

No. 626,483.

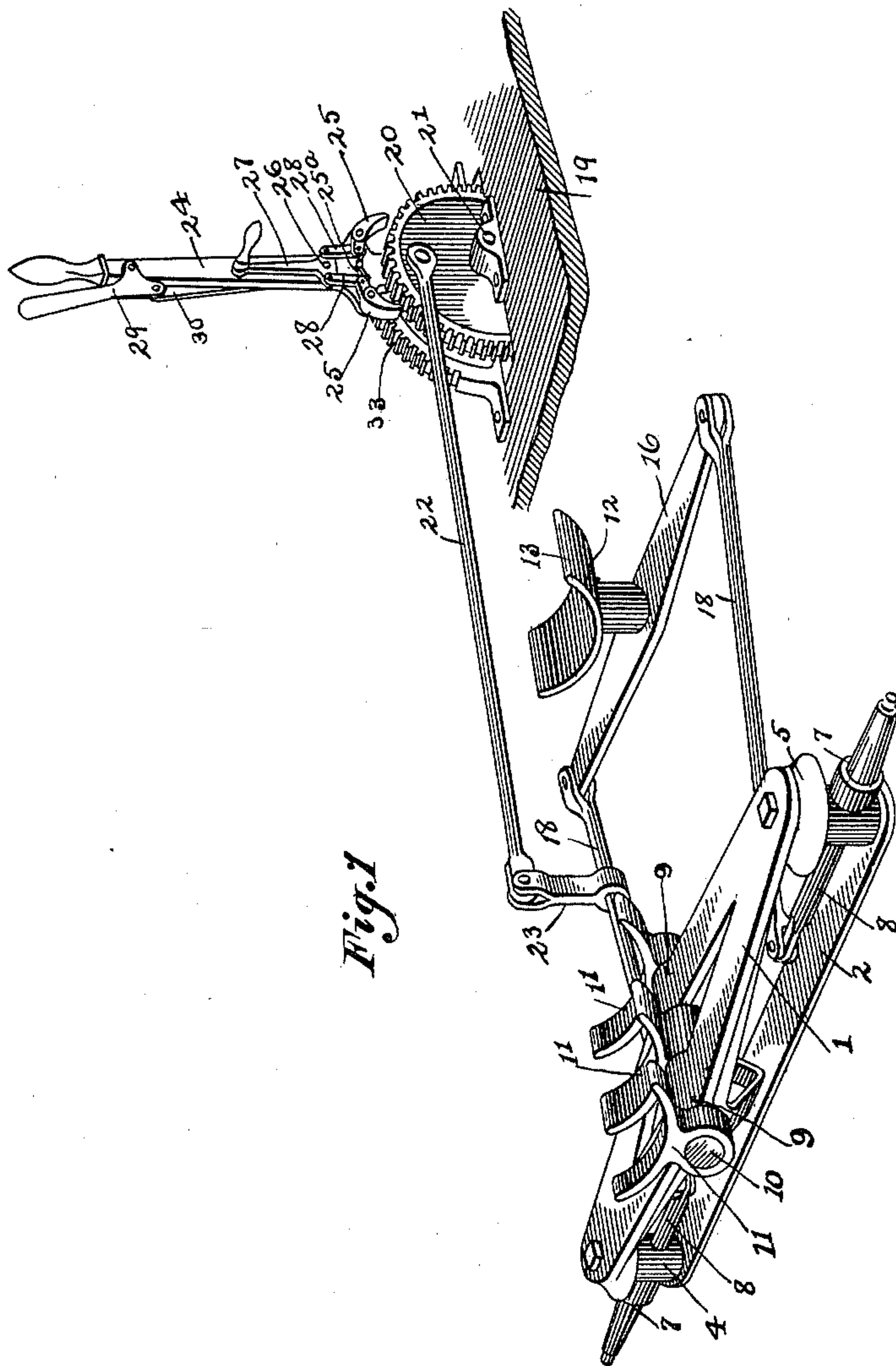
Patented June 6, 1899.

L. BROWN.
STEERING GEAR.

(Application filed Feb. 16, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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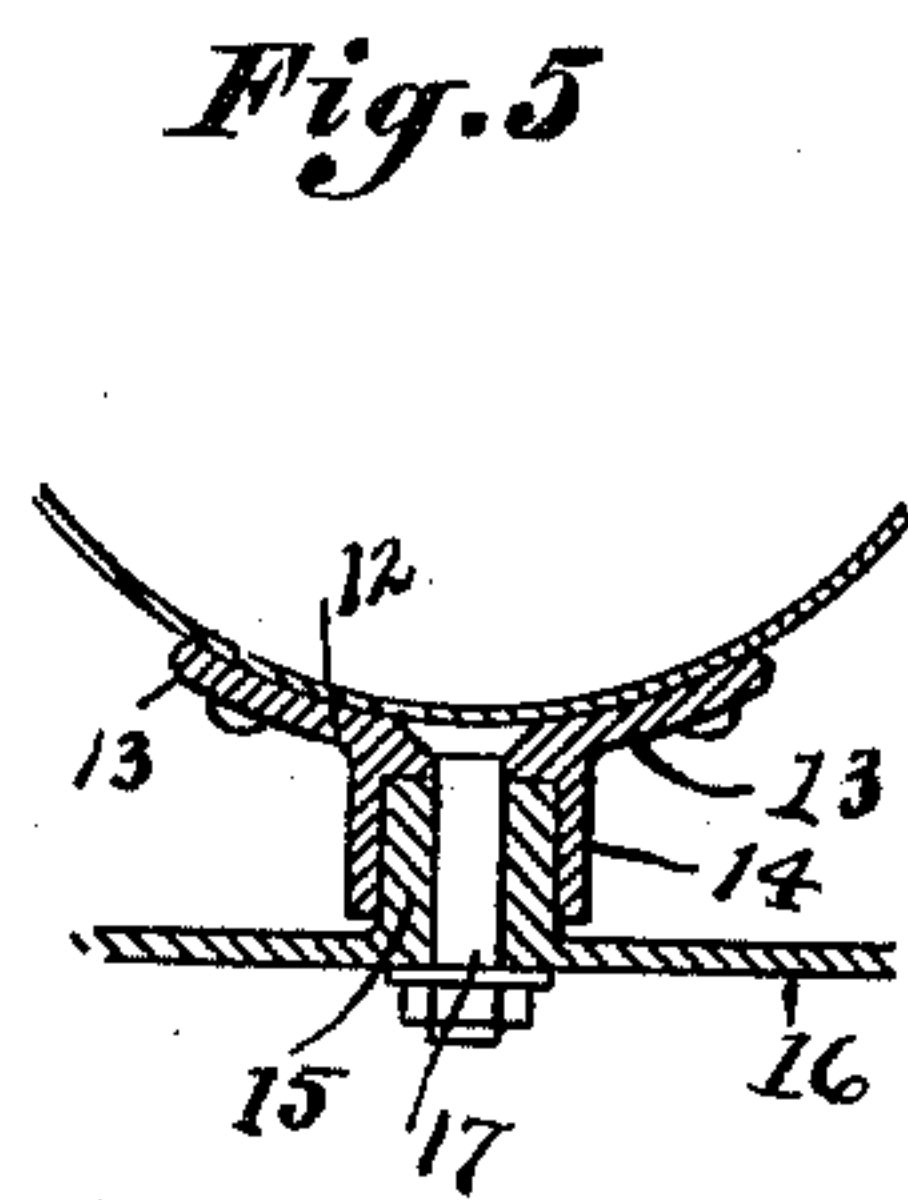
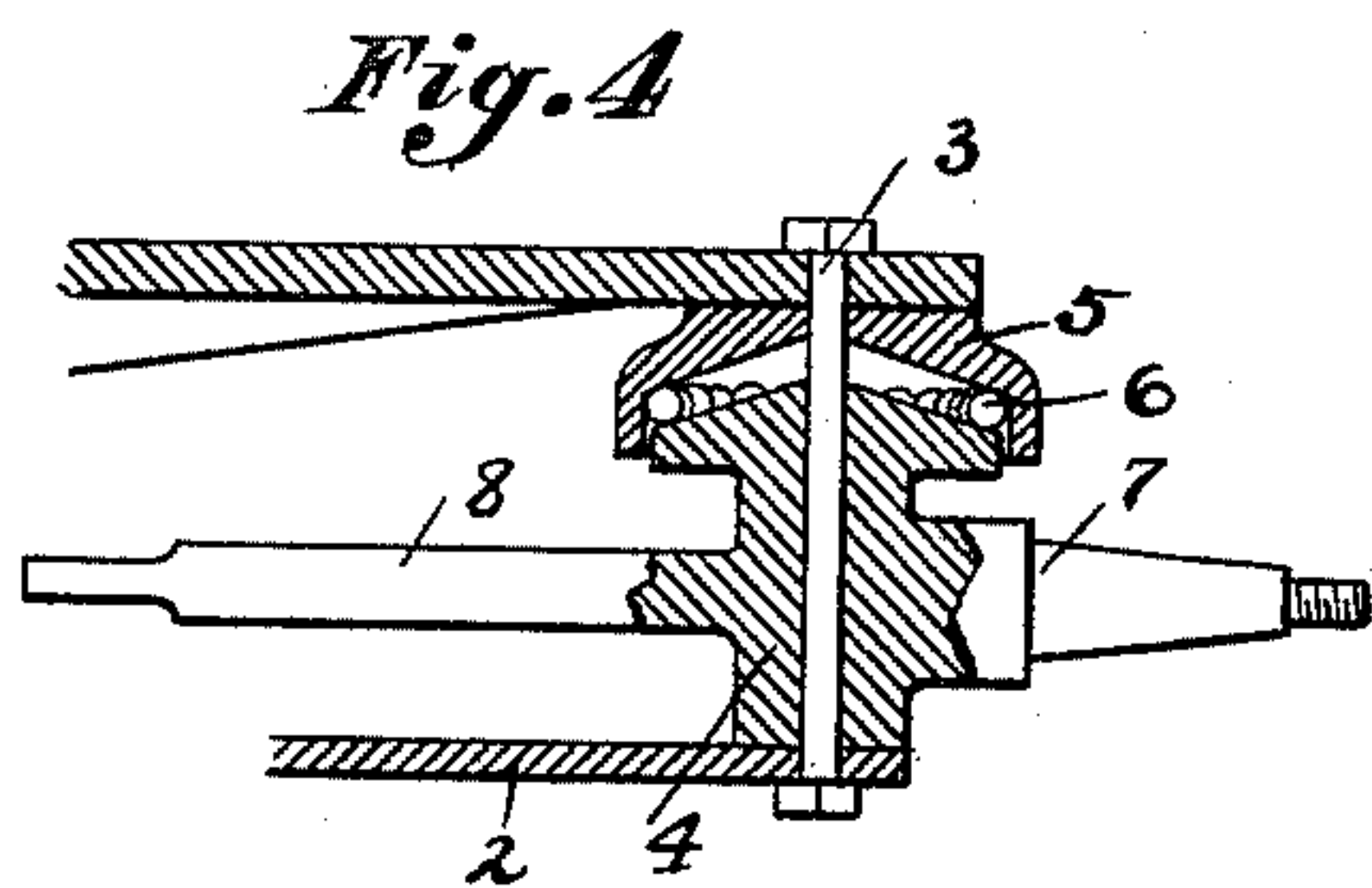
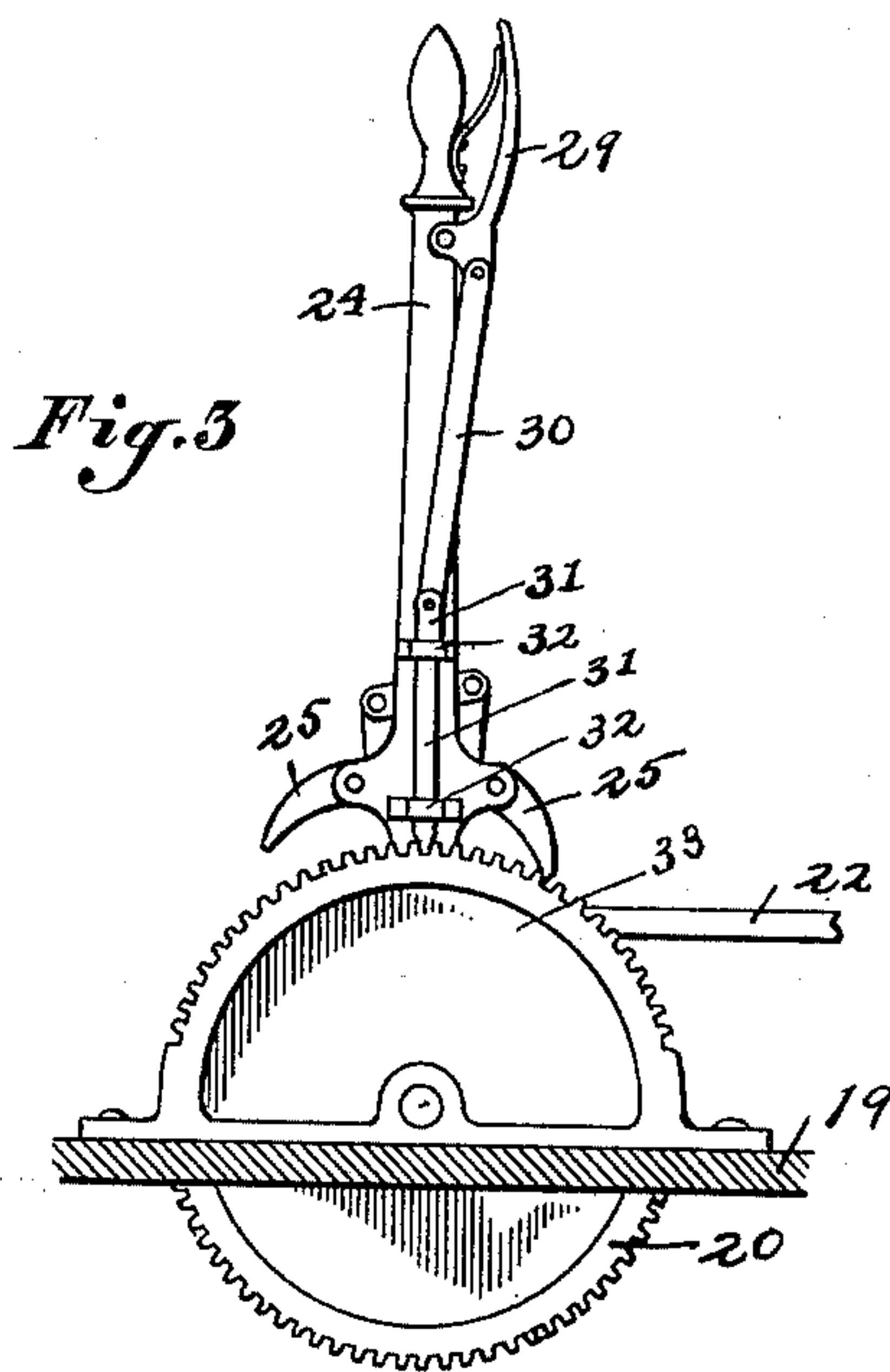
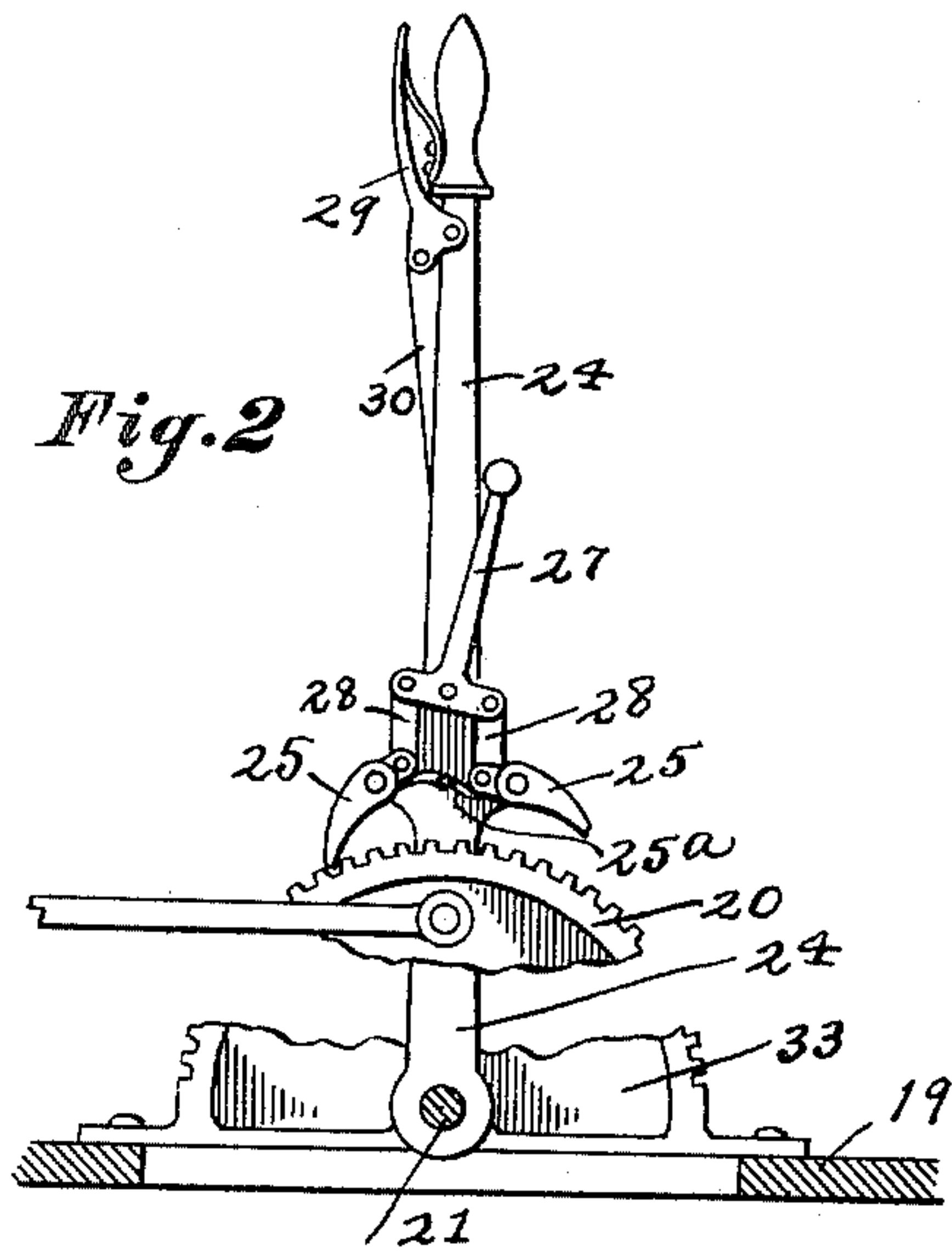
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UNITED STATES PATENT OFFICE.

LEONARD BROWN, OF OTTERBEIN, INDIANA.

STEERING-GEAR.

SPECIFICATION forming part of Letters Patent No. 626,483, dated June 6, 1899.

Application filed February 16, 1899. Serial No. 705,602. (No model.)

To all whom it may concern:

Be it known that I, LEONARD BROWN, a citizen of the United States, residing at Otterbein, in the county of Benton and State of Indiana, have invented a certain new and useful Improvement in Steering-Gears, of which the following is a specification.

My invention relates to the improvement of steering-gears of that class which are adapted for changing the course of the forward wheels of a running-gear, my invention being particularly adapted for use in connection with the running-gear of portable engines.

The objects of my invention are to provide a simple, reliable, and convenient mechanism whereby the course of the engine or other body with which my steering-gear is used may be readily and easily changed or controlled, to so construct the same as to admit of making a quick sharp turn of the forward wheels of a running-gear, and to produce other improvements in details of construction and arrangement of parts, which will be more clearly pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective showing my improved steering apparatus connected with the forward portion of a running-gear. Fig. 2 is an inner face view of the steering-gear-operating stand, showing for the sake of clearness a portion of the steering-gear wheel removed. Fig. 3 is an outer side view of said stand. Fig. 4 is a central sectional view through one of the axle-bearings; and Fig. 5 is a central sectional view in detail of a pivotal bracket, which is adapted to connect the rear portion of a steering-gear with the body of an engine or other body carried by a running-gear.

Similar numerals refer to similar parts throughout the several views.

In carrying out my invention I provide a forward running-gear truck of improved construction, the front wheels of the running-gear being omitted therefrom for the sake of clearness in illustration. Of this truck 1 and 2 represent upper and lower parallel bolster-plates, the extremities of which are united by vertical bolts, each of these bolts passing loosely and centrally through a vertical sleeve 4, the lower end of which bears upon the lower

bolster-plate 2 and the upper conical end of which is loosely embraced by a bearing-ball-retaining cap 5, between which and the upper side of the sleeve 4 are interposed bearing-balls 6. The rotary sleeve 4 thus provided has formed therewith an outwardly-projecting spindle-section 7, on which is adapted to be mounted one of the forward wheels of a running-gear in the usual manner. Opposite the spindle 7 each of the sleeves 4 is provided with an outwardly-extending arm 8, the latter, together with the spindle, normally extending in the direction of the lengths of the bolster-sections. With the central portion of the upper bolster-section 1 I provide oppositely-located journal bearings or boxings 9, through which passes a journal rod or shaft 10, on which is mounted the sleeve or cylindrical lower portions of the desired number of attaching-brackets 11, the upper portions of which are of suitable form to admit of their attachment to any body which may be carried on a running-gear—such, for instance, as the boiler of an engine.

At a point in rear of the central portion of the front bolster I provide a rear attaching shoe or bracket 12, the upper portion of which is also of a suitable shape to admit of its being bolted, riveted, or otherwise attached to said engine-boiler or other body, the construction of said bracket being shown more clearly in Fig. 5 of the drawings and consisting in the attaching-head 13, provided with a central depending tubular portion 14, which serves as a socket to loosely receive an upwardly-extending tubular bearing projection 15, which is formed at the center of the length of a transverse lever or walking-beam 16, said walking-beam being further connected with said bracket through the medium of a central bolt 17, said tubular projection 15 of the beam being journaled on said bolt. As indicated at 18 I provide connecting-rods, the ends of which are jointedly and respectively connected with the outer ends of the beam 16 and the ends of the arms 8.

19 represents a platform or flooring, which may be connected with or supported from the inner trucks of a running-gear or the body carried on said running-gear. 20 represents a toothed steering-gear-operating wheel, which, as indicated at 21, is journaled in a slotted

opening of said platform, said wheel being connected with one of the steering-gear rods 18 through the medium of an operating-rod 22, the rear end of the latter being eccentric-
 5 ally connected with one side of the wheel 20 and the forward end of said rod being, through the medium of a vertical arm 23, connected with one of said steering-rods 18.

24 represents a pawl-carrying hand-lever, 10 the lower end portion of which is fulcrumed to the framework 19 on the outer side of the wheel 20. This wheel has pivoted to oppositely-located lateral extensions thereof and at points immediately above the toothed wheel
 15 20 front and rear pawls 25, the tapering ends of which are adapted to be engaged with the teeth of the wheel 20 on opposite sides of its center. Pivoted at 26 to the lever 24 is the lower end of a smaller pawl-controlling lever
 20 27, the lower end portion of the latter being jointly connected on opposite sides of its center with upper extensions of the pawls 25 through the medium of short bars or links 28. Through the medium of a suitable spring 25^a
 25 the pawls 25 are normally retained in engagement with the teeth of the wheel 20 when said lever 27 is extending in the direction of the length of the hand-lever 24. The upper portion of the hand-lever 24 has fulcrumed thereto a
 30 suitable form of spring-actuated finger-lever 29, with a projection of which is jointly connected the upper end of a bar 30 and the lower end of which connects with and is adapted to control the vertical movement of a stop-pawl
 35 31, which moves in suitable keepers 32 on the rear side of the lever 24 and has its lower end engaging the desired tooth or notch of a gear-segment 33, which rises from said platform or frame 19 on the outer side of the lever 24.

40 The operation and manner of utilizing my improved steering-gear are substantially as follows: Under the construction shown in the drawings it is obvious that when the pawl-controlling lever 27 is in a vertical position
 45 or extending in the direction of the length of the lever 24 both of the pawls 25 may engage teeth of the wheel 20 and that a forward movement of the lever 24 must result in turning said wheel forwardly and in the front bolster
 50 and spindle being so moved as to turn the front wheels of the running-gear, which are mounted on said spindle to the right. It is also true that when this motion is reversed the forward truck will have been turned to-
 55 ward the left. Assuming, however, that it is desired to impart a decided turn of the forward truck to the right, the controlling-lever 27 is first moved forwardly until the rear pawl 24 is out of engagement or contact with the
 60 wheel 20. This being accomplished, it will readily be seen that a repeated forward-and-backward movement of the lever 24 must result in moving said front truck in the one direction only. It is obvious that in order to
 65 make a decided turn of the front truck to the left the lever 27 may be turned rearwardly until the forward truck 25 is out of engage-

ment with the wheel 20, the power to move said wheel being thus limited to the rear pawl 25 in the rearward motion or movement of the 70 lever 24. It will readily be seen that the stop-pawl 31 may in the usual manner be made to engage the desired tooth of the gear-segment for the purpose of holding the front truck in any position to which it has been 75 previously moved by the operation of said lever 24.

It will be observed that the swinging movement of the front bolster, whereby the front wheels of the running-gear may be turned to 80 the right or left, is facilitated by the jointed connection between the arms 8 of the spindle-sleeves and the horizontal beam 16, the latter being adapted to swing on its pivotal bolt 17. It is also evident that the ball-bearing 85 connection between the spindle-sleeves and upper bolster-section must add greatly to the ease of operation.

Through the hinged or fulcrumed connection of the front bolster with the body of the 90 engine or other object to be carried it will be seen that such slight tipping movement as the front trucks may ordinarily be subjected to by running over uneven surfaces may be attained without imparting said movement to 95 the engine or other body supported thereby, the connections between the arms 8 and beams 16 not being sufficiently rigid to contribute this slight movement to said body.

From the construction and operation herein 100 described it will be seen that simple, reliable, and effective means are provided, whereby a turn of the forward truck of a running-gear may be readily effected in either direction by one movement of the pawl-carrying lever and 105 whereby a decided movement in either direction may be readily accomplished through a backward-and-forward movement of said hand-lever. It will also be seen that the construction of my improved steering-gear is 110 such as to admit of a change in direction being effected with sufficient rapidity to admit of the turning of sharp corners and that the parts are so constructed and connected as to require but a comparatively small amount of 115 power to operate the same.

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

1. In a steering-gear, the combination with 120 a forward running-gear bolster having central attaching-brackets and a journaled connection therewith and wheel-spindles having a swinging connection with said bolster ends, of a fulcrumed hand-lever 24, pawls carried 125 on opposite sides thereof, a journaled and toothed wheel with which said pawls are adapted to engage, and an operating-rod eccentrically connected with said toothed wheel and with said swinging spindles, substan- 130 tially as specified.

2. In a steering-gear, the combination with a fulcrumed lever 24, spring-actuated pivoted pawls carried at opposite points on said lever,

a fulcrumed pawl-controlling lever 27 on said lever 24 and a jointed connection between said pawls and lever 27, of a journaled wheel with the teeth of which said pawls are adapted
5 to engage, an operating-rod eccentrically connected with said toothed wheel, a forward running-gear bolster and wheel carrying spindles and connections between said spindles

and said operating-rod whereby the movement of the latter imparts a movement to said spindles, substantially as specified.

LEONARD BROWN.

In presence of—

WILLIAM E. WACHTEL,
P. H. TULLEY.