

No. 673,226.

Patented Apr. 30, 1901.

F. J. STALLINGS.
GEARING FOR AUTOMOBILES.

(Application filed Sept. 20, 1900.)

(No Model.)

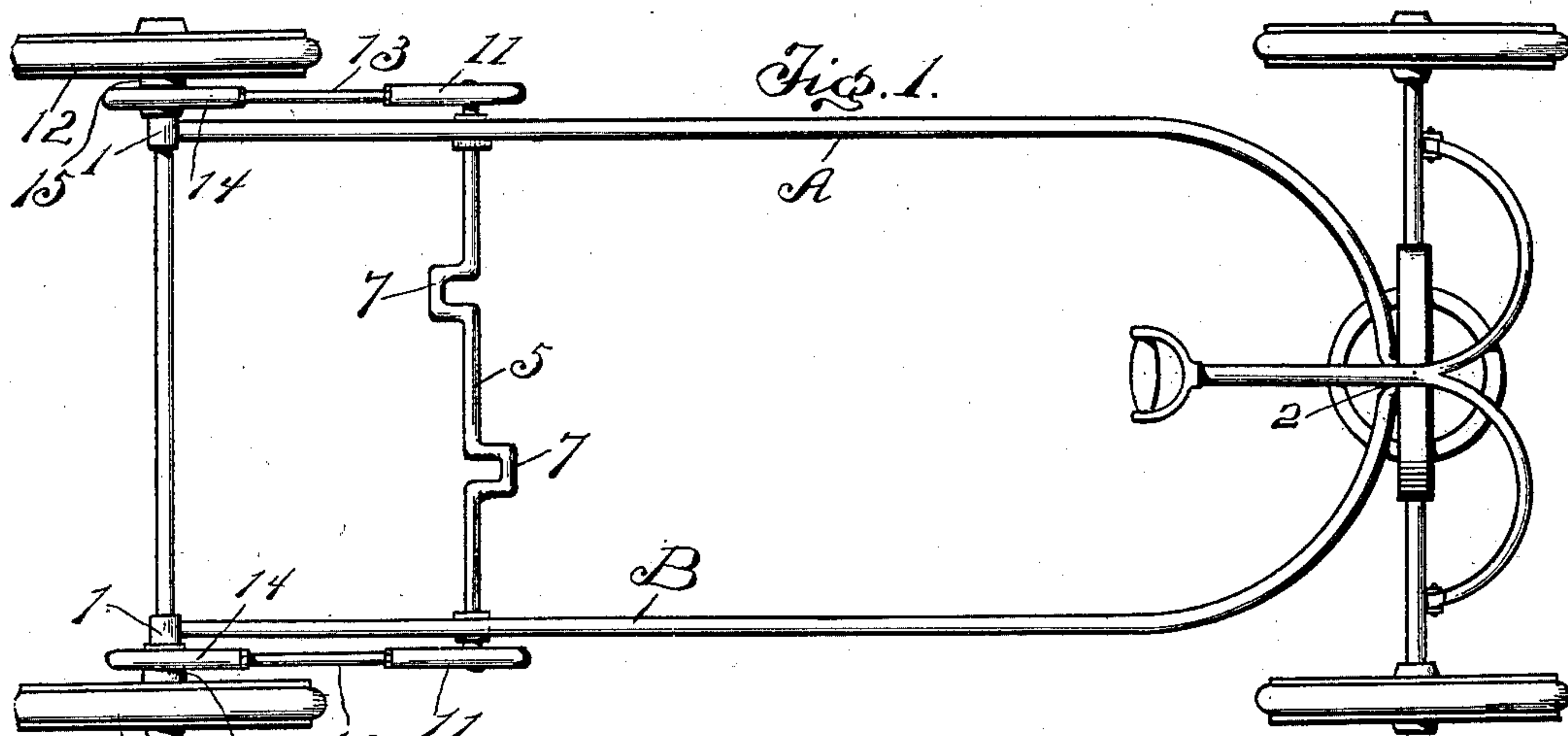


Fig. 4.

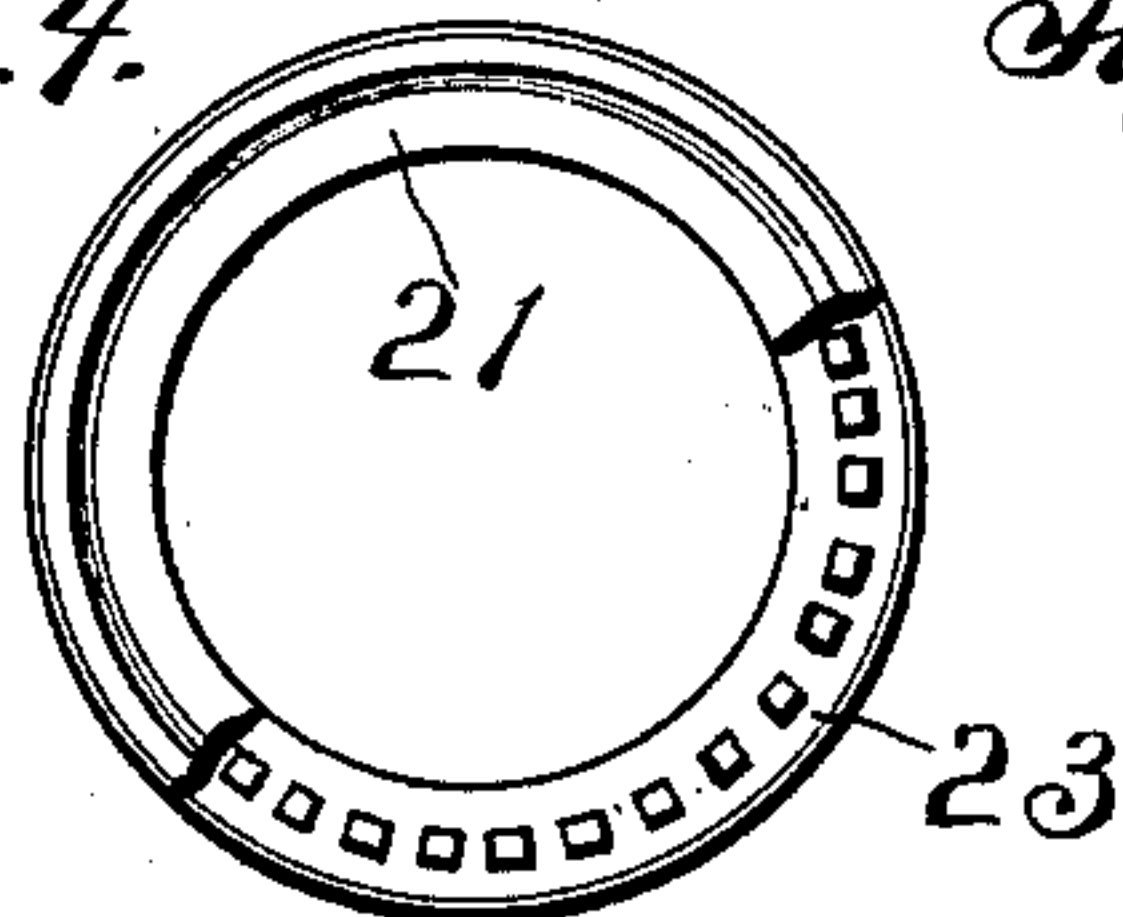


Fig. 6.

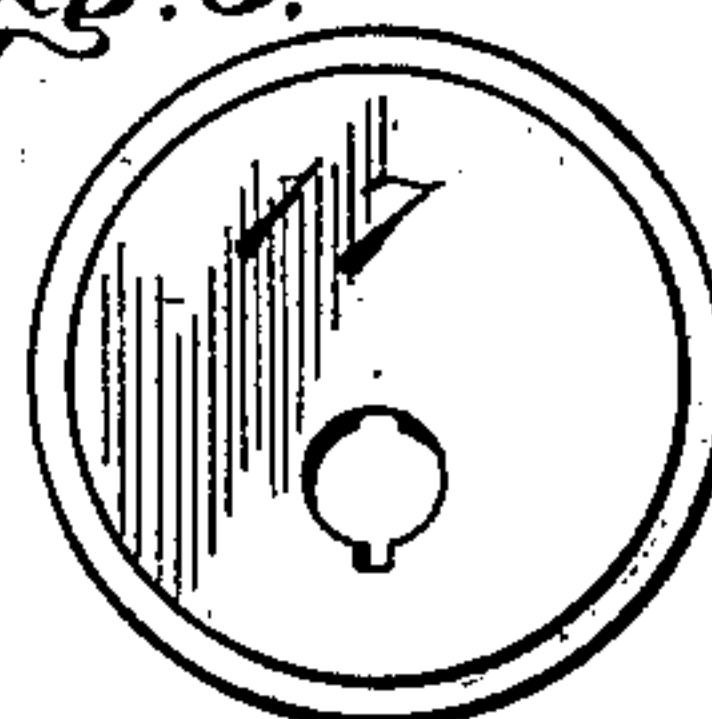


Fig. 2.

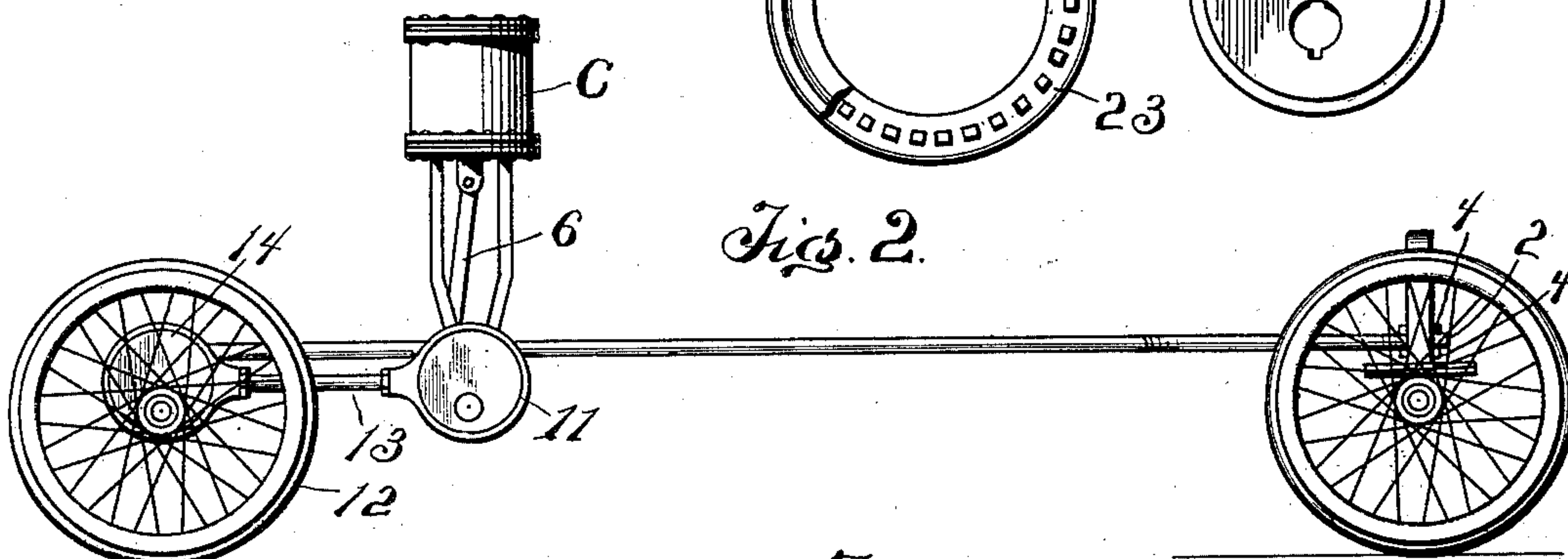


Fig. 3.

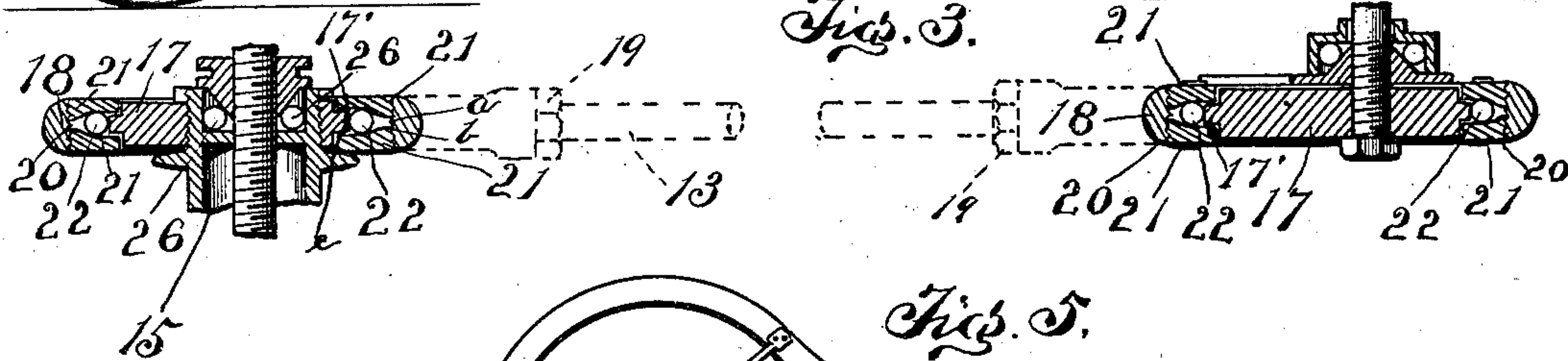
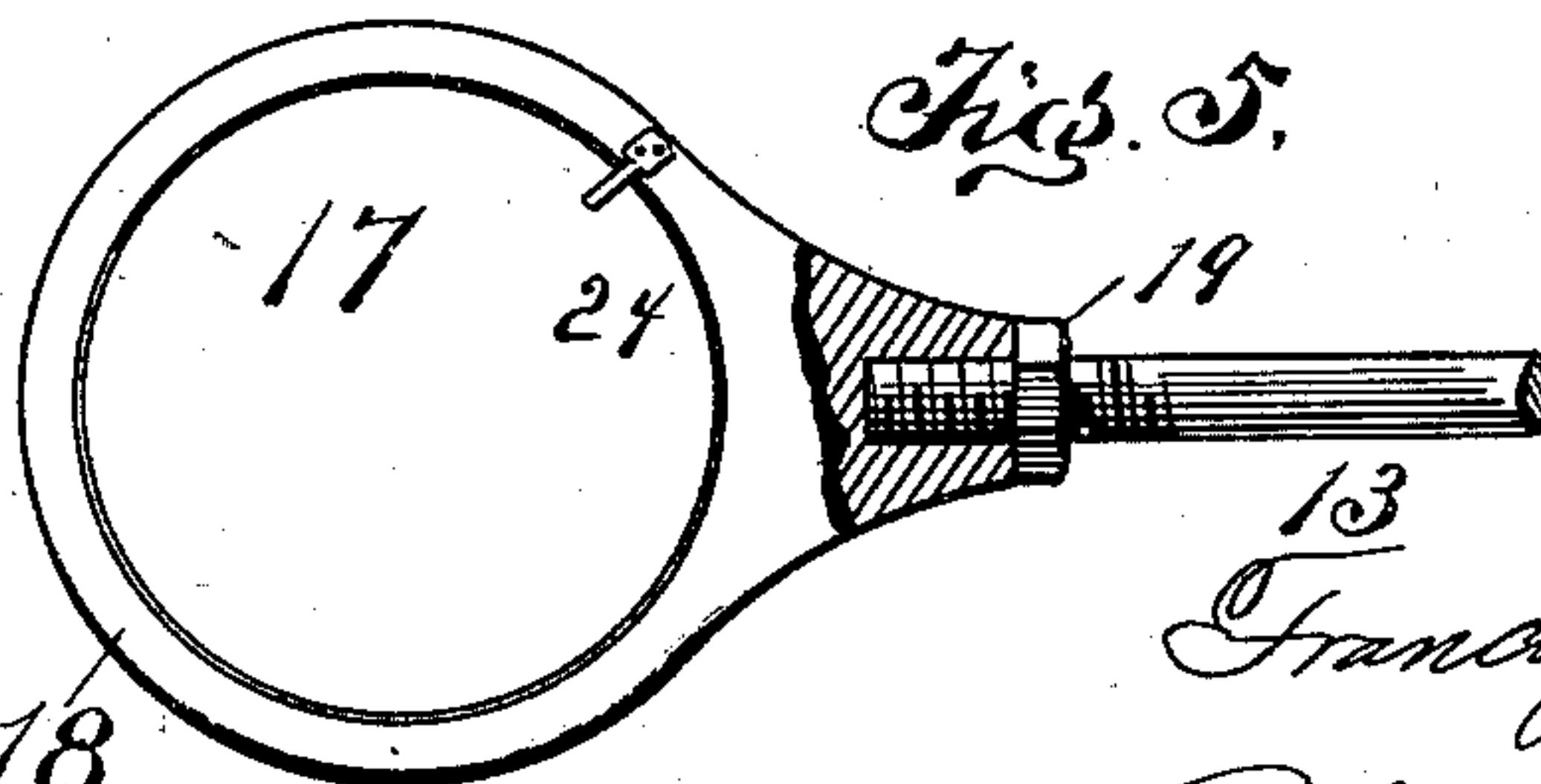


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

FRANCIS JOSEPH STALLINGS, OF EFFINGHAM, ILLINOIS.

GEARING FOR AUTOMOBILES.

SPECIFICATION forming part of Letters Patent No. 673,226, dated April 30, 1901.

Application filed September 20, 1900. Serial No. 30,611. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS JOSEPH STALLINGS, a citizen of the United States of America, residing at Effingham, in the county of Effingham and State of Illinois, have invented certain new and useful Improvements in Gearing for Automobiles, of which the following is a specification.

My invention relates to an improvement in gearing for automobiles.

In my improved gearing I do away with all chain mechanism for the transmission of power between the motor and the axles, together with all of its attendant disadvantages, by means of the substitution therefor of motor-driven eccentrics and driving-rods operatively connected to the vehicle-wheels.

Another object is the provision of gearing of this type constructed and coöperating in a novel manner, whereby the strain on the parts is more evenly distributed than has been possible heretofore and the amount of power necessary to propel the vehicle greatly lessened, the whole forming a cheaper and more simple, yet strong and durable, mechanism than any heretofore devised.

With the foregoing and other objects in view my invention consists in certain novel features of construction and combinations of parts, as will be more fully described hereinafter and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view of my improvements. Fig. 2 is a side elevation. Fig. 3 is a sectional view of the eccentrics. Fig. 4 is a detail in elevation, partly in section, of a set of the bearing-rings. Fig. 5 is a detail of one of the eccentric-straps, and Fig. 6 is a detail in elevation of one of the eccentric-stocks.

A designates the automobile or other vehicle, provided with the usual body wheels and axles, to which my invention is designed to be applied. The framework B supports the body and is secured to the rear axles at points 1 1 the better to support the weight of the vehicle. The forward portions of this framework are brought together and united at a common central point, forming a solid projection 2, which is received in and extends through an aperture in the sand-bolster on

the front axle. On either side of the sand-bolster and upon the projection 2 nuts 4 4 are secured against the sand-bolster to prevent its disengagement with the projection, but allowing of a certain amount of play, whereby when one of the rear wheels drops into a hole or rut in the roadway the frame to which the gearing is secured may turn, and thus avoid twisting or injuring the operative parts in any way. This device does not interfere in any manner with the steering of the vehicle, which mechanism may be of any suitable construction and forms no part of the present invention.

C is the motor, of any desired type and seated over the main drive-shaft 5, the latter having cranks 7 7, to which are secured the pitmen 6 6, located an equal distance from the opposite ends of said shaft and from each other as well and driven by the motor. The main shaft is journaled in ball-bearings on the framework and has affixed thereto at its opposite ends the alternating eccentrics 11 11, which actuate the rear wheels 12 through the medium of driving-rods 13 and rear eccentrics 14, affixed to boxings 15 on the rear-wheel hubs secured to the rear wheels. These eccentrics are connected to the driving-rods 13 through the medium of stocks 17 and circular straps 18. The driving-rods 13 are preferably hollow and secured in place by the lock-nuts 19. The eccentric-straps 18 have internal screw-threads 20.

The numeral 21 designates duplicate sections of the bearing-rings, between which and the stocks 17 the balls 22 run. These sections screw into the eccentric-straps from opposite sides of the latter and have their adjacent faces grooved and constituting a raceway for the balls which contact with them at points *a* and *b* and with the periphery of the stock 17 at the point *c*. It will be observed that the balls bear on an annular bearing-flange 17' on the stock, which fits loosely in the raceway. This construction prevents any lateral displacement of the eccentric-strap. The outer surfaces of the sections of the ring 21 have circularly-arranged indentations or recesses 23 and locking-latches 24 secured to the strap 18 on opposite sides thereof, and the free ends of the locking-latches are dis-

posed to drop into any one of the notches, and thus lock the ring-sections against turning after they have been properly adjusted.

The hubs of the rear wheels of the vehicle 5 are provided with inwardly-projecting boxings 15, revolving around the rear axle and securely fastened to the hubs, ball-bearings 26 being interposed between the axle and boxings in order to reduce the friction between 10 the parts. To these boxings are secured the rear eccentrics.

Having thus described the construction of my improvement, I will now proceed to explain its operation.

15 When the main drive-shaft is rotated by means of the pitmen connected with the motor, it causes the eccentrics to move alternately forward and backward. These eccentrics carry with them the driving-rods, which 20 are actuated in like manner, one moving forward as the other moves backward, and vice versa. These driving-rods actuate the rear eccentrics secured to the boxings, and thus revolve the rear wheels of the vehicle.

25 By means of my improvement I gain two advantages, first, a proper multiplication of the rate of rotation of the gearing, thus developing more speed, and, secondly, an even distribution of the strain and wear on the 30 parts, for it will be observed that by reason of the position of the pitmen upon the shaft the strain and wear on the bearings and operative parts are the same at both ends of the shaft. Consequently the life of the parts is 35 materially lengthened and they operate much easier than they would were the usual form of gearing used.

The power necessary to propel the vehicle is lessened and its running made extremely 40 easy. If necessary, by means of my construction the parts may be grouped together in much smaller space than has hitherto been possible.

It is evident that slight changes might be 45 made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction herein shown and described; 50 but,

Having fully described my invention, what

I claim as new, and desire to secure by Letters Patent, is as follows:

1. In a gearing for automobiles or other vehicles, the combination with a framework, a 55 main driving-shaft having eccentrics at either end thereof, of boxings secured to the hubs of the vehicle-wheels and eccentrics secured to said boxings whereby to revolve the wheels, 60 and rods connecting the eccentrics for communicating motion from one set to the other.

2. In a gearing for automobiles, or other vehicles, the combination with a framework, the rear ends of which are secured to the rear 65 axle and the front ends being received in an aperture in the sand-bolster over the front axle, retaining means on said framework to prevent its disengagement with the sand-bolster, a motor provided with pitmen, a main 70 driving-shaft driven by said motor and having eccentrics at either end thereof, of boxings secured to the hubs of the wheels, eccentrics secured to the boxings whereby to revolve the wheels and rods connecting the eccentrics for communicating motion from one 75 set to the other.

3. In a gearing for automobiles or other vehicles, the combination with a framework and a main driving-shaft, of eccentrics at each 80 end of said shaft, eccentric-straps surrounding these eccentrics, balls interposed between the peripheries of said eccentrics and straps for retaining the balls in place therein, adjustable means secured to the straps and en- 85 gaging the rings for retaining them in position, the rear-wheel hubs provided with boxings secured thereto, eccentrics secured to the boxings, eccentric-straps, balls, rings screwed in the straps for retaining the balls in position, means for locking said rings in the strap 90 and rods extending from the straps on the rear eccentrics to the straps on the forward eccentrics for communicating motion from the latter to the former.

In testimony whereof I have signed my 95 name to this specification in the presence of two subscribing witnesses.

FRANCIS JOSEPH STALLINGS.

Witnesses:

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H. J. WEBER.