

(No Model.)

3 Sheets—Sheet 1.

W. ANDERSON.

LOCOMOTIVE.

No. 352,601.

Patented Nov. 16, 1886.

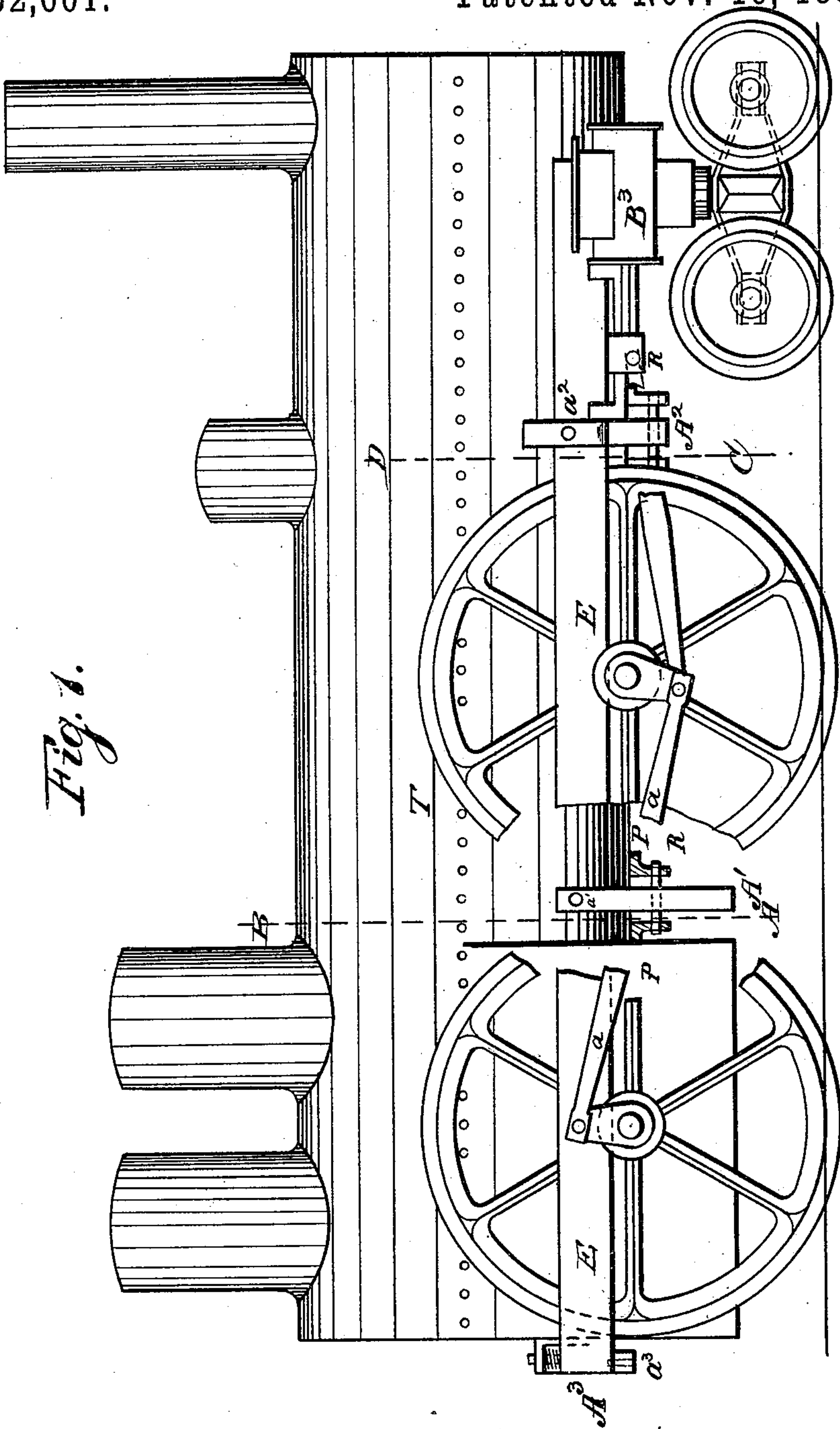


Fig. 1.

WITNESSES:

G. F. Rice  
E. Evans

William Anderson INVENTOR

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(No Model.)

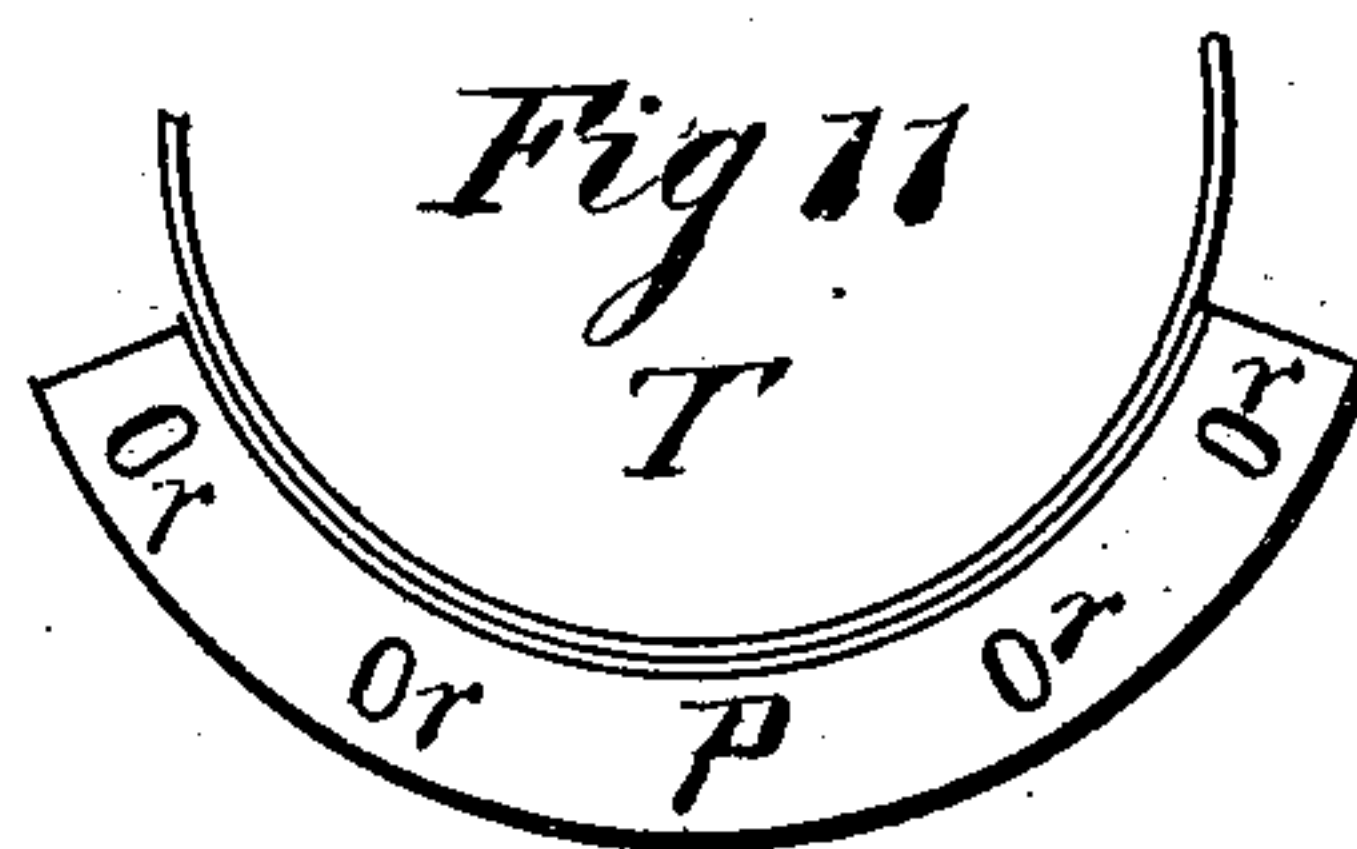
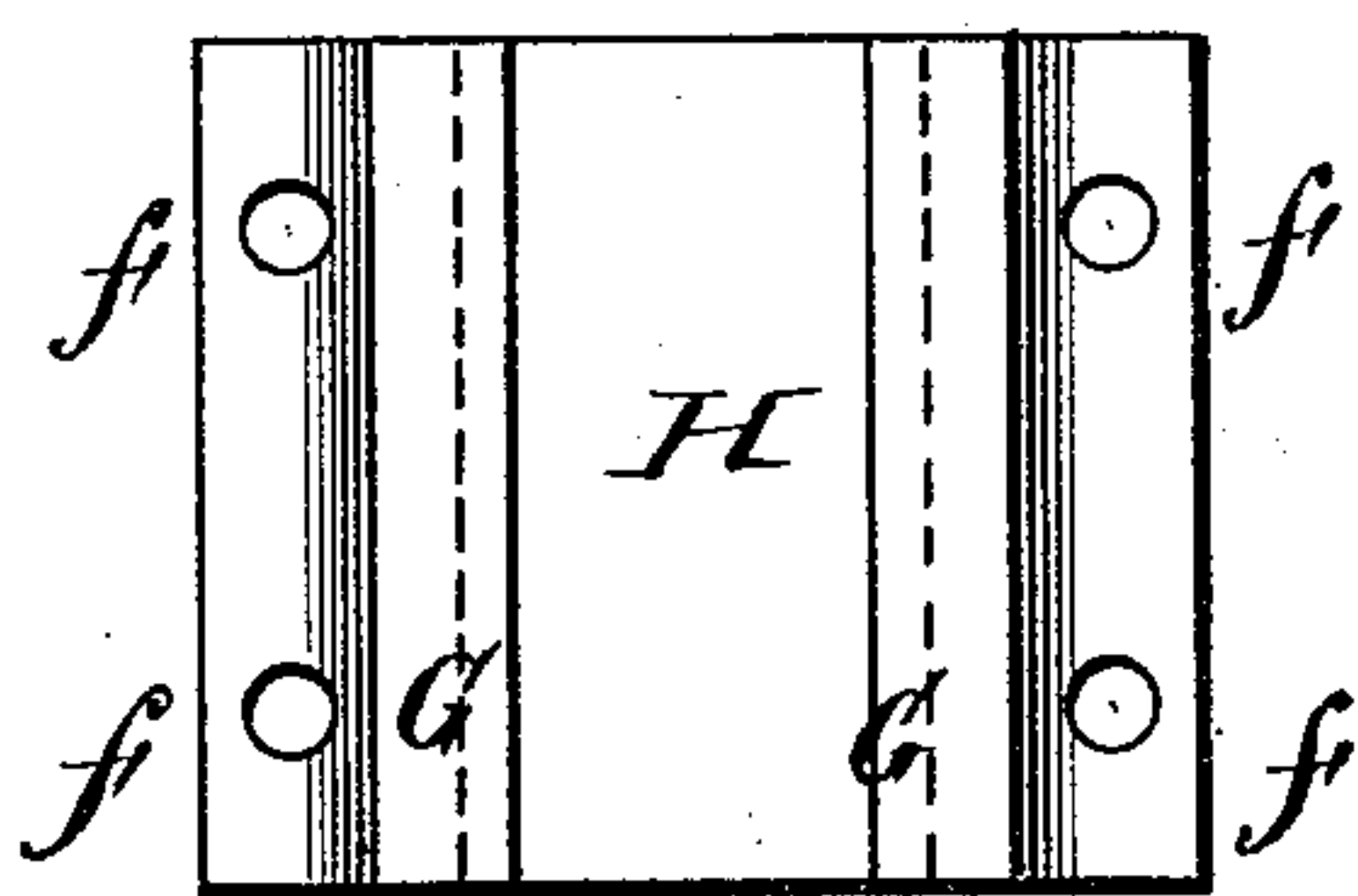
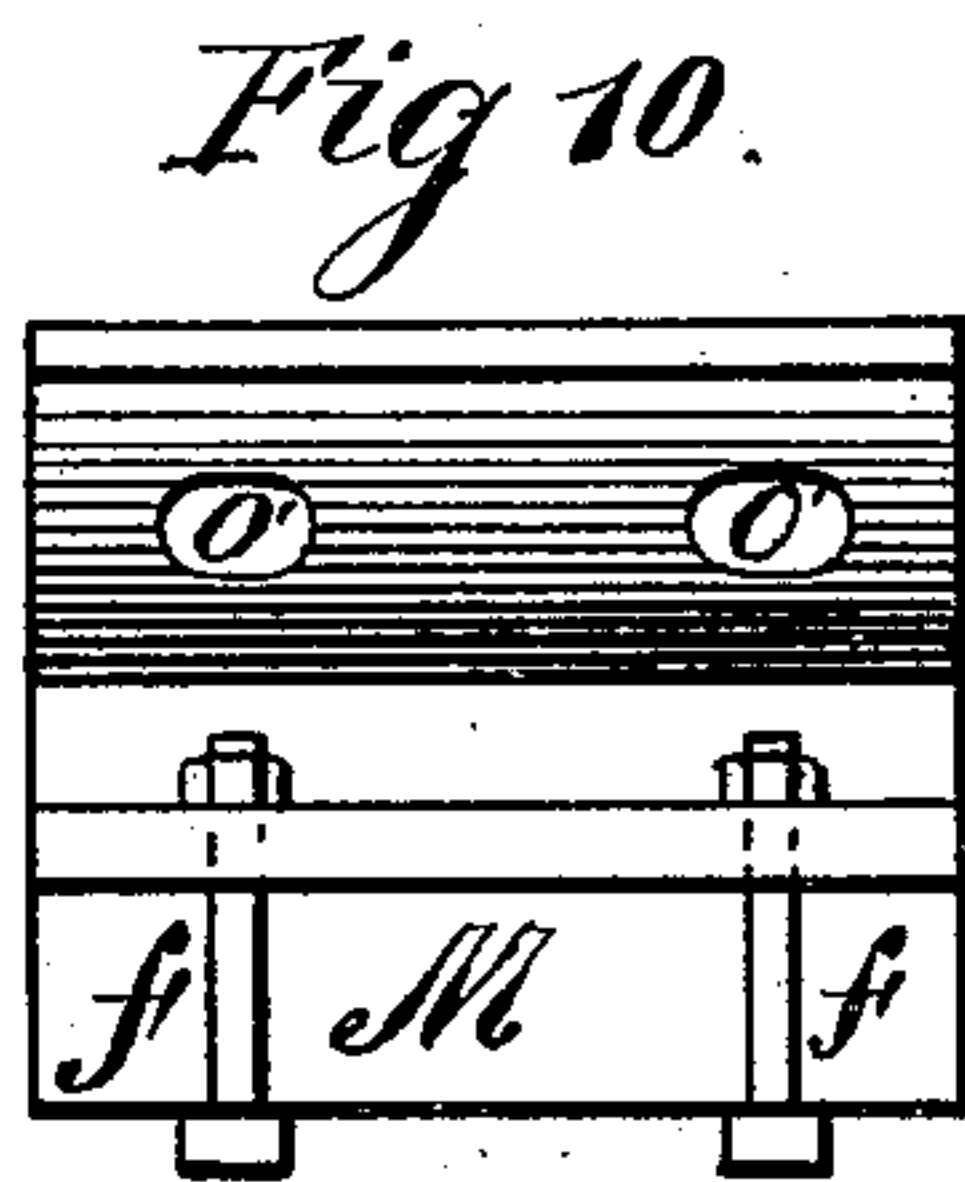
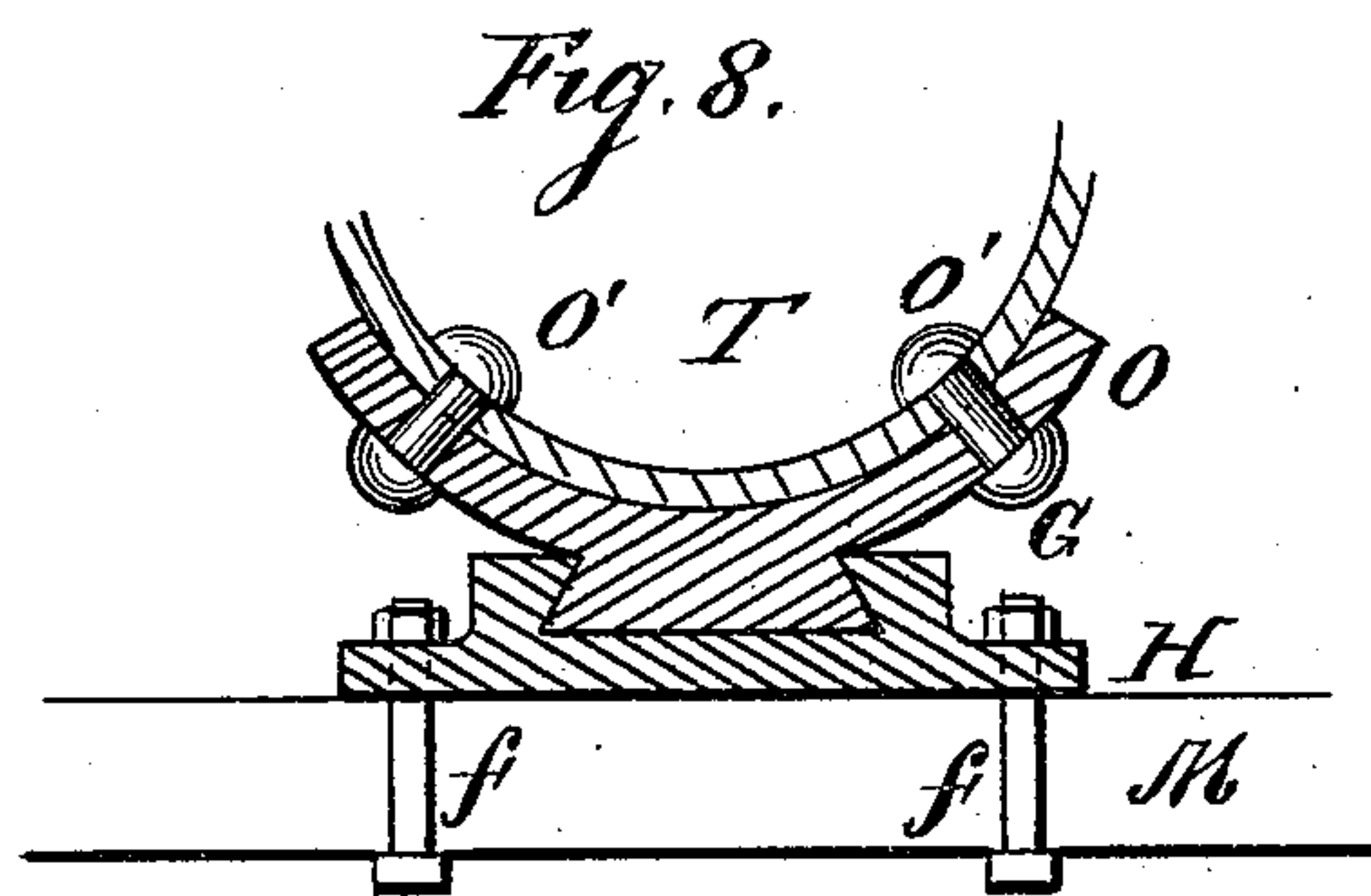
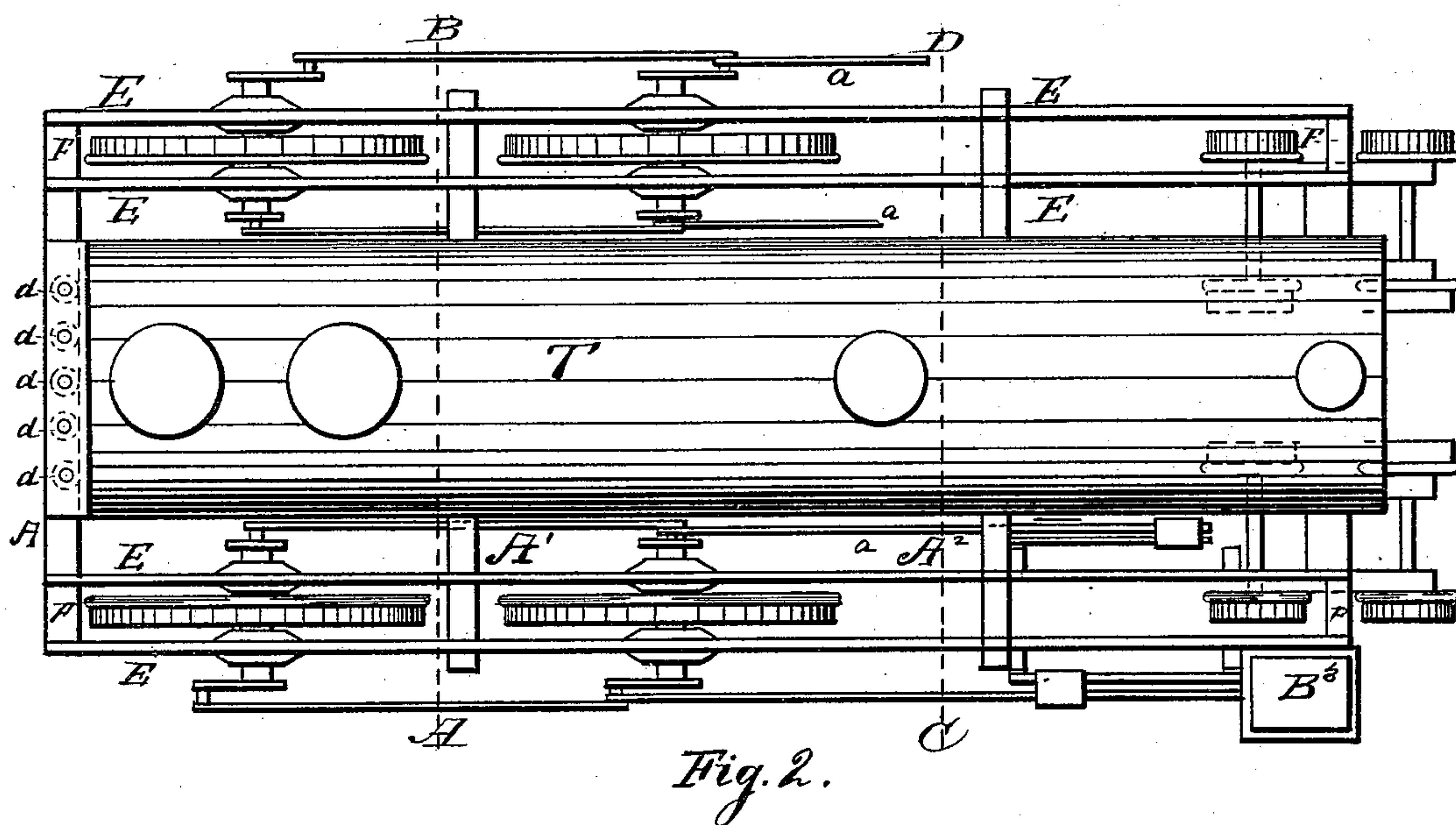
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WITNESSES:

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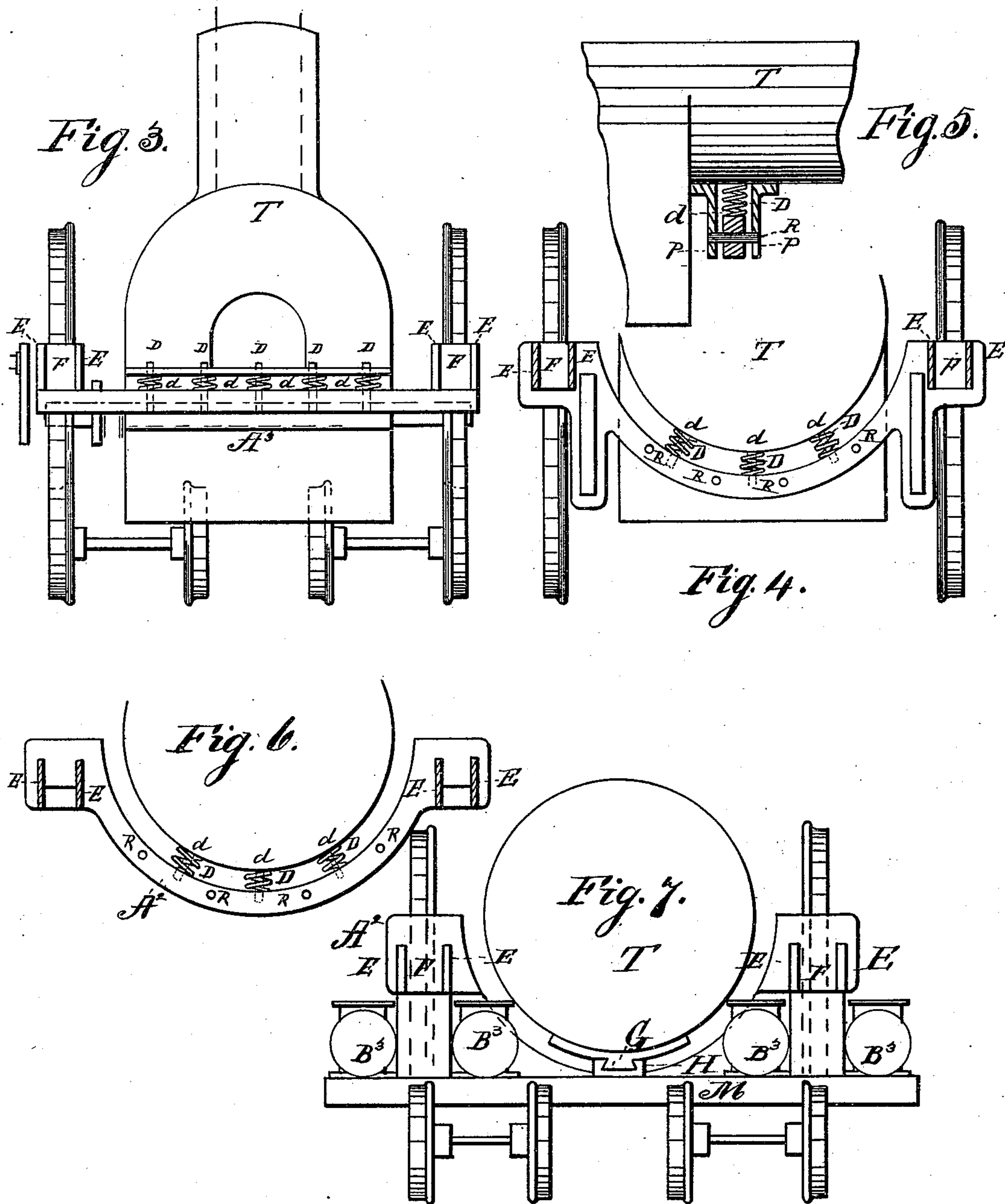
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# UNITED STATES PATENT OFFICE.

WILLIAM ANDERSON, OF DENVER, COLORADO.

## LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 352,601, dated November 16, 1886.

Application filed May 20, 1886. Serial No. 202,805. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM ANDERSON, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Locomotive-Engines; and I do hereby 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 it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in locomotive-engines, in which the weight of the boiler is supported upon springs and held in such a position that the expansion and contraction of the boiler acts independently of the other mechanism, in conjunction with double engines on each side of the boiler, together with four rails to travel upon.

The objects of my improvements are, first, in virtue of the great power obtained from the peculiar construction of my engine and the necessary weight thereof, I support the heaviest part on springs placed at suitable intervals under the boiler; second, to afford facilities for the expansion and contraction at the points of support, which are so constructed that they can be readily removed independently of the other mechanism; third, to afford facilities for the support of the boiler and secure it independently to the main engine-frames. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical side view of the locomotive-engine, showing the supports under the fire-box, with a portion of the coupling-rod broken. Fig. 2 is a top view of the engine, showing the plan of support and cross-bars connecting the side frames of the double engine. Fig. 3 is an end view of the cross-bar at the fire-box door, showing the springs. Fig. 4 is a cross-section through A B. Fig. 5 is a side elevation of boiler at A B, with cross-section of spring-support. Fig. 6 is a cross-section through C D. Fig. 7 is an end view of the cylinder or front end of engine, showing the dovetail arrangement for expansion and contraction. Figs. 8, 9, 10, and 11 are enlarged views of the front end or smoke-box support of the boiler.

Similar letters refer to similar parts through the several views.

The plates E E and the end distant pieces F F constitute the frame to which the supports or cross-pieces A', A<sup>2</sup>, and A<sup>3</sup> are secured by means of the bolts a' a<sup>2</sup> a<sup>3</sup>. The cross-bars A<sup>2</sup> and A<sup>3</sup> have pins D, that carry the coil-springs d and retain them in proper position longitudinally and in the direction of the boiler. Pins R pass through the cross-bars A<sup>2</sup> and A<sup>3</sup> and loosely into the angle-plate P. The angle-plate P forms part of the boiler and moves in the direction of expansion with the boiler, and is placed in proper position so that when removing the boiler from its frame the pins will allow plate P to pass. The holes for pins R in the plate P are oblong in the vertical direction, to allow the spring to move freely, as shown in Fig. 11.

The fire-box cross bar A<sup>3</sup> is provided with springs evenly distributed. The holes in plate P' are made to fit the pins sufficiently loose to allow the vertical motion due to the spring only and hold the boiler rigidly.

The front or smoke-box end of the boiler T is supported in a saddle-frame, H, which is secured to the cross-beam M by bolts f. To the boiler a corresponding sliding frame, O, is riveted by the rivets O', which move at pleasure in the dovetail groove G.

On each side of the two frames E are placed two cylinder-engines, B<sup>3</sup> B<sup>3</sup>, shown in Fig. 1, and end view of Fig. 7. Only one cylinder is shown in Fig. 2, with its connecting-rod a a broken.

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

1. In a locomotive engine and boiler, the combination of the cross-bar A', secured to the side frames, E E, together with the plates P, which have recesses or oblong holes r to allow the action of the spring, and the pin R, secured to the cross-bar A', substantially as described.

2. In a locomotive engine and boiler, the combination of the cross-bar A<sup>2</sup> with frames E E and pin D, with the springs d, together with the pins R, substantially as described and set forth.

3. In a locomotive engine and boiler, the combination of the frames E E and distant

pieces F F with cross-bar A<sup>3</sup>, with its pins D and springs d, and plate P, substantially as described and set forth.

- 5 4. In a locomotive engine and boiler, the combination of the saddle H with the dovetail groove G and sliding piece O, secured to boiler T by the rivets O', and the saddle-bolts ff, fastened to the beam M, substantially as described and set forth.

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

WILLIAM ANDERSON.

Witnesses:

WARD H. LAMON,  
B. F. RICE.