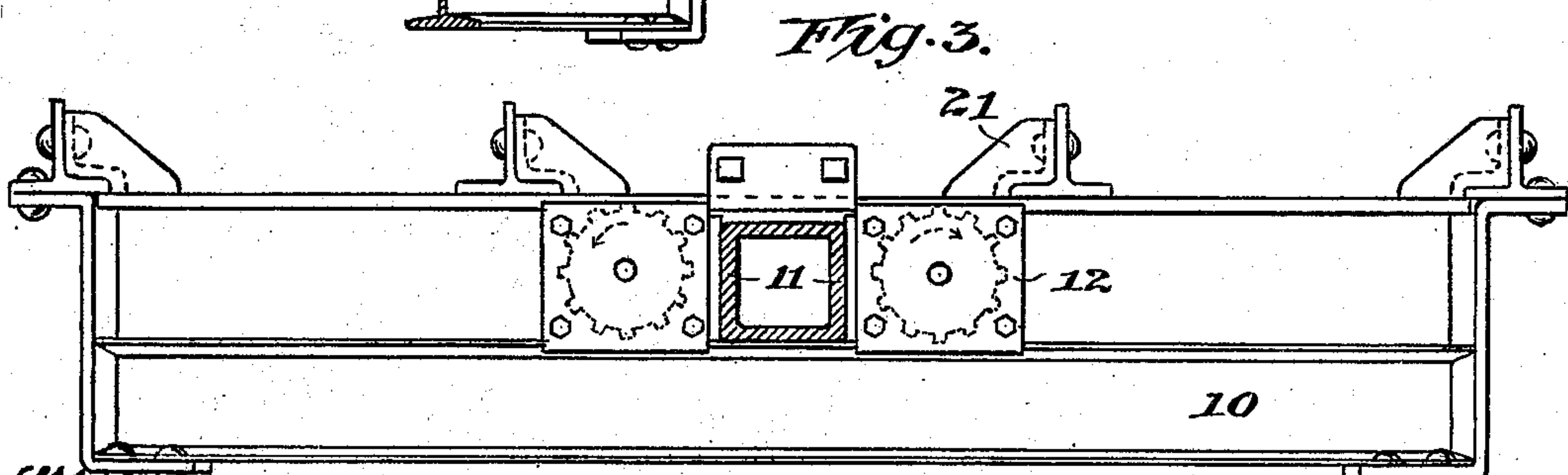
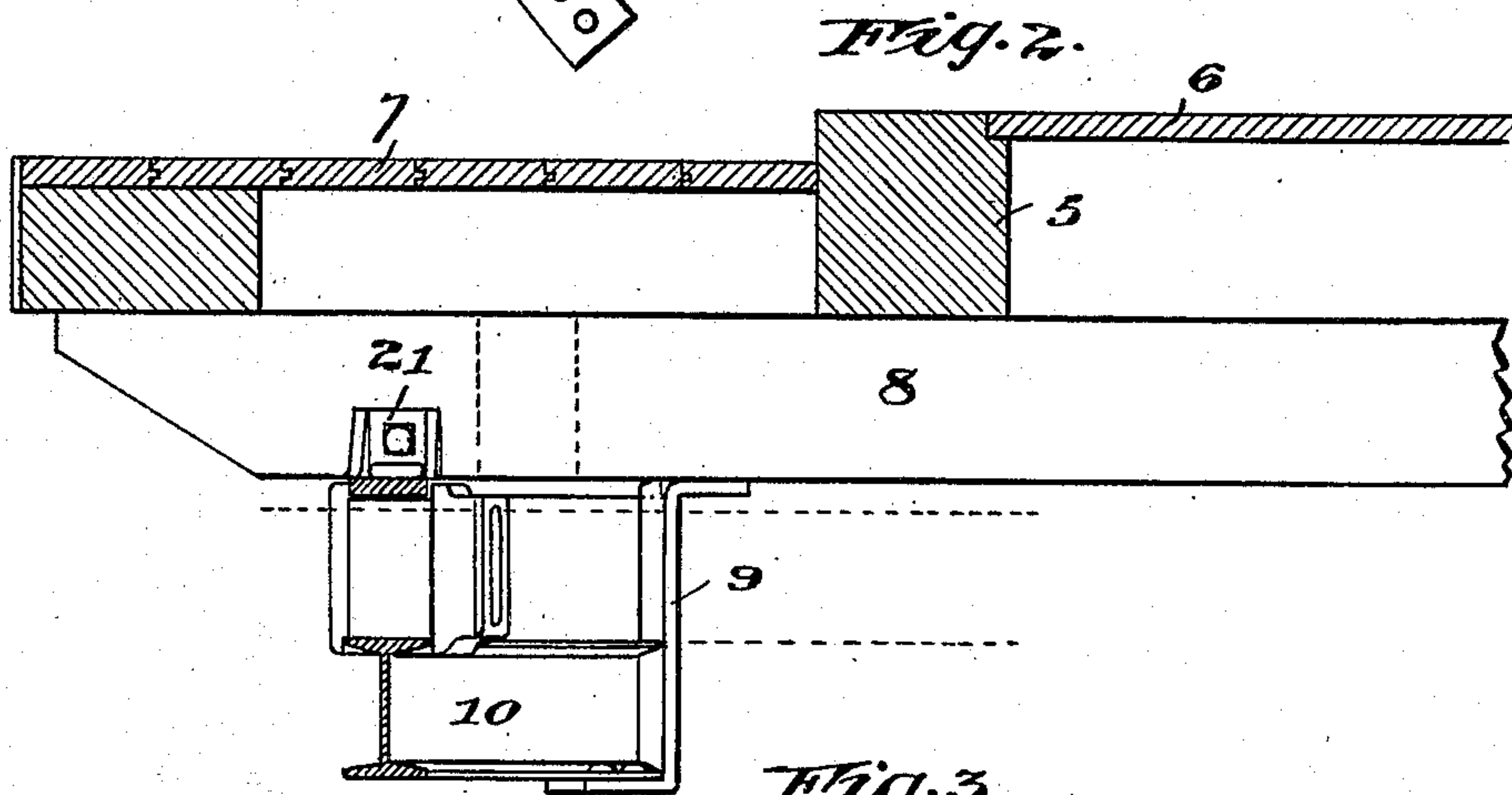
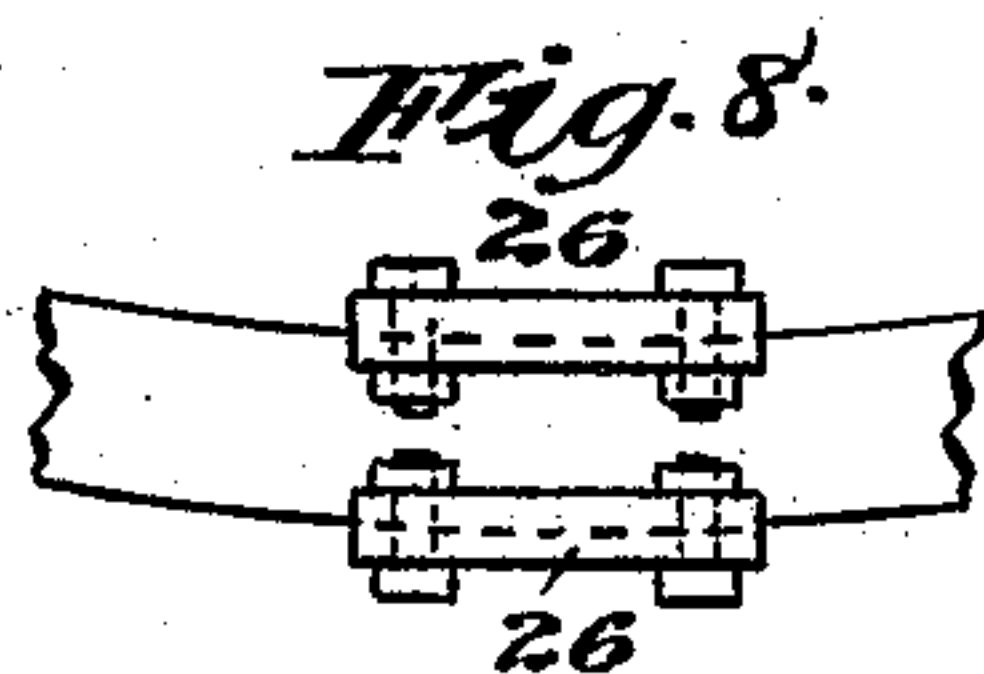
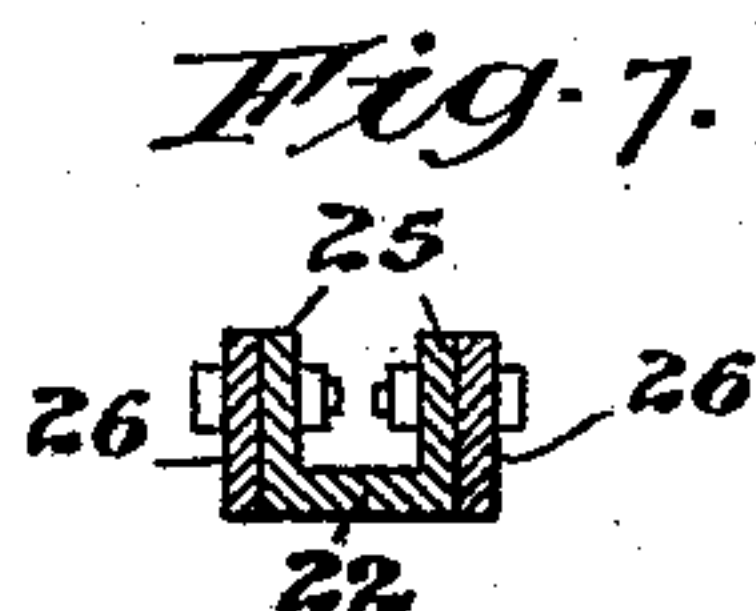
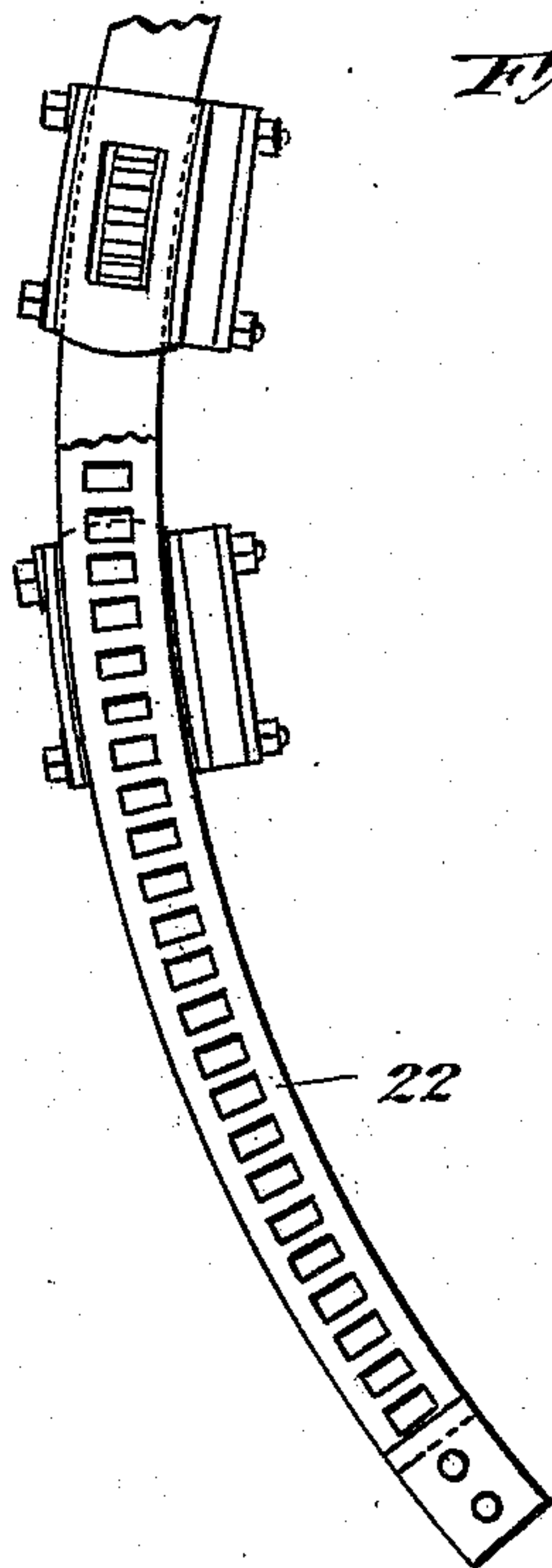


900,996.

F. S. GALLAGHER.
DRAW BAR CENTERING DEVICE.
APPLICATION FILED OCT. 30, 1905.

Patented Oct. 13, 1908.
2 SHEETS—SHEET 1.



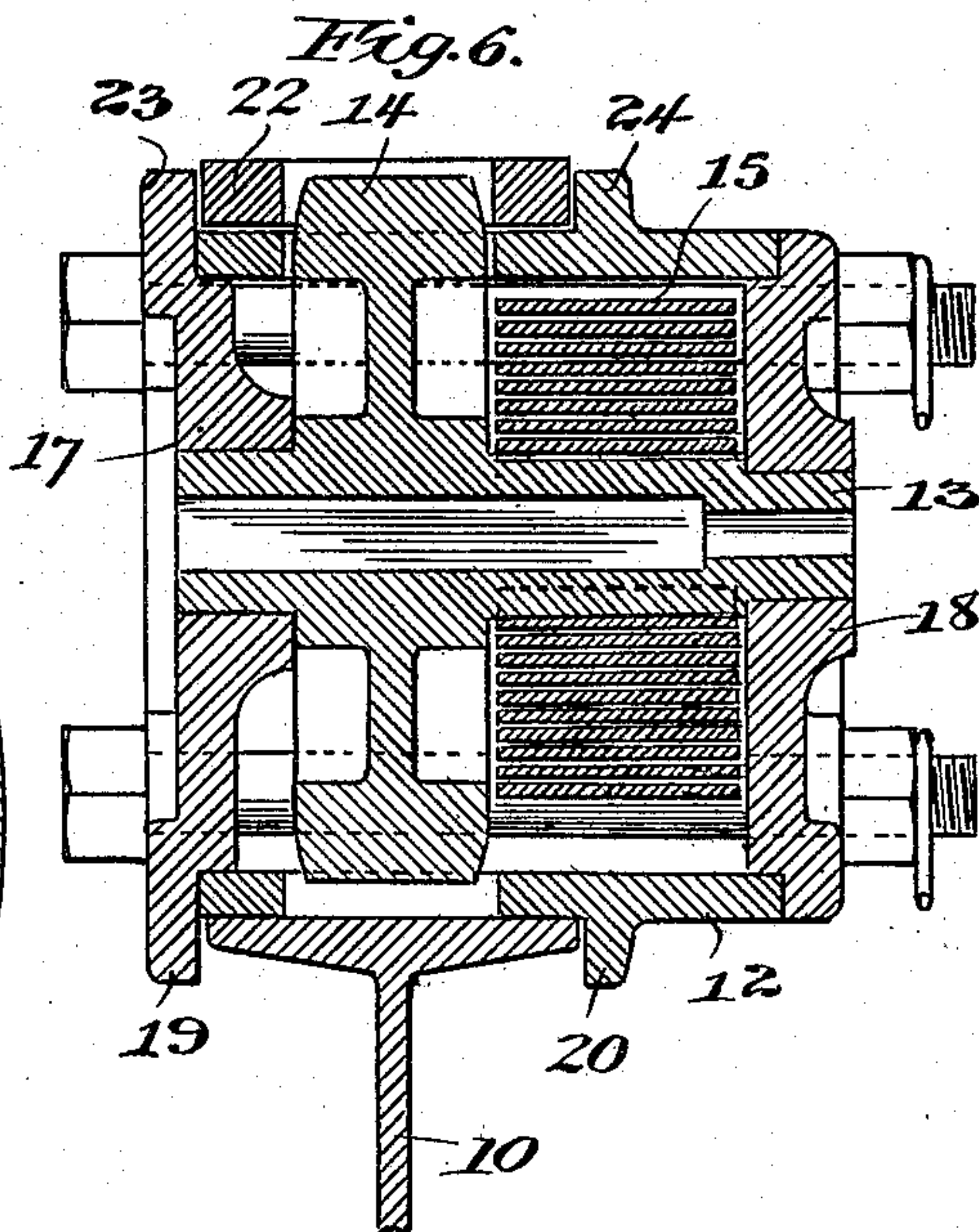
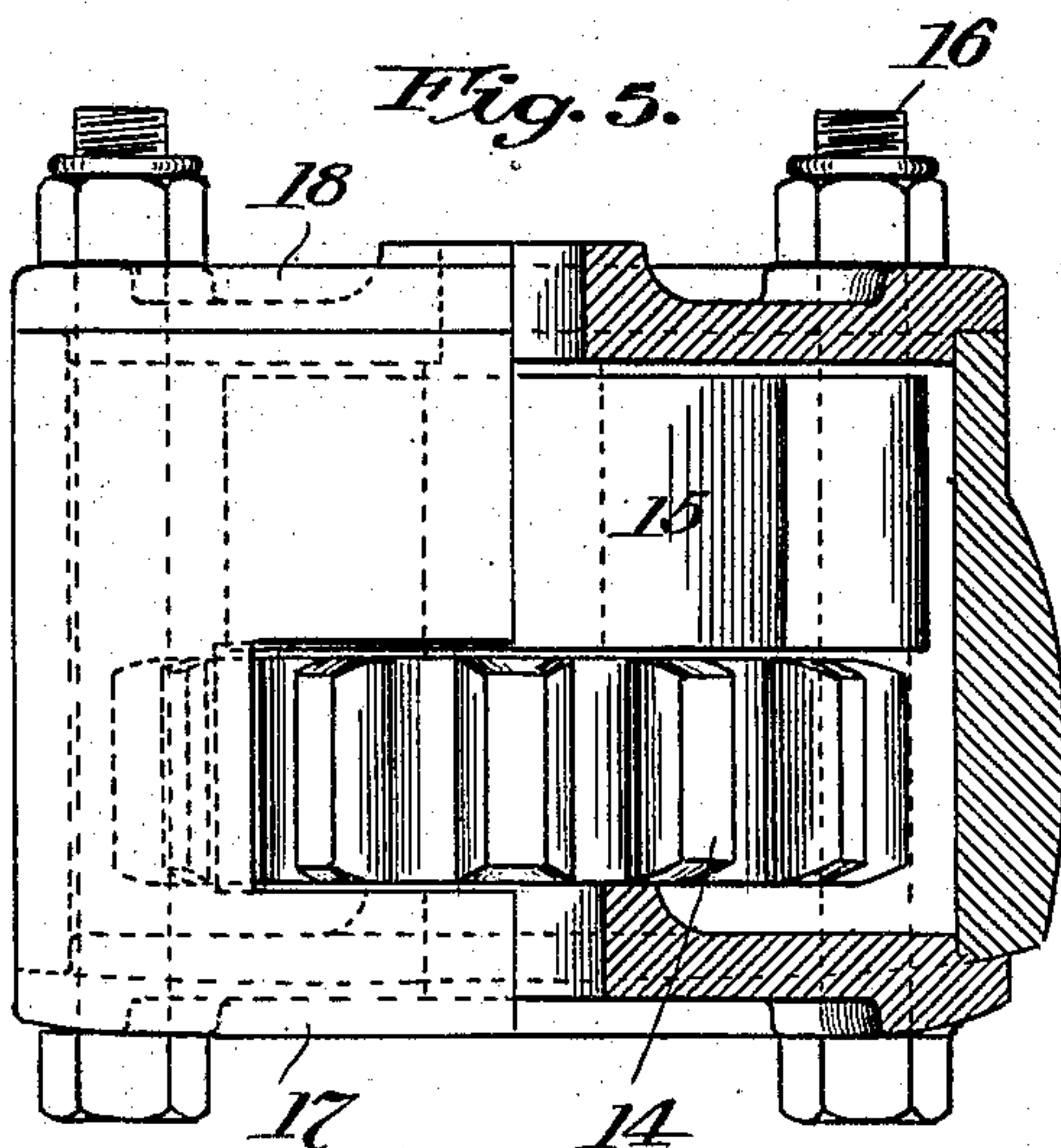
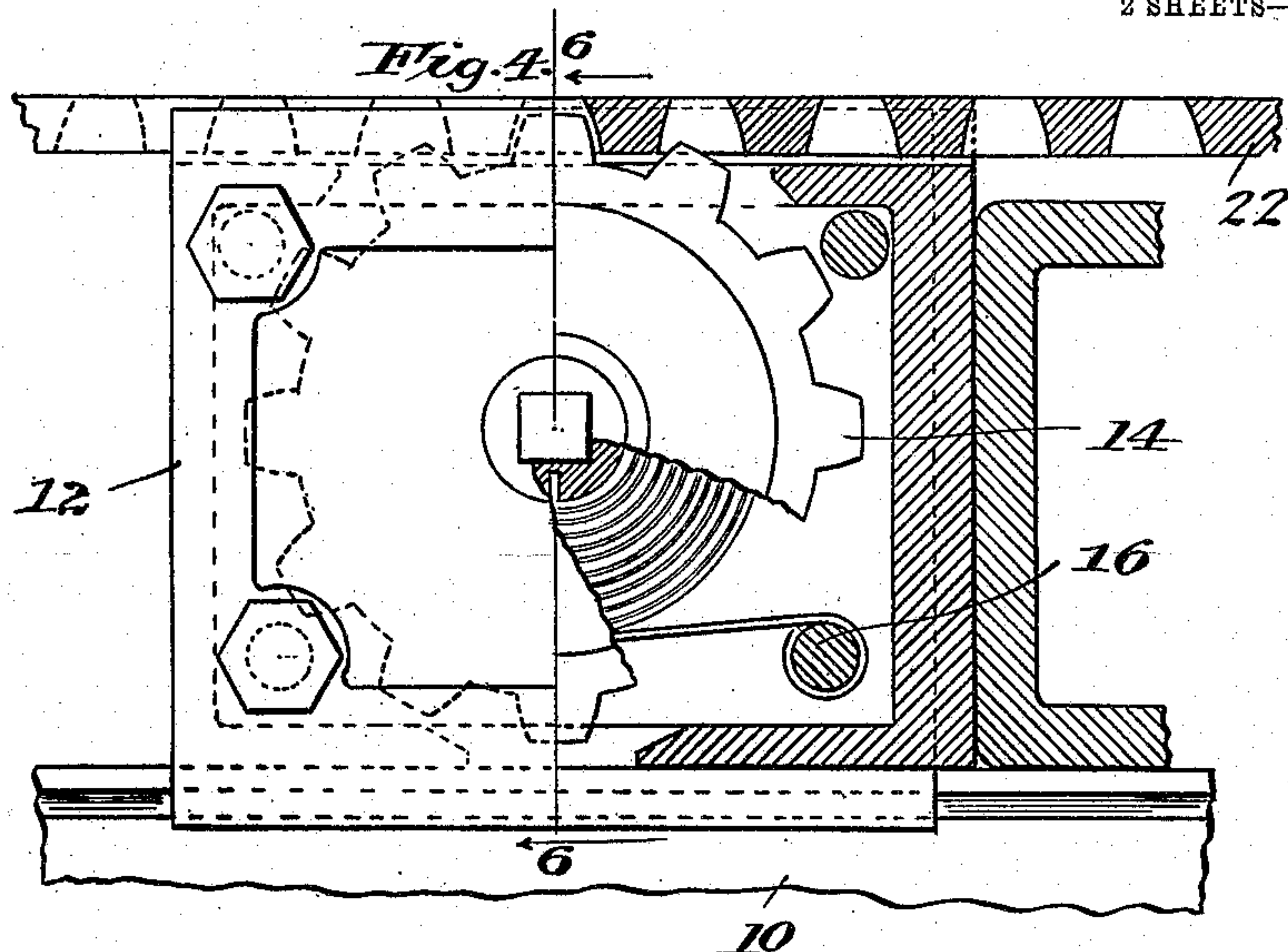
Witnesses,
J. M. Mann,
S. N. Ford

Inventor,
Frederick S. Gallagher,
By *Offida, Towle & Linticum* *Attys.*

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UNITED STATES PATENT OFFICE.

FREDERICK S. GALLAGHER, OF CHICAGO, ILLINOIS, ASSIGNOR TO FORSYTH BROTHERS COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

DRAW-BAR-CENTERING DEVICE.

No. 900,996.

Specification of Letters Patent.

Patented Oct. 13, 1908.

Application filed October 30, 1905. Serial No. 285,127.

To all whom it may concern:

Be it known that I, FREDERICK S. GALLAGHER, 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 Draw-Bar-Centering Devices, of which the following is a specification.

This invention has to do with the drafting of railway cars, and has for its object to provide a simple and efficient means for returning the draw-bar, when drawn to one side, to a central or coupling position. Heretofore there have been invented and devised various forms of spring-actuated devices for this purpose, in which it has been common to provide a coil spring whose resistance to the draw-bar, when the latter was drawn to one side, was substantially in direct proportion to the amount of side movement imparted to the draw-bar. The difficulty with such an arrangement has been that where the draw-bar is allowed a considerable amount of side clearance, not only was a spring of large dimensions required, but the resistance offered by the spring became excessive after a limited movement of the draw-bar.

In my present invention I have succeeded in producing a device for centering or returning the draw-bar to a coupling position in which the resistance offered by the spring increases very gradually in intensity under side movement of the draw-bar. This object I have preferably obtained by allowing the spring to have a bodily movement in the direction of lateral movement of the draw-bar and also by employing a helical spring, mounted within a bodily movable casing and provided with means whereby the spring is wound up by the outward lateral movement of the draw-bar acting upon the casing, and, whereby the expanding or unwinding energy of the spring returns the draw-bar to a central or coupling position through the return bodily movement of the spring and its casing.

My invention is particularly, although not exclusively, adapted for use in connection with draw-bars having a wide degree of lateral angular movement.

My invention, in a preferred form, is illustrated in the accompanying drawings, in which,—

Figure 1 is a top plan view, partly broken

out and perforated at one end, of my improved centering mechanism; Fig. 2 is a longitudinal section through an end portion of the underframe of a railway car, illustrating the application of my improved draw-bar centering mechanism thereto, the latter being in transverse section; Fig. 3 is a front elevational view of the centering mechanism shown in Fig. 2, the draw-bar being in cross-section; Fig. 4 is an enlarged detail view, partly in front elevation and partly in vertical section, of one of the spring casings and its contained and immediately cooperating parts; Fig. 5 is a top plan view, partly in horizontal section, of the parts shown in Fig. 4, omitting the rack that engages the spring-winding and spring-actuated pinion; Fig. 6 is an axial sectional view on the line 6—6 of Fig. 4; and Figs. 7 and 8 are, respectively, cross-sectional and top plan views of a stop device for the centering mechanisms.

Referring to the drawings, 5 may designate an end sill, 6 the floor, and 7 the platform of a railway car, wherein, in turning sharp curves, the draw-bar is required to swing through a wide angle.

8 designates the longitudinal sills of the underframe, and 9 designates hangers secured to the longitudinal sills 8 and supporting at their lower ends an arc-shaped bar 10 herein shown as formed by a suitable curved or bent I-beam.

11 designates the draw-bar which rests upon the transverse hanger member 10. Slidably mounted on the bar 10 on each side of the draw-bar is a box or casing 12, in which is mounted a rotatable shaft 13 (Figs. 4, 5 and 6), integral with or fast on which is a pinion 14. On one side of the pinion within the casing is located a helical spring 15, the inner end of which is secured to the shaft 13, while its opposite or outer end is anchored to one of the bolts 16 which clamps the two end covers 17 and 18 to the ends of the box or casing. The end cover 17 and the body of the box 12 are formed with parallel depending flanges 19 and 20, respectively, which overlap the edges of the supporting bar 10, and serve to guide said casing on said bar. Suitably attached to the longitudinal sills of the underframe as by brackets 21 is a curved rack-bar 22, overlying and parallel with the supporting bar 10, said rack-bar engaging the

teeth of the pinions 14 and being engaged by the guide flanges 23 and 24, on the cover and body of the box, respectively, and corresponding to the guide flanges 19 and 20.

5 The rack-bar 22 at its central portion has a pair of upstanding flanges 25 (Figs. 7 and 8) to which are bolted a pair of stop-plates 26 that overlie the opposite edges of the rack-bar in the path of the guide flanges 23 and 24 of the pinion casings, thus serving to limit the inward movement of each of said casings.

The helical springs 15 are so mounted as to normally cause the pinions 14 to rotate in the directions indicated by the arrows in Fig. 3, which causes said pinions, through their engagement with the rack-bar, to move both of the casings toward the draw-bar; so that, when the parts are in their normal positions as shown in Figs. 1 and 3, said casings lie 20 against the ends of the stops 26 close to the sides of the draw-bar, under a yielding pressure. When the draw-bar is deflected to either side, the casing on that side is forced toward the outer end of its guide, and the enforced rotation of the pinion 14, due to its 25 engagement with the rack 22, winds up the spring 15. By reason of the character of the spring and the fact that it is bodily carried during this movement, the tension under which the spring is placed by this movement 30 does not increase as rapidly, in proportion to the extent of side movement of the draw-bar, as in the case of a fixed coil spring which is simply compressed by the lateral movement 35 of the draw-bar. As soon as the deflecting force acting on the draw-bar is intermitted, the expansion or distension of the spring 15 causes the pinion 14 to turn in the opposite direction, and the latter, through its engage- 40 ment with the rack, causes the box or casing to slide inwardly, forcing the draw-bar back to its central or coupling position.

I claim:

1. A draw-bar centering device comprising 45 a spring mounted with capacity for bodily movement laterally of the draw-bar, and means whereby the lateral outward movement of the draw-bar tensions said spring and the expansion of the latter returns the 50 draw-bar, when freed from its deflecting force, to central or normal coupling position, substantially as described.

2. A draw-bar centering device comprising a support on which the draw-bar rests with 55 capacity for lateral movement, a spring mounted with capacity for bodily movement along said support, and means whereby the lateral outward movement of the draw-bar tensions said spring and the expansion of the 60 latter forces the draw-bar, when freed from its deflecting force, back to central or normal coupling position, substantially as described.

3. A draw-bar centering device comprising a support on which the draw-bar rests with

capacity for lateral movement, a housing 65 movable along said support and engaging the side of the draw-bar, a spring mounted in said housing, and means whereby said spring is tensioned during outward movement of said housing under the lateral thrust of the 70 draw-bar and re-acts to force the draw-bar inwardly, when the latter is freed from its deflecting force, substantially as described.

4. A draw-bar centering device comprising a hanger, a spring support, a torsion spring, 75 and means whereby said spring is tensioned during the outward movement of said housing under lateral thrust of the draw-bar and re-acts to force the draw-bar inwardly when the latter is freed from its deflecting force, 80 substantially as described.

5. A draw-bar centering device comprising a hanger, a housing mounted thereon and movable thereover, a torsion spring mounted 85 in said housing, and means whereby said spring is wound up during the outward movement of said housing under the lateral thrust of the draw-bar and re-acts to force the draw-bar inwardly when the latter is freed from its deflecting force, substantially as described. 90

6. A draw-bar centering device comprising a hanger, a housing mounted thereon and movable thereover, a torsion spring mounted 95 in said housing one end whereof is secured to the latter, a pinion also mounted in said housing and having its axis secured to the other end of said spring, and a fixed rack engaged by said pinion, substantially as described.

7. A draw-bar centering device comprising 100 a pair of springs mounted on opposite sides of the draw-bar, respectively, and capable of bodily movement laterally of the latter, and means whereby the lateral outward movement of the draw-bar in either direction tensions one or the other of said springs and the 105 reaction of the latter returns the draw-bar to central or normal coupling position, substantially as described.

8. A draw-bar centering device comprising 110 a hanger, a housing mounted thereon and movable thereover, a torsion spring mounted in said housing one end whereof is secured to the latter, a pinion also mounted in said housing laterally adjacent to said spring and 115 having its axis secured to the other end of the latter, and a fixed rack engaged by said pinion, substantially as described.

9. A draw-bar centering device comprising a spring mounted with capacity for bodily 120 movement laterally of the draw-bar, means whereby the lateral outward movement of the draw-bar tensions said spring and the expansion of the latter returns the draw-bar to central or normal coupling position, and a 125 stop limiting the inward bodily movement of said spring, substantially as described.

10. A draw-bar centering device compris-

ing a hanger, a housing mounted thereon and
movable thereover, a torsion spring mounted
in said housing one end whereof is secured to
the latter, a pinion also mounted in said hous-
5 ing and having its axis secured to the other
end of said spring, a fixed rack engaged by
said pinion, and a fixed stop limiting the in-

ward or return movement of said housing,
substantially as described.

FREDERICK S. GALLAGHER.

Witnesses:

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