

G. WESTINGHOUSE, Jr.
Car-Brakes.

No. 147,212.

Patented Feb. 3, 1874.

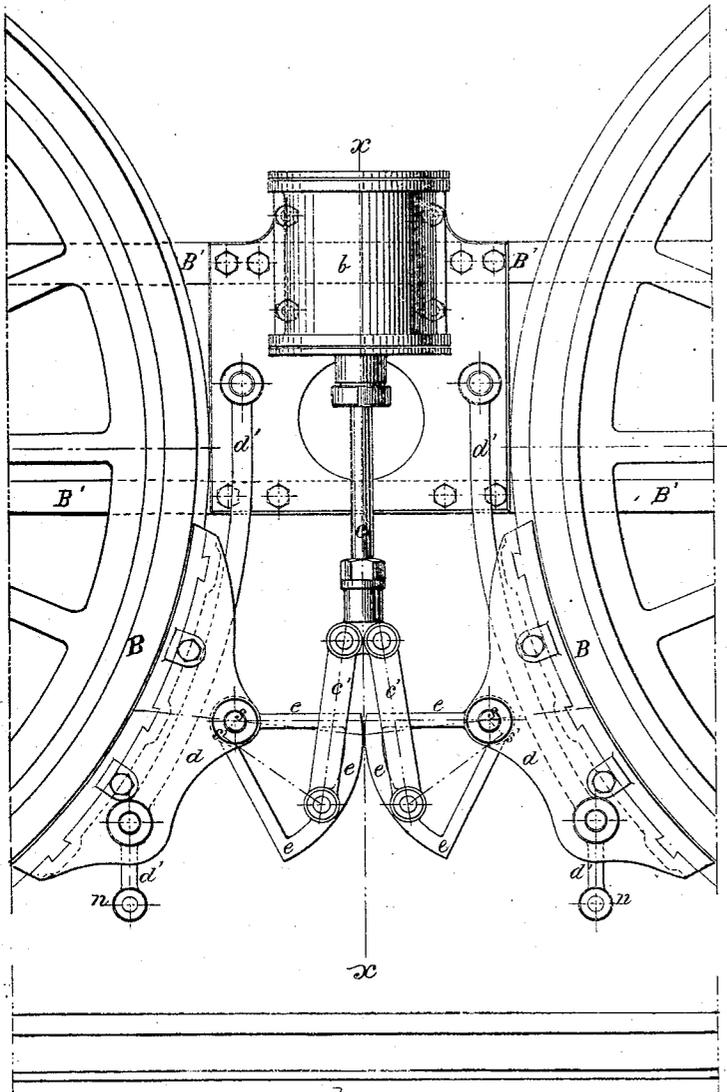


Fig. 1.

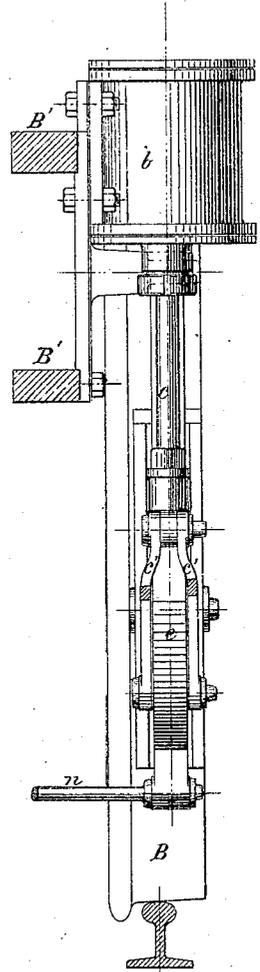


Fig. 2.

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Maxim Lutz
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 by *G. H. Christy*
 his atty-

UNITED STATES PATENT OFFICE.

GEORGE WESTINGHOUSE, JR., OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN CAR-BRAKES.

Specification forming part of Letters Patent No. **147,212**, dated February 3, 1874; application filed December 27, 1873.

To all whom it may concern:

Be it known that I, GEORGE WESTINGHOUSE, Jr., of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Railway Fluid-Pressure Brakes; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a side elevation of my improved brake apparatus, illustrative of its application to the driver-wheels of a locomotive; and Fig. 2 is a sectional view thereof through *x x* of Fig. 1.

Like letters of reference indicate like parts of each.

My invention, though applicable to revolving wheels generally for breaking purposes, is particularly adapted and designed for use in connection with the driver-wheels of locomotives, especially when such wheels (on the same side of the locomotive) are comparatively near each other, so near in fact that it is difficult, impossible, or inconvenient to apply thereto the system of brake-levers described in patent to me of October 28, 1873, No. 144,005.

The ordinary drive-wheels of a locomotive-engine are shown at B B, and B' indicates portions of the frame-work of the locomotive. The brake-blocks or shoes *d* and hangers *d'* are of like construction and operation as in the patent last named; as also the brake-cylinder *b* and the stem *c* of the piston therein. To the brake-shoes *d* I pivot the eccentric-faced segment-levers *e e* in such position that their circular or curved faces or peripheries shall work against each other, or against any desired block or other device placed between them. At any desired points in the direction of the lengths of their curved peripheries, and preferably near the lower ends of the same, I pivot, as shown in the drawings, the connecting rods or stirrups *e'*, which, at their opposite and upper ends, are jointed to the lower end of the piston-stem *c*. The segment-levers *e* are somewhat eccentric, their working faces at the lower ends being somewhat farther from the center of motion than such faces are

at their upper ends. In the drawings, *s* indicates the center of motion in each, and *s'* the center of curvature, by which the eccentricity is secured. The amount of this eccentricity may be varied at pleasure, in accordance with well-known rules.

The devices which I have called segment-levers *e e* might properly be described, as in fact they constitute mechanically a toggle-joint, and by their use in the construction set forth, I secure the ordinary advantages of the toggle-joint, along with a uniform, or nearly uniform, application of the power at all points of the stroke, until the brake-shoes or brake-blocks are worn entirely away.

Where the distance between the drivers B B is too small to admit of the introduction and use of both the segment-levers *e e*, one only may be used, pivoted to one of the brake shoes or blocks *d*, with one connecting-rod, *e'*, extending to the piston rod or stem *c*, and with its eccentric face working against a friction-roller pivoted to the other brake block or shoe at *s*.

The apparatus described is used on both sides of the locomotive in the manner herein set forth, and the opposite brake blocks or shoes are connected together by tie-rods *n*, as set forth in Patent No. 144,005.

In operation, the piston in the brake-cylinder *b* may receive its motion upwardly in applying the brakes, either from compressed air or steam admitted below the piston, or the air being exhausted above the piston by means of the well-known steam or air jet, from atmospheric pressure operating also below; and with reference to one or another of the said modes of operation, the locomotive should be fitted up with the proper appliances, as set forth in Patent No. 144,005, or other suitable known apparatus for effecting the operation desired; also, hydraulic pressure may be employed under the piston, in connection with an air-chamber for securing the desired elasticity of operation; and the segment-levers may receive the motion required in operating the brakes by means of any suitable hand apparatus.

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

1. A segment-lever, *e*, having an eccentric face, in combination with the brake-shoe to which it is pivoted, substantially as set forth.

2. The segment-levers *e e*, having in their working faces the eccentricity desired for giving the required motion to the brake-shoes, pivoted to and in combination with the brake-shoes, and operative in applying the brakes, substantially as set forth.

3. One or more segment-levers, *e*, with suit-

able connections to and in combination with a piston, *c*, and brake-cylinder *b*, substantially as set forth.

In testimony whereof I, the said GEORGE WESTINGHOUSE, Jr., have hereunto set my hand.

GEO. WESTINGHOUSE, JR.

Witnesses:

JOHN D. MORELAND,
G. H. CHRISTY.