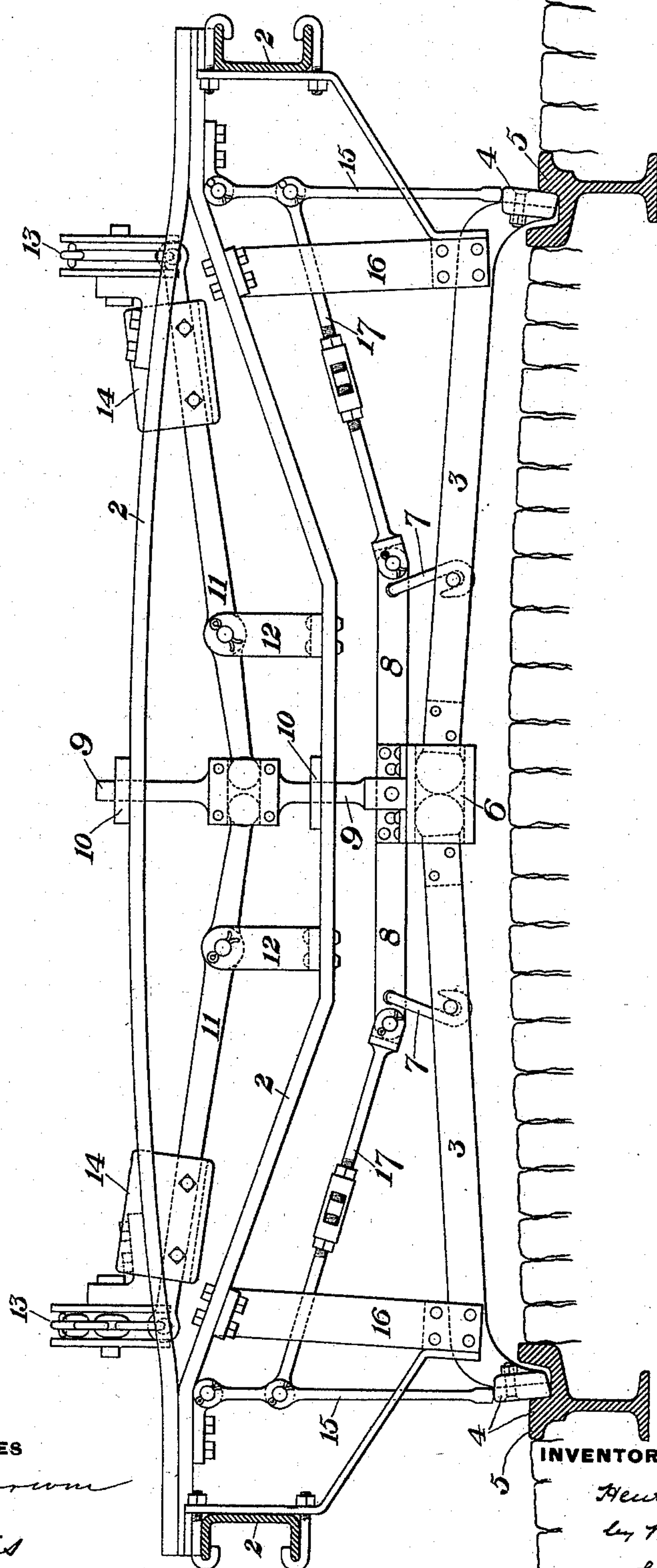


(No Model.)

H. E. BOYD.
RAIL BRAKE FOR CARS.

No. 535,570.

Patented Mar. 12, 1895.



WITNESSES

St. M. Corwin
C. Byrnes

INVENTOR

Henry E. Boyd
by T. Baker & Son
his attorneys.

UNITED STATES PATENT OFFICE.

HENRY E. BOYD, OF McKEESPORT, PENNSYLVANIA.

RAIL-BRAKE FOR CARS.

SPECIFICATION forming part of Letters Patent No. 535,570, dated March 12, 1895.

Application filed October 16, 1893. Serial No. 488,205. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. BOYD, of McKeesport, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Car-Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, in which the figure represents a front elevation of my improved track-brake.

The object of my invention is to improve the construction of that class of track-brakes for cars in which the brake-shoe, instead of pressing vertically down upon the rail, is pressed laterally against the side, so that the necessary friction will be created without tendency to lift the car from the track.

My invention consists in improved mechanism for holding and operating such brakes; and also in the combination with a laterally acting brake, of a down-holding device, adapted to prevent its upward displacement.

In the drawing, 2 represents a frame-work forming part of the structure of the car-truck.

3, 3, are brake-bars which project outwardly and have at their ends shoes 4, adapted to bear against the sides of the heads of the rails 5. These bars are in effect toggle-levers, being pivotally connected at their inner ends to a vertically movable head or holder 6, and being supported at intermediate portions by hangers or links 7, from arms 8 which extend laterally from said holder.

The head or holder 6 has a post or stem 9 set in vertical guide boxes 10, and adapted to be moved upward by levers 11, which, pivoted to standards 12 on the frame 2, are connected at their inner ends to the post or stem 9, and at their outer ends are connected by chains 13 to the brake-levers or brake-shafts on the car. When the chains 13 are drawn, they will elevate the outer ends of the levers 11, and through said levers will depress the stem 9 and holder 6. The depression of said holder 6 will first lower the brake-bars until the shoes 4 come into contact with the surface of the rail, and then, by depressing the inner ends of the bars, will cause them to act as toggles, and, straightening into line with each other, to press laterally against the sides of the rails with a degree of force proportioned to the power exerted upon the brake-shaft or lever.

During such braking action, the bars 3 are braced by lateral bearing against braces 16 which depend from the frame 2, and the outward motion of the bars is permitted by the pivotal action of the hangers. The bars 3 are, however, not fixed to the braces, but bear slidably against the same.

To release the brake, the brake-shaft or lever is operated in the reverse direction so as to slacken the chains 13, whereupon the levers 11 will be depressed by the action of weights (or springs) 14, and will raise the holder 6, thus first raising the inner end of the brake-bars and relieving the lateral pressure of the brake-shoes upon the rail, and then raising the brake-shoes up from the rail.

The successive release of pressure of the brake-shoes and their lifting from the rails, I secure by connecting the hangers 7 to the bars 3 by hooks depending from the ends of the hangers, which engage pins on the bars, these hooks permitting the holder 6 to rise a short distance before the lifting of the bars from the track begins.

The ends of the hangers 7 may be provided with slots instead of hooks, though I deem the hooks to be preferable because of the facility which they afford for detaching and removing the brake-bars when the shoes need repair.

Instead of connecting the ends of the bars 3 to the holder 6 by means of pivot pins, I prefer to set them with their ends abutting against each other in a transverse box in said holder so that they shall be capable not only of pivotal motion, but also of a longitudinal sliding motion therein. The consequence is that when the car passes around curves of the track, the brake-bars by sliding within the box will automatically adjust themselves to the varying distances between the middle point of the car and the rails, but are held from undue displacement by the restraining action of the hangers 7, which are inclined in opposite directions.

The outward pressure of the brake-shoes on the rails tends to displace the shoes upwardly and to disengage them from the track. To prevent this I employ a downholder consisting preferably of swinging arms 15, pivoted to the truck-frame 2, and adapted, when hanging in normal position, to engage the brake-

shoes and to prevent them from rising. These arms 15 are connected by links 17 to the head or holder 6 or to the arms 8 thereof, so that when the head or holder 6 is raised in the act of freeing the brakes, the connection of the parts 8 and 17 will cause the arms 15 to swing outwardly sufficiently to clear the brake-shoes, and to permit them to be raised from the track; but when the holder is again depressed in the act of braking, the arms will be drawn back so as to engage and hold the shoes as above explained.

Although I have illustrated what I deem to be the best and most desirable form of applying my invention to practice, it should be understood that I do not intend to limit my broader claims thereto, since many other arrangements and constructions will be suggested to those skilled in the art for embodying the principles of my invention.

I claim—

1. In a track-brake, the combination of laterally extending brake-bars, having shoes adapted to engage the sides of the track-rails, a head or holder to which said bars are pivotally connected and which is adapted to move the bars vertically to engage the rails and to move them laterally after they have engaged the same; substantially as described.

2. In a track-brake, the combination of laterally extending brake-bars connected in the manner of toggle-levers, said brake-bars having shoes adapted to engage the sides of the track-rails, a head or holder to which said bars are pivotally connected and which is adapted to move the bars vertically to engage the rails and to move them laterally after they have engaged the same; substantially as described.

3. The combination of the brake-bars, a vertically movable holder or box in which their ends abut and in which they may slide, and means for moving said holder vertically; substantially as described.

4. In a track-brake, the combination of laterally extending brake-bars, having shoes adapted to engage the sides of the track rails, a head or holder to which said bars are pivotally connected and which is adapted to move the bars vertically to engage the rails and to move them laterally after they have engaged the same, said bars being movable lengthwise to adjust themselves to the track; substantially as described.

5. In a track-brake, the combination of brake-shoes, and brake-bars for causing them

to press against the sides of the rails, a vertically moving head for operating said bars, and a loose connection between said head and the brake-bars, whereby after the shoes are relieved of pressure they are raised from the track; substantially as described.

6. The combination of brake-bars, a head or holder to which they are connected in the manner of toggle-levers, and hangers also connecting the brake-bars with the head or holder; substantially as described.

7. The combination of brake-bars, a holder or head to which they are connected in the manner of toggle-levers, and hangers also connecting the brake-bars with the holder or head, said hangers being adapted to permit longitudinal motion of the brake-bars; substantially as described.

8. In a track-brake, the combination of laterally extending brake-bars, having shoes adapted to engage the sides of the track rails, a head or holder to which said bars are pivotally connected and which is adapted to move the bars vertically to engage the rails and to move them laterally after they have engaged the same, mechanism for moving said head or holder in one direction, and a weight for moving them in the opposite direction; substantially as described.

9. In a track-brake, the combination with brake-shoes and mechanism for pressing them against the sides of the rails, of a down-holder for the brake-shoes, and mechanism for automatically engaging and releasing the same before and after the pressure of the shoes against and their release from the rails respectively; substantially as described.

10. In a track-brake, the combination of the toggle brake-bars and brake-shoes, a head or holder in which the ends of the bars abut, mechanism for moving the head or holder vertically, hangers connecting the brake-bars with the head or holder and adapted to permit preliminary free motion of the same, downholder arms, and operating mechanism connecting the same with the head or holder, and adapted to move them into engagement after engagement of the brake-shoes with the rails; substantially as described.

In testimony whereof I have hereunto set my hand.

HENRY E. BOYD.

Witnesses:

THOMAS W. BAKEWELL,
W. B. CORWIN.