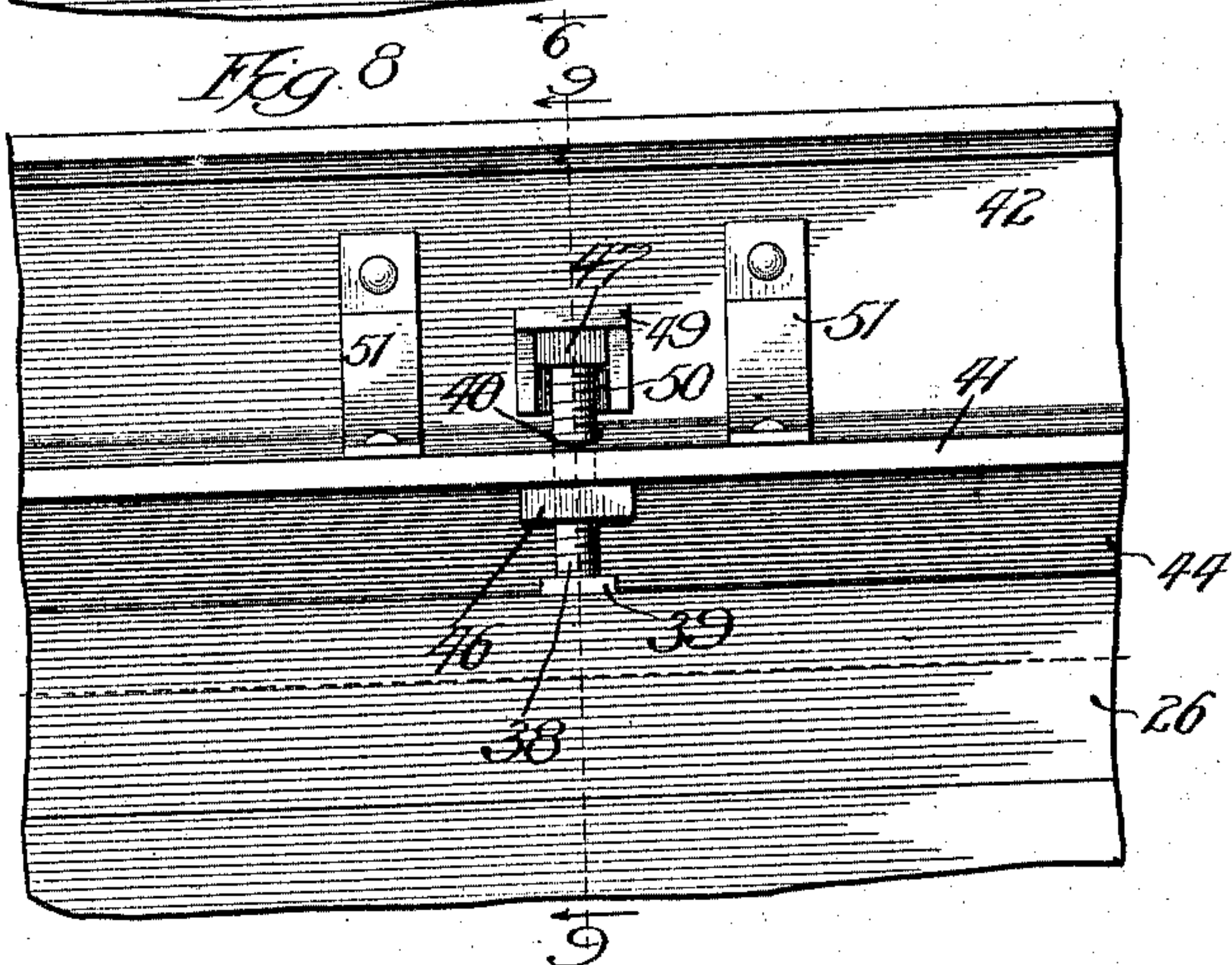
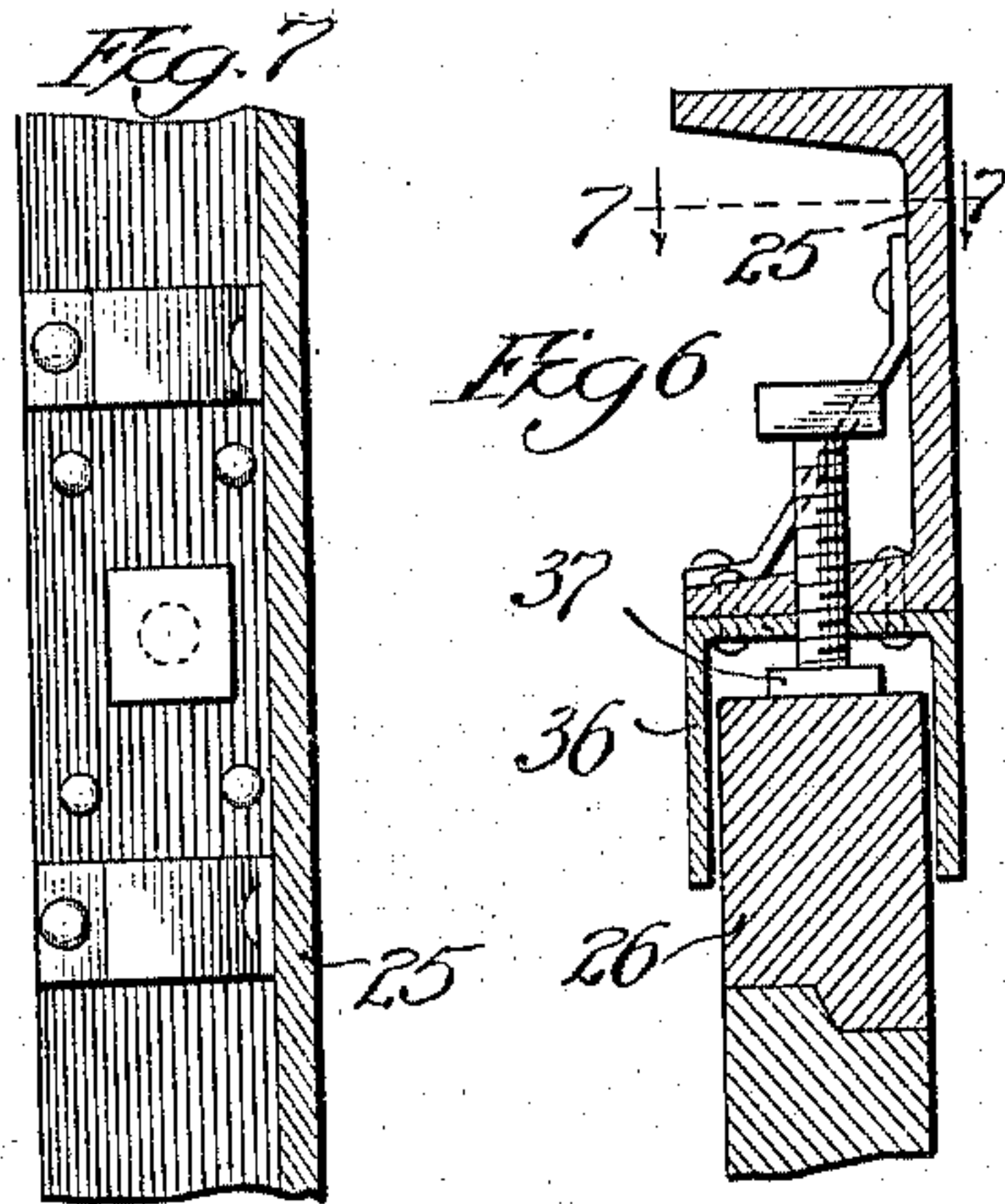
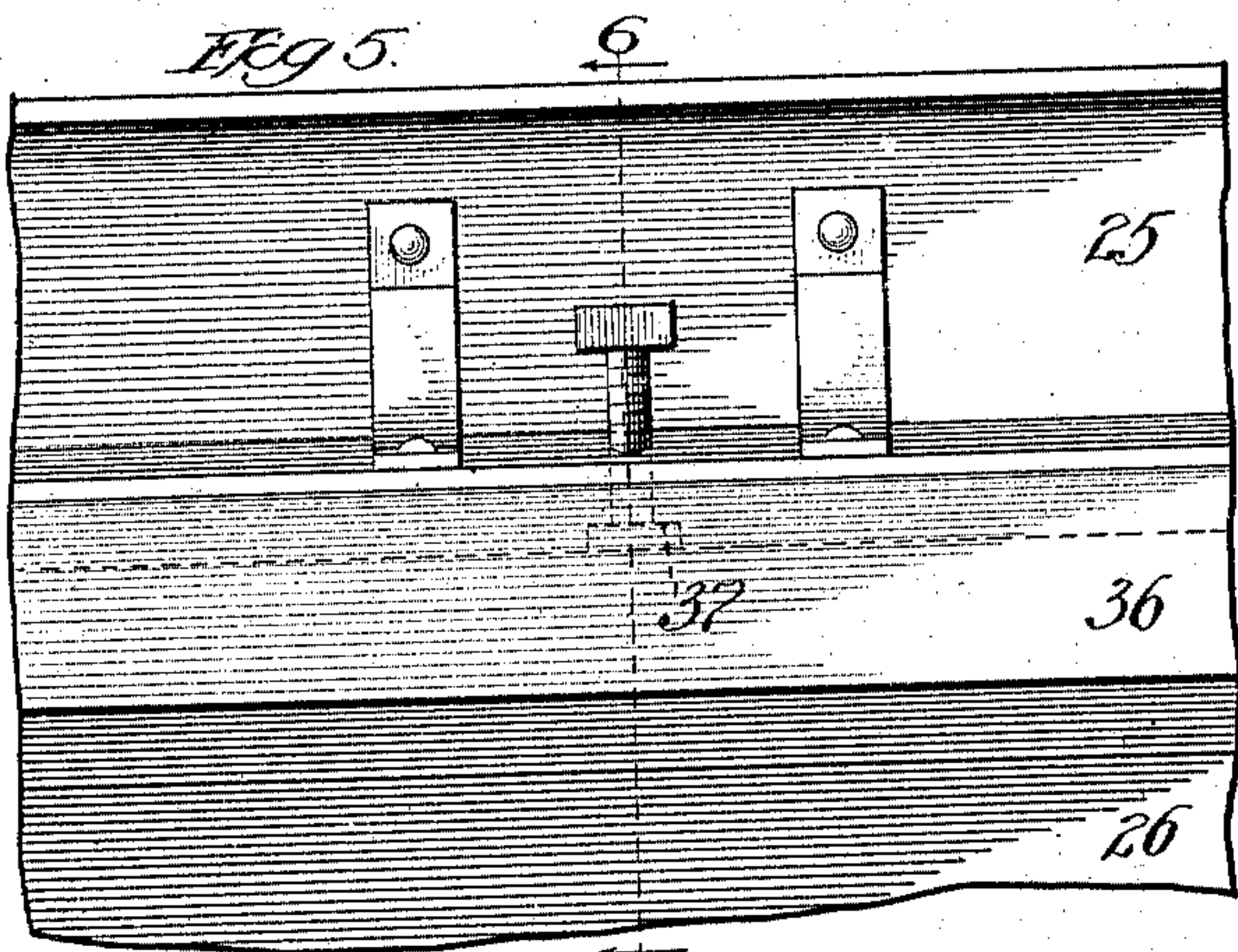


C. F. MURRAY.  
 MEANS FOR TIGHTENING RAILWAY CAR SIDES.  
 APPLICATION FILED DEC. 11, 1909.

Patented Aug. 16, 1910.

2 SHEETS—SHEET 2.

967,220.



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# UNITED STATES PATENT OFFICE.

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## MEANS FOR TIGHTENING RAILWAY-CAR SIDES.

967,220.

Specification of Letters Patent.

Patented Aug. 16, 1910.

Application filed December 11, 1909. Serial No. 532,603.

*To all whom it may concern:*

Be it known that I, CHARLES F. MURRAY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Means for Tightening Railway-Car Sides, of which the following is a specification.

In connection with the walls of railway box-cars it is desirable to provide some simple and effective means for maintaining tight the joints or seams between the boards or planks, especially when the wall is composed of but a single thickness of such boards. It is well known that such boards or planks have a tendency to shrink, diminishing their transverse dimension, and obviously where but a single thickness of such boards is used in a car-body wall some tightening means of this kind is desirable, otherwise a lading composed of small particles, such as grain, would leak, and the outer air and moisture would have a more or less free entrance to the interior of the car-body.

The object and purpose therefore of my present invention is to provide an economical and efficient means for accomplishing such a result.

Several desirable embodiments of the invention have been illustrated in the accompanying drawings which form a part of this specification and throughout the various views of which like reference characters refer to the same parts.

In the drawings,—Figure 1 is a fragmentary elevation of a part of a car-body equipped with my improved tightening means; Fig. 2 is a vertical transverse section on line 2—2 of Fig. 1; Fig. 3 is a similar vertical section, showing the connection of the boards or planks with the posts or braces; Fig. 4 is an enlarged cross-section of the upper portion of the car-side, illustrating the details of the tightening means in substantial accordance with the construction shown in Fig. 3; Fig. 5 is a fragmentary elevation of the inner side of a car wall, showing one form of my invention applied thereto; Fig. 6 is a cross-section on line 6—6 of Fig. 5; Fig. 7 is a horizontal section on line 7—7 of Fig. 6; Fig. 8 is a view similar to Fig. 5, showing a modified construction; Fig. 9 is a cross-section on line 9—9 of Fig. 8; Fig. 10 is a perspective view of the bolt-head lock indicated

in Figs. 8 and 9; and Fig. 11 is a cross-section through a car-side, showing still another style or form of tightening means.

As is usual in car-body constructions, the car has the ordinary channel center-sills 20, 20, channel side-sills 21, 21, to the outer faces of which are riveted the lower ends of vertical posts 22 and 23, which may be of any of the ordinary forms of sections, diagonal braces 24 being also riveted or otherwise fastened to the side sills. At the tops of the car-body sides I position a pair of roof beams 25, 25, which may, if desired, be of channel shape, the upper ends of the posts 22 and 23 and the braces 24 being riveted or bolted thereto for an object perfectly obvious.

Each car-side is composed of a plurality of boards or planks 26, tongued and grooved in any approved manner, and secured to the inner faces of the outer posts and braces 22, 23 and 24 by means of bolts 27, which, as is indicated in Fig. 3, pass through small slots 28 in the flanges of these outer metallic members. The top board or plank 26 has disposed on its upper edge a metallic strap or bar 29, with which the lower ends of a plurality of tightening screws 30 coact, such screws passing through threaded holes in the lower inwardly projecting flanges of the channel roof-beams 25. It will therefore be obvious that if the joints or seams between the boards have a tendency to open up, due to the shrinkage of the lumber, they may be tightened by loosening the bolts 27, turning the screws 30 so as to bring vertical pressure to bear upon the boards and then tightening the bolts 27 to hold the boards in their new relation. In order to prevent the exposure of the screws 30 and other parts to the elements, I fasten to the outer face of each roof-beam a metallic apron or shield 32, which projects downwardly so as to overlap the top board, as is shown in Fig. 4. Also, in order to strengthen the flange 31, the beam 25 may be provided with a plurality of strap braces 33 riveted at their upper ends at 34 to the web of the beam, and at their lower ends at 35 to the beam flange. These braces may or may not be used, as occasion demands, and for that reason they are not shown in Fig. 2.

Referring now to Figs. 5 to 7, inclusive, it will be noticed that the construction is ex-



actly the same as that of Figs. 1 to 4, inclusive, except with respect to the apron or metallic shield 32, which in this new embodiment is replaced by a substantially inverted U-shaped member 36 riveted to the lower face of the bottom flange of beam 25 and straddling the top board or plank 26, its opposite marginal flanges overlapping such board, as is clearly indicated in Fig. 7. Instead of using a longitudinal bar 29 on the top edge of the upper board, washers or small plates 37 may be employed to prevent the lower end of the screw from ineffectively pressing into the comparatively soft wood.

Looking now at Figs. 8 to 10, inclusive, it will be observed that each screw 38 bears at its lower end on a block or plate 39 disposed on the top edge of the upper board 26, and extends upwardly through a hole 40 in the lower flange 41 of a channel roof-beam 42, the hole being slightly larger than the screw, as is clearly shown. Riveted at 43 to the outer face of beam 42 is a depending apron or shield 44, which may be inwardly bent slightly at 45, if desired, and on the screw 38 below the flange 41 I employ an angular nut 46, through the screw-threaded aperture of which the screw 48 passes. It will therefore be apparent that as the screw 38 is turned by means of a wrench applied to its square head 47, pressure is brought to bear on the boards of the side-wall so as to close the joints between them. In this instance the screw-threaded hole of the nut or block 46 is employed for this tightening effect rather than using a screw-threaded aperture in the flange of the roof-beam, and by employing a block 46 of desired thickness an unusually strong and effective appliance of this character can be provided. To prevent the screw 38 from accidentally turning, I may use a locking member 48 having a top wall 49 adapted to rest on the top of the screw and having a back depending wall 50 adapted to bear against the inner face of the beam 42, and also having two side walls 51 intended to straddle the screw-head so as to prevent its unintentional turning. To remove this screw-lock so as to permit rotation of the screw, it is merely raised, from which elevated position it can be readily taken out of place; and to apply it in effective engagement with the screw-head, it is merely necessary to slip it over such head into the position of Fig. 9. In this instance the flange 49 may be braced and strengthened as in the previous instances, if desired, by a plurality of strap braces 51, any number of which may be employed, preferably adjacent to the screw, as shown in Fig. 8. Another way of arriving at substantially the same result is indicated in Fig. 11, in which case the channel-beam 52 has riveted thereto an outside apron 53, bent as shown so as to overlie both the bottom and upper faces of the

channel's lower flange 54. The tightening screw 55 has its threads co-acting with the threaded aperture extended not only through the flange 54, but also through the two thicknesses of the apron 53 which straddle the flange. In this way a hole with a sufficient number of threads for the proper engagement of the screw is readily secured, the bottom end of such screw, as in the previous instance, bearing on a metallic strap 56 on the top edge of the upper board 26, or, if found more feasible, this strap may be replaced by metallic blocks, as shown in Fig. 9, for instance.

In all these species it will be observed that by tightening the screws provided for that purpose the shrinkage in the boards may be compensated for so as to keep the walls, either side or end, of the car-body closed. It will be apparent also that the various means which I have herein described in detail for securing the objects sought are economical to produce, simple in construction and readily operated. By using a considerable number of such screws throughout the length of the car, as shown in Fig. 1, any inequalities in the boards or in the shrinkage may be readily overcome because of the individual adjustments which the screws may be given.

This invention, as will be readily understood by those skilled in the art, is susceptible of a considerable number of embodiments, and for that reason I do not wish to have it understood that the invention is limited to the precise embodiments herein indicated.

Many minor mechanical changes may be made in the structures without departing from the heart and essence of the invention and without the sacrifice of any of its advantages.

I claim:

1. In a railway-car, the combination of a car-frame having posts, longitudinal roof-supporting beams carried by said posts, boards adjustably secured to said posts and disposed edge to edge, and screw means mounted on said beams and adapted by adjustment to tighten or close the cracks between said boards, substantially as described.

2. In a railway-car, the combination of a car-frame having posts, longitudinal roof-supporting beams carried by said posts, boards adjustably secured to said posts and disposed edge to edge, screw means mounted on said beams and adapted by adjustment to tighten or close the cracks between the boards, and means to cover the space between the beams and the top boards, substantially as described.

3. In a railway-car, the combination of a car frame having posts, boards adjustably secured to said posts and disposed edge to edge, longitudinal roof-supporting beams carried by said posts and having bottom



flanges, and a plurality of screws extended through the lower flanges of said beams and engaging the top boards, whereby said screws may be adjusted to tighten or close the cracks between the boards, substantially as described.

4. In a railway-car, the combination of a car-frame having posts, boards adjustably secured to said posts and disposed edge to edge, longitudinal roof-supporting beams carried by said posts and having bottom flanges, braces for said flanges secured to said beams, and one or more screws extended through said flanges and bearing on the top boards, whereby by turning said screws the cracks between the boards may be closed, substantially as described.

5. In a railway-car, the combination of a car-frame having posts, longitudinal roof-supporting beams carried by said posts and having bottom flanges, boards adjustably se-

cured to said posts and disposed edge to edge, said lower beam flanges having screw-threaded holes extended therethrough, and screws in said holes bearing on the top boards and adapted by turning adjustment to tighten or close the cracks between the boards, substantially as described.

6. In a railway-car, the combination of a wall composed of boards disposed longitudinally of the car and placed edge to edge, means having one or more screw-threaded holes above the top board, and one or more screws in said holes adapted to be turned to close the cracks between such boards due to shrinkage or the like, substantially as described.

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