No. 607,854. Patented July 26, 1898.

C. F. HUNTOON.

BRAKE CONNECTION ROD.

(Application filed Dec. 30, 1897.)

(No Model.)

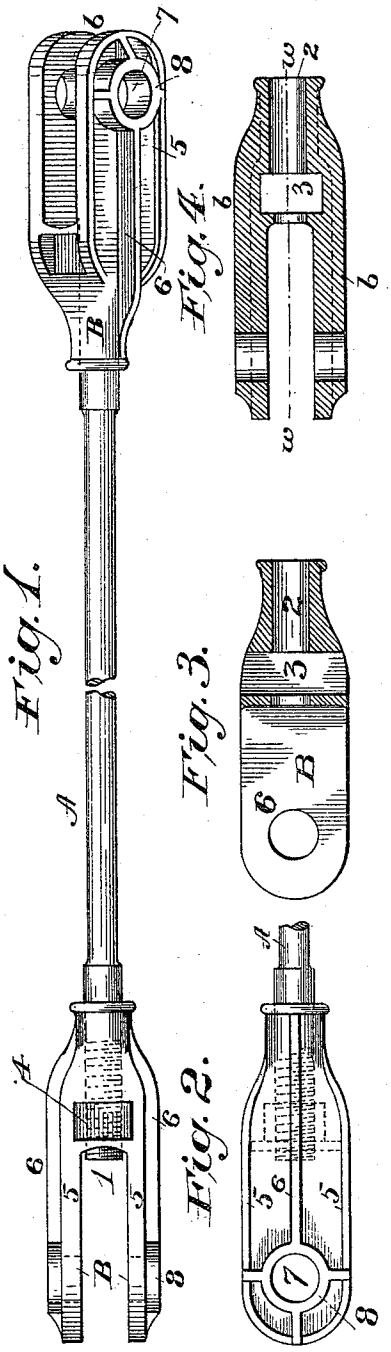


Fig. 1.

Fig. 4.

Fig. 3.

Fig. 2.

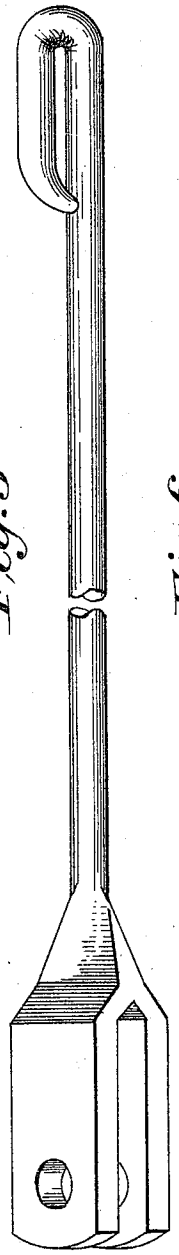


Fig. 5.

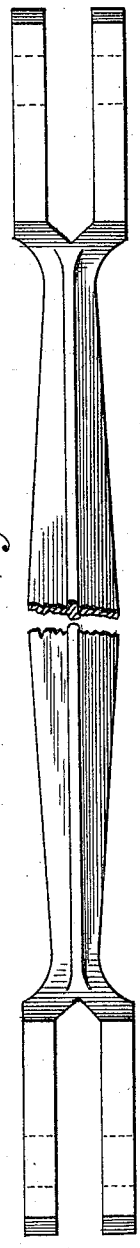


Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES FRANCIS HUNTOON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE CHICAGO RAILWAY EQUIPMENT COMPANY, OF SAME PLACE.

BRAKE CONNECTION-ROD.

SPECIFICATION forming part of Letters Patent No. 607,854, dated July 26, 1898.

Application filed December 30, 1897. Serial No. 664,687. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FRANCIS HUNTOON, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Brake Connection-Rods; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a view in elevation of a connection-rod embodying my invention broken away at the center. Fig. 2 is a side view of one of the jaws and a portion of the rod which connects the two jaws of the rod, the dotted lines indicating the means by which the jaws and rod proper are adjustably connected. Fig. 3 is a longitudinal central section of the jaw on the line *w w*, Fig. 4. Fig. 4 is a longitudinal central section of the jaw at right angles to the section shown in Fig. 3. In addition to the foregoing figures, which illustrate my invention, I have added to the drawings Fig. 5, which is a view in elevation of the forged brake connection-rod now in use, and Fig. 6, which is a view of the malleable cast-metal rod now in use and known as the "Master Car-Builders' standard."

Like symbols refer to like parts wherever they occur.

My invention relates to the construction of that class of devices commonly termed "brake connection-rods" and to the means of securing a strong connection between the rod proper and the jaws of the rod wherein the brake-levers are pivoted.

In this class of devices the jaws at opposite ends of the rod are commonly set in different planes and vary in different arrangements of brake-rigging.

In the application of air-brakes to railway-cars in order to get the full efficiency of the brake it has been found necessary in practice to so construct the foundation-gear (levers, connections, &c.) that the wear in the working parts will be as little as possible, as all loose motion accumulated through wearing of parts seriously affects the working or operation of the air-brakes by increasing the travel of the piston and decreasing the power and quick action of brakes. This is of such importance the Master Car Builders Association has adopted standards, which are shown in Figs. 5 and 6 of the accompanying drawings. The requirements of air-brake connection-rods are that they be absolutely accurate as to length from center to center of connection pin-holes, of certain recommended dimensions to give desired tensile strength, and to have certain thickness of metal at pin-holes to avoid wear of pins and jaws in holes.

The present method of making these connections is either to cast them solid in one piece or forge the jaws of two pieces of wrought material and weld them solidly to a rod, making the connection one solid piece. (See Figs. 5 and 6.) The cast connections can only be used for short bottom or truck connections and are exceedingly clumsy and heavy in order to get sufficient strength. The objections to forged rods (see Fig. 5) are, first, the jaws, in order to get sufficient metal around the pin-holes, (for wear,) are exceedingly heavy and clumsy (having eight times the tensile strength of the rod) and are very expensive to make. The two pieces are first forged or welded together and drawn down to a round shank. Then in the second heat they are welded to the rods. This requires the heating and scarfing of the rods also for each jaw. After this the pin-holes must be drilled in the jaws, which is an expensive piece of work. They are sometimes punched before the jaws are welded; but if this is done it is impossible to weld them to uniform length, and they are not interchangeable. In welding such a heavy piece as the jaws to the rod it is impossible to get perfect welds, and in practice this has been found to be a constant source of trouble, the jaws frequently breaking off from the rods and splitting apart in the welds. Then there is the dead-weight of the jaws, which is also objectionable, the objection being the cost of surplus material and the adding to the dead-weight of the car of about one hundred pounds on freight-brakes and one hundred and twenty-five pounds on passenger-brakes.

One of the most important and desirable things in car construction is uniformity of de-

tails, so they will be interchangeable. This facilitates building and replacements; but in applying brake connections owing to the variation in thickness of brake-shoes and diameter of wheels, &c., it is found necessary to lengthen or shorten some of the rods to get uniform piston travel on the air-brake. This is usually done by varying the length of cylinder-lever connection or taking it up on the dead-lever guide, which has a plurality of holes. This is resorted to also in taking up the slack caused by brake-shoe wear. The objection to this is that on account of the relative proportion of the arms of the truck-levers in order to take up slack at the brake-beam the top of levers must be moved three to four times as far as the lower ends, whereby the angularity of the levers is destroyed.

The object of my present invention is to overcome the above-noted objections and obtain a strong, comparatively light, and accurate connection-rod, with a great saving in metal or dead-weight, and, if desired, one wherein the jaws are adjustable to increase or diminish the length of the rod, whereby the rod is rendered interchangeable and adaptable to various arrangements of brake-rigging.

In carrying out my invention I combine with the connection-rod detachable and adjustable jaws, the detachable jaws provided with axial bores for the reception of the ends of the rods and with transverse slots or nut-chambers for the reception of nuts which engage the ends of the rod, the nut-chamber being of a size and cross-section which will prevent the rotation of the nut, the nut being preferably rectangular, so that the length of the rod between the jaws may be adjusted and the jaws set at any desired angle which they will thereafter maintain when connected up with the levers of the brake system, and such a construction embodies a second feature of my invention.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A indicates the rod-section, and B B the detachable jaws. The rod-section is upset or its diameter increased and threaded, as at 1, to engage in a nut seated in the detachable jaws B B. The jaws B B are cast with an axial bore 2 for the reception of the threaded end 1 of the rod A and with a transverse nut-slot 3 for the reception of a rectangular or polygonal threaded nut 4, which forms a continuance of the bore 3 and engages the threaded end of rod 1, the slot 3 conforming in size to the nut, so that the nut is held against rotation.

The parallel ears *b b*, constituting the jaw, are cast with marginal ribs 5 and central ribs 6, whereby strength and lightness are obtained, and the pin-holes 7 are bordered by a marginal rib or annulus 8, which gives the required wearing and bearing surface for the connecting-pin or fulcrum-pin of the brake-lever.

It will be noted that the length of the connecting-rod A can be varied, as well as the angle of the jaws B B, by simply disconnecting the connecting-rod from the levers or system in which it is located.

The advantages arising from the construction of brake connection-rods in accordance with my invention are, first, a great reduction in the dead-weight of the jaws with equal if not greater tensile strength and wearing or bearing surface for the connecting-pin; second, the ready adjustability of length of the connecting-rod to compensate for wear and take up slack in the brake-rigging, as well as the ready adjustability of the angle of the jaws to meet the requirements of different brake-riggings and different positions; third, the accuracy with which the distance between centers of the pin connections can be adjusted, and, fourth, the ability to take up shoe wear without altering the angle of the truck-levers.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

In a brake connection-rod, the combination with a threaded rod, of a jaw having an axial bore for the reception of the rod and a transverse nut-pocket, and a nut arranged within the nut-pocket of the jaw and held against rotation therein; substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 28th day of December, 1897.

CHARLES FRANCIS HUNTOON.

Witnesses:
E. T. WALKER,
P. J. CUNNEEN.