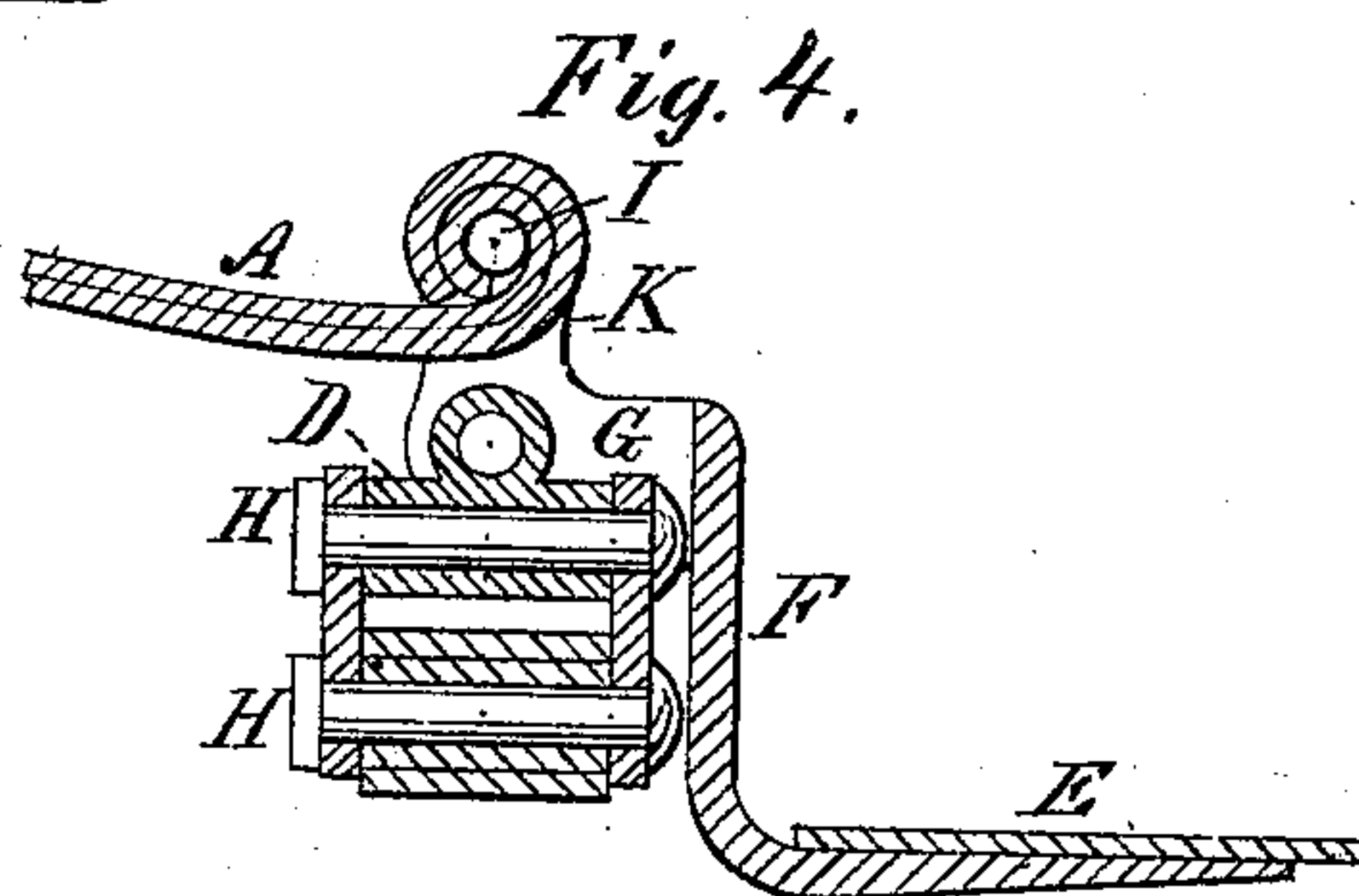
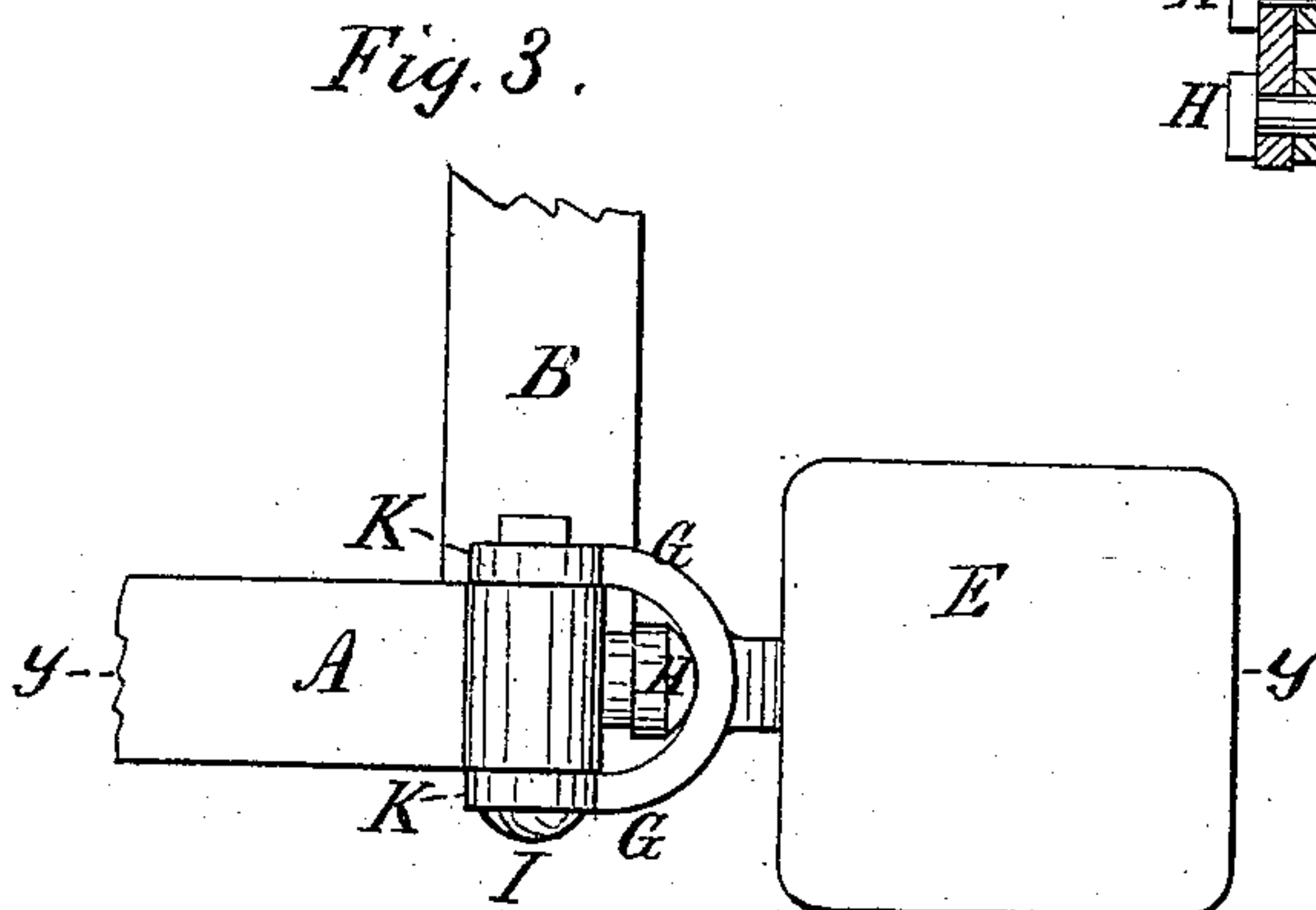
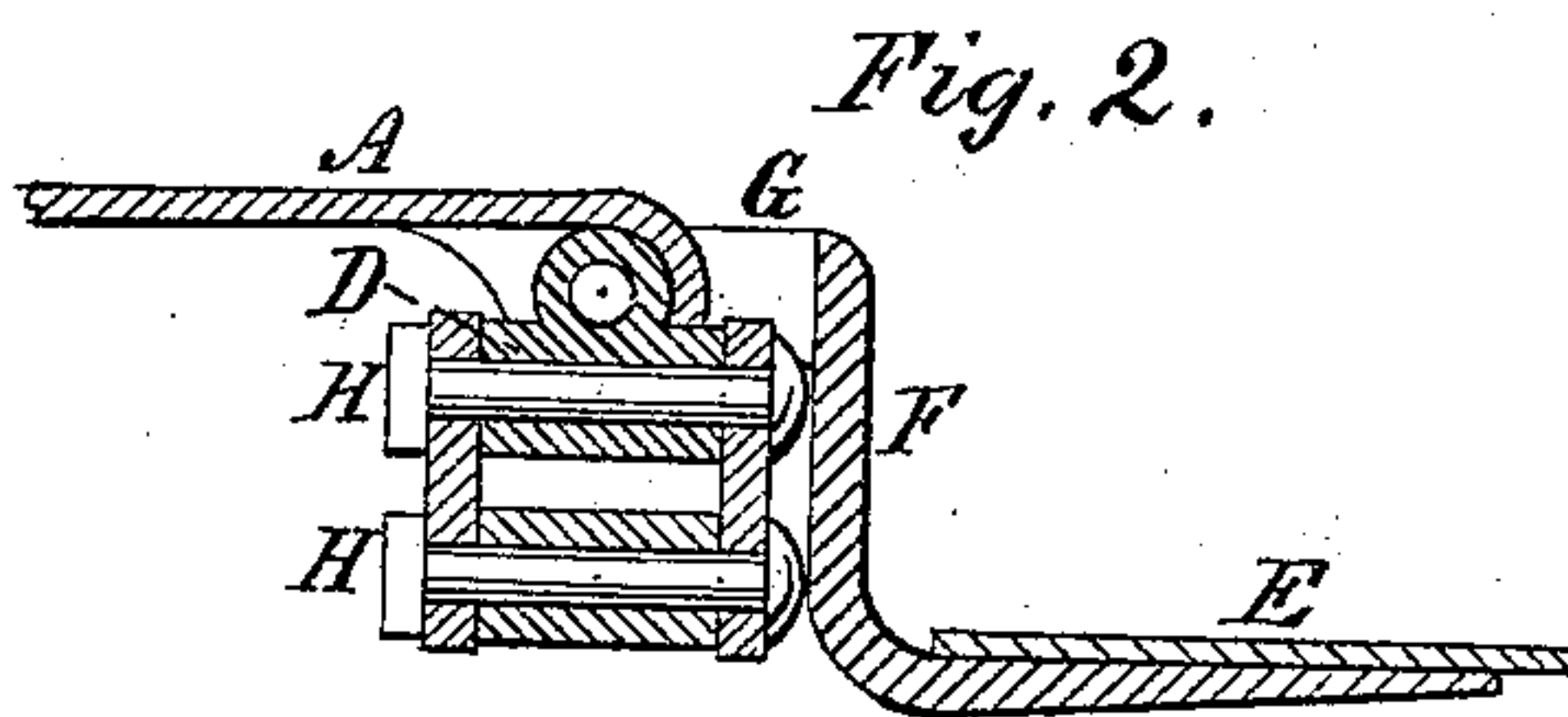
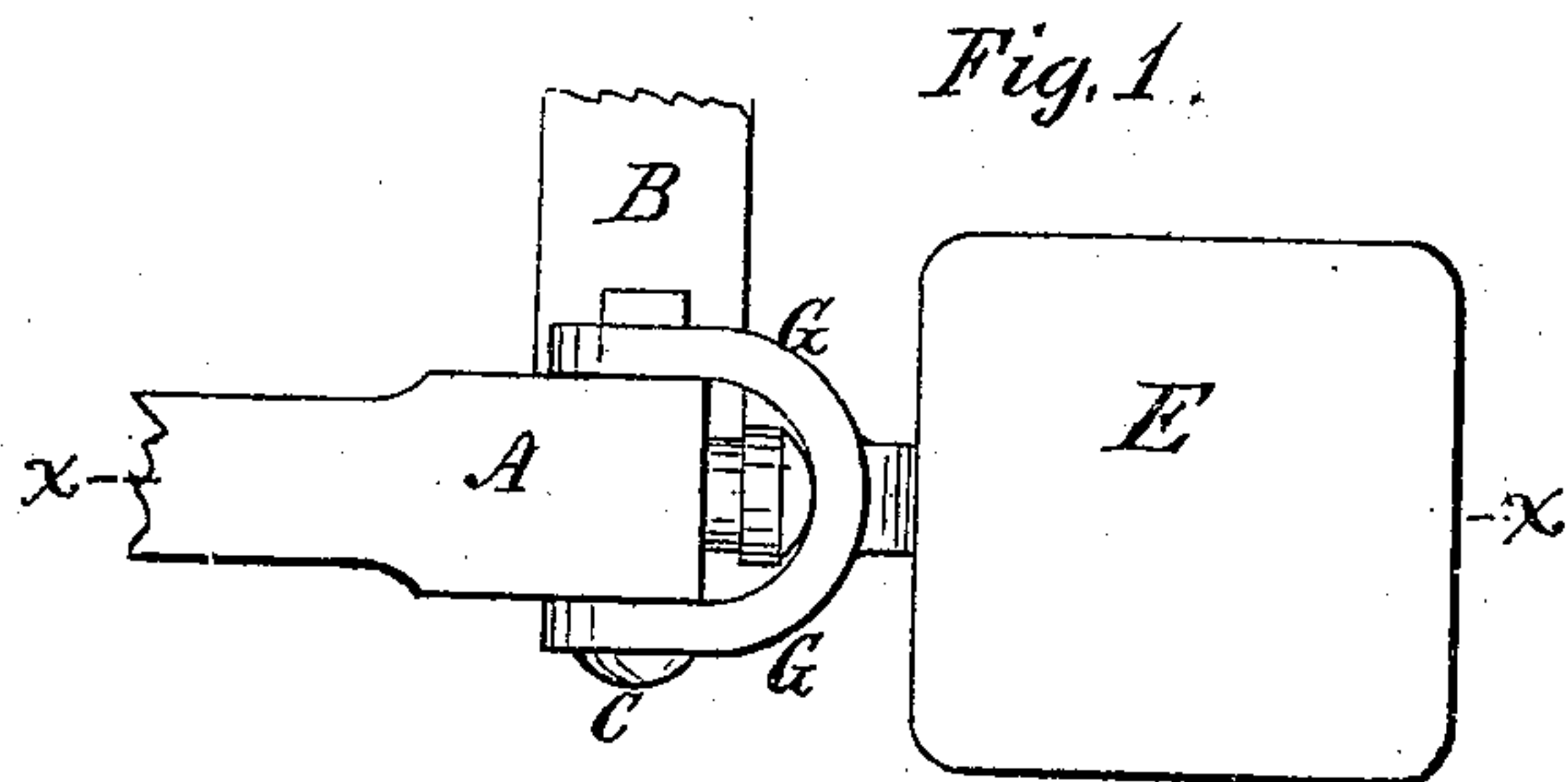


J. F. STUDEBAKER.
CARRIAGE AND WAGON STEPS.

No. 175,778.

Patented April 4, 1876.



Arthur L. McIntire
Jas. J. Bonner } Witnesses.

J. F. Studebaker Inventor.
By Attorney
Am. Cr. Intire

UNITED STATES PATENT OFFICE.

JACOB F. STUDEBAKER, OF SOUTH BEND, INDIANA.

IMPROVEMENT IN CARRIAGE AND WAGON-STEPS.

Specification forming part of Letters Patent No. 175,778, dated April 4, 1876; application filed March 4, 1876.

To all whom it may concern:

Be it known that I, J. F. STUDEBAKER, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Steps for Vehicles; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this application.

My invention relates to a novel improvement in the construction and attachment of what are known as the "first steps" of platform-spring wagons and other vehicles. It has for its object to render the construction and attachment simple and economic, and at the same time secure greater strength and durability.

With these objects in view, my invention consists in attaching the step directly to the side and cross springs, where they intersect, and in forming the shank of the step with a bifurcated right-angled projection, and securing the same to the head of the side spring and to the cross-spring coupling by a bolt or rivet, while the vertical shank of the step rests against, and is supported by, the head of the transverse bolts or rivets of the cross-spring coupling.

Previous to my invention it has been customary to attach such steps directly to the center of the side spring or to the body of the wagon, which involved considerable expense of time and labor in adaptation of the parts, and when complete furnished a foot-bearing in which the weight of the person resting thereon acted as a lever to distort and break the step. All these objections are overcome by my invention, and the bolts or rivets of the cross-spring coupling serve to counteract the leverage exerted by the weight of the person resting upon the step.

In order that those skilled may more readily understand my invention, I will proceed to describe the construction and attachment of the same, referring by letters to the accompanying drawings, in which—

Figure 1 is a top view of a step attached to the head of a side spring, which side spring, as well as cross-spring, are shown as broken away a short distance from the couplings. Figure 2 is a longitudinal vertical section of

the same at the line *x x* of Fig. 1. Fig. 3 is a similar view to Fig. 1, but showing a modification of my invention, the side spring being what is known as a "scroll-spring;" and Fig. 4, a longitudinal vertical section taken at the line *y y* of Fig. 3.

Similar letters denote like parts in the several figures.

A represents an ordinary side spring, and B the intersecting cross-spring. The side spring is formed with a French, English, button, or other head that requires a single bolt, screw, or rivet, C, to attach it with the cross-spring coupling D of ordinary construction. E is the step, provided with a vertically-rising shank, F, bent at right angles at the top, or bifurcated to form two arms, G, which embrace the head of the side spring A. The ends of the arms G are bored to receive the bolt or screw C, which, while it attaches the side spring A to the coupling D, also securely attaches the arms G to head of said side spring. H H are the transverse bolts or rivets of the coupling D, and, as is clearly shown in the drawings, the vertical shaft F of the step rests against the heads of said bolts or rivets H H, and, being below the point of connection between the arms G and head of side spring A, serves to counteract the leverage force exerted by the weight of a person on the step.

It will be observed that this connection or attachment of my improved step to the head of the side spring does not in the slightest degree change the construction of the latter or weaken its connection with the cross-spring coupling, but, on the other hand, has the tendency of increasing the strength and solidity of connection between all the parts.

In Figs. 3 and 4 of the drawing I have shown a modification of my invention as applied to "scroll" side springs. In this case the arms G G are secured by a single bolt, as in Figs. 1 and 2, to the cross-spring coupling D, and the head of the scroll side spring A is secured by an independent bolt, I, directly to a vertical right-angled continuation, K K, of the arms G G, the shank F of the step resting, as in Figs. 1 and 2, against the heads of the cross-spring coupling bolts H H.

This I do not consider a variation from my invention, except in its adaptation to a vary-

ing form of spring, and other changes may be made in the design without departing from the spirit of my invention, the gist of which lies in so constructing the step that it can be secured to the head of the side spring and rest with its shank against the transverse bolts or rivets of the cross-spring coupling.

What I claim as new, and desire to secure by Letters Patent, is—

1. In wagons and other vehicles, provided with platform-springs, a step attached to the same at the point of intersection between the side and cross springs, substantially as and for the purpose set forth.

2. A step, designed for attachment to platform-spring wagons or other vehicles, embodying in its construction a vertical shank

and transverse bifurcated head or arms, provided with suitable holes for securing the same to the head of a side spring, substantially as and for the purposes described.

3. In combination with the side and cross springs and coupling A B D of a platform-spring wagon or other vehicle, the step E, provided with a vertical shank, terminating in a bifurcated head, and secured in position by a bolt or bolts, substantially as and for the purposes hereinbefore set forth.

Witness my hand this 29th day of February, A. D. 1876.

J. F. STUDEBAKER.

Witnesses:

HENRY W. PORTER,
PATRICK O'BRIEN.