

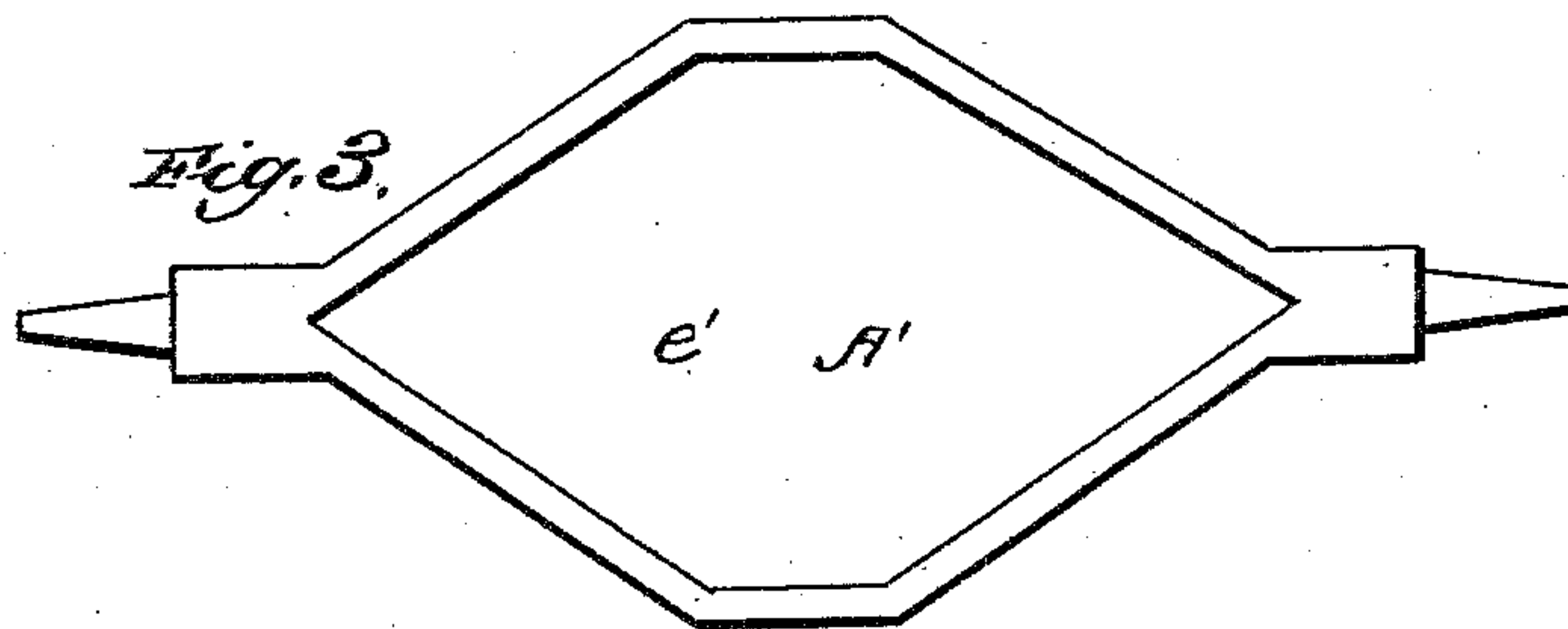
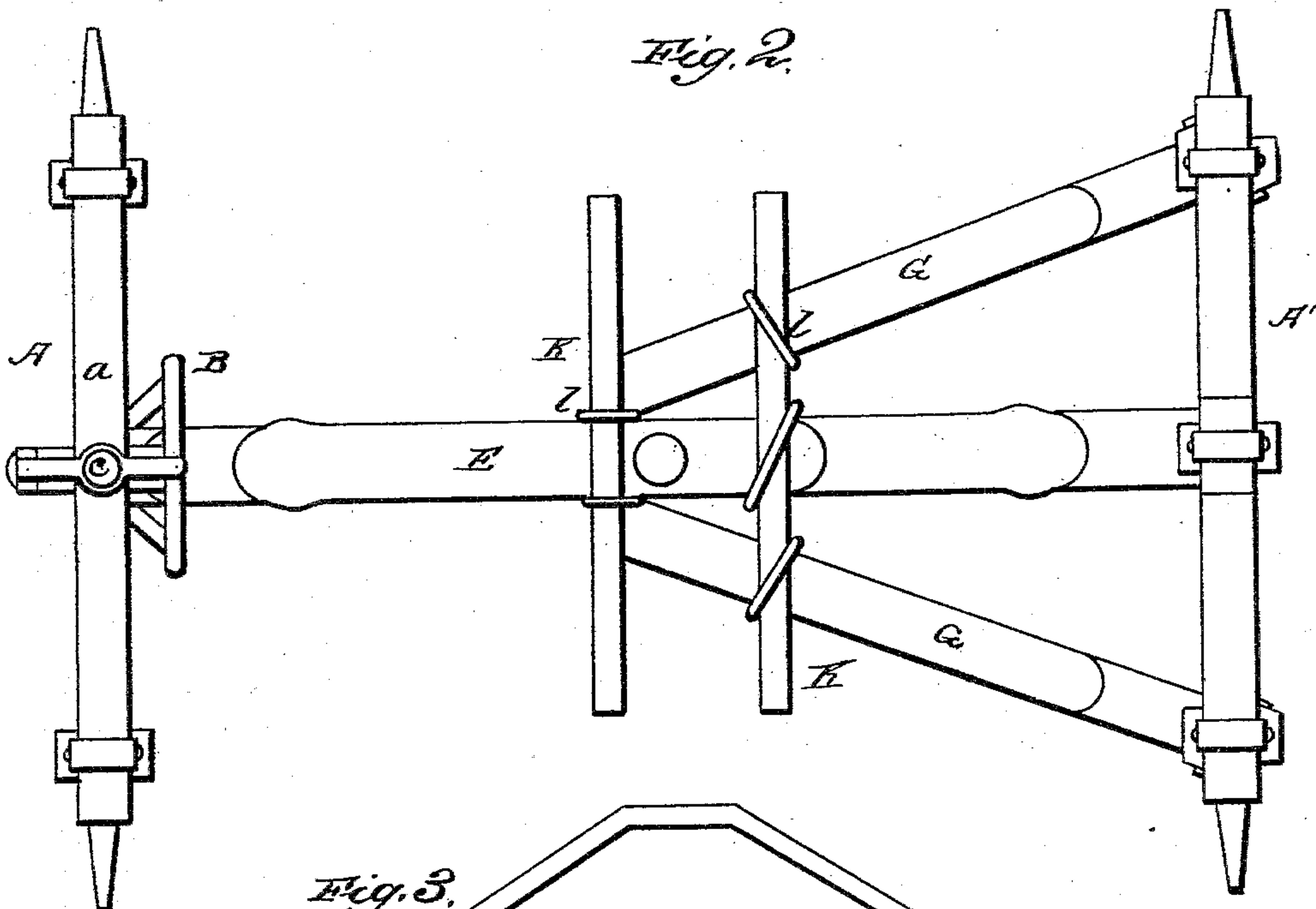
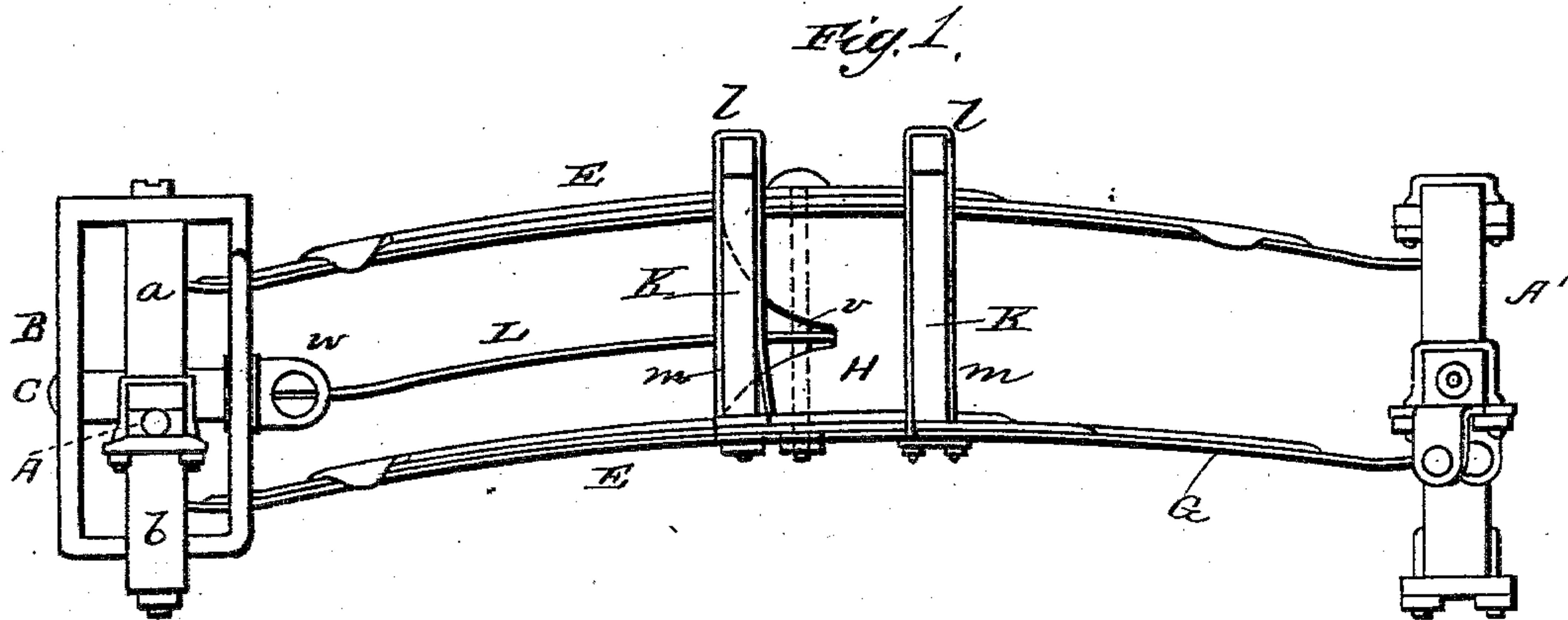
(Model.)

2 Sheets—Sheet 1.

L. C. MATHISON.
WAGON RUNNING GEAR.

No. 283,628.

Patented Aug. 21, 1883.



WITNESSES
E. H. Bates
Philip LeMasi.

INVENTOR
L. C. Mathison
by Anderson & Smith
his ATTORNEYS

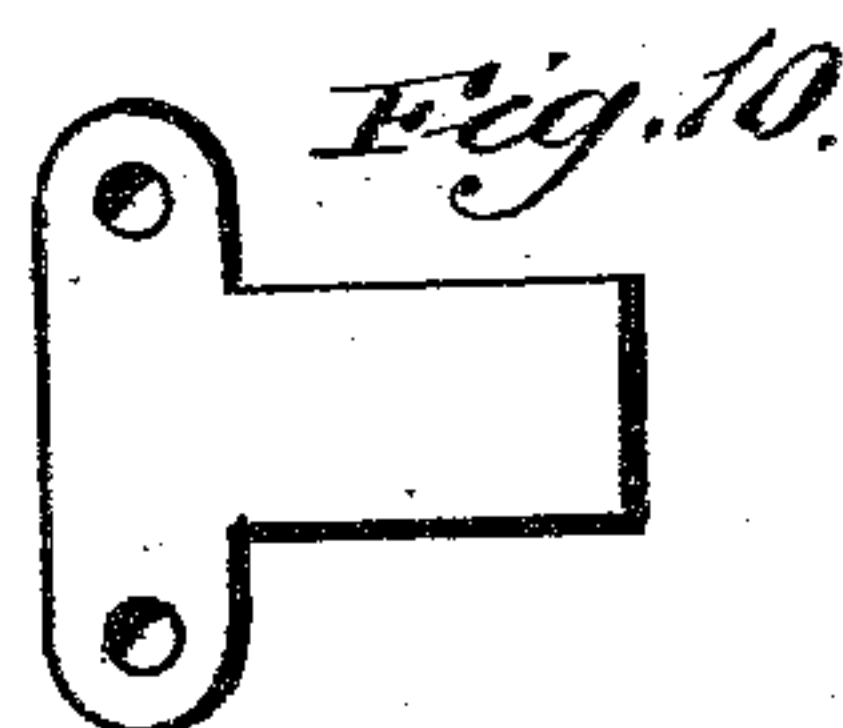
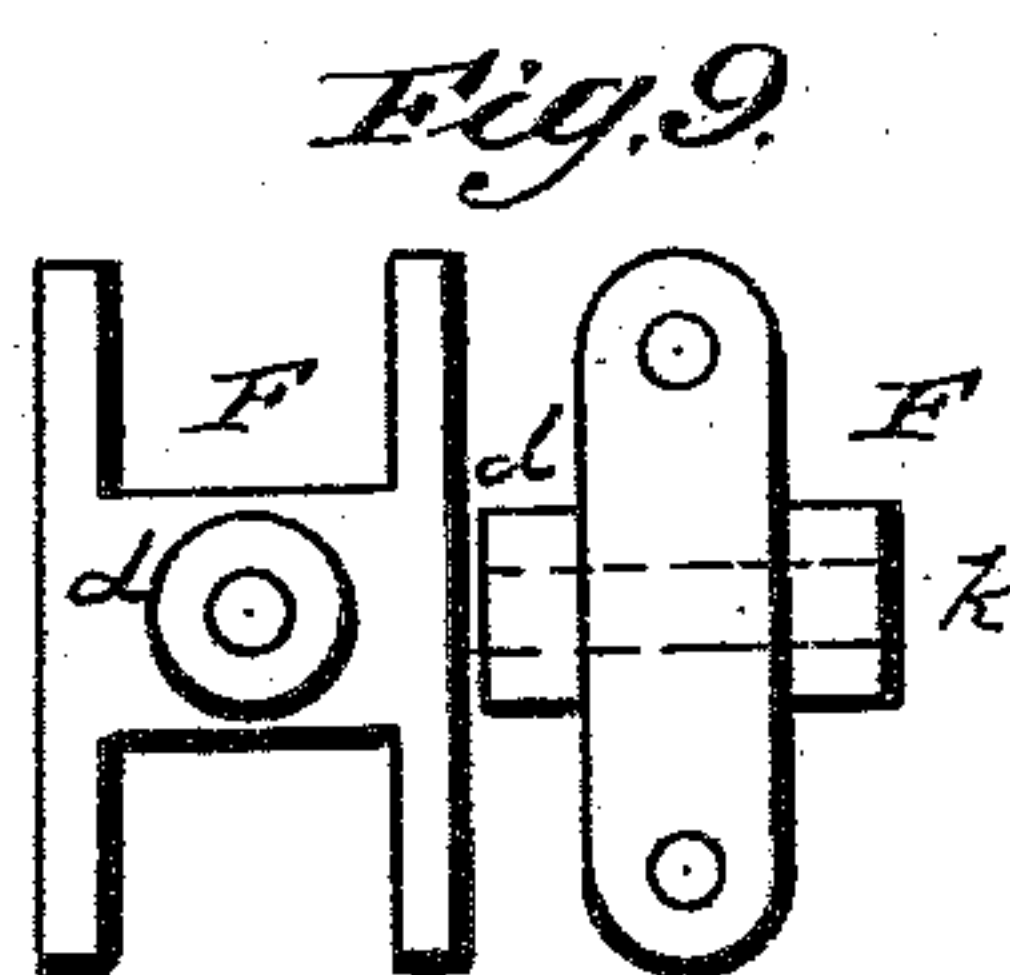
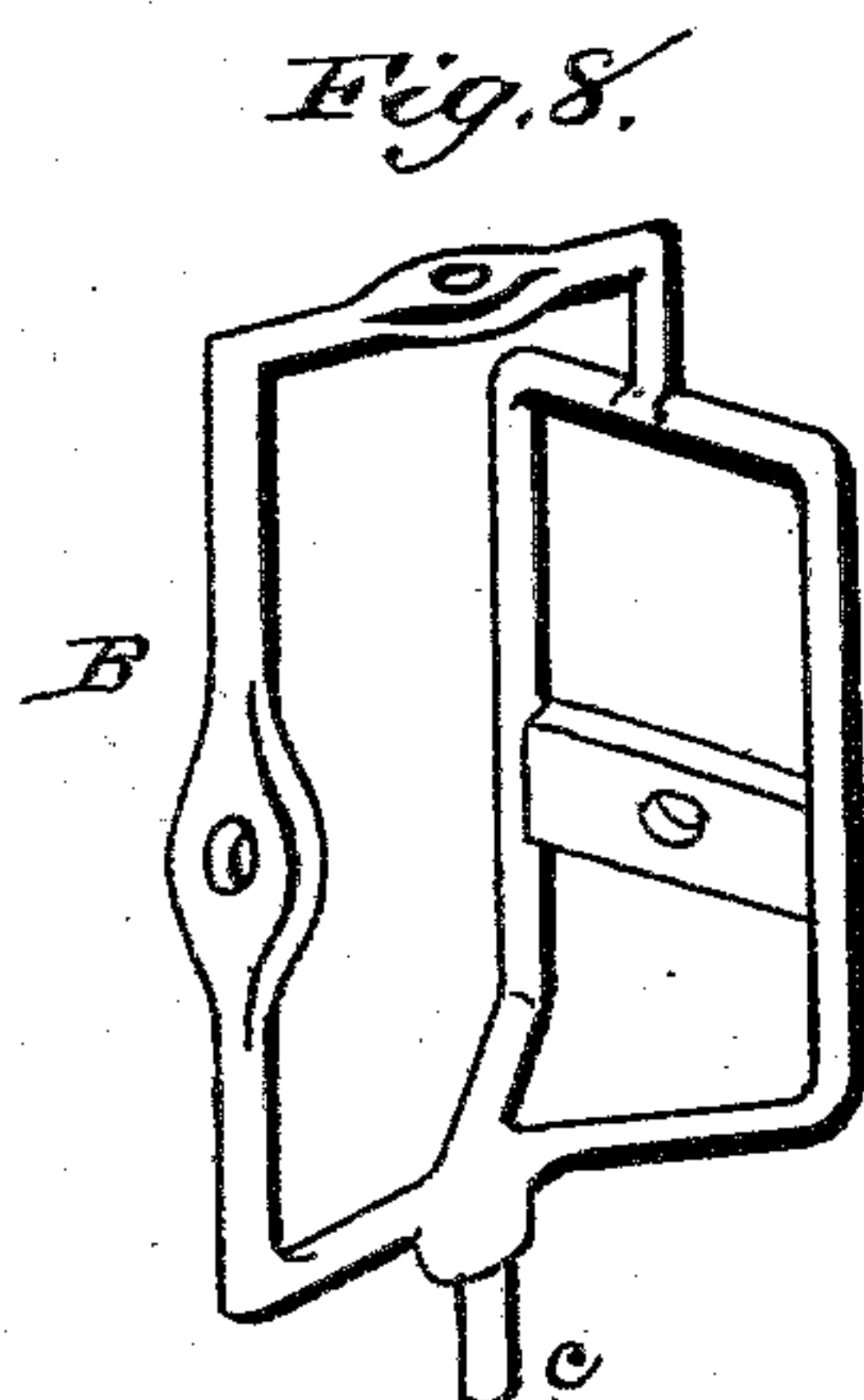
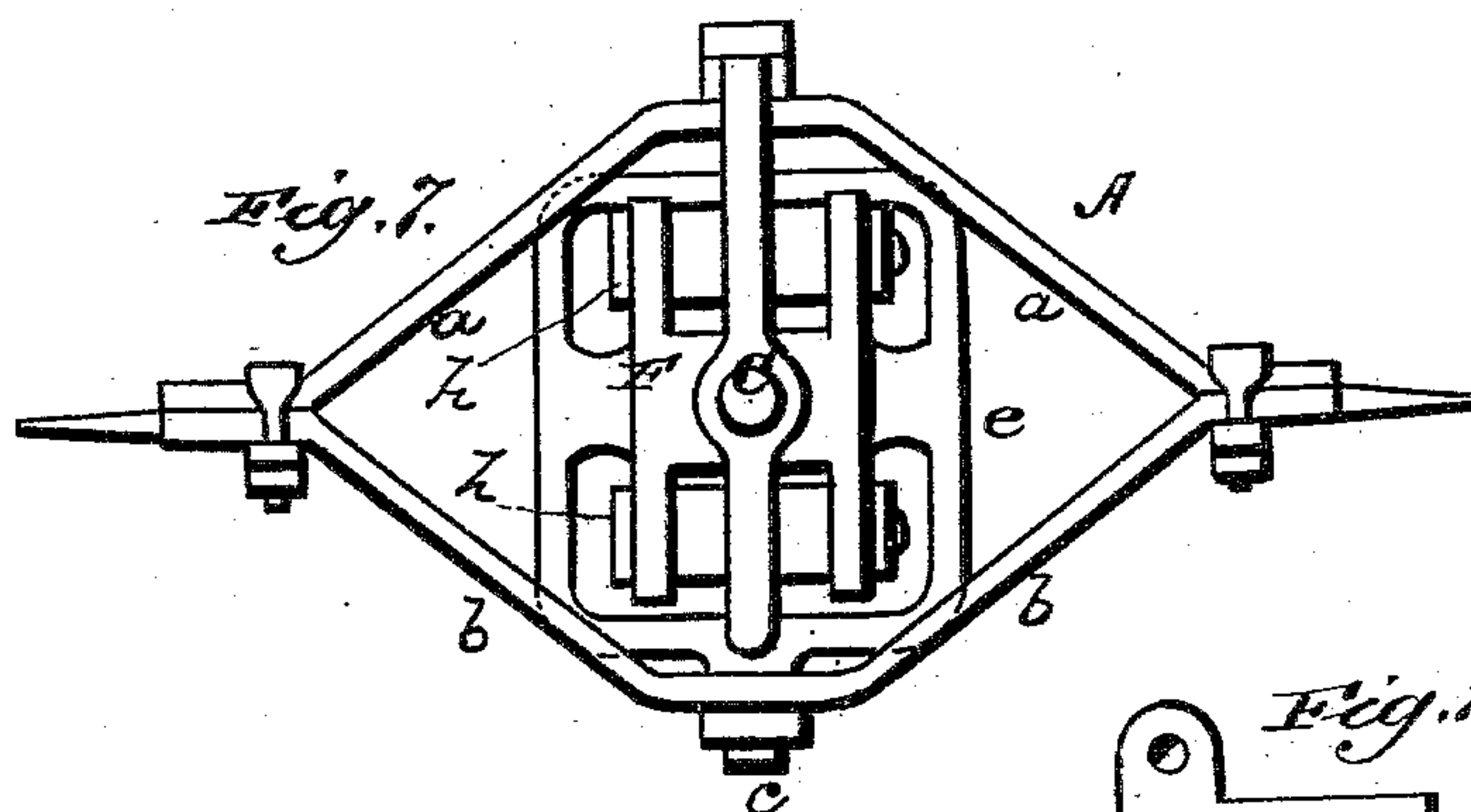
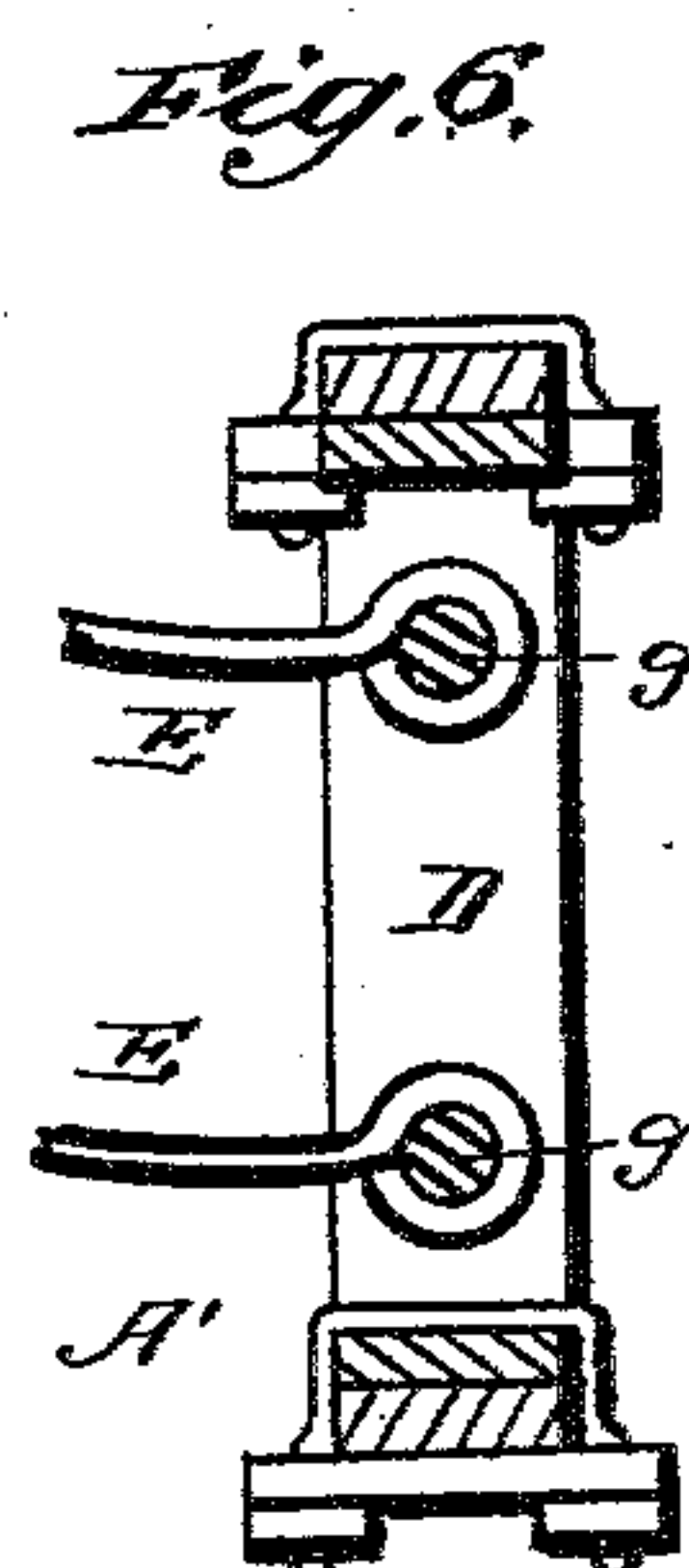
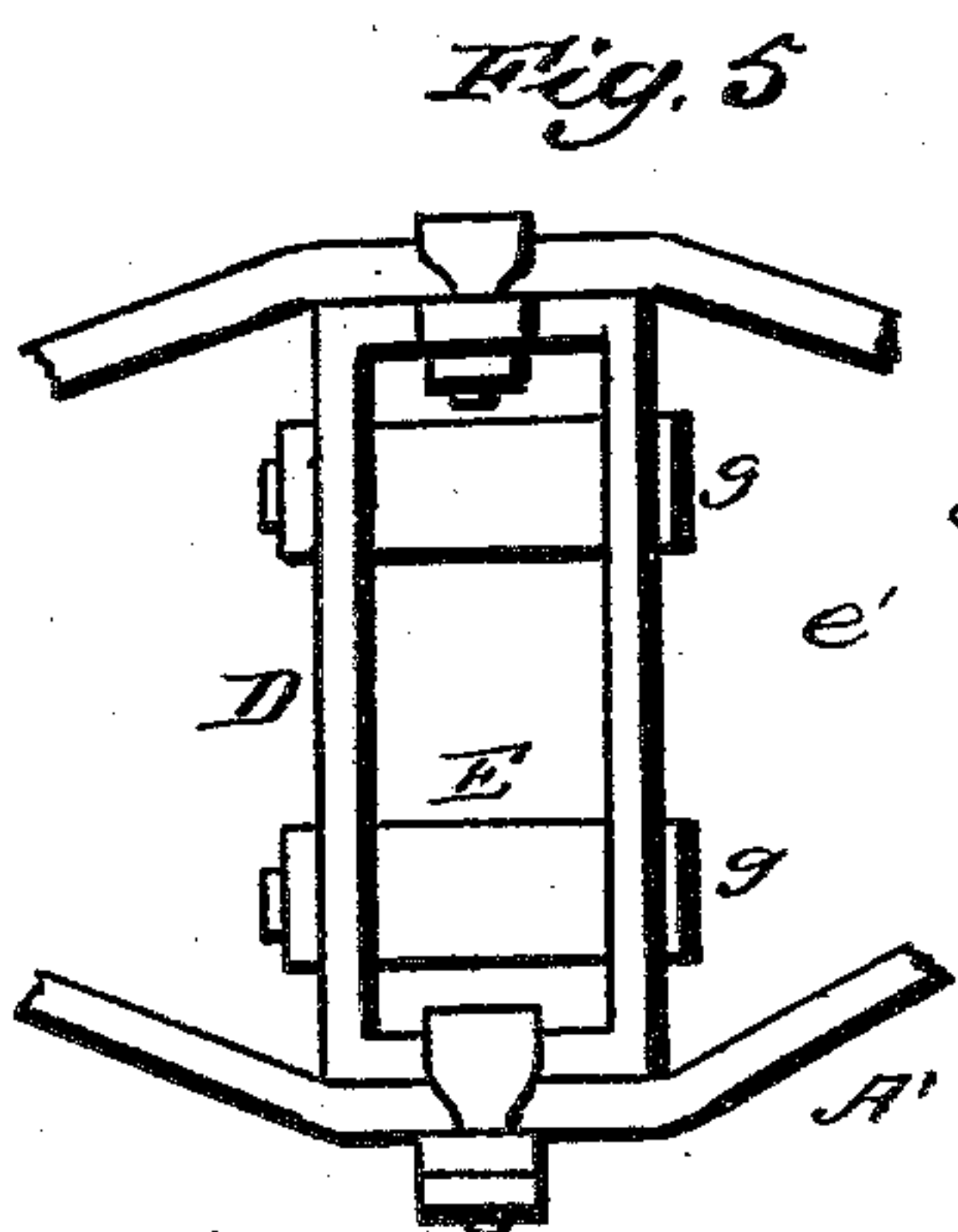
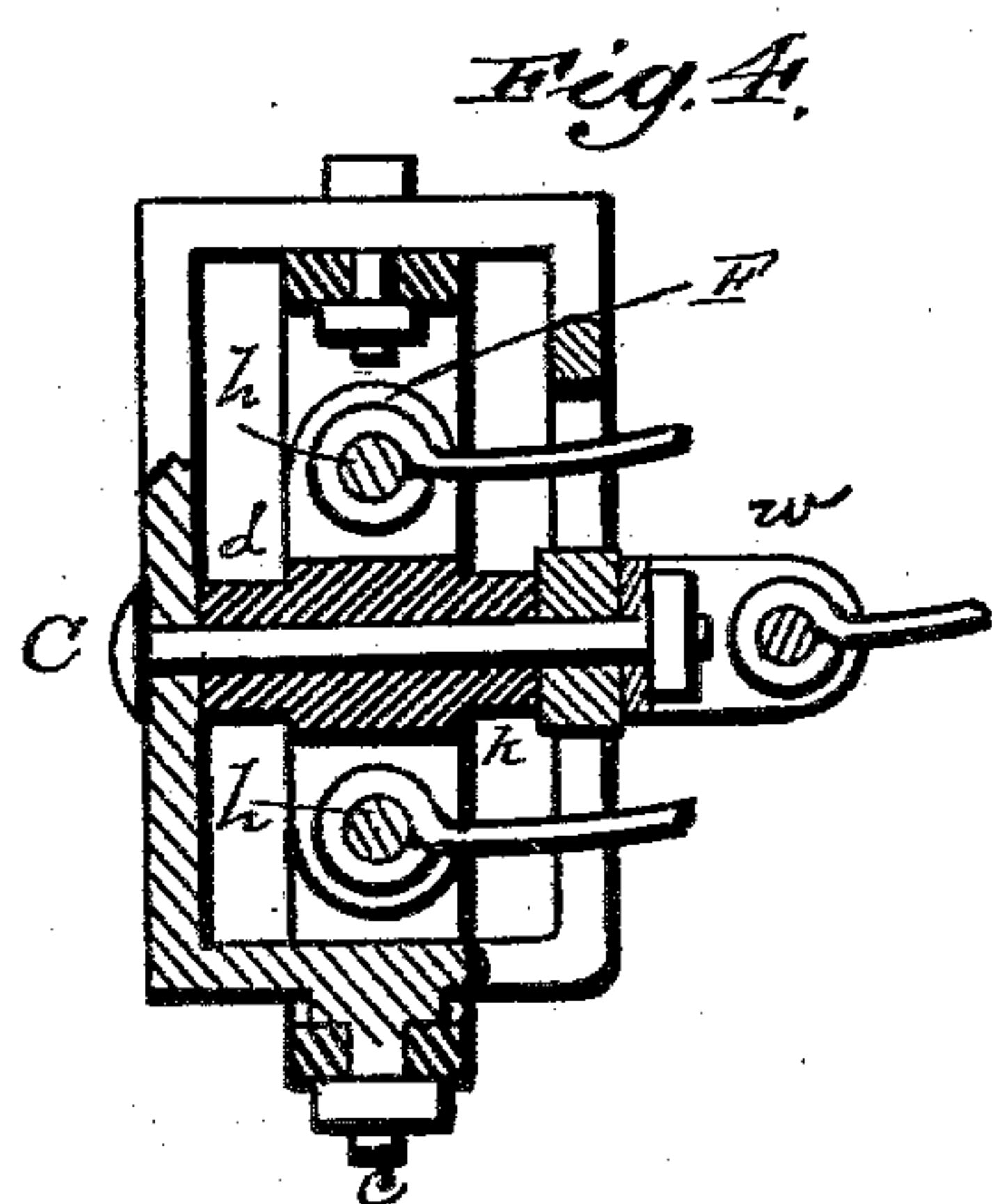
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

LOUIE C. MATHISON, OF MANHATTAN, KANSAS.

WAGON RUNNING-GEAR.

SPECIFICATION forming part of Letters Patent No. 283,628, dated August 21, 1883.

Application filed February 24, 1883. (Model.)

To all whom it may concern:

Be it known that I, LOUIE C. MATHISON, a citizen of the United States, residing at Manhattan, in the county of Riley and State of Kansas, have invented certain new and useful Improvements in Running-Gear; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a side view of my device. Fig. 2 is a plan view of the same. Fig. 3 is a view of rear axle, and Fig. 4 is a vertical sectional view of the front part of the gear. Fig. 5 is a rear view of the device with axle broken away. Fig. 6 is a vertical sectional view of the rear axle. Fig. 7 is a front view. Fig. 8 is a perspective view of the yoke or frame B, and Figs. 9 and 10 are detail views.

This invention has relation to improvements in running-gear for four-wheel vehicles; and it consists in the novel construction and arrangement of devices, as will be hereinafter more fully set forth and claimed.

In the accompanying drawings, the letter A designates the front axle, having an upper branch, *a*, and a lower branch, *b*, which afford bearings for the pivot *c* of the frame B, which is usually made in stirrup or open form, and carries the horizontal king-bolt C in bearings *d*. Usually the front axle is made in two sections, whereof the upper section is bent upward in the middle and the lower section downward, forming an open center, as indicated at *e*, in which the pivoted support or stirrup B is located. The rear axle, A', may also be made in two sections, or it may be made in one piece, and usually it is also made with an open center, as indicated at *e'*, to form a broad vertical bearing to support the rear head, D, of the spring reach E; or the rear axle and bearing D may be made in one piece.

The spring-reach E consists preferably of upper and lower parallel upwardly-bent or convex springs, the rear ends of which are connected to cross-bolts *g* of the rear head, D, and the front ends of which are connected to

cross-bolts *h* of the front head, F, which is pivoted on the horizontal king-bolt C. In order to provide a strong bearing, the front head is extended in front and rear in sleeve form, as indicated at *k*.

To the lower spring of the spring-reach are connected, at about the middle portion thereof, rearwardly and obliquely extending brace-springs G, the rear ends of which are clipped to the rear axle near the spindles. Usually the springs of the reach are made heavier in their rear portions, gradually tapering toward their front ends, in order to provide for loads of different weights.

Between the upper and lower springs of the spring-reach is secured thereto a block-bearing, H, designed to hold the middle portions of the springs at the proper distance apart and to provide a bearing for the transverse bolsters or pieces K, which support the body of the vehicle. These transverse pieces K are formed with arch-bearings, the middle portions, *l*, of which bear on the upper spring of the spring-reach, and the downward-extending ends or arms *m*, of which bear on the brace-springs.

L represents a short safety-spring, which is connected to a bolt or bearing, *v*, of the reach-block H and extends forward to the front reach-head, being connected at its front end to the cross-bolt of a stirrup-connection, *w*, which is attached to the rear end of the king-bolt.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with a spring-reach and the horizontally-pivoted reach-head, of the block-bearing interposed between the spring branches, and the short safety-spring connected to said block-bearing and to the reach-head, substantially as specified.

2. The combination, with the open axles and spring-reach, of the double-pivoted or universal-joint king-bolt coupling, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIE C. MATHISON.

Witnesses:

CHAS. F. KEABLES,
EDWARD N. CARTER.