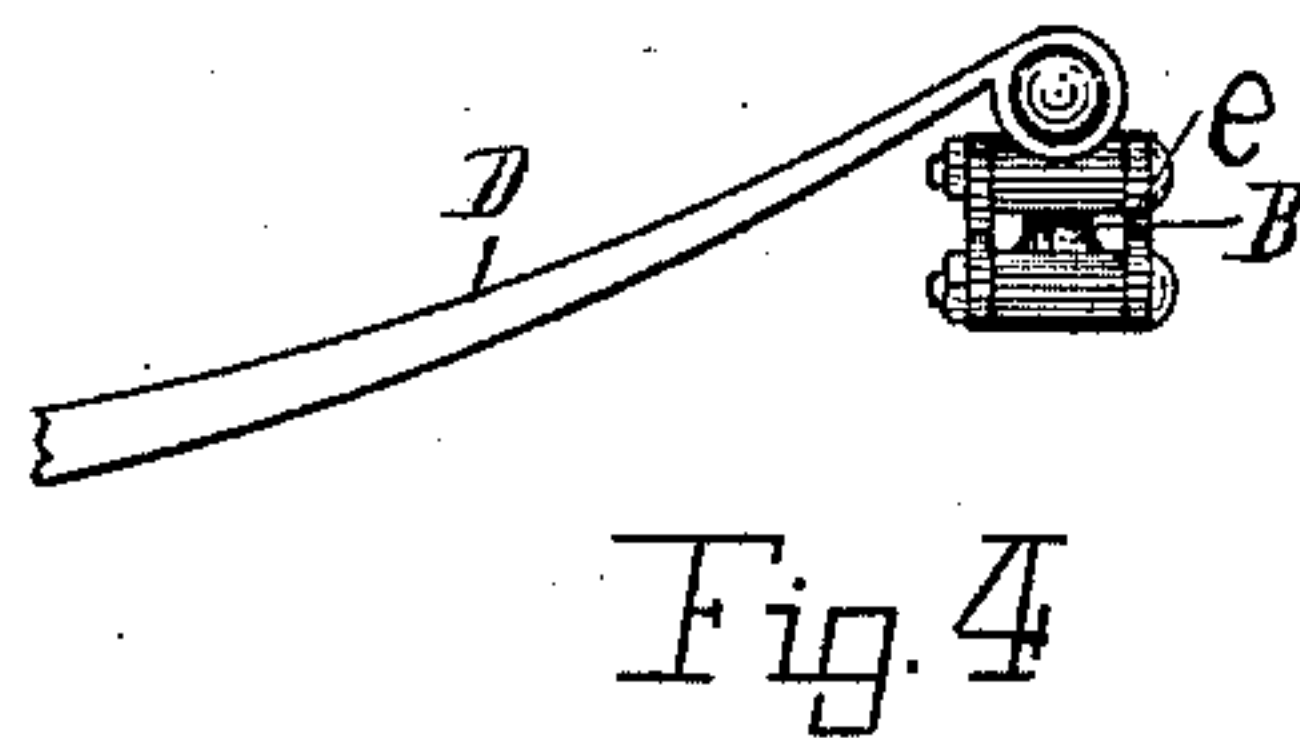
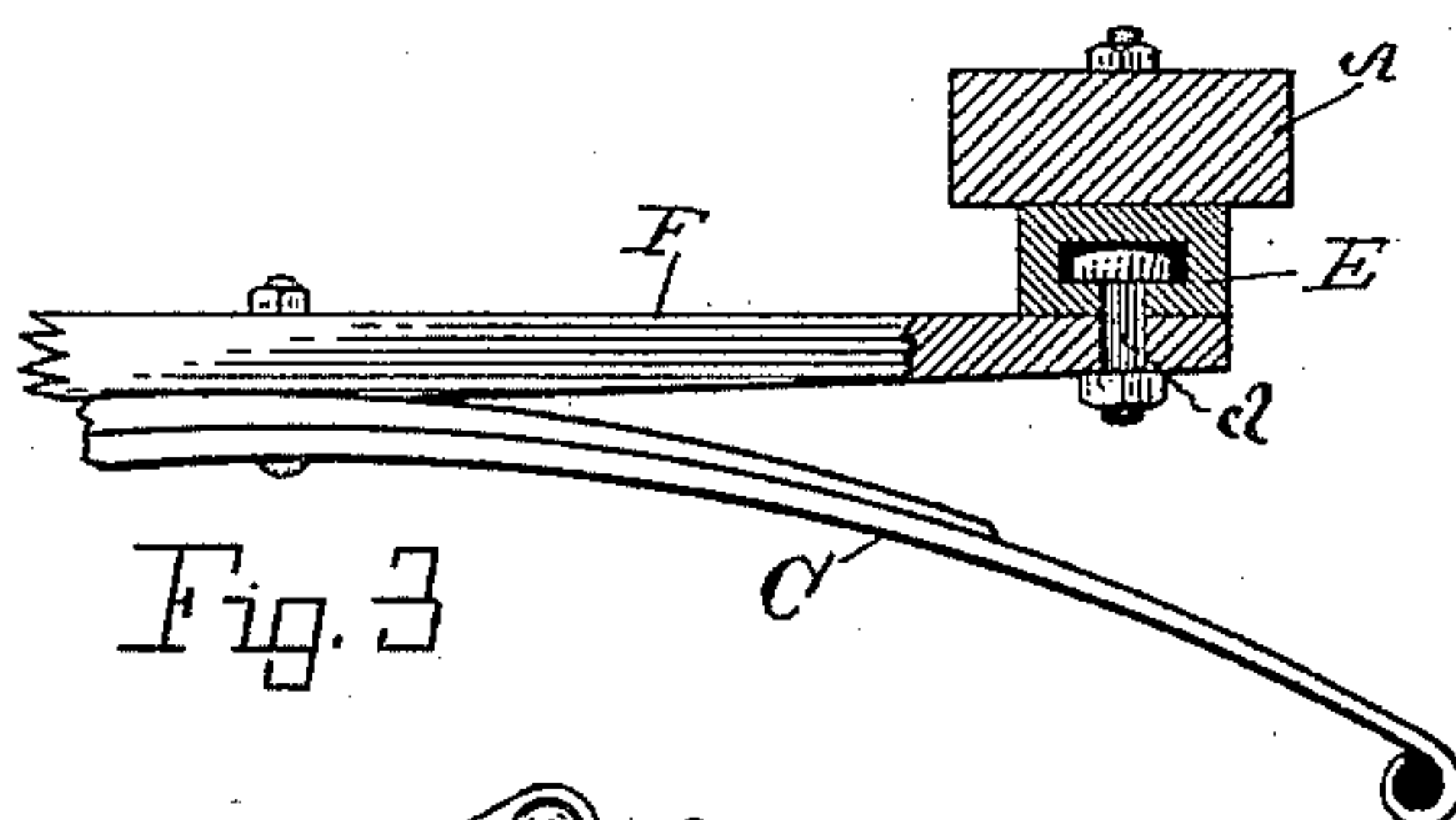
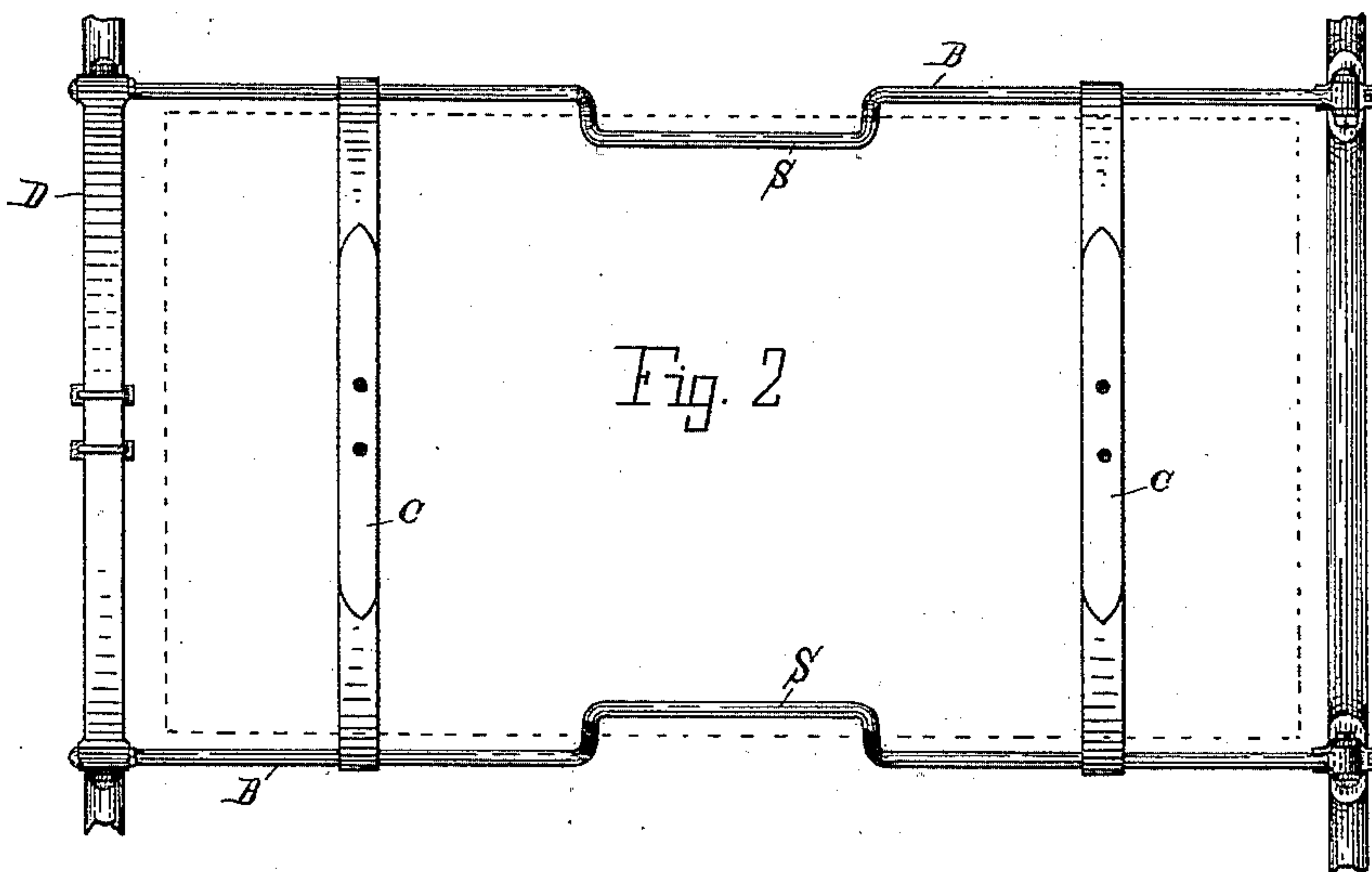
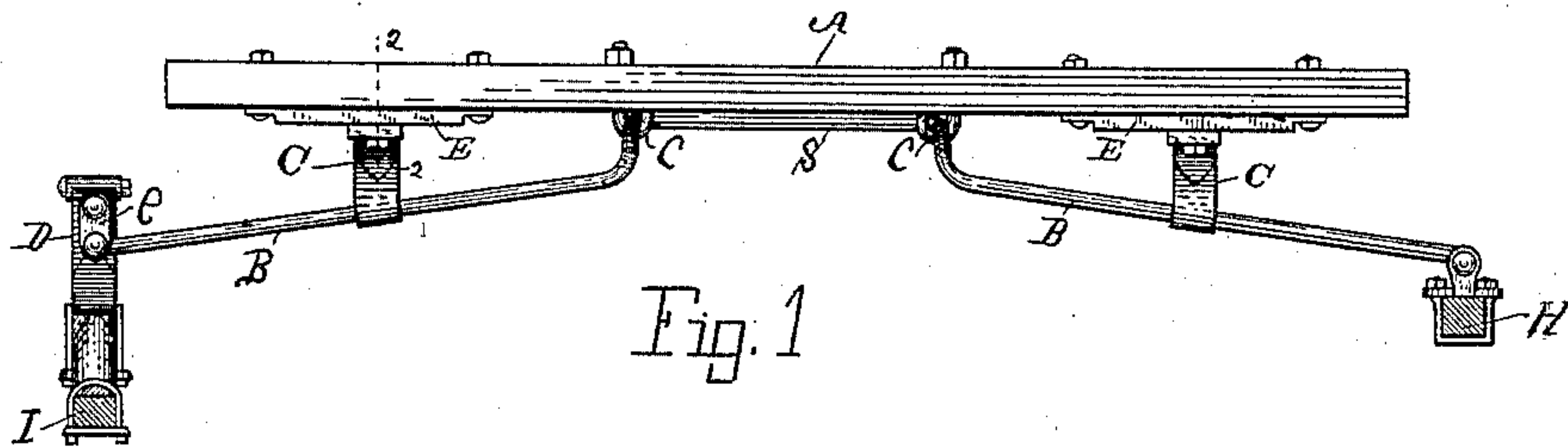


(No Model.)

H. BROOKS.
VEHICLE SPRING.

No. 427,665.

Patented May 13, 1890.



Witnesses:

Walter S Wood
Belle C. Follen

Inventor.

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Att'y.

Атт'у.

UNITED STATES PATENT OFFICE.

HULBURT BROOKS, OF KALAMAZOO, MICHIGAN.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 427,665, dated May 13, 1890.

Application filed February 24, 1890. Serial No. 341,540. (No model.)

To all whom it may concern:

Be it known that I, HULBURT BROOKS, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Vehicle-Spring, of which the following is a specification.

This invention relates to that class of four-wheeled vehicles in which side springs and semi-elliptic springs are employed, the latter being supported at the ends by the former.

The main object of the invention consists in the peculiar construction of the side springs in combination with the semi-elliptic springs. In the drawings forming a part of this specification, Figure 1 is a side elevation. Fig. 2 is a plan view with the body-bottom removed. Fig. 3 is a section on line 2 2 in Fig. 1, enlarged, and looking from a point at the left; and Fig. 4 shows enlarged lettered details of parts in Fig. 1.

Referring to the lettered parts of the drawings, B B are the side springs, attached at the ends to the axles or to bolsters; or one end of these springs may be attached to the axle H and the other end to the ends of a semi-elliptic spring D, which spring D is mounted on the axle I. The ends of the springs B B and the spring D are coupled together by swinging shackles e, so as to allow the springs to lengthen and shorten.

In Figs. 1 and 2 it will be observed that the springs B B have a central and inwardly-extended offset S, which rests against the under side of the body-bottom A, said offset being attached to the body-bottom at the corner shoulders at c c in Fig. 1. The vehicle-body is supported by the transverse semi-elliptic

springs C C, the ends of said springs being attached to the side springs B at the rear and in front of the central offsets S S. When the body is borne down, the springs B yield downward and outward, and the latter action provides for the lengthening and shortening of the springs C.

In Figs. 1 and 3, E is a slotted plate, and the head of the bolt a (which attaches the spring-bar F to the body) is loose in the slot of the plate E, so that by loosening the nut of the bolt a the springs C may be moved forward or back, and thus be adjusted in bringing the pressure upon the springs B at the proper point in accordance with the load carried in the vehicle. The springs B thus made with the offsets successfully brace the body against endwise shucking and there is no torsion action in said springs.

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

In a vehicle, the combination of the body, the side springs having the central offsets, and the transverse springs loosely attached at the ends to the side springs, and the spring-bars on the transverse springs, said bars being adjustably attached to the body, whereby the transverse springs may be moved toward the ends or center of the vehicle, according to the burden, substantially as set forth.

In testimony of the foregoing I have hereunto subscribed my name in presence of two witnesses.

HULBURT BROOKS.

Witnesses:

L. N. BURKE,
JAMES BAUMANN.