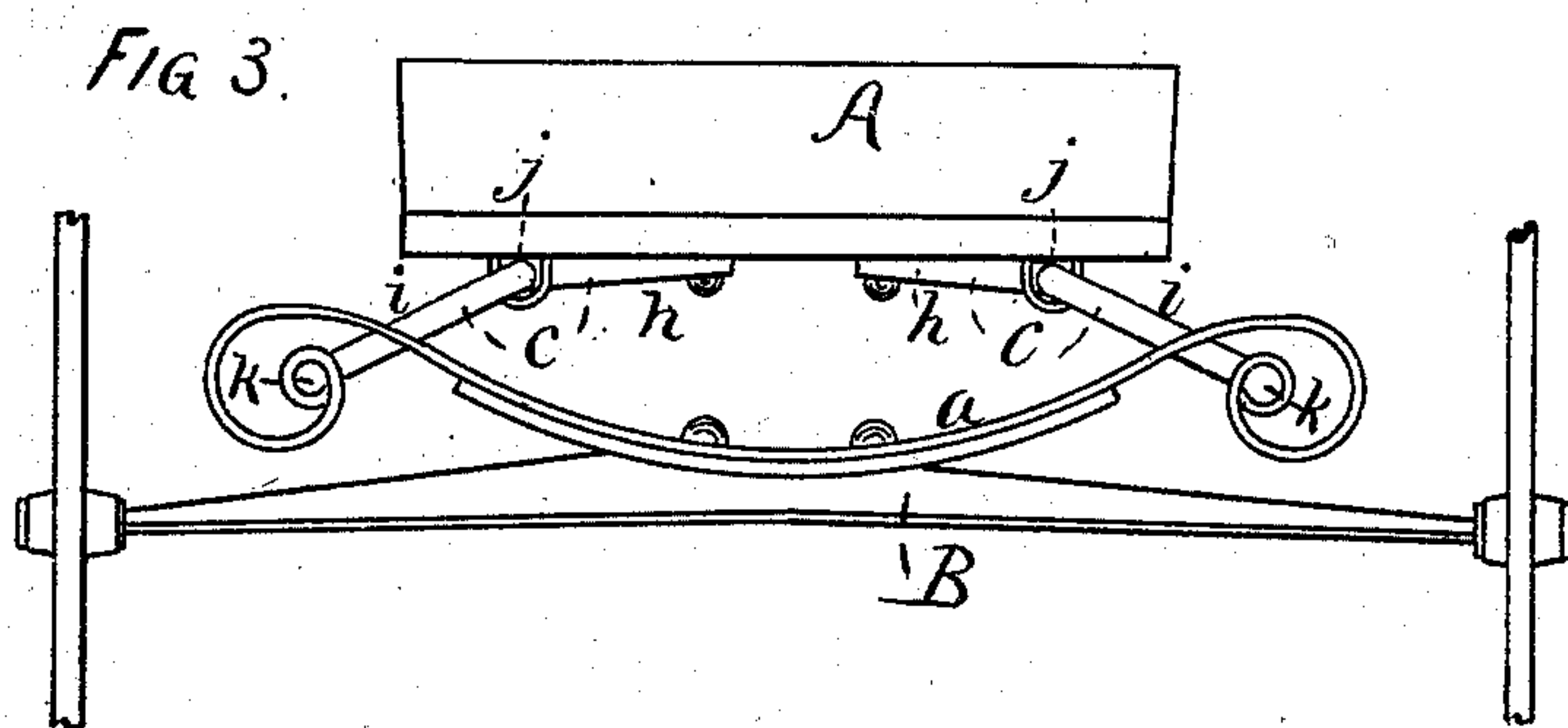
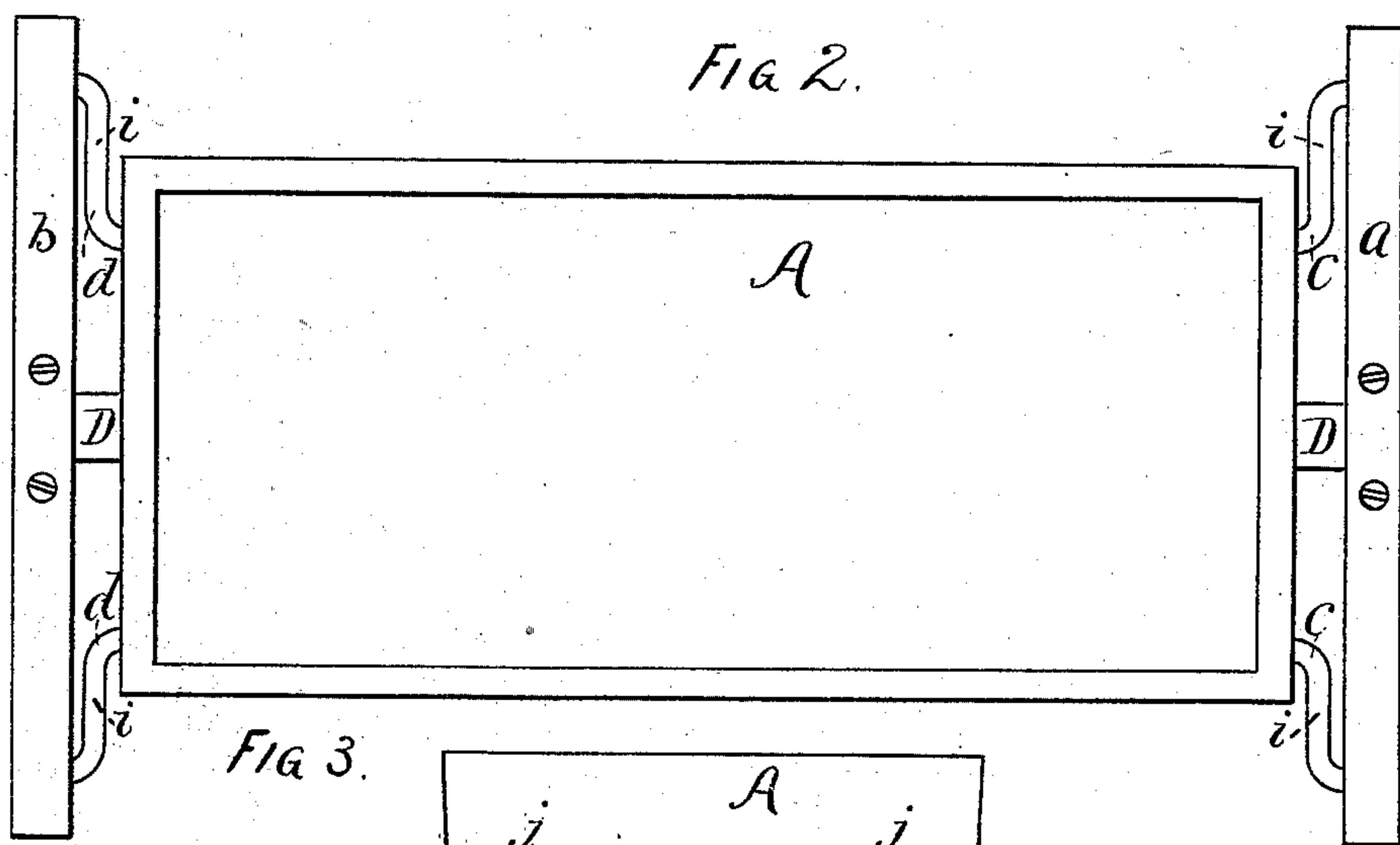
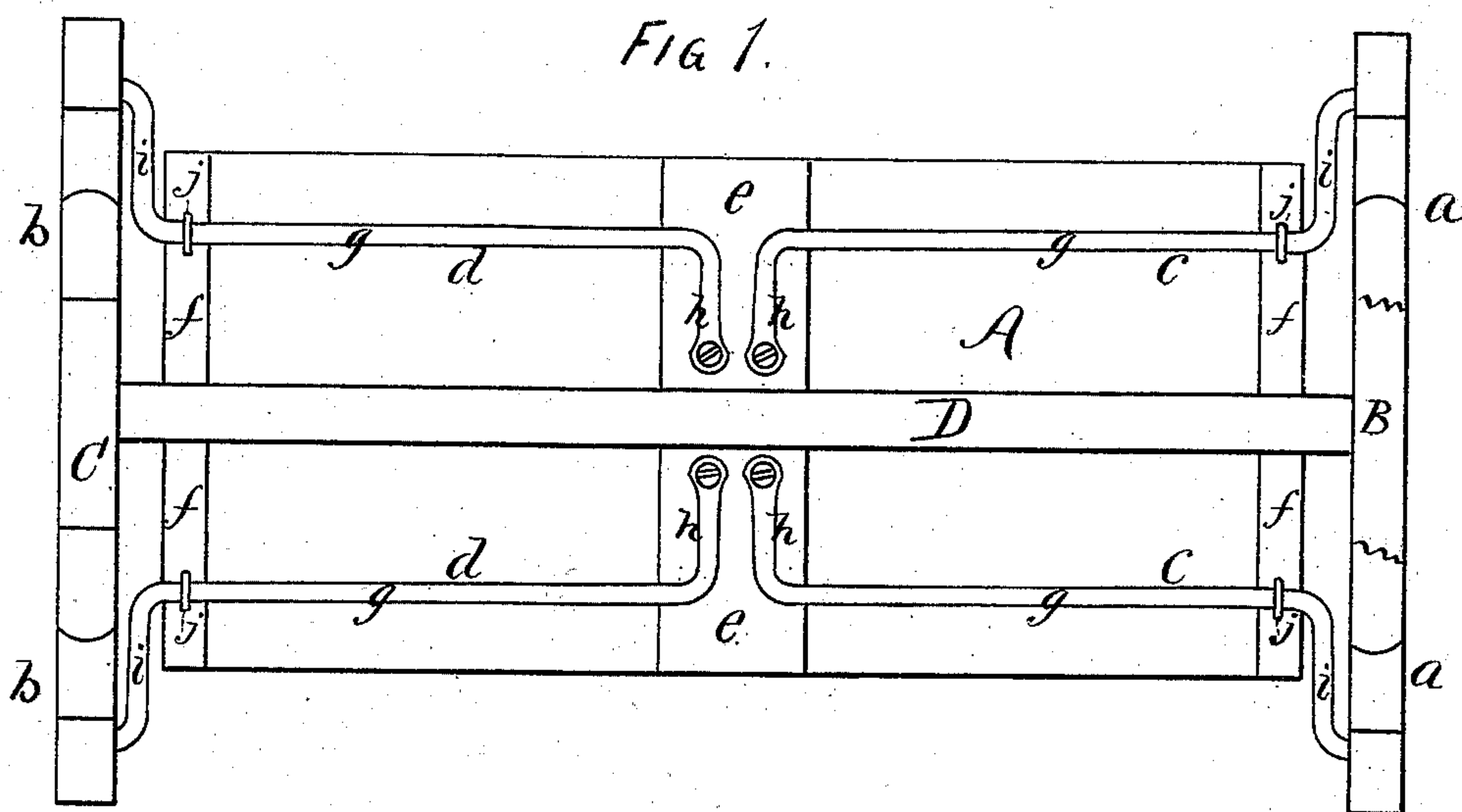


J. R. LOCKE.
Carriage-Spring.

No. 224,597.

Patented Feb. 17, 1880.



WITNESSES.
Samuel D. Kelley.
Samuel M. Shapleigh.

INVENTOR.
Joseph R. Locke
By Porter & Hutchinson, Attys

UNITED STATES PATENT OFFICE.

JOSEPH R. LOCKE, OF AMESBURY, MASSACHUSETTS.

CARRIAGE-SPRING.

SPECIFICATION forming part of Letters Patent No. 224,597, dated February 17, 1880.

Application filed July 12, 1879.

To all whom it may concern:

Be it known that I, JOSEPH R. LOCKE, of Amesbury, State of Massachusetts, have invented Improvements in Carriage-Springs, of which the following is a specification.

The object of my invention is to effect an improved combination, in vehicles, of torsional and semi-elliptic springs; and the invention consists in the construction and combination of the springs, as will be fully described in the specification and specified in the claims.

Figure 1 is an under-side or inverted plan view of a carriage-body and a part of the under work provided with my invention. Fig. 2 is a top or plan view of the same. Fig. 3 is a rear end elevation of the same.

In these figures, A represents the body. B in the hind axle. C is the head-block, and D the perch, which several parts may be of any form, style, or kind; and one or more perches may be employed.

a is a semi-elliptic spring, formed with open scroll ends terminating in a small central eye and mounted on axle B; and *b* is a like spring mounted on head-block C.

c c are two torsion-springs, formed with a central member or angle, *g*, an angle, *h*, for attachment to the body, and the angle *i*, for attachment to spring *a* by a short angle (shown at *k*,) which passes through and is secured in the eye formed at the end of and in the center of the scrolls of spring *a*.

d d are two springs, formed like *c c*, and are attached to the body and spring *b* in the same manner that springs *c c* are. The angles *h* of springs *c d* are secured to the body by a bolt, screw, or clip, and the bearings *j*, near the

corners of the body, are formed of metal or hard wood, similar to journal-bearing. Angles *i* are of such length as will correspond with the torsional strength of the member *g*.

By forming springs *a b* with open scroll ends, with an eye in the center to receive end *k* of the torsional springs, an inexpensive, noiseless, and efficient connection of the springs is effected; and the arms *i*, which are arranged out of plane with arms *h*, and with their outer ends below the inner ends, are not cramped by the cross-springs, for the reason that such scrolls admit of expansion and displacement in every direction; and the arms *i* may be vibrated to any required extent when in use, and the lateral yielding of such scrolls readily conforms to the thrust or retracting movements of the ends of arms *i*.

The central section, *e*, and end sections, *f f*, of the floor are slightly thicker than the adjacent parts, in order that parts *g* of the torsion-springs may be slightly removed therefrom.

I claim neither the torsion nor semi-elliptic springs, nor do I broadly claim the combination thereof; but

What I do claim is—

The combination of the torsional springs *c d*, having the pivotal angle *k*, and the semi-elliptic springs *a b*, having the open scroll ends, with a central eye to receive the pivoted angle *k* of the torsion-springs, substantially as specified.

JOSEPH R. LOCKE.

Witnesses:

J. T. CLARKSON,

WILLIAM T. CLARKSON.