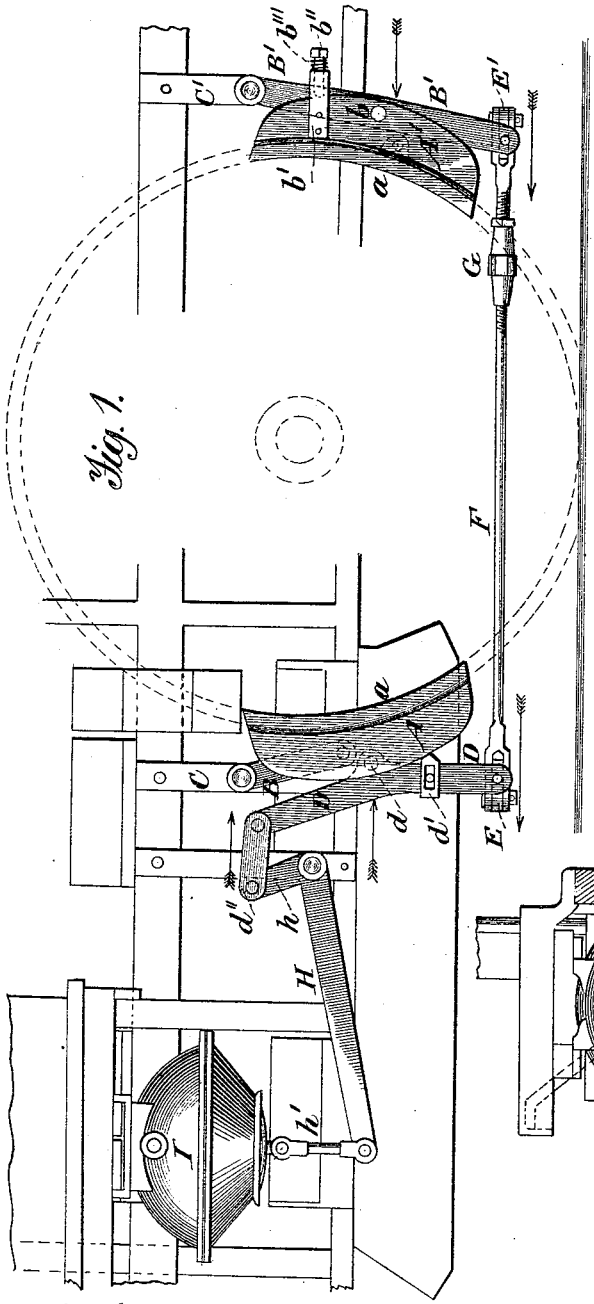
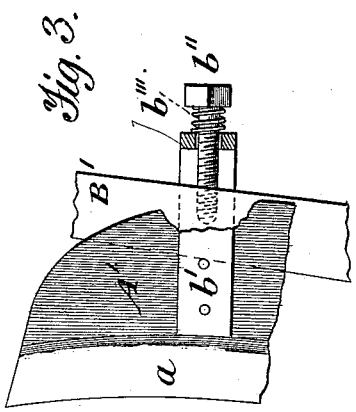
(No Model.)

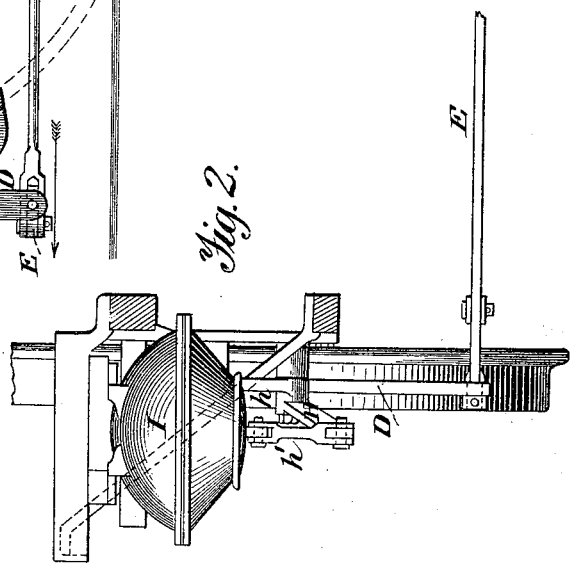
E. D. EAMES.

LOCOMOTIVE BRAKE.

No. 346,364. Patented July 27, 1886.







Witnesses:
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UNITED STATES PATENT OFFICE.

ELISHA D. EAMES, OF WATERTOWN, NEW YORK.

LOCOMOTIVE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 346,364, dated July 27, 1886.

Application filed February 16, 1886. Serial No. 192,149. (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 Locomotive-Engines, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of my invention is to equalize the power applied to the brake-shoes on opposite sides of the wheels of a locomotive-engine; and the invention consists in the construction and arrangement of a system of levers hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a side view of a portion of a switching engine or locomotive having my invention applied thereto. Fig. 2 is an end view showing the application of the invention to one wheel. Fig. 3 is an enlarged view of a detail.

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

A A′ are brake heads or blocks, to which the brake-shoes *a* are attached by any suitable means. The brake-head A is suspended by a wrought-iron hanger, B, at a point nearly central of said brake-head, the upper end of the hanger being pivoted to a support, C. The brake-head A′ is suspended by a hanger, B′, at a point, *b*, centrally of the brake-head, and also of the hanger, the upper end of said hanger being pivoted to a support, C′.

D is a lever centrally pivoted at *d* to the center of the brake-head A. The lower end of the lever D extends below the lower end of the brake-head A, and is attached to a beam, E, extending across the engine to a duplicate lever attached to the brake-head of the opposite wheel.

The lower end of the hanger B′, which extends below the brake-head A′, is also connected to a beam, E′, extending across to a duplicate hanger on the other side. The system of brake mechanism and levers is the same on both sides of the locomotive. The two beams E E′ are connected by means of a rod, F, in two sections, provided with right and left threads, and a nut, G, for the purpose of adjusting the brake-shoes as they are worn out, and regulating the amount of slack. The slotted slide or keeper *d′* on the lever D is adjustable, and serves to keep each end of the brake-shoe an equal distance from the periphery of the wheel. On the other side of the wheel the hanger B′ performs the same function as the lever D in so far as it serves to apply the brake-shoe to the wheel. This hanger or lever being suspended from the top instead of the center, it will be seen that such a keeper as that *d′* cannot be used; for as the lower end of the hanger B′ is drawn toward the wheel it moves faster than the shoe A′, and describes the arc of a circle of which its upper end is the center. I therefore on this side of the wheel (see the enlarged view, Fig. 3) place a keeper, *b′*, above the center of the block A′, the keeper being firmly secured to the block. A set-screw, *b″*, passes loosely through a hole in the keeper *b′*, and is screwed into the hanger B′. A coiled spring, *b‴*, surrounds the screw between its head and the keeper *b′*, and by its elasticity keeps the top of the block A′ in proper position. The top of the lever D is connected, by means of a link or links, *d″*, to the short arm *h* of the bell-crank H. The long arm is attached by means of the link *h′* to the diaphragm of the vacuum-chamber I.

I may employ air or steam as a motive power, instead of a vacuum; or the vacuum-chamber may be placed in a different position, which would require a somewhat different mode of connecting the lever D with the motive power.

The operation is as follows: Supposing the air to be exhausted from the vacuum-chamber, the diaphragm is forced up, by the external atmosphere with a pressure of, say, one thousand pounds, thus carrying up, by means of the link *h′*, the long arm of the bell-crank H. The arms of this crank, bearing the relation to each other of, say, five to 1, will, by means of the link *d″*, force the upper end of the lever D forward with a pressure of five thousand pounds, thereby giving a pressure on the brake-head of ten thousand pounds, and a back-pressure on the lower end of the lever D of five thousand pounds, which is transmitted by means of the rod F to the lower end of the hanger B′, thus giving a pressure of ten thousand pounds to the brake-head A′, which is equal to the pressure applied to the brake-head A.

I have only described the application of the

brakes to each side of one pair of wheels; but the same system of levers is applicable to two or more pairs of wheels.

Having described my invention, I claim—

1. The combination, with the brake-shoes of a locomotive-wheel and the source of the brake-applying power, of a lever centrally pivoted to one of the brake-blocks, and connected at its upper end by a suitable system of levers to the source of power, and at its lower end by suitable connections to the center of the opposite brake-block, whereby equal pressure is applied to both brake-shoes of the same wheel, substantially as specified.

2. The brake-blocks A A′, hangers B B′, adjustable connecting-rod F, lever D, and the adjustable keepers *d′ b′*, combined with a source of brake-applying power suitably connected with the lever D, substantially as set forth.

In testimony whereof I hereunto set my hand and seal.

ELISHA D. EAMES. [L. S.]

Witnesses:
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