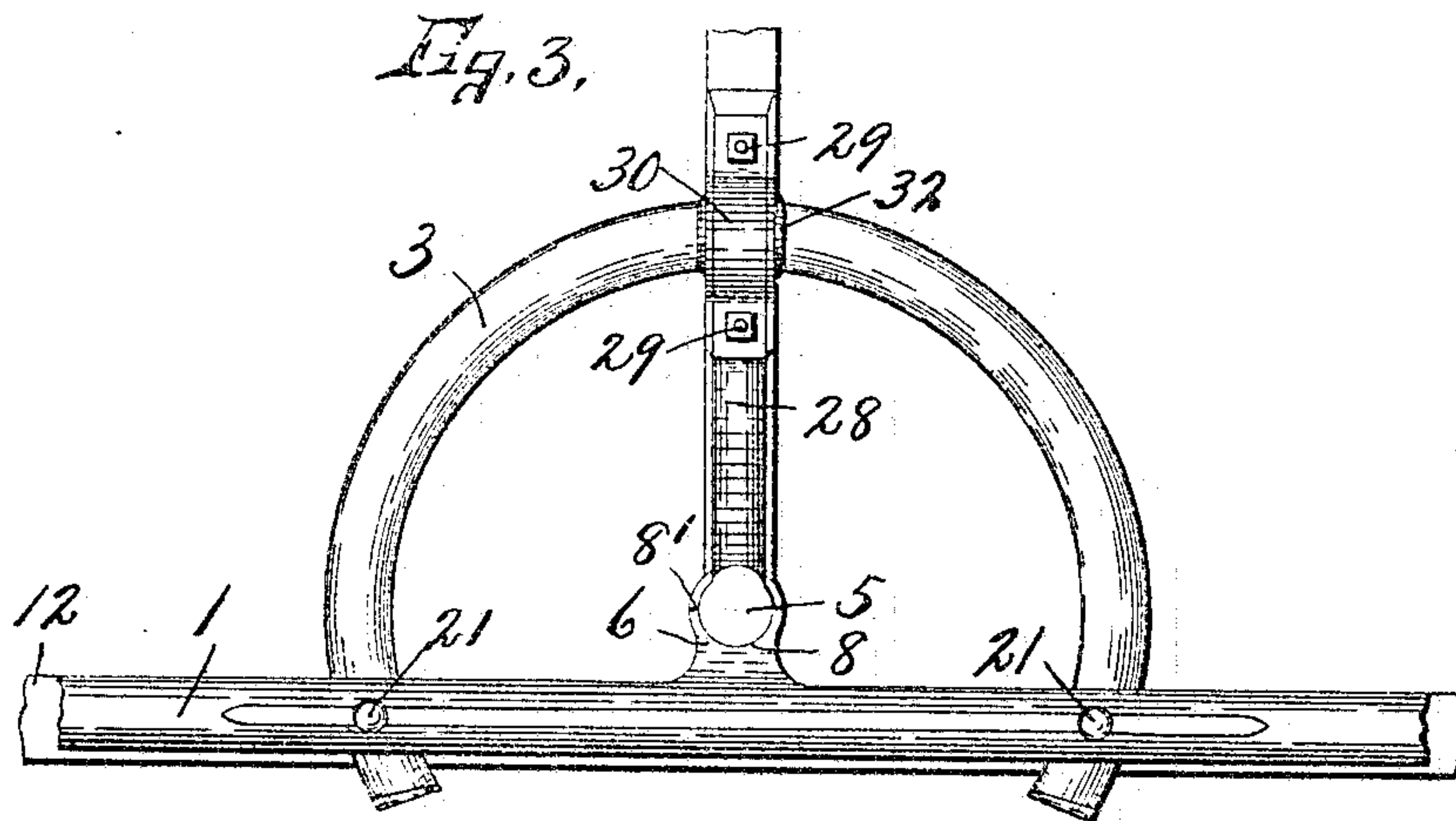
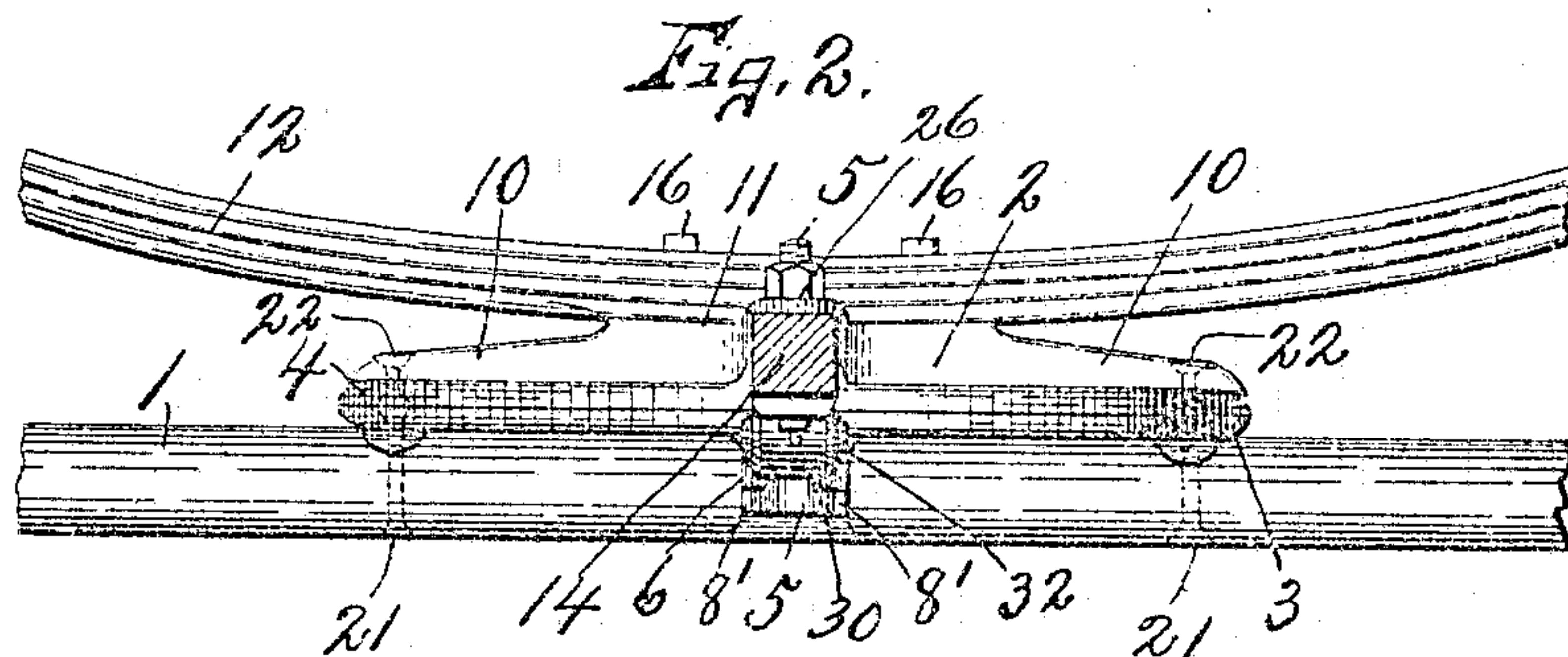
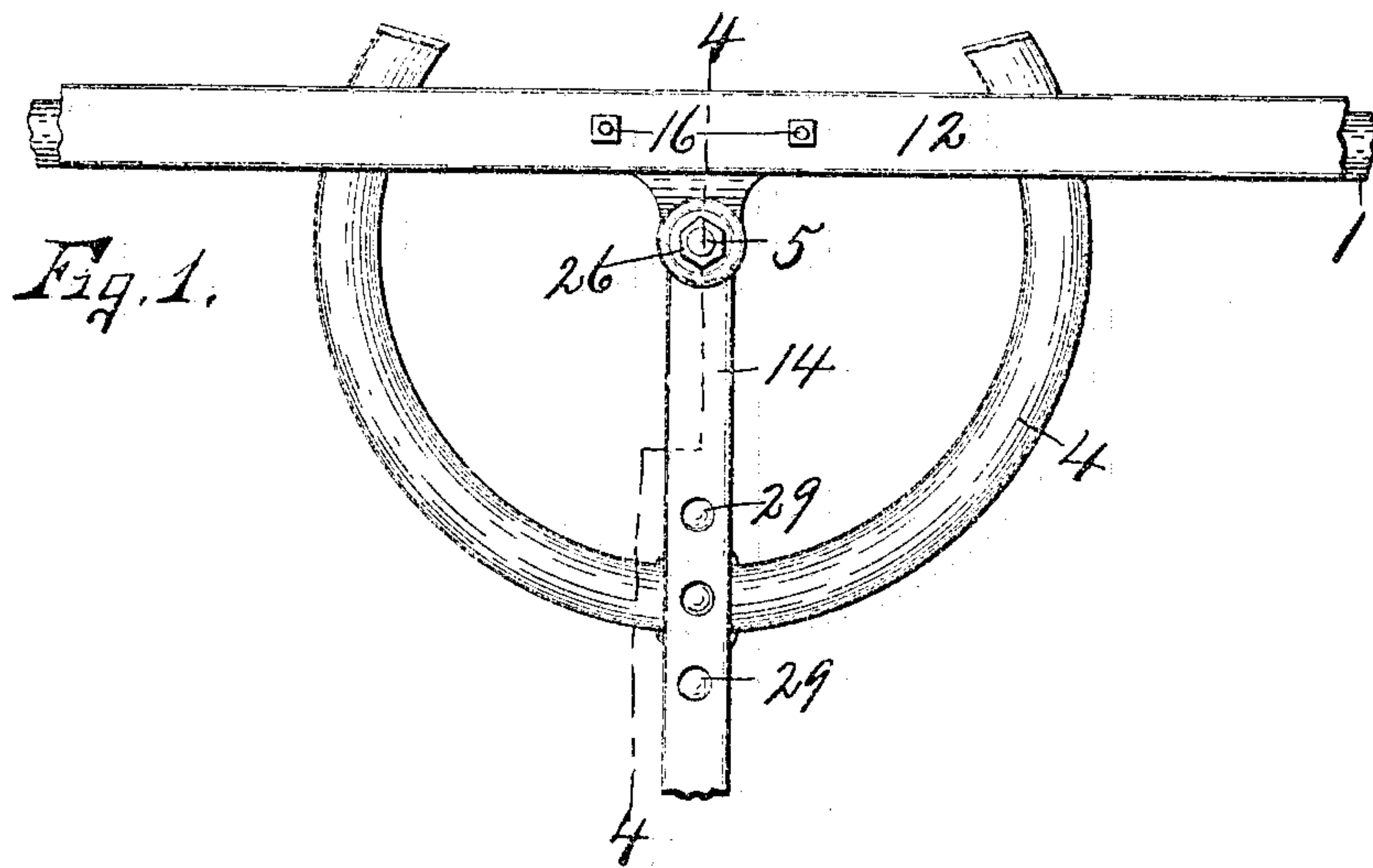


T. D. LINES.
RUNNING GEAR FOR VEHICLES.

APPLICATION FILED FEB. 24, 1902.

2 SHEETS—SHEET 1.



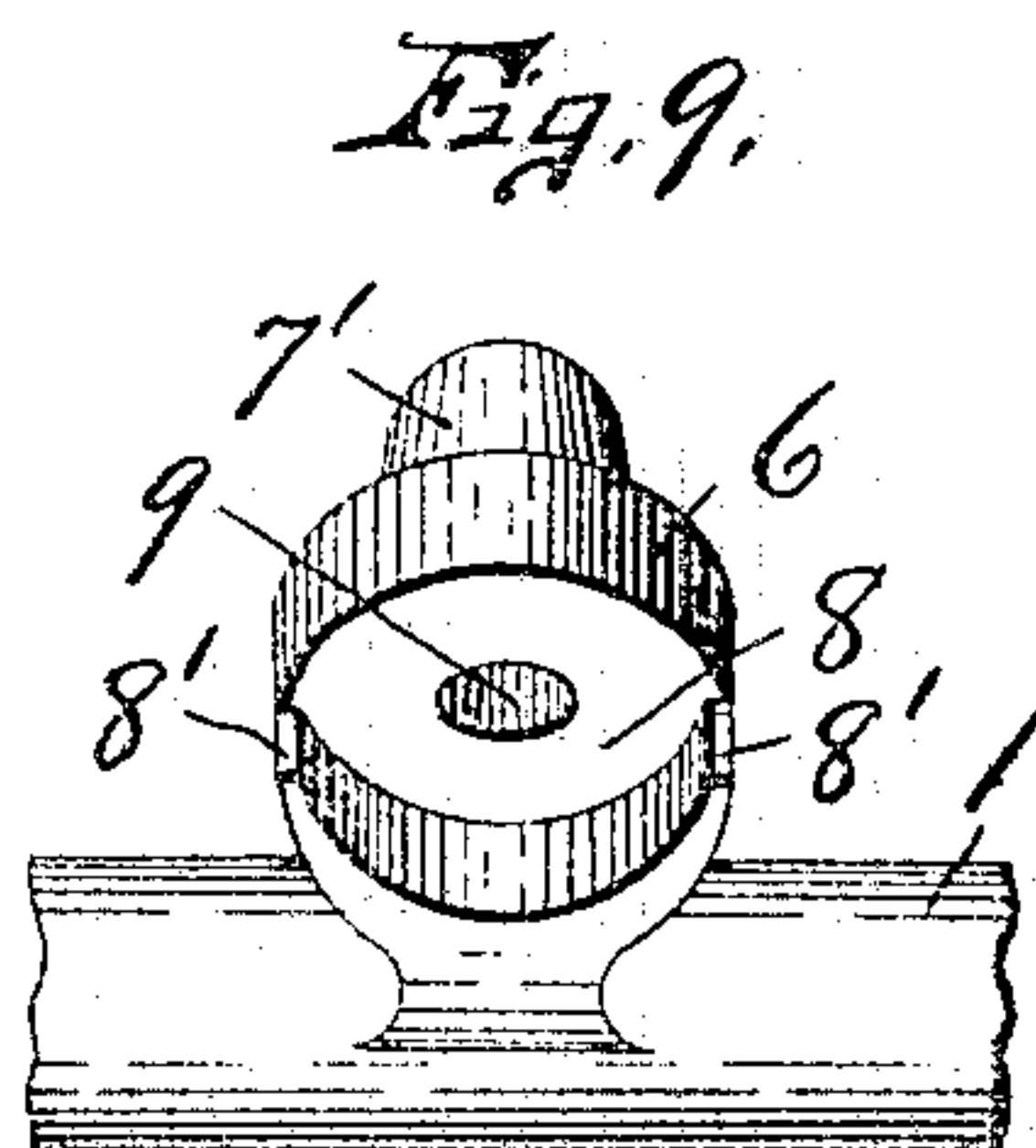
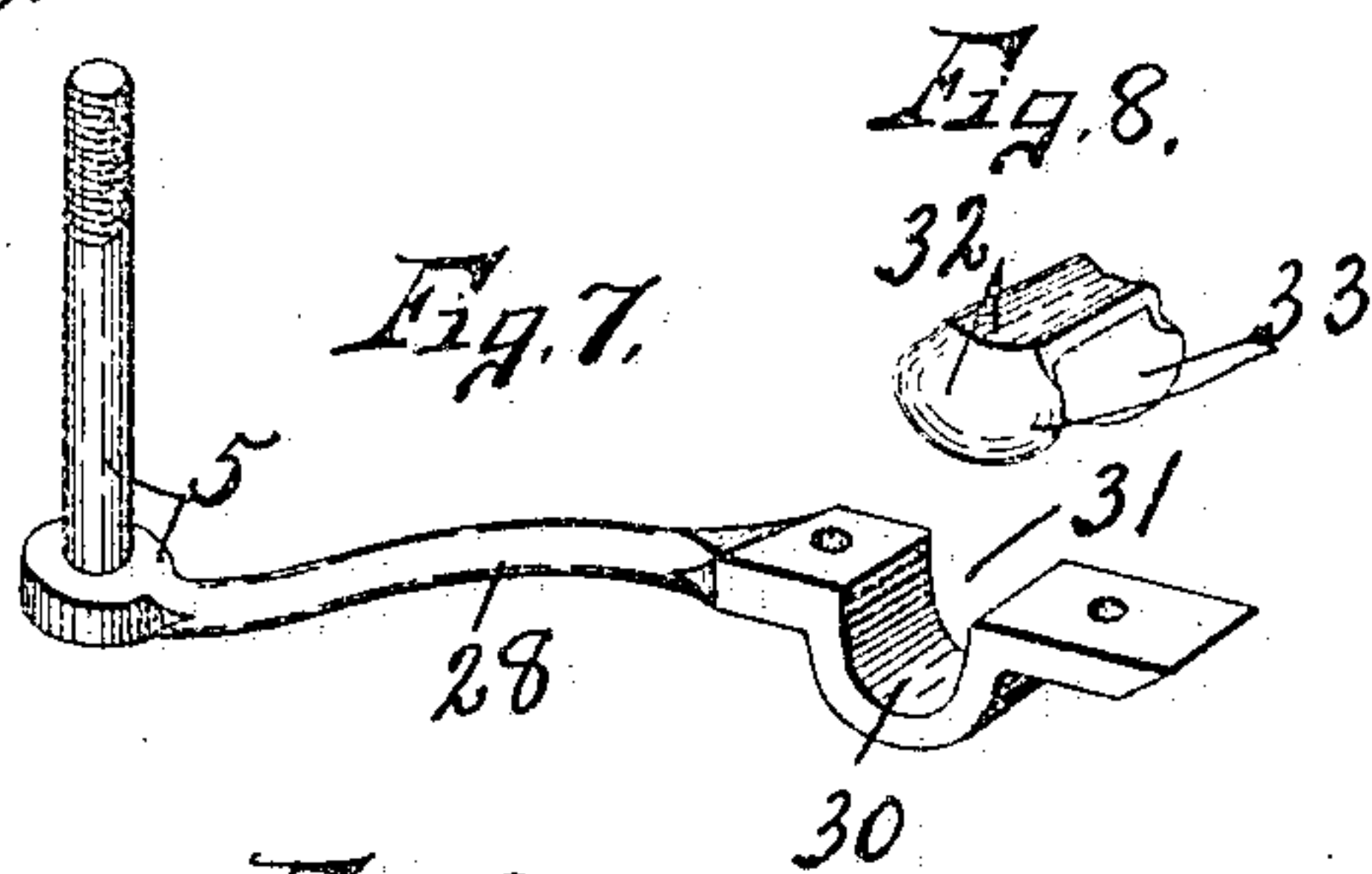
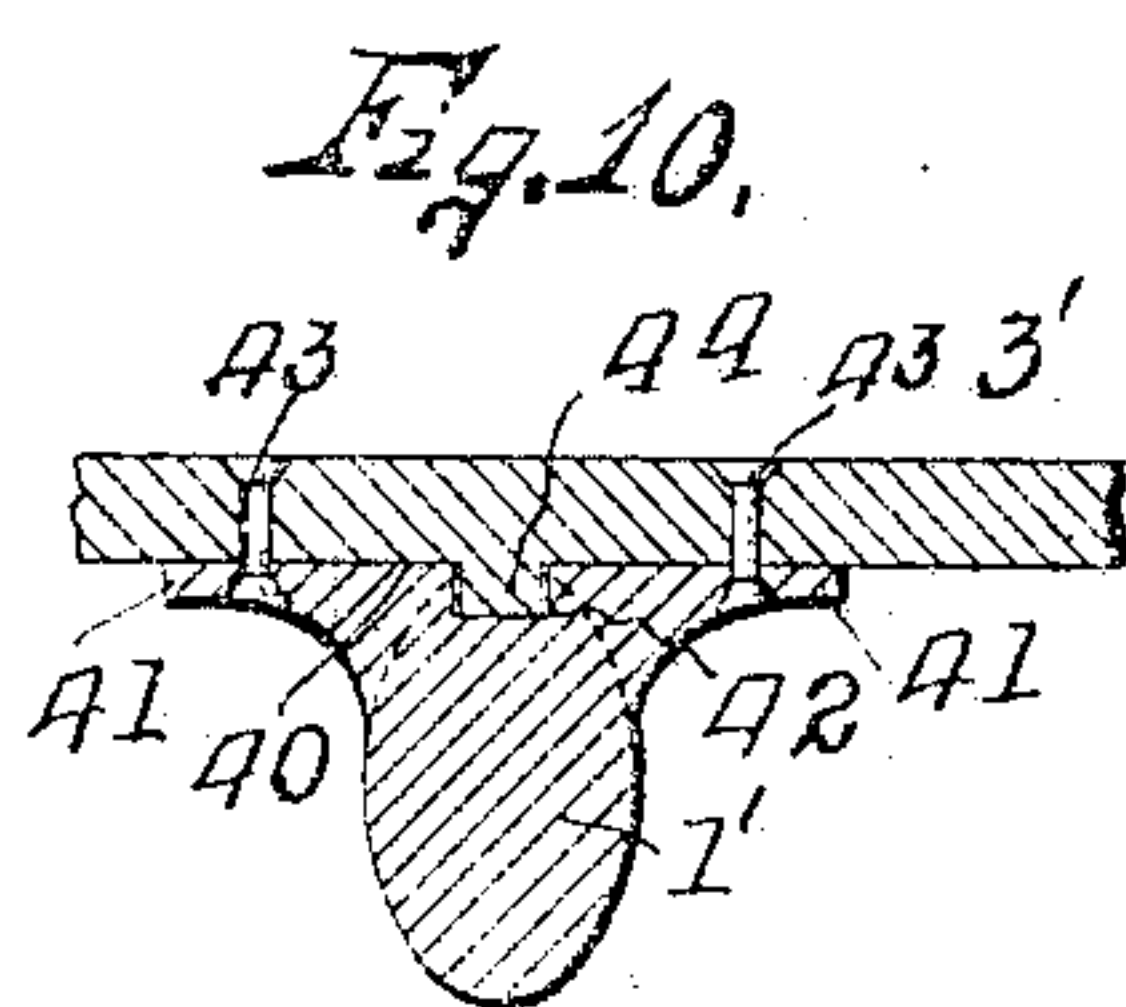
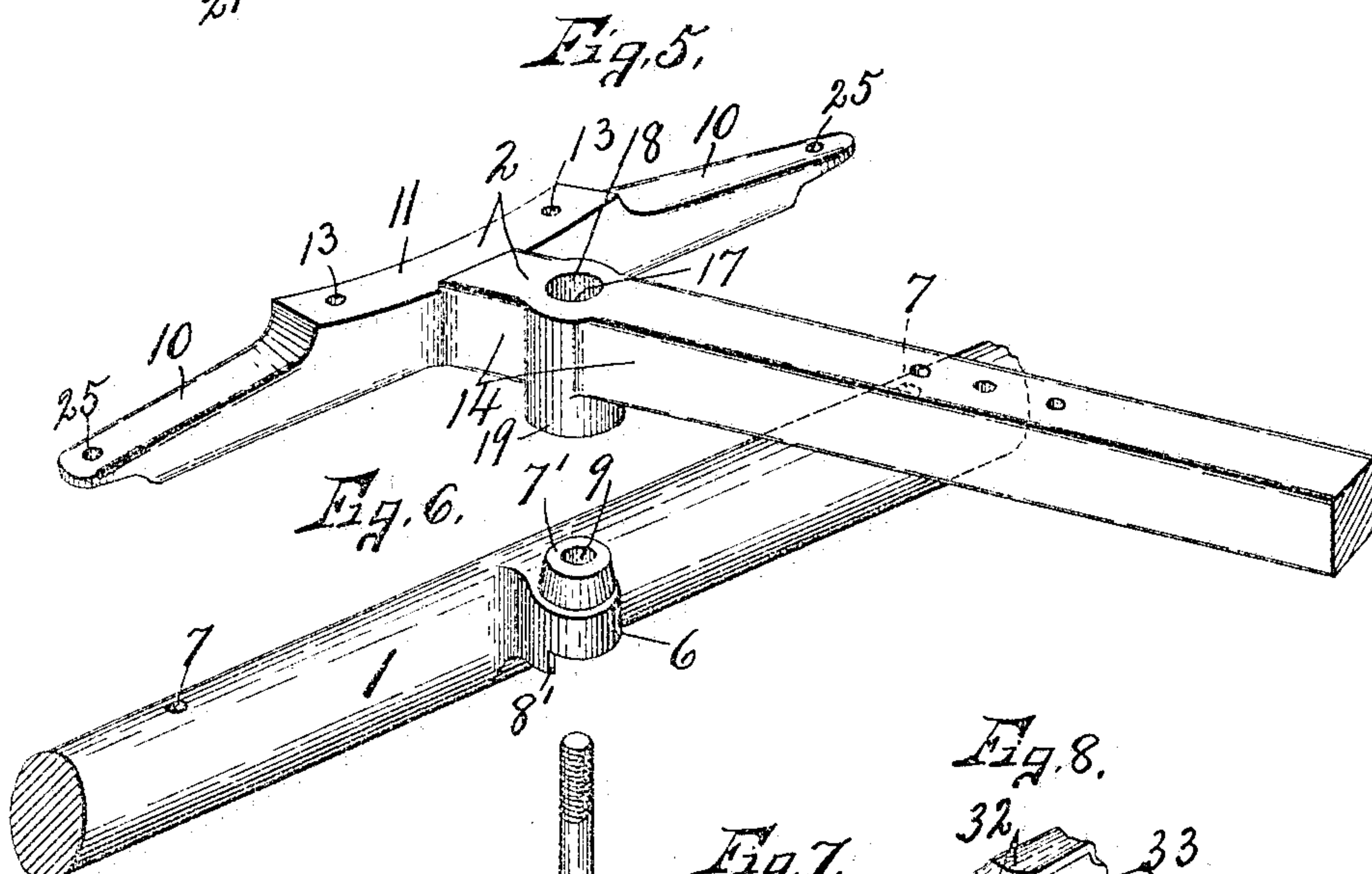
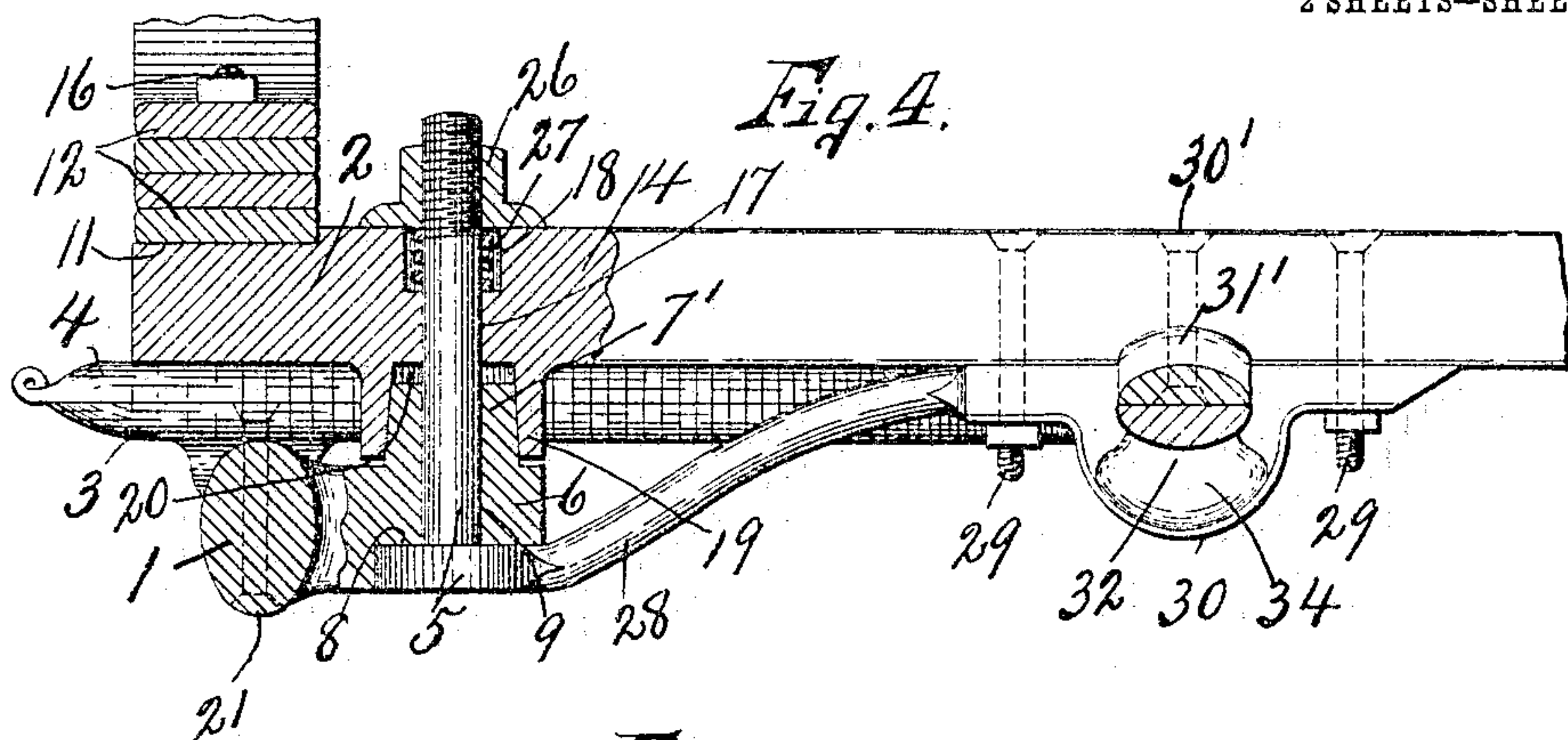
WITNESSES:
Wm. T. Brewer.
H. C. Chase

INVENTOR
Thomas D. Lines
BY
Smith & Harrison
ATTORNEYS.

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2 SHEETS—SHEET 2.



WITNESSES:

Wm. T. Brewer.
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INVENTOR

Thomas D. Lines.

BY

Smith & Davidson
 ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS D. LINES, OF SYRACUSE, NEW YORK, ASSIGNOR TO JENNIE L. DENISON, OF SYRACUSE, NEW YORK.

RUNNING-GEAR FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 781,730, dated February 7, 1905.

Application filed February 24, 1902. Serial No. 95,384.

To all whom it may concern:

Be it known that I, THOMAS D. LINES, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and
5 useful Improvements in Running-Gear for Vehicles, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in
10 running-gear for vehicles, having more particular reference to the fifth-wheel and the adjacent parts of the running-gear.

The object of this invention is to simplify this portion of the running-gear by eliminat-
15 ing the usual clips and bolts of the head-block and axle and connecting the head-block and axle in such manner as to produce a smooth and finished effect.

A further object is to increase the durability and efficiency of this portion of the gear and to provide for the automatic take-up of any wear incidental to the rocking movement of the axle and to provide a broad bearing between the fifth-wheel sections for the pur-
20 pose of relieving the strain upon the king-bolt, thereby enabling me to use a lighter construction than has heretofore been used.

A further object is to provide a simple and practical means for limiting the rocking move-
25 ment of the axle and the fifth-wheel section connected thereto.

A still further object, and perhaps of greatest importance, is to avoid the joining or fitting of the wood portions of the running-gear to adjacent iron portions—as, for instance, the joining of wood and iron axle-sections and also the wood and iron sections for support-
35 ing the spring.

To this end the invention consists in the
40 combination, construction, and arrangement of the parts of a running-gear, as hereinafter fully described, and pointed out in the claims.

Referring to the drawings, Figures 1, 2, and 3 are respectively top plan, rear elevation, and
45 an inverted plan of a portion of a running-gear embodying my invention. Fig. 4 is a sectional view taken on line 4 4, Fig. 1. Figs. 5 and 6 are perspective views, respec-

tively, of a head-block and central portion of the front axle. Fig. 7 is a perspective view
50 of the king-bolt, showing the rearwardly-extending brace-bar. Fig. 8 is an isometric view of the wearing-plate for one of the fifth-wheel sections. Fig. 9 is an inverted perspective view of the central portion of the
55 axle, showing particularly the stop-shoulders for limiting the movement of said axle. Fig. 10 is a detail sectional view of a modified form of fastening the lower fifth-wheel sec-
60 tion to the axle.

In the manufacture of this class of running-gears for vehicles it is customary to form the axle in lengthwise sections, one section being formed of iron and constituting the axle proper, having its opposite ends provided with
65 the wheel-bearings and the other section being usually formed of wood mounted upon the iron section and fitted closely thereto. This is also true in the construction of the head-block, a portion of which is formed of iron,
70 and the spring-seat block is usually formed of wood fitted closely to the iron and secured thereto by suitable clips, similar clips being also employed to secure the wood section to the axle of the iron section. This construc-
75 tion necessitates a large number of pieces, and it is well known to those skilled in the art that however perfect the joint may be fitted and finished between the iron and wood sections the shrinkage of the wood or the ex-
80 pansion of the iron soon reveals the joint even when standing in the warerooms, and frequently necessitates refinishing before the vehicle can be sold. This construction of the parts just described partly of iron and partly
85 of wood also renders the appearance of these parts heavy and bulky, and therefore unsightly, and after a short period of usage the clips become loosened and the water soon settles in the joints, thereby destroying the vi-
90 tality of the wood and necessitating frequent repairs.

The purpose of my invention is to overcome these serious difficulties in vehicle structure and to produce a running-gear which
95 will maintain the same neat and trim appear-

ance under all conditions and usage, and to thereby reduce the cost of repairs to a minimum.

In the drawings, I have shown an axle 1, a head-block 2, fifth-wheel sections 3 and 4, and a king-bolt 5, which parts form the basis of my invention. The axle 1 consists of a single bar of iron the central portion of which is provided with a rearwardly-extending tubular arm 6 and with small vertical apertures 7, arranged at opposite sides of the arm 6. This arm 6 is forged rearwardly from the main body of the axle 1, its upper face being formed with an upwardly-projecting boss 7', which is slightly tapering upwardly for a purpose hereinafter described, and the lower face of said arm is formed with a socket 8 and with a depending segment of an annular flange, the end faces of which form suitable stop-shoulders 8' at opposite sides of the center of the arm. This arm is also provided with a central aperture 9, which is adapted to receive the king-bolt 5, presently described. The head-block 2 is also forged from a single piece of iron, is preferably T shape for forming laterally-projecting arms 10, the upper face of the central portion of the head being formed with a concaved face 11, which forms a suitable seat for a spring, as 12. This head is also provided with vertical apertures 13, which receive clamping-bolts 16, passing through similar apertures in the leaves of the spring 12 for clamping said spring to its seat 11. The head-block 2 is formed with a rearwardly-extending arm 14, having a vertical aperture 17, the upper end of said aperture being enlarged for forming a socket 18. The lower face of the arm 14 is provided with a depending annular flange 19 for forming a socket 20, said socket being formed of substantially the same diameter as the boss 7' of the axle 1 and is slightly tapering upwardly to receive said boss and closely fit upon the same to form a pivotal bearing or connection between the axle and head-block independent of the king-bolt.

The fifth-wheel sections 3 and 4 are formed separate from the head-block and axle, and each consists of a segment of a circular bar arranged concentric with the pivotal bearings between the head-block and axle and are each secured, respectively, to the axle and to the head-block in a plane in front of the pivotal bearing between the axle and head-block. The means for securing the sections 3 usually consists of rivets 21, which are passed through the apertures 7 in the axle and through similar apertures in the section 3, the upper ends of said rivets being countersunk beneath the upper face of said section 3. The means for securing the forward ends of the upper section 4 to the head-block 2, preferably consists of rivets 22, which are passed through apertures 25 in the opposite ends of the arms 10 and through similar apertures in the section

4, the lower ends of said rivets being countersunk in the usual manner beneath the lower face of said section 4 in order that the adjacent faces of the fifth-wheel sections may have a free and smooth bearing one upon the other.

The king-bolt 5 is normally arranged in the apertures 9 and 17, the upper end extending above the upper face of the head-block, and is usually threaded and held in position by a clamping-nut 26.

In order to maintain the pivotal bearings of the head-block and axle in fitting engagement with each other, I provide a coil-spring 27, which is arranged in the socket 18, encircling the king-bolt and normally compressed between the nut 26 and lower wall of the socket 18. This spring serves to automatically take up any wear in the pivotal bearing and always maintains a noiseless connection between the axle and head-block.

The lower end of the king-bolt is preferably enlarged and closely fits in the socket 8, being provided with a rearwardly-extending arm 28, which projects outwardly through the recess in said socket between the shoulders 8', and its rear end is secured by suitable fastening means 29 to the rearwardly-extending arm 14 of the head-block 2. This rearwardly-extending arm is thus formed integral with the king-bolt and forms a suitable brace to prevent undue strain upon the king-bolt and pivotal bearing previously mentioned. The rear end of this arm 28 is provided with a loop 30 for forming a recess 31, in which the rear portions of the fifth-wheel sections are arranged, said rear portion of the upper section being secured to the arm 14 by a clamping-rivet 30' and is provided with upwardly-projecting lugs 31', adapted to engage the lateral faces of the arm 14 to relieve the strain upon the rivet 30'.

The rear portion of the lower fifth-wheel section 3 is movable in the recess 31 and normally rests upon a bearing-plate 32, also arranged in the recess 31 and provided with depending flanges 33, which engage the lateral faces of the adjacent end of the arm 28. In order to hold the lower section firmly against the upper section and still permit its sliding movement thereon, I usually interpose a yielding cushion, as rubber, 34 between the adjacent faces of the wearing-plate 32 and lower wall of the recess 31, said cushion serving to force the plate 32 upwardly, and thereby holding the upper face of the section 3 in contact with the lower face of the section 4.

It is apparent from the foregoing description that the shoulders 8' project beneath the upper face of the head of the king-bolt and that these shoulders, therefore, serve to limit the rocking movement of the axle 1 in both directions by reason of the engagement of said shoulders with the opposite side faces of

the arm 28 and prevent any rub of the tires (such as rubber tires) upon the body of the vehicle, which rubbing causes undue abrasion of the tire and frequent tilting of the body to one side.

Fig. 10 shows a portion of an axle 1' and the adjacent end of a lower fifth-wheel section 3', the axle having a transverse seat 40, provided with apertured flanges 41 and a socket 42, the apertures receiving rivets 43 and the socket receiving a stud 44 on the section 3'. This construction obviates drilling through the body of the axle, and the lug and rivets hold the fifth-wheel section from lateral displacement.

The operation of my invention will now be readily understood upon reference to the foregoing description and the accompanying drawings, and it will be noted that some change may be made in the detail construction and arrangements of the parts without departing from the spirit thereof. Therefore I do not limit myself to the precise construction and arrangement shown and described.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a running-gear for vehicles, a metal axle forged with a rearwardly-projecting upright tube and with stop-shoulders depending from its lower end in combination with a head-block and a king-bolt extending rearwardly between the shoulders, the portion of the king-bolt between the stop-shoulders being of less width than the distance between said shoulders.

2. In a running-gear for vehicles, an axle forged with a rearwardly-projecting upright tube, a fifth-wheel section consisting of a segment of an annular ring secured to the axle at points in front of the tubular arm, a head-block formed from a single piece of metal and forged with a rearwardly-extending arm, a second fifth-wheel section consisting of a segment of an annular ring secured to the head-block, a king-bolt connecting the arms of the axle and head-block and forged with a rearwardly-extending arm abutting against the lower face of the arm of the head-block and provided with an open-sided loop receiving the adjacent portions of the fifth-wheel sections.

3. In a running-gear for vehicles, a metal axle having a plain front face and a rearwardly-projecting upright tube forged from the central portion of the main body of the axle, said tube having depending shoulders, a metal head-block forged with a T-shaped head and having a plain front face, the stem of the head having a vertical socket receiving the tube of the axle, fifth-wheel sections each consisting of a segment of an annular ring interposed between the head-block and axle, one segment being secured to the axle and the other to the

head-block, the arched portions of said segments being disposed in a plane beneath the lower face of the stem of the head-block, a king-bolt inserted in the tube and socket and forged with a rearwardly-extending arm secured to the lower face of the stem of the head-block and having a loop receiving the fifth-wheel sections.

4. In a running-gear for vehicles, a metal axle forged with a rearwardly-projecting tubular arm having a tapering annular bearing and depending shoulders, a metal T-shaped head-block having a vertical socket flaring at its lower end and receiving the tapering bearing of said tubular arm, fifth-wheel sections interposed between the head-block and axle, a king-bolt inserted in the tubular arm and socket and formed with an arm extending rearwardly between the shoulders of said arm and secured to the lower face of the stem of the head-block, said rearwardly-extending arm of the king-bolt being provided with a loop receiving the fifth-wheel sections, a movable wearing-plate having depending ears engaged with the end faces of the loop and its upper face engaged with the lower face of the lower fifth-wheel section, and yielding means inserted in the loop for holding said wearing-plate in engagement with said lower fifth-wheel section.

5. In a running-gear for vehicles, the combination of a metal axle having a rearwardly-projecting arm forged integral therewith and provided with a vertical aperture there-through, a metal head-block having a rearwardly-extending arm forged integral therewith and also provided with a vertical opening therethrough, a king-bolt inserted through said openings and having a rearwardly-extending arm, fifth-wheel sections formed separate from the head-block and axle and each consisting of a sector of a circular bar arranged concentric with the king-bolt, one of the sectors having its intermediate portion engaged with the rearwardly-extending arm of the king-bolt and its opposite ends secured to said axle in front and at the opposite sides of the king-bolt to form an open space within the sector and the other sector having its intermediate portion secured to the rearwardly-projecting arm of the head-block and its opposite ends secured to the head-block in front and at opposite sides of the king-bolt to form a similar opening within said latter sector, whereby an open space is left on opposite sides of the rearwardly-projecting arms of the axle and head-block and within said sectors.

In witness whereof I have hereunto set my hand this 17th day of February, 1902.

THOMAS D. LINES.

Witnesses:

H. E. CHASE,
MILDRED M. NOTT.