

(No Model.)

F. A. LENARZ.
WAGON REACH.

No. 502,419.

Patented Aug. 1, 1893.

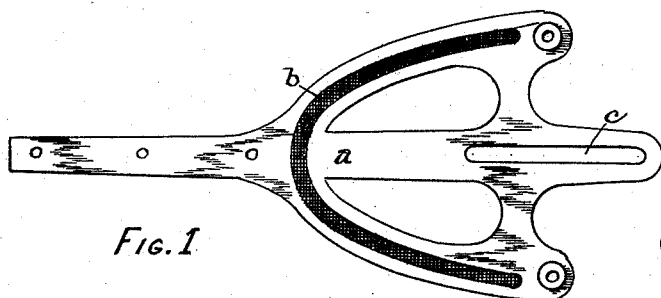


Fig. 1



Fig. 2

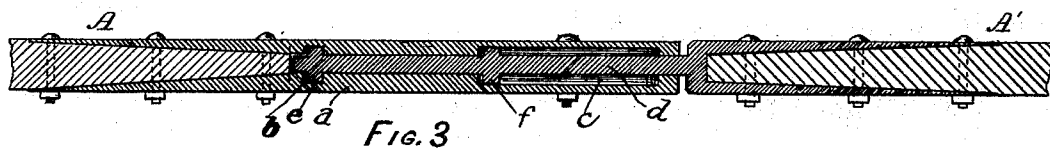


Fig. 3

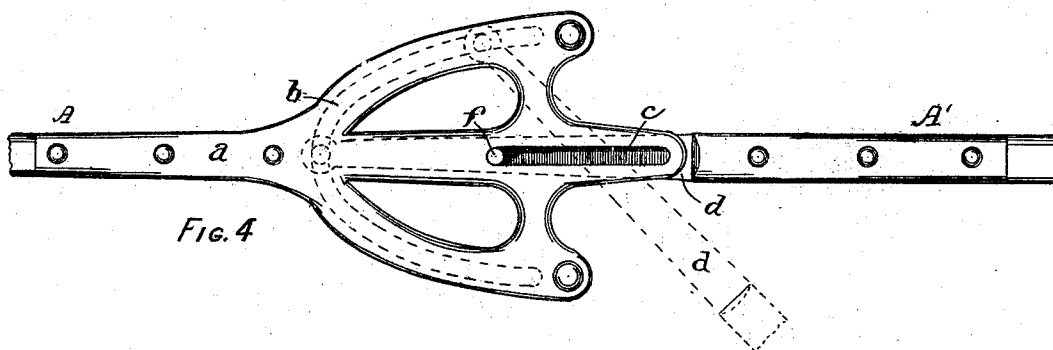


Fig. 4

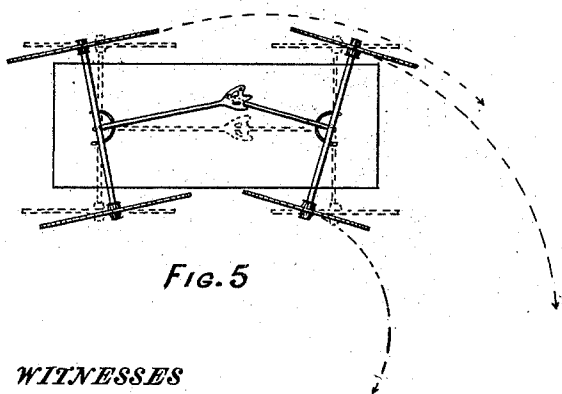


Fig. 5

WITNESSES

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FELIX A. LENARZ, OF SHILOH, ASSIGNOR OF ONE-HALF TO CHARLES F. MOORE, OF CLEVELAND, OHIO.

WAGON-REACH.

SPECIFICATION forming part of Letters Patent No. 502,419, dated August 1, 1893.

Application filed October 24, 1892. Serial No. 449,777. (No model.)

To all whom it may concern:

Be it known that I, FELIX A. LENARZ, a citizen of the United States, residing at Shiloh, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Wagon-Reaches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in wagon and carriage reaches.

The object of the invention is to enable a wagon or carriage to be constructed with a lower body and to turn in less space than by any construction now in use. This object I accomplish by providing both axles of the vehicle with an ordinary fifth-wheel and using a jointed reach, the two parts of which are pivoted together with a sliding pivot and one of which parts is provided with a guiding groove of parabolic curve in which groove a guiding pin on the other part of the reach travels, and thus in turning the two parts of the reach are made to "break" or turn at an angle to each other, which, in connection with the action of the fifth wheels, enables the wheels to turn in smaller circles than could otherwise be done, and the invention consists in the novel construction and arrangement of parts by which the above object is accomplished, as hereinafter fully described and pointed out in the claim.

In the drawings Figure 1 is a plan view of the plate in which is formed the parabolic guiding groove and the slot or groove for the sliding pivot. Fig. 2 is a plan view of the bar carrying the pivot pin and guiding pin. Fig. 3 is a vertical longitudinal section through the reach with the parts assembled as in use. Fig. 4 is a plan view of the reach showing the parts in position for direct draft, the dotted line showing the change in position of the parts when the vehicle is turning. Fig. 5 is a diagram showing the positions assumed by the reach and axles in turning, the dotted circles showing approximately the track of the wheels in making the turn.

A A' represent the two parts of the reach, to one of which is attached a plate *a* in which

is formed a parabolic groove *b*, located with its axial or directing line in the central longitudinal line of the reach. This plate forms the end of one part of the reach, the other part terminating in a bar *d* which is provided at its end with a pin *e* which fits into and is adapted to traverse in the groove *b*. A pivot pin *f* projects from the bar *d* and engages with a straight slot or groove *c* in the plate *a* located in the axial line of the parabolic curve of the groove *b* and therefore in the central longitudinal line of the reach when its parts are in a direct line. The two parts of the reach are retained in engagement as just described by any suitable means, but I prefer to employ two of the plates *a*, placed with their grooved faces together and bolted together with the bar *d* between them, as shown in Fig. 3, in which case the pivot pin *f* and guiding pin *e* project on each side of the bar *d* and engage the grooves above as well as below. As thus arranged it is obvious that so long as the pull upon the forward part of the reach is in a direct line, that is, in line with the longitudinal center of the back part of the reach, the bar *d* by means of the pin *e* will draw upon the center of the groove *b*, as seen in Fig. 4, and the vehicle will travel in a straight line; upon turning either part of the reach to either side of the direct line, however, the pin *e* will follow the groove *b* on the side opposite that to which the turn is made, and the pin *f* will at the same time move along the slot or groove *c*, thus allowing the reach to lengthen to accommodate itself to the increased length caused by the angular instead of straight position of its two parts. The result of this "break" of the reach, as shown in Fig. 5, is that both ends of the vehicle turn, passing toward opposite sides of the central line, and this turning of the hind end of the vehicle allows the fore wheels to describe a much smaller circle than they could if the hind end remained stationary as usual, merely revolving about the middle point of the hind axle.

In the diagram Fig. 5, the position of the running gear is shown in dotted lines, and their position while turning by full lines, the dotted circles indicating the direction of

movement; but the position shown in Fig. 5 does not indicate the shortest turn that can be made, as I have found it perfectly practicable to turn a wagon entirely around in less
5 than its own length.

By reason of the very much shorter turn which is practicable with the construction above described I am enabled to use a much lower body and make a shorter turn than
10 would be possible with a rigid reach, even if the fore-wheels turned under the body, and by allowing the fore wheels to turn under the body I am able to make a shorter turn than can be made by any other means.

15 The advantages of a low body and of being able to turn very short are well understood, especially in the case of vehicles which are to be used in narrow streets or crowded places.

Having fully described my invention, what

I claim as new, and desire to secure by Letters 20 Patent, is—

The combination in a jointed wagon reach of a bar on one part provided on each side with a guiding pin at its end and a pivot pin intermediate of its length, and the two plates 25 on the other part of the reach secured together with said bar between them, each of said plates having a parabolic groove engaging the guiding pin on said bar and a straight slot in the internal axis of the parabola engaging 30 the pivot pin on said bar, substantially as described.

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

FELIX A. LENARZ.

Witnesses:

L. A. WILLSON,
L. PRENTISS.