(No Model.)

H. G. BIRD. CAR BRAKE.

No. 443,665.

Patented Dec. 30, 1890.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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UNITED STATES PATENT OFFICE.

HORACE G. BIRD, OF CHICAGO, ILLINOIS.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 443,665, dated December 30, 1890.

Application filed October 11, 1890. Serial No. 367,767. (No model.)

To all whom it may concern:

Be it known that I, HORACE G. BIRD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois,

5 have invented a new and useful Improvement in Car-Brakes, of which the following is a specification.

My invention, inasmuch as it involves a species of toggle-joint connection between a

10 brake-operating lever and the brake, relates to an improvement in the class of car-brakeoperating mechanism involving a toggle-joint connection with the brake-beam operated to force the brake-shoe against its wheel by

15 straightening the toggle-joint and to release the shoe from the wheel by bending the toggle-joint out of a straight line.

The objects of my invention are to provide a particularly effective and simple construc-

- 20 tion of mechanism in the class and for the purpose stated, to provide with such species of mechanism for the simultaneous application from a single point of operation of brakeshoes to opposite sides of the wheels of a truck
- 25 and also for their release from a single point of operation, to enable all the brake-shces for both sides of the wheels of a truck to be actuated by lever mechanism having a common fulcrum, and to provide an improved con-
- 30 struction as to details and combinations of parts of such a toggle-joint species of brakeoperating mechanism.

In the accompanying drawings, Figure 1 is a bottom plan view representing a car-truck

35 provided with my improved brake mechanism; and Fig. 2, a view of the same in side elevation, partly broken.

A represents a car-truck, with two pairs of wheels r and q on their axles p. Between

- 40 the pairs of wheels r and q from near opposite sides of the truck-frame o depend brackets n, in which near their lower ends is journaled a fulcrum-rod B near its opposite extremities. At the inner side of each bracket
- 45 *n* a lever C is firmly secured near its lower end to the rod B, the latter thus forming a common fulcrum for both levers C, which should extend in their upward direction slightly inward or toward the longitudinal
- 5° center of the truck. The purpose of the rod B would be subserved, if it were divided, to leave only its journaled end portions forming the fulcrums for the levers C, thereby remov-

ing the intermediate portion of the rod from obstructing the space between trucks.

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To each lever C, above the fulcrum B, are pivoted, preferably to a common center, but at opposite sides of the lever, two rods D and D', the rods D extending across the inner surfaces of the wheels r beyond the outer por- 60 tions of the peripheries thereof, and being there connected with a brake-beam m, carrying the brake-shoes F, which may be supported in the usual manner, and the rods D'extending toward the inner portions of the 65 peripheries of the wheels q, where they are respectively connected directly with the heads of the brake-shoes F', supported like the brake-shoes F. To each lever C, below the fulcrum B, are pivoted, like the rods D and D', 70 rods E and E', the two former extending across the inner surfaces of the wheels q beyond the outer portions of their peripheries, and being there connected with the brake-beam l, carrying the brake-shoes G, and the two latter ex- 75 tending toward the inner portions of the peripheries of the wheels r, where they are respectively connected with the brake-shoes G' at the brake-heads thereof. The fulcrum-rod B is provided with a weighted arm H, render- 80 ing the rod eccentrically weighted to maintain the brakes normally "off.'

I is an equalizing device beyond one end of the truck, and comprising the bar k, connected from its opposite ends by the rods h or analogous means with the levers C near their upper ends, and the bar i, pivotally supported at x and connected with the bar k by a link g, and from its opposite ends by a suitable form of connecting medium (indicated at f) 90 with the brake-spindles or other form of initial brake-operating means at opposite ends of the car.

From the foregoing description the operation will be readily understood to be as fol- 95 lows: Strain against the levers C in the positions relative to other parts, in which they are illustrated, (or, for that matter, a strain exerted against either of the levers,) and exerted in the proper direction, which would be 100 against the resistance of the weighted arm H or of any mechanical equivalent thereof, will obviously press the brake-shoes G' and F' and pull the brake-shoes G and F against the peripheries of the respective wheels, and the 105 curve which the pivotal centers c, Fig. 2, of

the rods connecting the brake-shoes with the levers C is thus caused to describe tends to straighten the species of toggle-joints formed, respectively, by the rods D D' and E E', caus-5 ing the rods D' and E' to exert the greater endwise pressure by shortening their radii from the centers c' and the rods D and E to exert the greater endwise pressure in the opposite

- but pulling direction by the tendency of the 10 strain on the levers C to increase the distance between the centers c and the centers c^2 , Fig 1, or respective points of connection between the brake-shoes F and G and rods D and E. With the release of the operating
- 15 strain the weighted arm II operates by its gravity to turn the fulcrum-rod B in the opposite direction, thereby returning the parts to their relative normal positions illustrated and effecting release of the brakes.
- The foregoing description, for the sake of 20 clearness, accurately sets forth the details of the construction involving my improvement as they are illustrated in the drawings. I do not, however, wish by reason of such detailed
- 25 explanation to be understood as limiting my invention to the same, for various changes which would suggest themselves to those skilled in the art to which my improvement relates may be made without thereby form-30 ing a departure from my invention. Thus,
- for example, instead of providing one lever C and the rods connected with and controlled through its movement at each side of the truck, a single lever with suitable connections 35 may be provided and supported in the verti-
- cal position shown or otherwise at or near the longitudinal center of the truck. Besides, I do not limit my improvement to the application of the brake-shoes to opposite sides
- 40 of the wheels, nor to the mechanical means shown and described, as affording the medium through which to exert strain on the lever or levers C, since any means including mechanism adapted to be worked by air-pressure may
- 45 be employed. Furthermore, it will be noticed that the shoes F' and G' are supported without brake-beams, while the shoes F and G are on the brake-beams m l. Such brake-beams may be provided for the first-named shoes, or
- 50 may be entirely omitted from all the shoes. It is also quite obvious that my improved system of brake mechanism may be extended by multiplying the connections between the lever or levers C and the brake-shoes to the 55 wheels of trucks having more than two pairs
- of wheels.
 - What I claim as new, and desire to secure by Letters Patent, is-
- 1. In combination with a car-truck, brake 60 mechanism having a fulcrum-rod B, journaled in horizontal position and carrying near its opposite ends levers C, an equalizing device I at one end of the truck, comprising a bar k, connected from its opposite ends with the
- 65 said levers, and a pivotal bar i, connected from one side of its pivot by a link g with the bar k, and having the connections f leading |

in contrary directions from its opposite ends to suitable actuating means, brake-shoes supported adjacent to the wheels, rods pivotally 70 connected at corresponding ends with the levers, respectively, on opposite sides of their common fulcrum and at their opposite ends directly with the brake-shoe supports, and means normally controlling the levers to re- 75 lease the brakes, substantially as described.

2. In combination with a car-truck, brake mechanism having a stationary fulcrumed lever and connected from one side of its fulcrum with suitable brake-actuating means, 80 brake-shoes supported adjacent to the wheels at opposite peripheral sides thereof, rods D and E, connecting the outer brake-shoes from their supports with the lever at opposite sides of its fulcrum, rods D' and E', similarly 85 connecting the inner brake-shoes from their supports with the lever, whereby all the brakeshoes are simultaneously operative from a common lever, and means normally controlling the lever to release the brakes, substan- 90 tially as described.

3. In combination with a car-truck, brake mechanism having a fulerum-rod B, journaled in horizontal or substantially horizontal position, and carrying near its opposite 95 ends levers C, connected from corresponding ends with suitable brake-actuating means, brake-shoes supported adjacent to the wheels at opposite peripheral sides thereof, rods D and E, connecting the outer brake-shoes from 100 their supports with the levers, respectively, at opposite sides of their common fulcrum, rods D' and E', similarly connecting the inner brake-shoes from their supports with the levers, and means normally controlling the le- 105 vers to release the brakes, substantially as described.

4. In combination with a car-truck, brake mechanism comprising a fulcrum-rod B, carrying a lever C near each end, an equalizing 110 device I at one end of the truck, comprising a bar k, connected from its opposite ends with the levers, and a pivotal bar i, connected from one side of its pivot by a link g with the bar k, and having the connections f lead-115 ing in contrary directions from its opposite ends to suitable actuating means, brake-shoes F G and F' G', supported adjacent to the wheels, respectively, at opposite peripheral sides thereof, rods D and E, pivotally con- 120 necting the outer brake shoes F G from their supports with the levers, respectively, at opposite sides of their common fulcrum, rods D' and E', similarly connecting the inner brakeshoes F' G' from their supports with the le- 125 vers at the respective pivots thereon for the outer brake-shoes, and means normally controlling the levers to release the brakes, substantially as described.

HORACE G. BIRD.

In presence of— J. W. DYRENFORTH, M. J. FROST.

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