

(No Model.)

2 Sheets—Sheet 1.

E. D. EAMES.

BRAKE FOR RAILWAYS.

No. 354,401.

Patented Dec. 14, 1886.

Fig. 1.

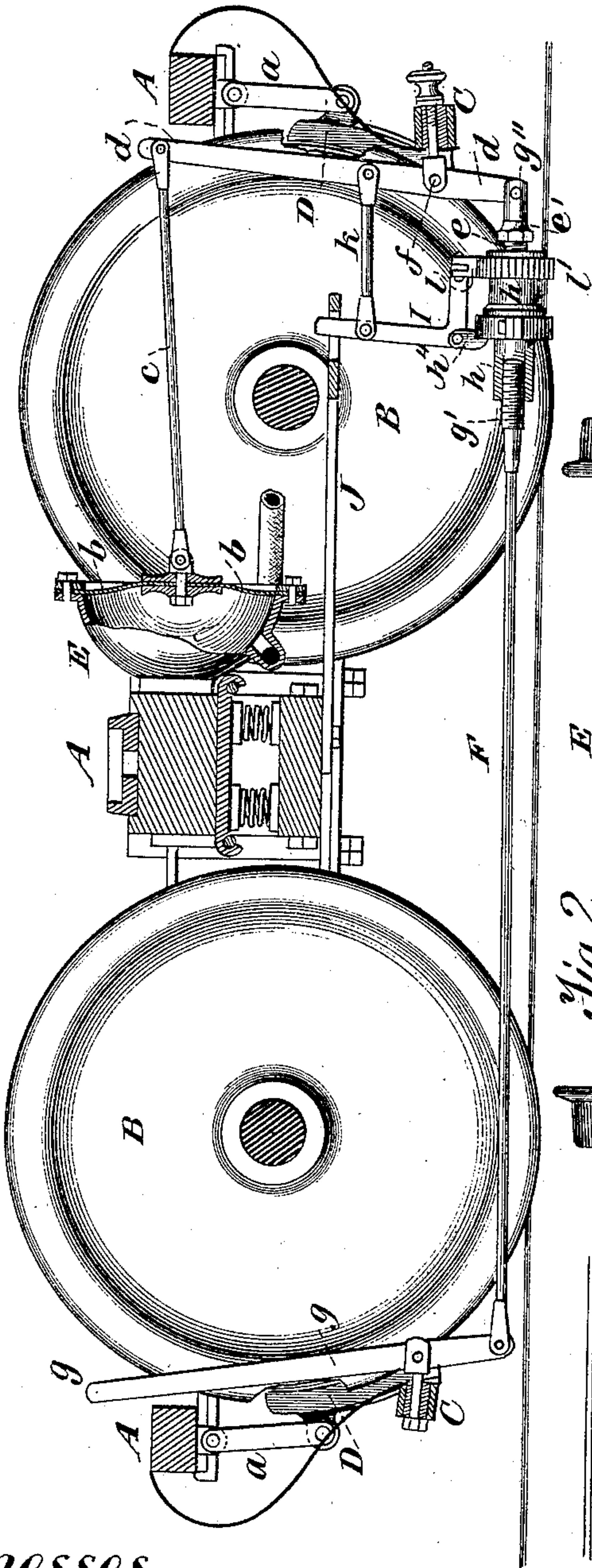
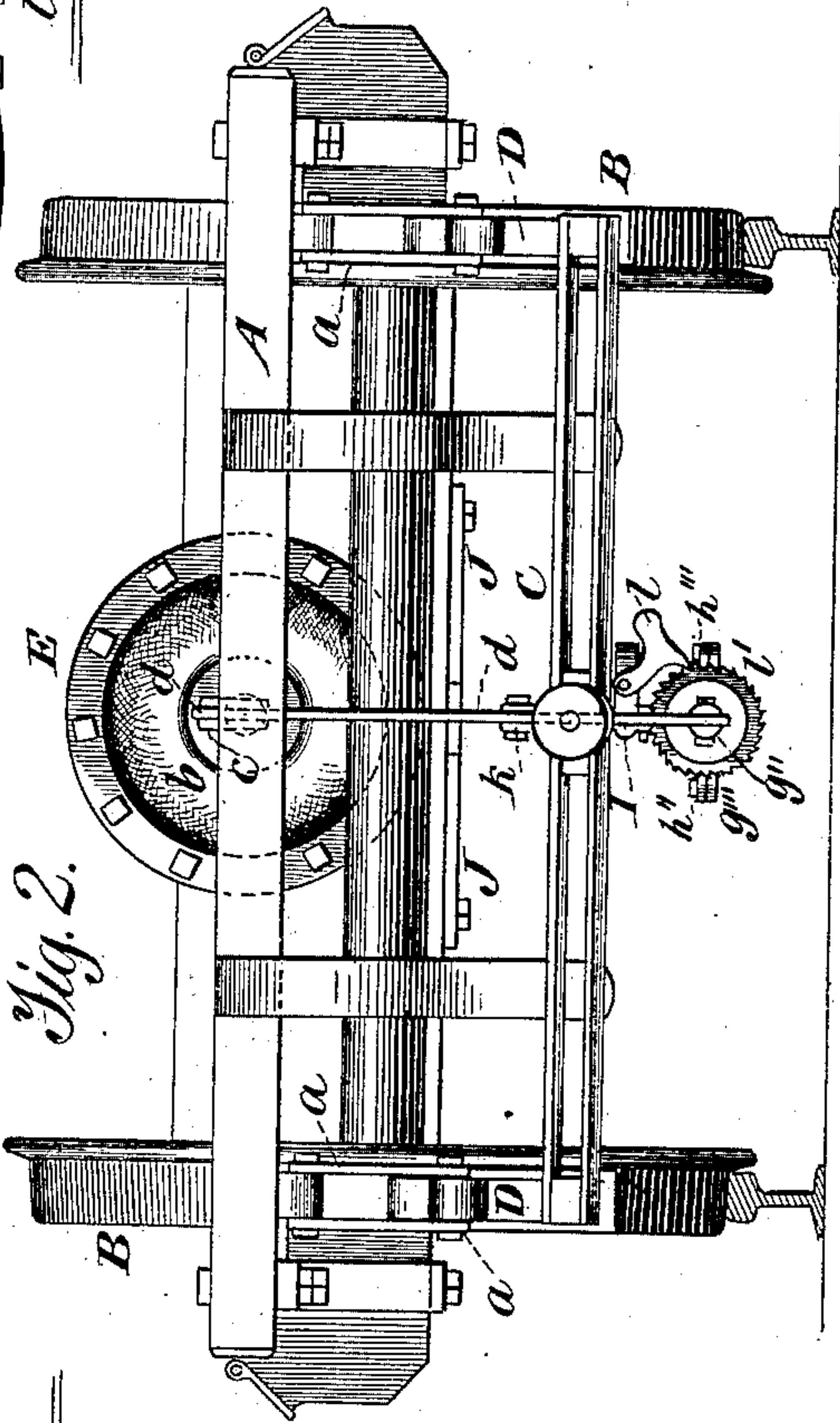


Fig. 2.



Witnesses:
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Inventor:
Elisha D. Eames,

by *W. J. Howard*
Att'y.

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2 Sheets—Sheet 2.

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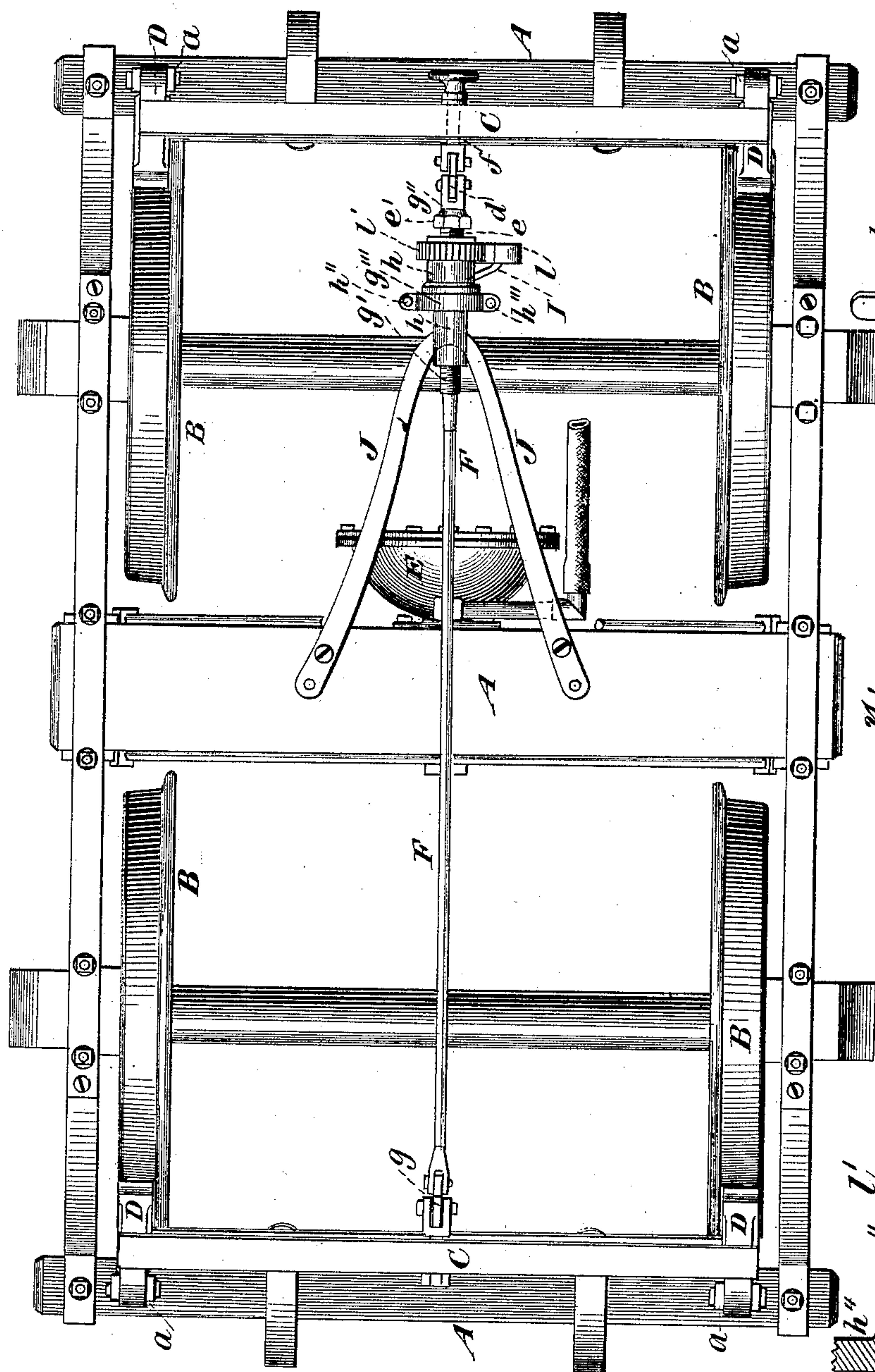


Fig. 3.

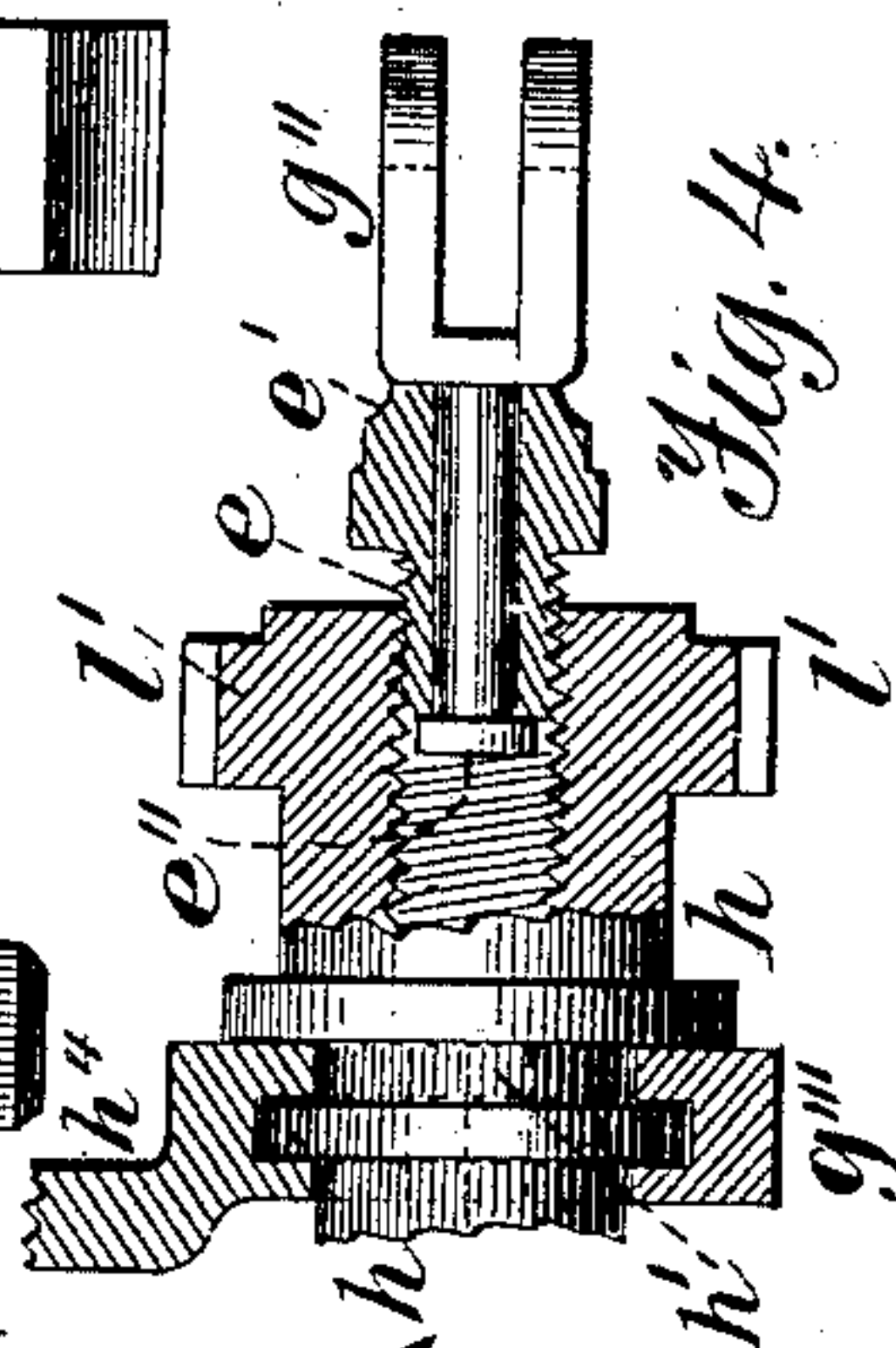
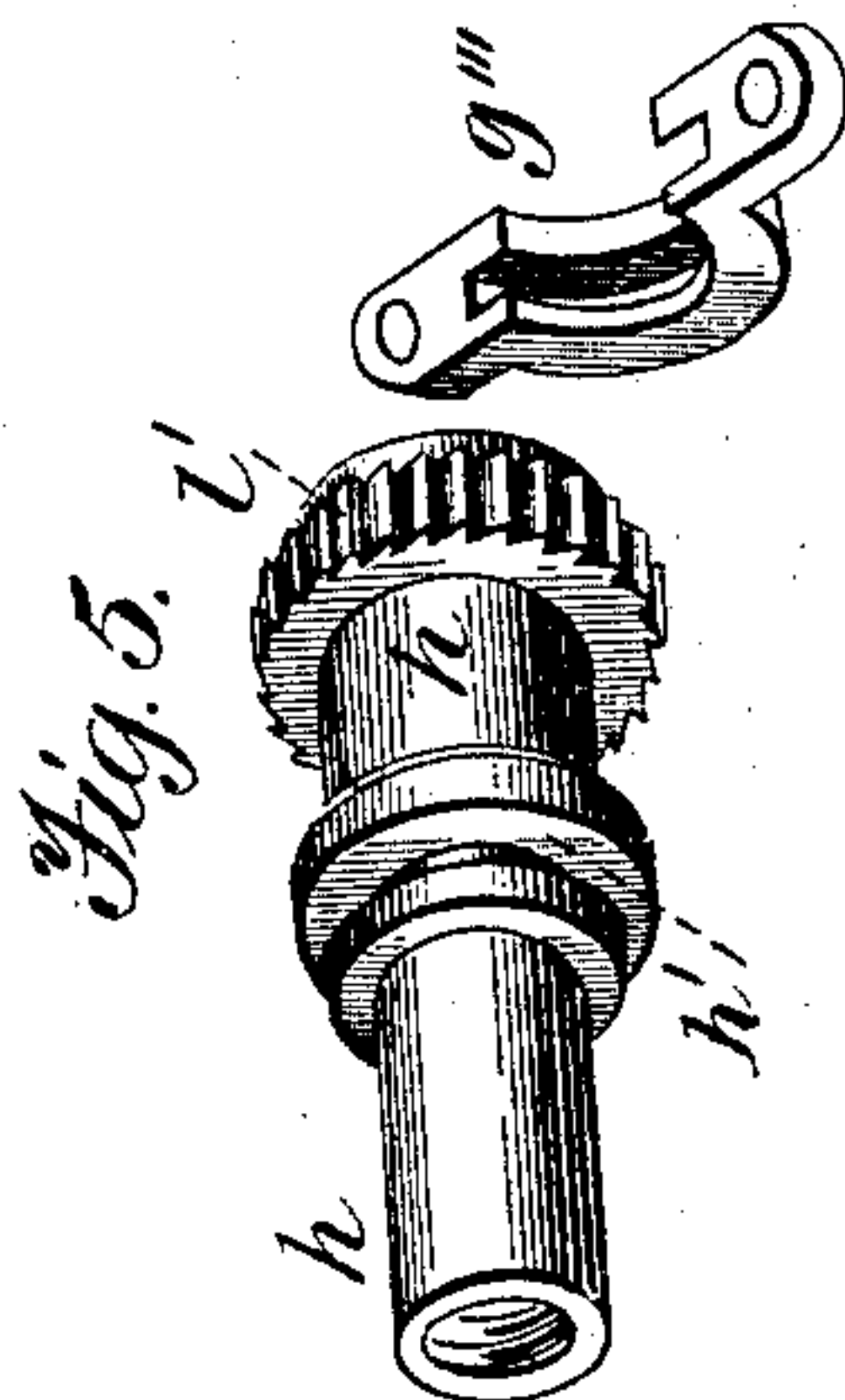
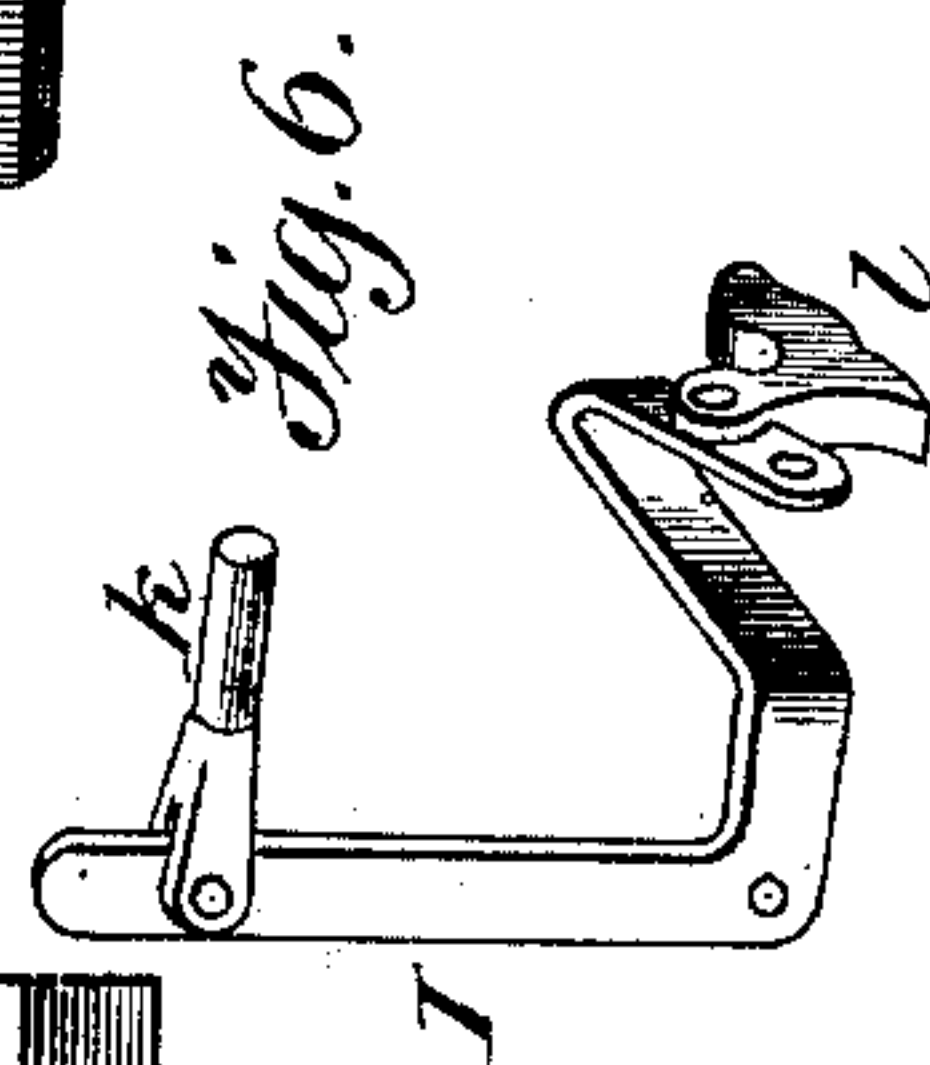


Fig. 4.

Witnesses:
A. Ruppert,
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UNITED STATES PATENT OFFICE.

ELISHA D. EAMES, OF WATERTOWN, NEW YORK.

BRAKE FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 354,401, dated December 14, 1886.

Application filed October 24, 1885. Serial No. 180,805. (No model.)

To all whom it may concern:

Be it known that I, ELISHA D. EAMES, of Watertown, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Brakes for Railways, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention is more particularly adapted for use with a vacuum-brake, and the object of the invention is to automatically take up the wear of the brake-shoes so that they always, when not applied to the wheels, shall stand the same distance from the peripheries of the wheels; or, in other words, so that the same amount of slack shall be always found between the brake-shoe and the wheel.

The effective stroke of the piston or diaphragm of the power brake is calculated to apply the brakes to the wheels with sufficient force when the shoes are new, and the distance that the brake-beam and brake-shoes have to move is reduced as much as possible. The wear of the brake-shoes increases the distance they must be moved to cause them to come in contact with the wheel. This wear, being constant, soon takes up all the stroke of the piston or diaphragm, and the result is that the piston "bottoms" in the cylinder and the shoes will not touch the wheels. It is the duty of the inspector to adjust the slack by turning a swivel-nut or moving the "lazy-lever" forward, or by other means which have been provided for this purpose. Experience shows that this duty is often imperfectly attended to, or omitted entirely, and thus the engineer loses control of his train either partially or wholly. My invention is designed to perform this service automatically, and is so arranged that the least wear of the brake-shoe will be at once taken up when the brakes are released and the same amount of "slack" always maintained between the wheel and the shoe.

In the accompanying drawings, Figure 1 is a longitudinal section of a truck carrying a portion of a vacuum-brake mechanism, together with the improvements constituting the present invention. Fig. 2 is an end view of the truck with the above-named features. Fig. 3 is a plan view. Figs. 4, 5, and 6 are

views in perspective of detached details of the invention.

Similar letters of reference indicate similar parts in the respective figures.

The truck-frame is shown by A and the wheels by B. C are the brake-beams, and D the shoes suspended in the ordinary manner by links *a* from the frame A.

E is the vacuum-chamber, having the flexible diaphragm *b*, to which the rod *c* is attached, having connection with the brake-lever *d*, which latter is pivotally attached to the brake-beam *a'* at *f*.

F is the lower brake-rod, one end of which attaches to the lever *d*, while the other end connects with the lever *g*, which is secured to the brake-beam at the opposite end of the truck. One end of the lower brake-rod, F, is threaded, as shown at *g'*, and upon this threaded portion a long nut, *h*, is mounted. The opposite end of the nut is also interiorly threaded to receive the screw end of the swivel-bolt *g''*. The lower or short arm of the brake-lever *d* attaches to the swivel-bolt *g''*, which is shown in section in Fig. 4. It will be seen that the screw portion *e* is loose upon the bolt proper and held in place between the collars *e'* *e''* of the bolt. About centrally of the length of the nut *h* is a groove, *h'*, (shown in Fig. 5,) which receives a ring, *g'''*, formed in two sections and bolted together at *h''* *h'''*. The ring has at its upper side a jaw, *h⁴*, which serves as a fulcrum of the bell-crank I. The upper end or arm of the bell-crank attaches by a link, *k*, to the brake-lever, *d*. The lower arm of the bell-crank is bent inwardly, as shown in Fig. 6, and upon said bent end is pivoted a pawl, *l*. The pawl engages a ratchet, *l'*, which is formed solidly around the nut *h*. The upper end of the bell-crank I enters a slotted support, J, extending from the under side of the truck.

The operation is as follows: The brake-shoes are first adjusted to give the amount of slack which it is desired to maintain. Power having been applied to the brakes, the upper end of the brake-lever *d* is drawn forward toward the center of the truck as far as the brake-shoes will allow. The bell-crank I, by reason of its connection with the lever *d*, is also drawn forward, which causes its lower arm to be raised and the pawl slightly lifted, but not

enough to catch the ratchet-tooth next above that with which it is engaged. As the brake-shoes are worn, the movement of the lever *d* and bell-crank *I* is increased, and when sufficient movement has been allowed by reason of the wear of the shoes the pawl will be lifted sufficiently to catch the tooth next above, and when the brakes are released the pawl will cause a partial revolution of the nut *h* upon the threaded end of the lower brake-rod, *F*, and the screw end of the swivel-bolt *g''*, by which means the normal position of the brake-levers, and consequently of the diaphragm or piston with which they are connected, is maintained, and the diaphragm or piston will at all times have the same movement, which is, as above stated, just enough to properly bring the shoes in contact with the wheels.

The above operations are entirely automatic. Having described my invention, I claim—

1. In a railroad-brake, the brake-levers, the threaded brake-rod *F*, nut *h*, ratchet *V'*, and strap *g'''*, combined with a swivel-bolt, a pawl carried by the strap, and means for connecting said pawl with a brake-lever, substantially as set forth. 25

2. In a railroad-brake, a brake-rod having two threaded sections, one end forming a swivel, a nut upon said threaded sections of the rod, a ratchet solid with or attached to said nut, a strap fitted loosely around said nut, a bell-crank mounted in said strap, and a pawl pivoted to the bell-crank, all combined with the brake-levers, beams, and power-applying devices, substantially as set forth. 30 35

In testimony whereof I hereunto set my hand and seal.

ELISHA D. EAMES. [L. S.]

Witnesses:

GEO. SMITH,

L. B. STERLING.