

No. 679,493.

Patented July 30, 1901.

C. E. BELKNAP.
WAGON RUNNING GEAR.

(Application filed Mar. 20, 1901.)

(No Model.)

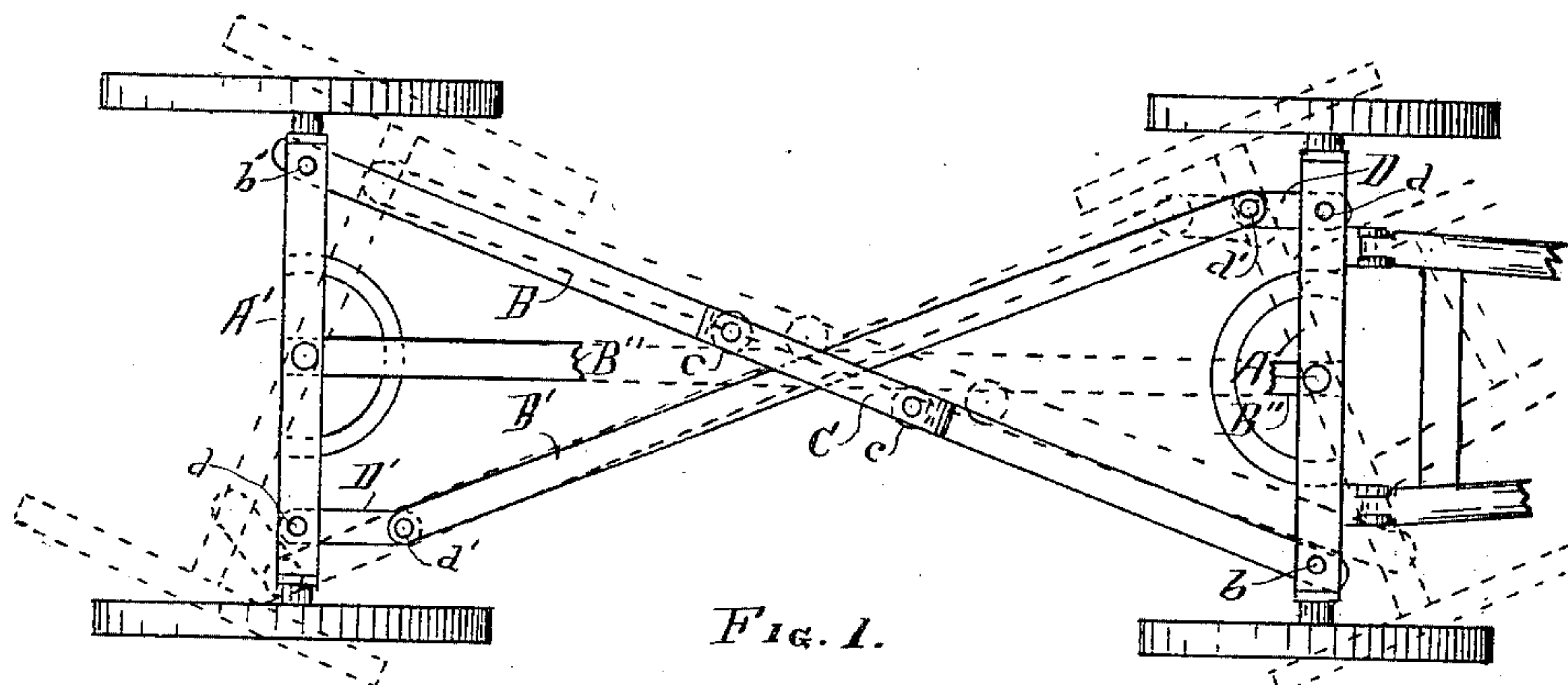


FIG. 1.



FIG. 2.

Witnesses.

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CHARLES E. BELKNAP, OF GRAND RAPIDS, MICHIGAN.

WAGON RUNNING-GEAR.

SPECIFICATION forming part of Letters Patent No. 679,493, dated July 30, 1901.

Application filed March 20, 1901. Serial No. 52,095. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BELKNAP, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Wagons, of which the following is a specification.

My invention relates to improvements in the running-gear of wagons; and its object is to facilitate the turning of light farm and fruit wagons in the shortest possible space. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan of the running-gear of a wagon, showing the application of my appliance; and Fig. 2 is an elevation of the same with the wheels removed to show the side construction of the reaches and their connections.

Similar letters refer to similar parts throughout both views.

A and A' represent the front and back axletrees, respectively, of a wagon. I attach cross-reaches to the axletrees, as follows: The reach B is pivotally secured to one end of the front axletree, as at *b*, and at the opposite end diagonally across the wagon-frame to the opposite end of the back axletree, as at *b'*, so that both axletrees may swing upon the end of the reach. I place a guard C at the center of this reach, and within this guard I place antifriction-rollers *c c* in position to be acted upon by the edges of the reach B'. I secure this reach to the opposite ends of the axletrees to form an X with the reach B, as follows: I pivot a short link D at one end to the axletree A, as at *d*, and at the other end to the end of the reach, as at *d'*, and a corresponding link D' to the opposite end of the other axletree, connecting it with the opposite end of this reach, which is passed through between the guard C and the reach B vertically and between the rollers *c c* laterally, so that when the front axletree of the wagon is turned, as indicated by the dotted lines in Fig. 1, the motion is transmitted to the hind axletree in the opposite direction, which brings the edge of

the reach B' in contact with one or the other of the rollers *c*, which tends to throw the reach over from its direct or normal position and to adjust the links D and D' to meet any variation or adjustment that may be necessary in the angle of the axletrees. For this adjustment of the reach and links see the respective dotted lines in Fig. 1 that bear upon these particular features.

In Fig. 1 I have left the direct or ordinary reach B' off, to the more fully illustrate the action of my reaches. In fact, the center reach is an absolute necessity in the construction of a wagon with the cross-reaches arranged for adjustment by the links as I construct, and in this connection I wish to say that the germ of my invention lies, not in the use of cross-reaches, which I know to be common, but in the links and friction-rollers as peculiarly applied in my wagons, by means of which all sudden jerking is avoided, in the adjustment of the axle-trees to the curve of the turning wagon, common where a slot is placed in the end of one or both of the cross-reaches, for this purpose, as I have found in my lines of experiment, endangering often the breaking or tearing out of the end of the reach at the end of the slot, where turning is attempted in stubble or rutty rough ground.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

In combination with the axletrees of a wagon, a cross-reach pivoted at opposite ends to the respective axletrees, a second cross-reach forming an X therewith, a link pivoted at one end to each end of the latter reach and at the other end to the respective axletrees, a guard at the crossing-point of the reaches, and antifriction-rollers between the guard and first-named reach, substantially as and for the purpose set forth.

Signed at Grand Rapids, Michigan, March 9, 1901.

CHARLES E. BELKNAP.

In presence of—

E. O. CILLEY,

ITHIEL J. CILLEY.