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BRAKE BEAM.

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984,643.

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Fig. 1.

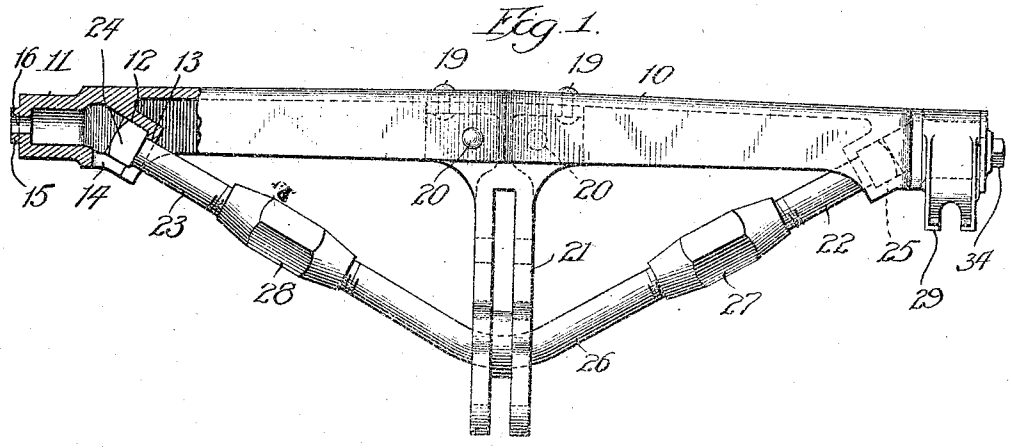


Fig. 2.

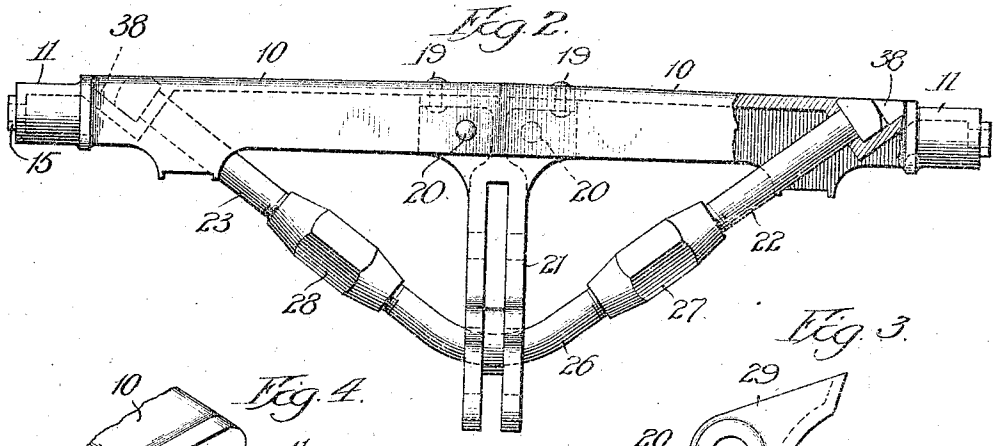


Fig. 3.

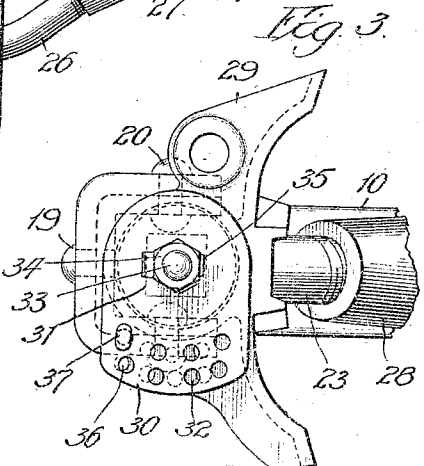
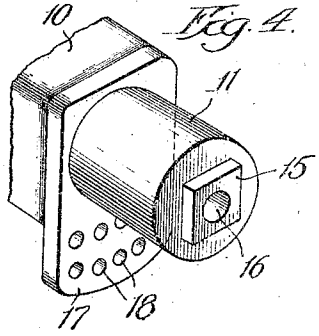


Fig. 4.



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UNITED STATES PATENT OFFICE.

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BRAKE-BEAM.

984,643. Specification of Letters Patent. Patented Feb. 21, 1911.

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To all whom it may concern:

Be it known that we, CARL E. BAUER and WILLIAM E. FOWLER, Jr., both of Hammond, county of Lake, and State of Indiana, have invented certain new and useful Improvements in Brake-Beams, of which the following is a specification.

Our invention relates to brake beams of the trussed type and has particular reference to brake beams wherein the compression member is channel shaped and formed of cast metal and the tension member is in the form of a rod, these two parts being separated at their middle by a fulcrum. In view of the great weight of the present day railway passenger trains and the high speed attained thereby, it is necessary at times to apply the brakes with promptness and great force, and for that reason brake beams must be furnished in which there shall be no appreciable deflection.

It will be understood that the force derived from the air brake cylinders of a car-braking system is largely multiplied by means of levers; that is to say, the air brake piston travels much faster than the brake heads and shoes which are applied directly to the wheel. Therefore, any slight amount of deflection of the brake beams makes necessary an increased amount of travel of the air brake piston before the full force of the air can be applied to the wheels. For that reason, it is desirable that there should be no deflection in the brake beam. Furthermore, in the application of inside hung brake beams—that is, beams which are placed between instead of on the outside of the wheels—there is a limited amount of space, and as it is desirable in brake beams of this type that they should have adjustable heads, it has been found difficult to provide sufficient room.

The objects of our invention therefore, are to provide a beam which shall have a compression member of great rigidity and stiffness and which shall be so constructed at its ends that the required space is provided.

Another object is the elimination of many of the separate parts employed in the common forms of truss beams.

With these objects in view, our invention consists in the parts and combinations of parts shown in the accompanying drawings and particularly pointed out in the claims.

In the drawings; Figure 1 is a plan view partly in section, of a brake beam constructed in accordance with our invention; Fig. 2 is a modification of the form shown in Fig. 1; Fig. 3 is an end view showing an adjustable head applied to our improved brake beam, and Fig. 4 is a fragmentary perspective view of the end of our improved brake beam.

Referring now more particularly to the drawings, it will be seen that the compression member, 10, of our brake beam is of generally channel shape, preferably formed of cast steel, and terminates in the rounded end, 11, this end forming a sleeve commonly used to unite the compression and tension members and which provides a bearing for the rotatable and adjustable head. Integral with and extending between the flanges of the channel, 10, is a downwardly projecting hollow boss, 12, having a contracted opening, 13, and a slightly larger bottom opening, 14. The rounded end, 11, of the compression member is provided with a squared portion, 15, having a concentric opening, 16. Extending at right angles to the flanges of the channel and integral therewith, is a flange, 17, having adjusting holes, 18. Secured to the middle portion of the compression member by means of rivets, 19, through the web of the channel and rivets, 20, through the flanges thereof, is a fulcrum or strut, 21. As shown, the rivets, 20, are secured through the flanges on different sides of the transverse axis of the compression member to avoid the possibility of weakening the same. The tension member of the beam is composed of the bolts, 22—23, having integral heads, 24—25, and the bent member, 26, all of the three parts, 22—23 and 26, having threaded ends. These ends are joined by means of the sleeve nuts or turn-buckles, 27—28. As will be seen, the bolts, 22—23, may be placed in the hollow bosses, 12, through the opening, 14, in the bottom thereof, the opening, 13, being only large enough to accommodate the shank portion of the bolts, 22—23, and preventing the withdrawal therethrough of the heads, 24—25. When the fulcrum, 21, has been secured to the compression member, the bolts, 22—23, are placed within the bosses, 12, the central member, 26, threaded through the opening in the fulcrum, 21, and the sleeve nuts, 27—28, applied and turned until the parts are all rigid. We have shown

two sleeve nuts, for the reason that if one were used, there is a possibility that the tightening would tend to throw the fulcrum, 21, out of alinement because of the contact of the central or apex portion of the member, 26, therewith. It is obvious, however, that one sleeve nut might be used instead of two.

On the right hand end of Fig. 1 and in Fig. 3, we have shown a form of adjustable brake head which is adapted for use with our invention. This comprises a head proper, 29, and an outer collar, 30. This collar, 30, has a squared depression, 31, adapted to fit over the squared portion, 15, on the end of the integral sleeve, 11. This collar, 30, has perforations, 32, registering with the perforations, 18, on the flange, 17, which is integral with the compression member, 10. The said collar is secured to the beam by means of a bolt, 33, nut, 34, and nut lock, 35. The brake head, 29, is provided with perforations, 36, laid out on different centers from the perforations, 32 and 18, this permitting a comparatively fine adjustment of the head, 29, as in practically all operative positions of the head, some of the different holes will be in register. A large cotter, 37, is used for securing the head in its adjusted positions. In Fig. 2 we have shown a somewhat similar construction, except that the compression member, 10, has openings, 38, through its web near its ends, and the bolts, 22—23, are threaded therethrough from the top instead of from the bottom, as shown in Fig. 1. This construction may be found advantageous in some instances, as a slightly shorter and therefore stronger truss is secured.

It is obvious that various modifications of our invention will readily suggest themselves to those skilled in the art, particularly in the form of the adjustable brake head, the fulcrum, etc., and we do not, therefore, limit ourselves to the precise construction shown in the drawings.

We claim:

1. A brake beam composed of a compression member, a tension member and a middle support, said compression member being formed of cast metal and provided with integral trunnions, and integral bearings for the ends of the tension member, said bearings being located at a point inside of the trunnions, substantially as described.

2. A brake beam comprising a channel compression member, a rod tension member and a middle support, said rod having tightening means thereon, said compression member having a circular bearing sleeve formed integral therewith, a brake head mounted upon said sleeve and means for angularly adjusting said brake head upon said beam, substantially as described.

3. A brake beam comprising a channel compression member, a rod tension member and a middle support, said compression member being formed of cast metal and having a brake head bearing and a perforated flange integral therewith, a brake head mounted upon said bearing and means for angularly adjusting said brake head, substantially as described.

4. A trussed brake beam comprising a compression member, tension member and middle support, said compression member being channel shaped and having an integral brake head bearing surface, perforated lugs integral with said compression member and adapted to retain the heads of a rod tension member, substantially as described.

5. A brake beam of the class described, comprising a channel compression member, a rod tension member and a middle support or strut, said strut being secured to said compression member by rivets through the web and flanges of said compression member, the rivets through the flanges being in staggered relation, substantially as described.

6. A compression member for a brake beam formed of cast metal and having integral therewith, a bearing sleeve, an adjusting flange and depending, perforated, tension rod attaching lugs, substantially as described.

7. A channel shaped compression member for brake beams, formed of cast metal and having integral therewith, a bearing sleeve and an adjusting flange, the web of said channel being provided with tension rod receiving sockets, substantially as described.

8. A brake beam of the class described, comprising a compression member of channel form, a rod tension member and a middle support, said compression member having an integral bearing sleeve provided with a rod-head receiving socket and said tension rod having one or more tightening nuts, substantially as described.

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