

No. 720,713.

PATENTED FEB. 17, 1903.

C. A. LIEB.
MOTOR VEHICLE.

APPLICATION FILED APR. 5, 1902.

NO MODEL.

FIG. 1.

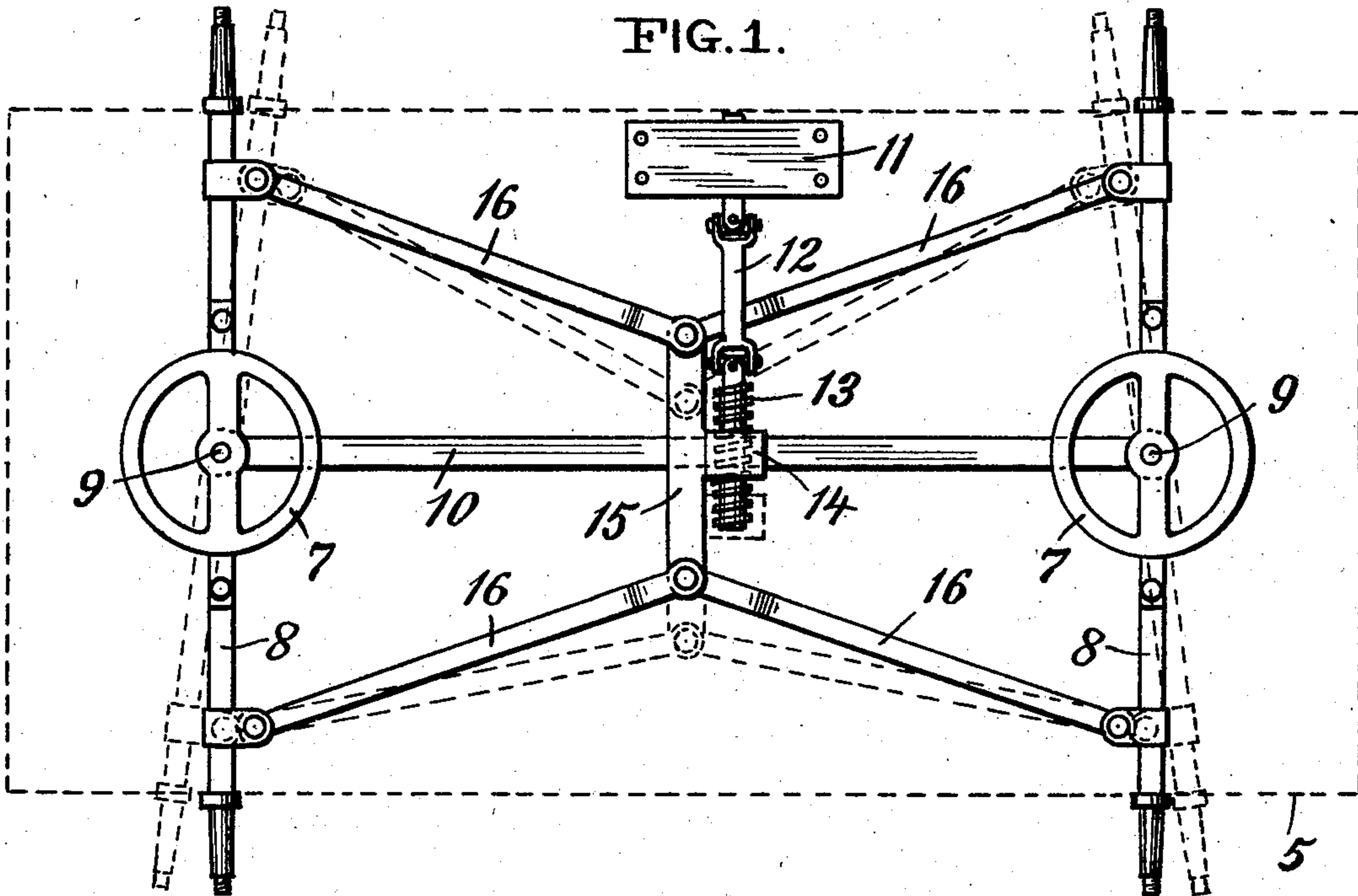


FIG. 2.

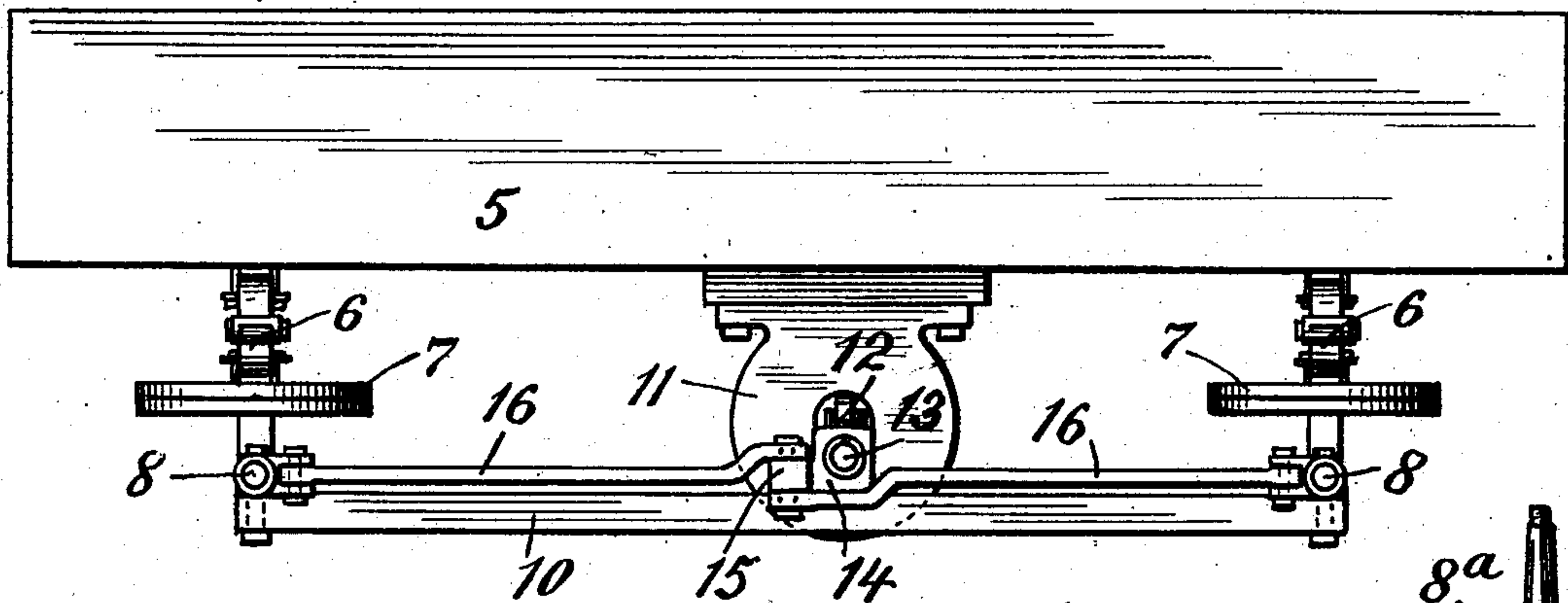


FIG. 3.

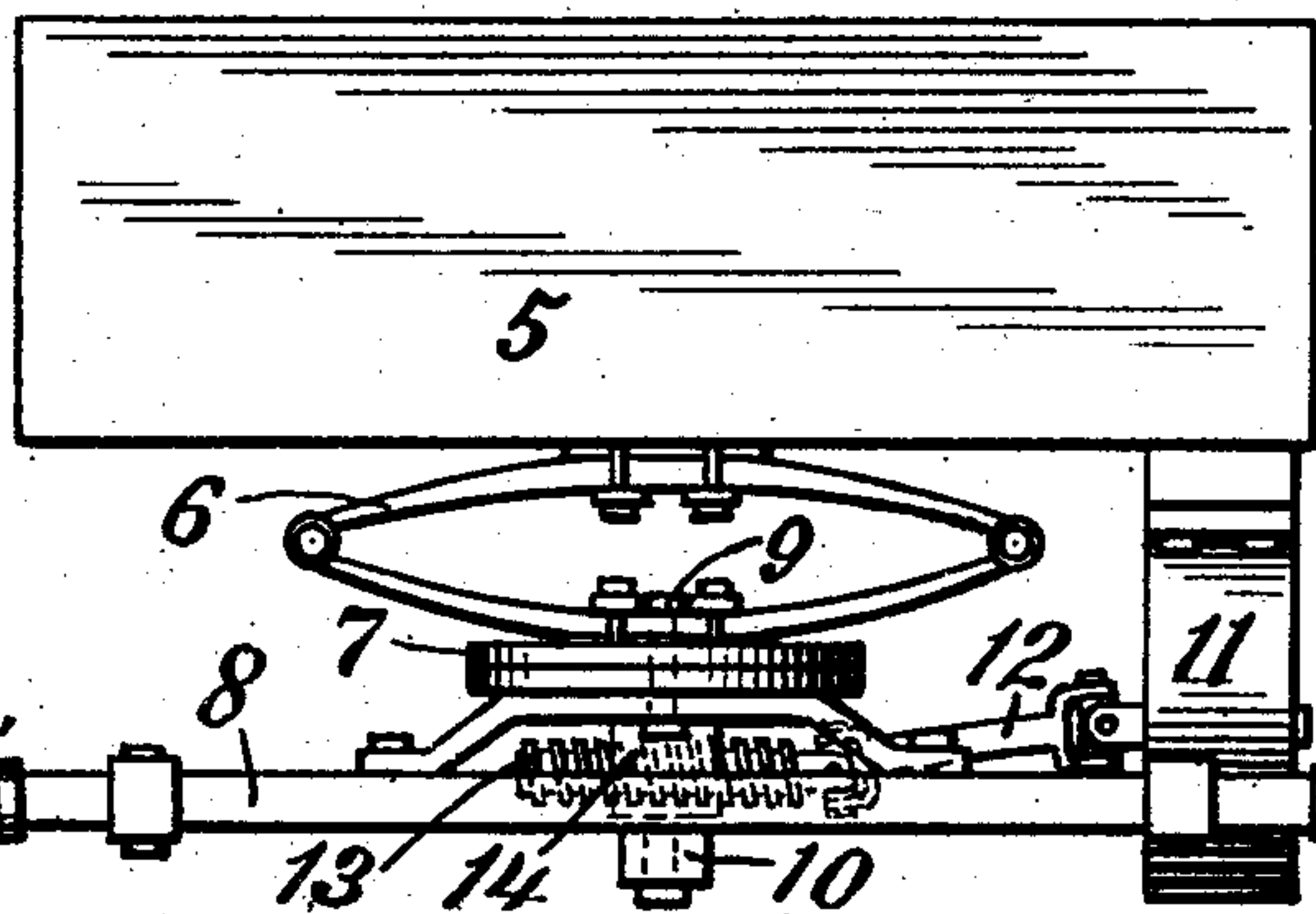
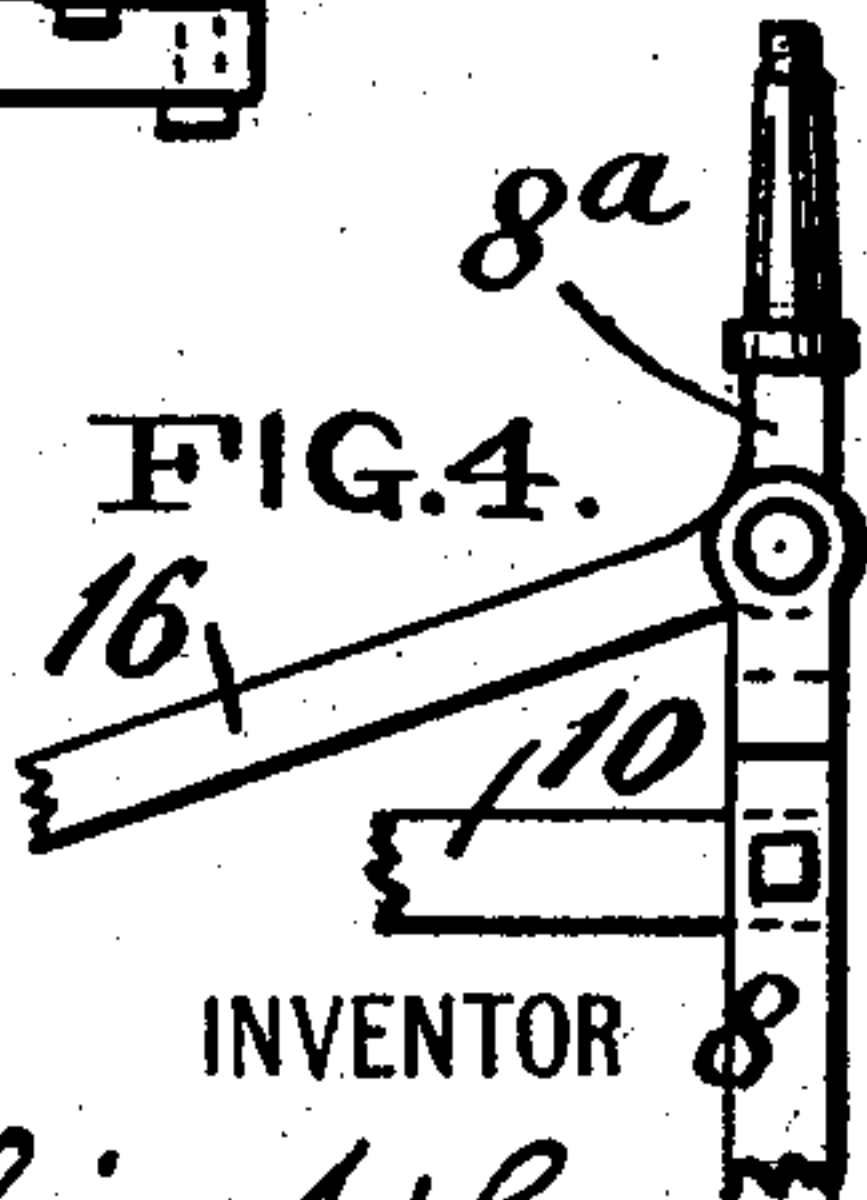


FIG. 4.



WITNESSES:

J. E. Pearson
W. H. Humphrey

INVENTOR

Chas. A. Lieb
BY Geo. H. Brigham
ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES A. LIEB, OF NEW YORK, N. Y.

MOTOR-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 720,713, dated February 17, 1903.

Application filed April 5, 1902. Serial No. 101,603. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. LIEB, a citizen of the United States, residing at New York city, county and State of New York, have invented certain new and useful Improvements in Motor-Vehicles, of which the following is a specification.

My invention relates to the running-gear and steering mechanism of a motor-vehicle.

The object of my invention is a construction whereby the motive power applied to either axle or pair of wheels will be equally exerted upon both axles or pairs of wheels, and, further, whereby the steering of the vehicle will be accomplished by varying the position equally of both axles or pairs of wheels.

The accompanying drawings will serve to illustrate my invention.

Figure 1 is a plan view. Fig. 2 is a side elevation. Fig. 3 is an end view. Fig. 4 is a plan view showing an axle provided with a pivoted bearing for a wheel.

In the drawings, 5 indicates the body of a motor-vehicle, which may be of any suitable construction. Fastened to the ends of the body are the springs 6, and under each spring at its center there is secured the upper section of a fifth-wheel 7.

8 indicates the front and rear axles, to each of which is fastened at its center the lower section of a fifth-wheel. The two sections of each fifth-wheel are secured together by means of a king-bolt 9. The axles 8 are secured together through a reach-bar 10, which reach-bar is pivoted to each axle.

Secured to the body of the vehicle at about its center is a motor 11, of any suitable description.

12 is a shaft carrying a screw 13, adapted to be rotated by the motor in either direction; 14, a threaded block located on the screw and arranged to be moved forward and backward on the screw when the screw is rotated. Connected to the block 14 is a plate 15, to the ends of which are pivoted links 16. These links are also pivoted at their outer ends to the axles 8.

Instead of constructing the axles as shown in Fig. 1 they may be formed as shown in Fig. 4, where the ends of the links 16 are directly connected to the portions 8^a of the axle

8, which serve as bearings for the wheels, which construction is now well understood in the art.

The operation of my device will be readily understood. When power is applied to either axle, it is transmitted through the practically rigid reach-bar and links to the opposite axle, so that in point of fact the power may be said to be applied equally to both axles, and this will be true irrespective of the angular position of the axles or the wheels as regards each other. It will be further observed that the application of the power will be entirely through the frame, with the result that no strain will be made upon the body of the vehicle whether the vehicle be moving in a straight line or turning in the arc of a circle. When the direction of the motion of the vehicle is to be changed from a straight line, the motor 11 is rotated in one direction or the other. When the motor 11 is rotated to the right, the block 14, by reason of the movement of the screw 13, moves forward on the screw and carries the links 16 and axles into the position shown in the dotted lines. When the motor is rotated in the opposite direction, a reverse movement takes place. It will further be observed that by the construction described power applied to the motor to effect the turning movement will be transmitted through the frame to opposite axles or pairs of wheels, and that the respective movement of the axles or pairs of wheels will be in the same arc of a circle, and that therefore it is impossible to crimp either axle, so that the power applied to the opposite axle will be exerted across the periphery of one pair of wheels, as is now the case in the turning movement of a wagon of ordinary construction, where one axle is rigid and the other axle adapted to be swung in the arc of a circle.

I wish it understood that I do not limit myself to the precise construction shown in the drawings so far as concerns the motor and the application of the power from the motor to effect the movement of the links, as this power may be differently applied. Further, the links may be differently constructed, while still adapted to effect the corresponding movement of both axles.

Having thus described my invention, I claim—

1. In a motor-vehicle, the combination with a pair of pivoted axles, a reach pivoted to each axle, pairs of links connected to each axle at one end and pivoted to a plate at the opposite end, and means for moving the plate transversely of the axis of the vehicle, whereby the angular inclination of the axles as regards each other may be altered.

2. In a motor-vehicle, the combination of pivoted axles, a movable link-frame introduced between said axles and carrying a threaded block, a motor, and a screw actuated by said motor and coöperating with said threaded block for moving said links and al-

tering the angular inclination of said axles relative to each other.

3. In a motor-vehicle, the combination with the body, a pair of springs carried by the body, a pair of axles, a fifth-wheel between each axle, and each spring, a steering-motor, and means introduced between the steering-motor and the axle for altering the horizontal angular relation of the axles as regards each other.

In testimony whereof I affix my signature in the presence of two witnesses.

CHARLES A. LIEB.

Witnesses:

J. E. PEARSON,

WM. H. BUCKMAN.