(No Model.)

L. D. HOWE & G. M. GREEN.

CAR AXLE.

No. 305,594. Patented Sept. 23, 1884.

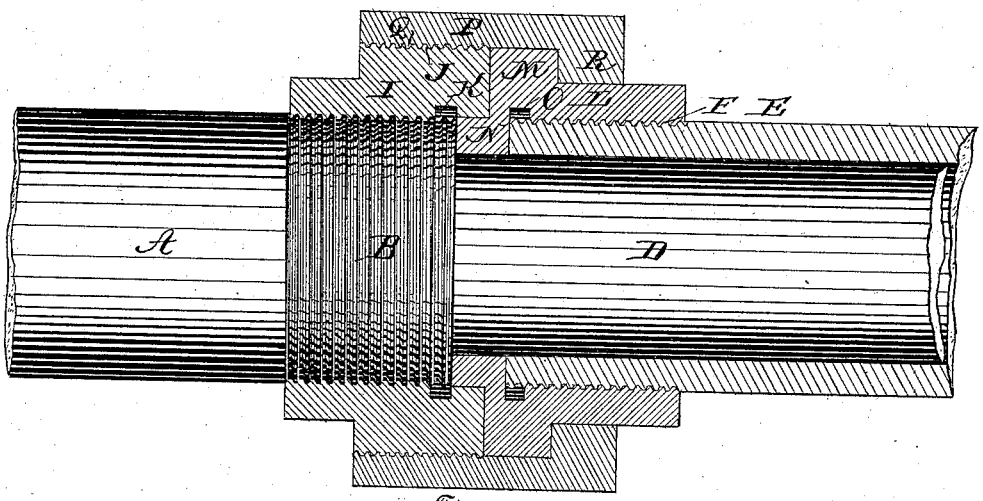

Fig. 1.

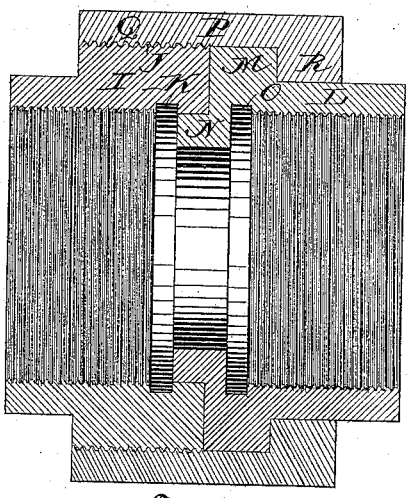

Fig. 2.

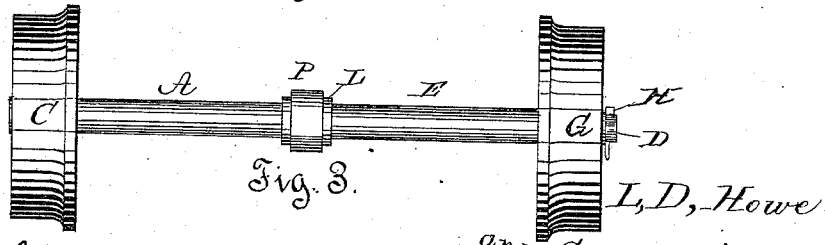

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

LYSTON D. HOWE AND GEORGE M. GREEN, OF STREATOR, ILLINOIS.

CAR-AXLE.

SPECIFICATION forming part of Letters Patent No. 305,594, dated September 23, 1884.

Application filed July 28, 1884. (No model.)

To all whom it may concern:

Be it known that we, LYSTON D. HOWE and GEORGE M. GREEN, both residents of Streator, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Double-Acting Car-Axles; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a view of the coupling for our improved car-axle, showing the connecting-sleeves in section. Fig. 2 is a sectional view of the connecting-sleeves, and Fig. 3 is a view of the entire axle and wheels.

Similar letters of reference indicate corresponding parts in all the figures.

Our invention has relation to car-axles in which the wheels may revolve in opposite directions; and it consists in the improved construction and combination of parts of the same, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates the axle, to which one wheel is secured, and which extends the entire width of the gage of the track; and the said axle is screw-threaded at its middle, as shown at B, and the one wheel, C, is secured to one end of the axle, while the other half, D, of the axle from the screw-threaded portion is reduced.

E is a sleeve of the same outside diameter as the larger half of the axle, and fitting and turning upon the reduced half of the axle, and the inner end of the said sleeve is screw-threaded, as shown at F, while the other wheel, G, is secured to the outer end of the sleeve, the said sleeve being prevented from slipping off from the reduced portion of the axle by means of a key, H, or other similar fastening means.

A short sleeve, I, having an inner screw-thread and an externally-screw-threaded enlarged portion, J, fits upon the threaded portion of the axle, and has an annular groove in its bore near the inner end for the reception of a lubricant, as shown at K.

A short sleeve, L, having an internal screw-thread, fits upon the inner threaded end of the hollow axle E, and is provided near its inner end with an enlarged portion or shoulder, M, while its bore is contracted at the inner end at N, and provided with an annular groove, O, between the internal screw-thread and the contracted portion, for the reception of a lubricant, the said reduced portion fitting around the inner portion of the reduced portion of the axle. A sleeve, P, having an internal screw-thread, Q, for a portion of its length, fits with that screw-thread upon the externally-threaded portion of the sleeve fitting upon the threaded portion of the axle, while the smooth portion of its bore fits around the smooth portion of the shoulder or enlarged portion of the sleeve fitting upon the hollow axle, and the end R of the bore of the outer coupling-sleeve is contracted and fits around the reduced portion of the said sleeve, the said coupling-sleeve thus connecting the solid axle and the hollow axle, and allowing the two axle portions to turn independently. In this manner it will be seen that the wheel upon the solid axle and that axle may turn in one direction, while the wheel upon the hollow axle and that axle may turn in another direction, thus enabling the car mounted upon these axles to turn very short curves without the friction between the rails and the wheels caused where rigid axles are used.

Having thus described our invention, we claim and desire to secure by Letters Patent of the United States

The combination of the solid axle having a threaded central portion and a reduced half, the hollow axle fitting upon the reduced portion of the axle and having its inner end screw-threaded, the sleeve fitting upon the threaded portion of the solid axle having the internal annular groove near its inner end, and having the enlarged externally-threaded portion, the sleeve fitting upon the threaded end of the hollow axle having the enlarged portion or shoulder, the internal annular

groove, and the reduced or contracted inner end of its bore, and the coupling-sleeve having the internally-threaded portion, the smooth internal portion, and the contracted end of its bore, as and for the purpose shown and set forth.

In testimony that we claim the foregoing as our own we have hereunto affixed our signatures in presence of two witnesses.

LYSTON D. HOWE.
GEORGE M. GREEN.

Witnesses:
A. S. JACKSON,
H. N. RYON.