No. 751,051. PATENTED FEB. 2, 1904.

H. C. BUHOUP.

BRAKE BEAM.

APPLICATION FILED JAN. 28, 1903.

NO MODEL.

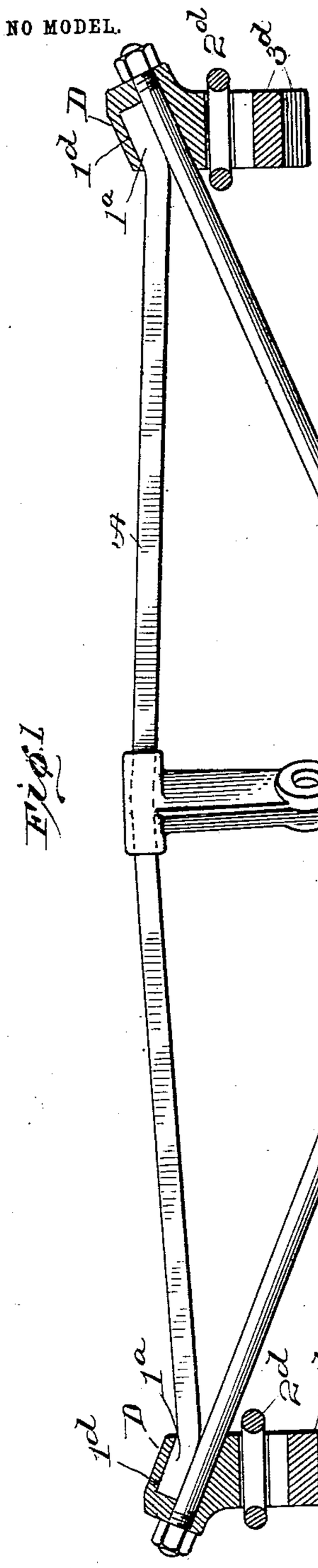

Fig. 1.

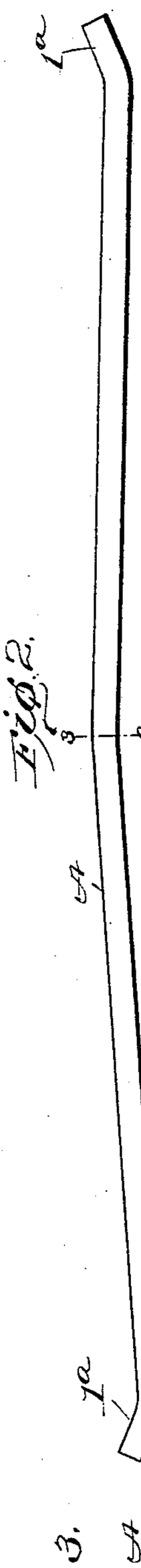

Fig. 2.

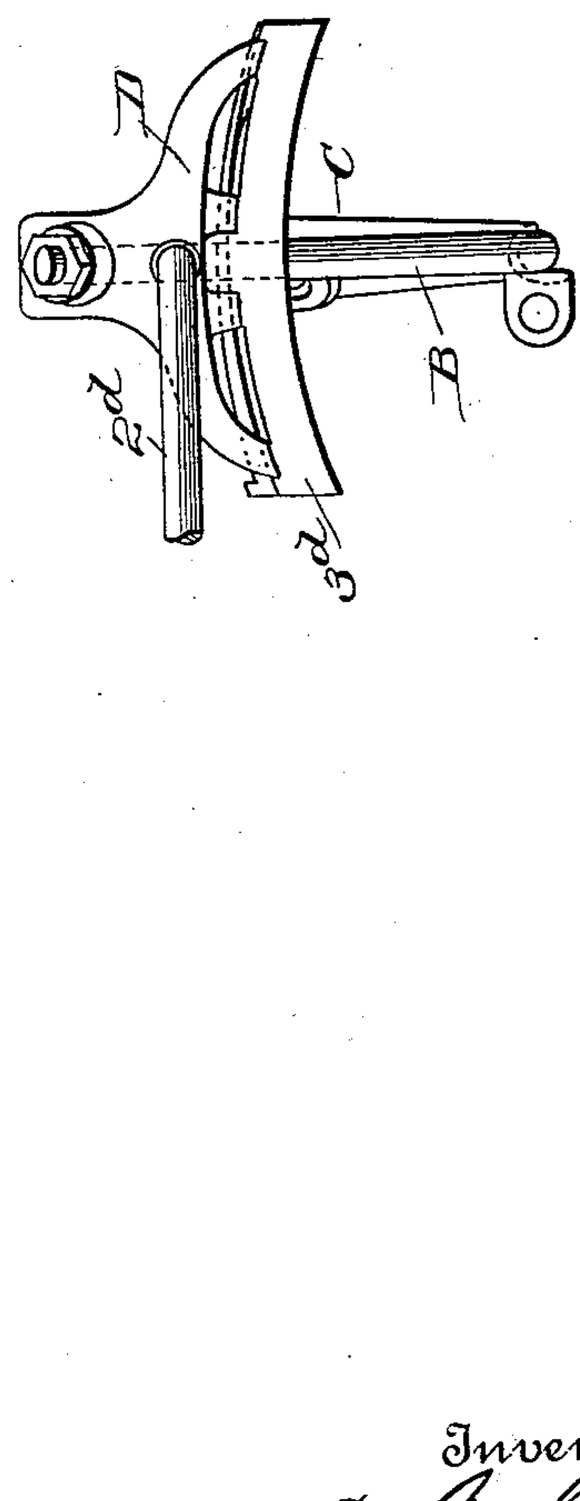

Fig. 4.

Fig. 3.

Witnesses
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No. 751,051. Patented February 2, 1904.

UNITED STATES PATENT OFFICE.

HARRY C. BUHOUP, OF CHICAGO, ILLINOIS.

BRAKE-BEAM.

SPECIFICATION forming part of Letters Patent No. 751,051, dated February 2, 1904.

Application filed January 28, 1903. Serial No. 140,825. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. BUHOUP, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Brake-Beams; 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 plan view of a brake-beam embodying my invention, the brake-heads being shown in section. Fig. 2 is a plan view of the compression member of the brake-beam shown in Fig. 1. Fig. 3 is a sectional view of the compression member, taken on the line 3 3, Fig. 2. Fig. 4 is an end elevation of the brake-beam shown in Fig. 1.

Like symbols refer to like parts wherever they occur.

My invention relates to the construction of trussed brake-beams for railway-cars, and has for its objects to maintain the coincidence of the longitudinal axis of the truss-rod throughout its length with the direction of tensile strain in the truss, to increase the effective bearing of the compression member upon the brake-heads, and to secure an efficient socketing of the compression member in the brake-heads to withstand torsional strains, while at the same time simplifying the construction of the brake-heads. Heretofore in the construction of brake-beams of this type it has been customary to reduce the cross-section of the compression member at the ends to permit of employing a tension member which should pass through the heads in the direct line of strain of the portions of the truss-rod which lie between the brake-heads and strut, thereby reducing the strength of the compression member, or if it is desired to preserve the cross-section of the compression member intact it has been the practice to terminate the compression member at such a point within the head that the truss-rod might pass, the result being that the strain induced in the truss-rod when the brakes are applied has a leverage upon the brake-head about the end of the compression member as fulcrum, which resulting torsion on the head is resisted by the rigidity of the compression member against bending, and this resisting force being insufficient the brake-heads are twisted out of proper alinement. Another mode of constructing brake-beams of this type where it is desired to secure a large end bearing for the compression member and to avoid the reduction of its cross-section is to form the compression member straight from end to end and to bend the truss-rod parallel thereto for its passage through the brake-heads. This last construction, however, is attended with many important disadvantages in that the truss terminates outside the brake-heads and the braking force on the heads has a large bending moment about the ends of the structure, the truss-rod cannot be properly manipulated to take up slack in the system after the beam has been in service, and in those cases where the truss-rods are heated and then shrunk on repairs are difficult and expensive and the amount of camber (if such is desired) and the initial strains cannot be controlled.

In order to obtain the several advantages and avoid the objections pointed out, I combine with the strut and brake-heads of a trussed brake-beam a truss-rod which passes through the brake-heads in the line of strain of the portions of said truss-rod which lie outside the heads and a compression member having its ends socketed in said brake-heads and bent toward the back of the beam, and such a construction embodies the main feature of my invention.

There are other minor features of invention, all as will hereinafter more fully appear.

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 is the compression member; B, the tension member; C, the strut, and D D the brake-heads of a trussed brake-beam.

The ends of the compression member A are bent toward the back of the beam, as at 1^a 1^a, at an angle to the transverse axes of the brake-heads, preferably to conform to the angle of the truss-rod B; but, if desired, the ends 1^a may be bent at a greater angle, thus diverging from the truss-rod, and the ends of said compression member A are socketed within the openings 1^d 1^d of the heads D D, whereby

on account of the angle of the ends 1^a 1^a the effective end bearing of the compression member A to resist horizontal thrust is augmented to the extent of the projection of such bent or angled portion 1^a upon a plane which is perpendicular to the line of thrust of such compression member.

The brake-heads D D are provided with sockets 1^d 1^d, which conform to the cross-section of the compression member A and which receive the ends thereof, and they are also provided with suitable openings for the passage of the truss-rod or tension member B.

2^d and 3^d are respectively the brake-beam hanger and brake-shoe, the same being well known and forming no part of this invention.

It will be noted that in the preferred construction of the brake-heads the socket 1^d and opening for the passage of the truss-rod B are contiguous, constituting a unitary socket and tension-member passage, thus simplifying the necessary coring of the head.

Passing around the strut C and through the brake-heads D D is a truss-rod B, said truss-rod or tension member having its longitudinal axis disposed in the line of strain throughout its length.

The strut or brake-lever post may be of any well-known and approved construction.

The several parts being substantially of the form herein pointed out, the structure will be assembled by first passing the compression member A through the strut C, next applying one of the brake-heads to the end of the compression member A and passing the end of the tension member B through its proper opening therein, then passing said truss-rod around the end of strut C, and applying the remaining brake-head D, whereupon the structure is completed by the application of the nuts to the ends of the truss-rod and the tightening of said nuts to produce camber in the beam, if such is desired.

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

1. In a trussed brake-beam, the combination with the brake-heads and strut, of a tension member passing through said brake-heads in the line of strain of the portions of said tension member which lie outside said brake-heads, and a compression member having its ends socketed in said brake-heads and bent toward the back of the beam, substantially as and for the purposes specified.

2. In a trussed brake-beam, the combination with the strut, of brake-heads having a unitary compression-member socket and tension-member passage, a tension member passing through said brake-heads in the line of strain of the portions of said tension member which lie outside said brake-heads, and a compression member having its ends socketed in said brake-heads and bent at an angle equal to the angle of the tension member, substantially as and for the purposes specified.

3. In a trussed brake-beam, the combination with the strut and a compression member having its ends bent toward the back of the beam, of a tension member passing through the brake-heads in the line of strain of the portions of said tension member which lie outside said brake-heads and brake-heads having a unitary compression-member socket and tension-member passage, substantially as and for the purposes specified.

4. In a trussed brake-beam, the combination with the tension member, strut and brake-head, of a compression member having its ends bent toward the back of the beam and socketed in said brake-head, the end of said compression member being substantially parallel to the portion of said tension member which is adjacent to and outside of said brake-head, substantially as and for the purposes specified.

5. In a trussed brake-beam, the combination of a brake-head having a socket inclined to the transverse axis of the head, and a compression member having its end bent backwardly to correspond with the socket in the brake-head, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 26th day of January, 1903.

HARRY C. BUHOUP.

Witnesses:
E. C. BATES,
D. B. MASON.