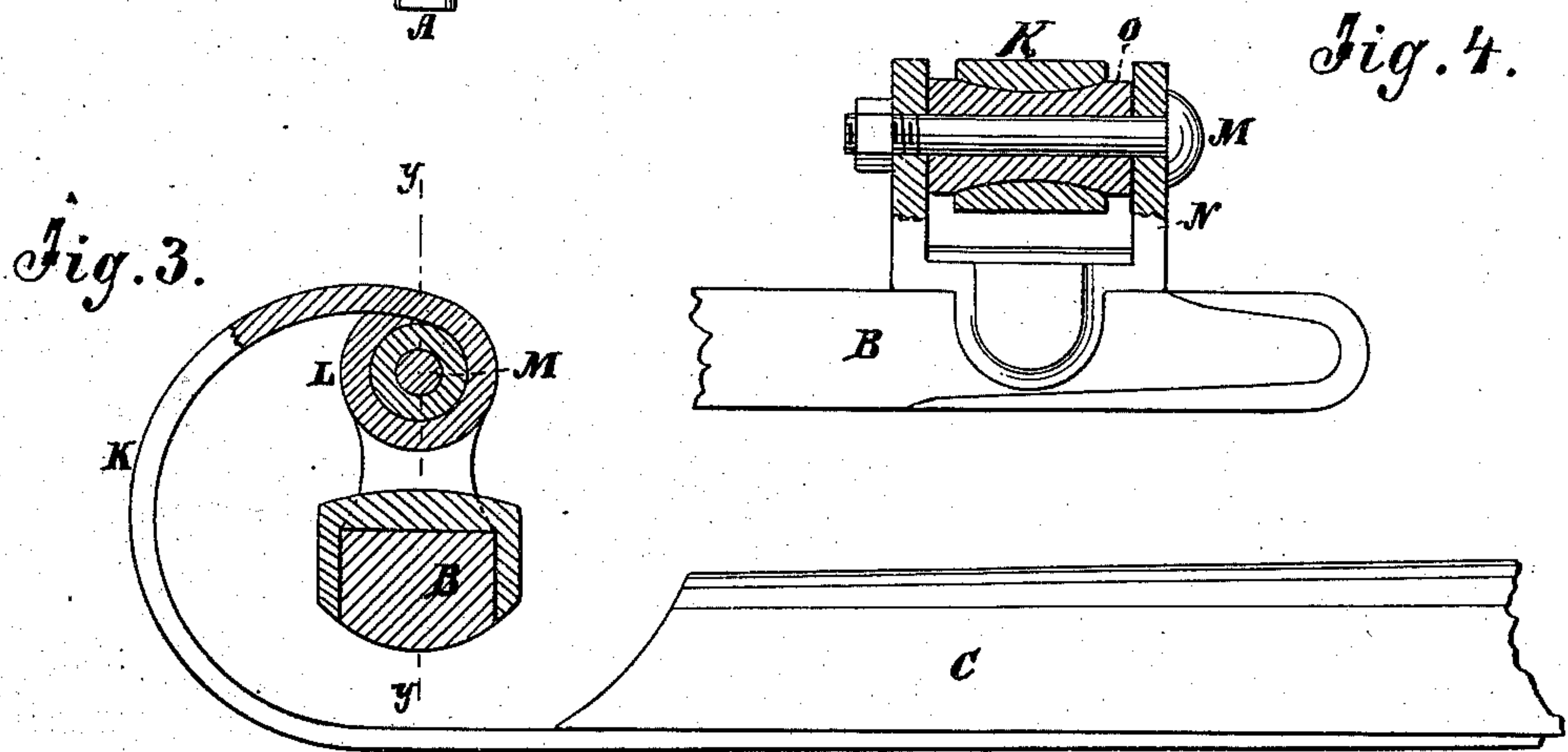
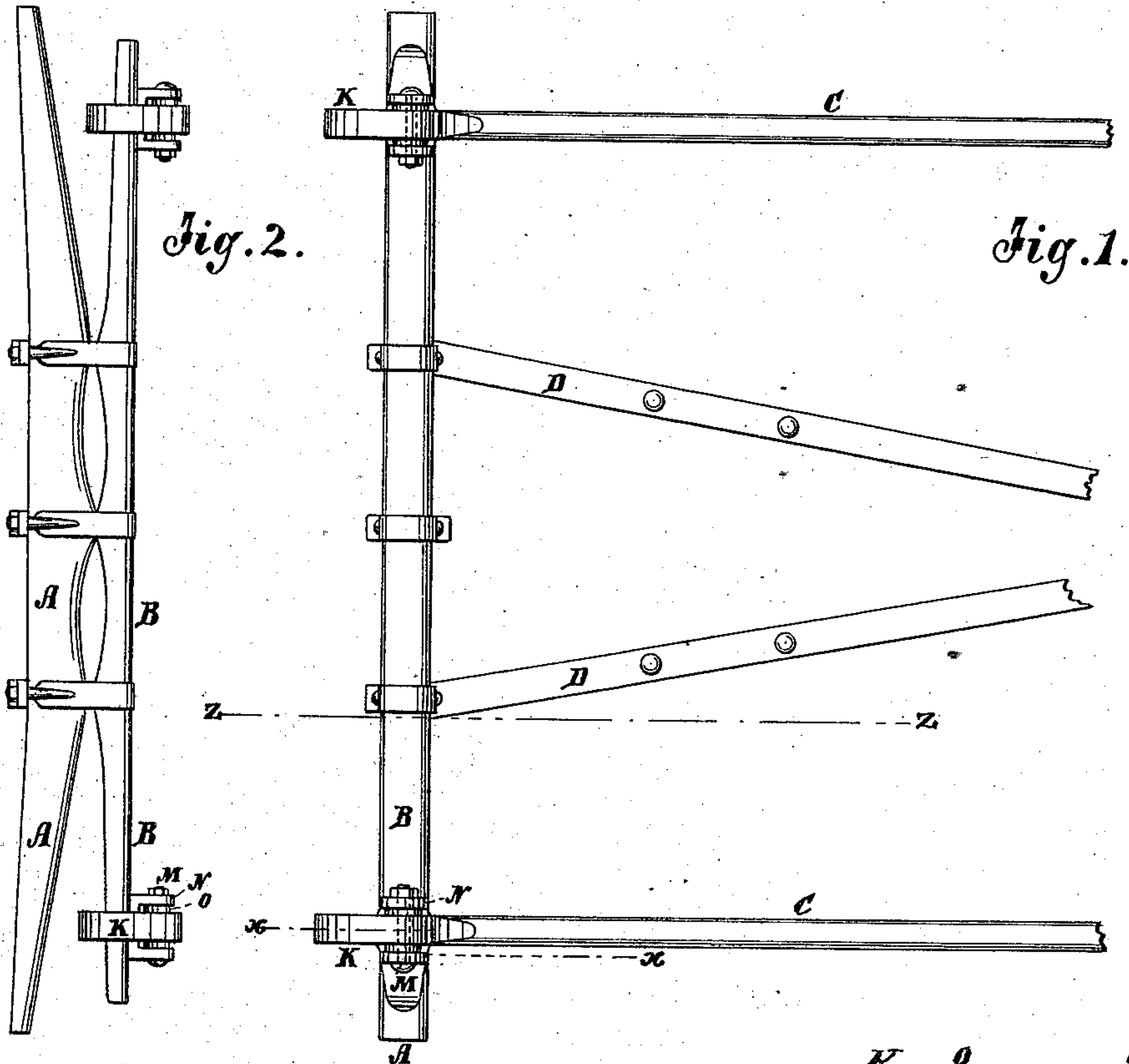


E. SOPER.
Side-Bar Wagon.

No. 161,172.

Patented March 23, 1875.



WITNESSES:

A. Benneken
A. G. Terry

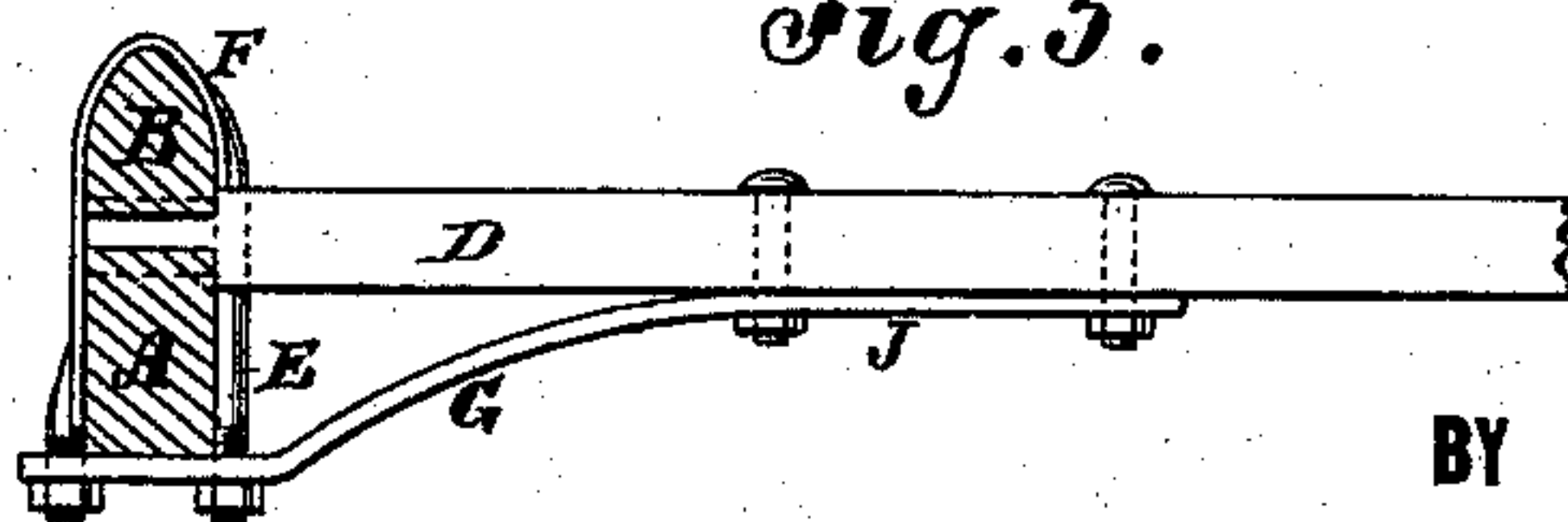


Fig. 5.

INVENTOR:

E. Soper
BY
ATTORNEYS.

UNITED STATES PATENT OFFICE.

EPHRAIM SOPER, OF NEW YORK, N. Y.

IMPROVEMENT IN SIDE-BAR WAGONS.

Specification forming part of Letters Patent No. **161,172**, dated March 23, 1875; application filed December 28, 1874.

CASE B.

To all whom it may concern:

Be it known that I, EPHRAIM SOPER, of the city, county, and State of New York, have invented new and useful Improvements in Side-Bar Wagons, of which the following is a specification:

The invention will first be fully described, and then pointed out in the claim.

Figure 1 is a plan of a portion of the running-gear of a side-bar wagon contrived according to my invention. Fig. 2 is an end elevation. Fig. 3 is a section of Fig. 1 on the line *x x*. Fig. 4 is a section of Fig. 3 on the line *y y*. Fig. 5 is a section of Fig. 1 on the line *z z*.

Similar letters of reference indicate corresponding parts.

A is the hind axle, whereon I mount the bolster B, to be used instead of the spring commonly employed for the support of the side bars C, and to serve, at the same time, for a truss to stiffen the axle, so that it can be made much lighter than when the spring is used, and the bolster is lighter than the spring, thus enabling me to make lighter side-bar wagons than any now made.

I am aware that the side bars have been supported by a bolster on the front axle, which must be employed in all kinds of wagons on account of the pivot.

D represents the perch, which I propose to

connect with the axle by boxing it between the axle and bolster, as shown by the dotted lines in Fig. 5, arranging the bolt E of the clip F to go through the perch, and providing the stay G, to be also secured, by the clip-bolts, to the axle, and to be bolted to the perch, as at J. K represents the C-spring, by which the side bar is attached to the bolster, the said spring being arranged to extend under the bolster, and up behind it, and over the top to the point of connection, as shown in Fig. 3, so as to economize space, as before stated. A solid eye is formed on the end of the spring by a coil, L, to receive the connecting-bolt M of the jack N, and a rubber cushion, O, which is contrived with a groove in the middle to hold the spring, so as not to come in contact with the ears of the jack, the eye of the spring being smaller in the middle portion to fit the groove of the cushion.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The side bars C C, C-springs K K, and truss B, combined with the rear axle of a wagon, as and for the purpose specified.

EPHRAIM SOPER.

Witnesses:

T. B. MOSHER,

ALEX. F. ROBERTS.