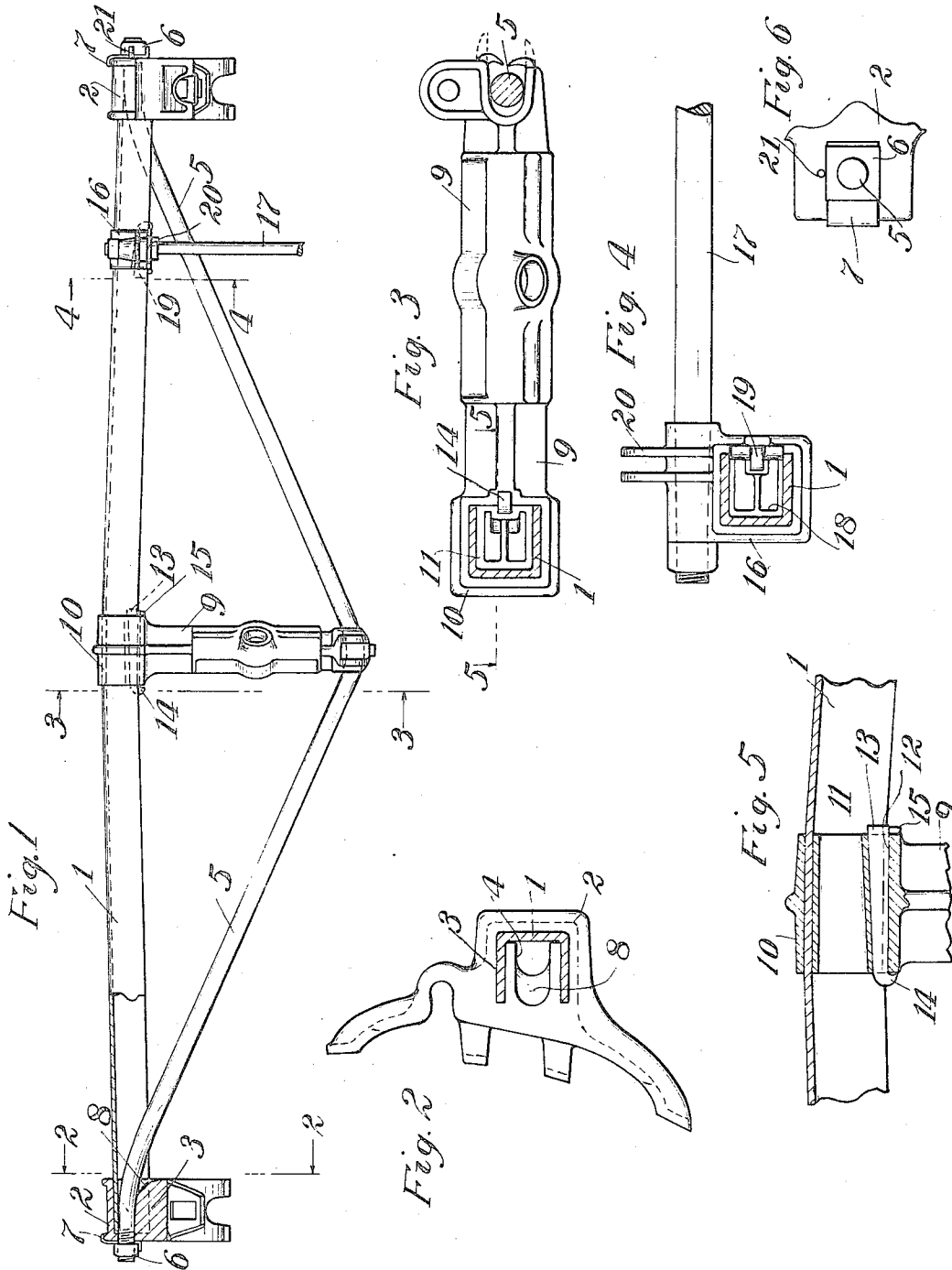


C. F. HUNTOON.
BRAKE BEAM.
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UNITED STATES PATENT OFFICE.

CHARLES F. HUNTOON, OF CHICAGO, ILLINOIS.

BRAKE-BEAM.

943,021.

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To all whom it may concern:

Be it known that I, CHARLES F. HUNTOON, a citizen of the United States of America, and a resident of Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Brake-Beams, of which the following is a specification.

The main object of this invention is to provide an improved construction for brake-beams, combining the advantages of lightness, ease of assembling and great strength for resisting the strains to which brake-beams are subjected in service.

A specific embodiment of this invention is illustrated in the accompanying drawings, in which:

Figure 1 is a top plan partly in section of a brake-beam constructed according to this invention. Fig. 2 is a transverse section taken on the line 2—2 of Fig. 1. Fig. 3 is a section taken on the line 3—3 of Fig. 1. Fig. 4 is a section taken on the line 4—4 of Fig. 1. Fig. 5 is a fragmentary detail, partly sectional, of the joint between the strut and compression member, the plane of section being indicated by the line 5—5 in Fig. 3. Fig. 6 is a fragmentary detail of the outer face of one of the brake-heads.

In the construction shown, the compression member 1 is made of commercially rolled material, U-shaped in cross-section, the flanges or legs being substantially parallel, and the back and flanges being each flat and of substantially the same width. The compression member 1 is cambered in the usual manner and is of substantially uniform cross-section throughout its length. In cross-section, the back is straight between the two flanges and meets the flanges at a right angle, but slightly rounded both inside and outside at the corners, the material being of substantially uniform thickness.

Brake-heads 2 are mounted upon opposite ends of the compression member. Each of these is provided with a U-shaped socket fitting the end of the compression member. A lug 3, preferably integral with the brake-head, snugly fits between the flanges of the compression member so as to prevent movement of the brake-head thereon. A channel 4 is cored out from the lug 3 to receive the tension member 5, which is bent where it passes through the brake-head so that adjacent to its end it is substantially parallel

with the compression member. Nuts 6 at the ends of the tension member transmit the strain to the outer faces of the brake-heads and bear in direct line with the compression member. The nuts 6 are prevented from becoming loose by means of lock washers 7. The bottom of the groove 4 is preferably rounded at 8 to correspond with the curvature of the tension member.

The strut 9 is of usual construction except where it connects with the compression member 1. At this point it is formed into a band 10, having a rectangular opening fitting around the back of the compression member. A removable filler block 11 fits against the back or web and between the flanges of the compression member. This block confines the flanges so as to prevent buckling of the compression member at this point under transverse strains. There is a middle groove or key-way 12 in the block 11, and there is an opposed key-way in the strut, in which a wedge-shaped key 13 is forced to cause the block 11 to bear against the web and securely connect the strut 9 and the compression member 1. The pointed end 14 of the key is bent over so as to bear against the side of the strut and prevent the key from working loose. The filler block has shoulders 15 which bear against co-acting shoulders on the strut and prevent the filler block from being displaced during the driving of the key. The taper of the key of course prevents the filler block from working loose in the opposite direction. The clip 16 for the guard finger 17 is also in the form of a band fitting snugly around the outside of the compression member 1, and it is provided with a filler block 18, fitting within and thereby bracing the flanges of the compression member. The clip and its filler block have opposed key-ways for receiving a wedge-shaped key 19, similar to the key 13, which, when driven home, securely fastens the clip in position upon the compression member. The clip 16 is also provided with lugs between which the brake-hanger is secured.

Pins 21 driven into holes in the face of the brake-heads serve to indicate whether or not there has been tampering with the nuts 6 as these pins would be sheared off by the turning of the nuts. This is important to the maker of brake-beams as it helps him in case of failure of a beam to determine

whether failure was due to weakness of the beam, or to the effect of tampering with the nuts 6 for the purpose of changing the camber of the compression member, which is often resorted to by railroad employees to accomplish adjustment of air-brake appliances.

The peculiar U-shaped form of cross-section of the compression member which is herein shown is particularly adapted for brake-beams, in that it distributes the metal to the best advantage both for resisting the horizontal pull of the brake-levers and for resisting the vertical thrust due to the contact of the brake-shoes with the moving rim of the wheel. Tests have proven that in a bar of rolled metal, the skin or the metal which is adjacent to the surface of the bar is of greater strength and toughness than that in the interior of the bar, and for this reason a U-shaped bar rolled from sheet metal, or of such section as to be of uniform thickness is of greater strength than the same amount of metal rolled into a channel which is of variable thickness, as in the usual channels in which the back and flanges meet each other with sharp outer corners instead of with rounded corners, as herein shown. By making the width of the back of the beam substantially the same as that of the top and bottom flanges, the metal is best distributed for resisting the strains resulting from the pull of the brake-lever and those resulting from the transverse pull which is due to the gripping of the brake shoes on the moving wheel.

The peculiar construction of joints herein described makes the operation of assembling the parts extremely simple, and of few operations. To assemble the parts, all that is necessary is to slip the parts together in their proper relation, and then set up the nuts 6 and drive the wedges 13 and 19. The lock washers 7 and the bending over of the ends of the wedges 13 and 19 prevent the parts from working loose and becoming separated in service.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that some of the details of the construction shown may be altered or omitted, within the scope of the following claims, without departing from the spirit of this invention.

I claim:—

1. In a brake-beam, the combination of a substantially U-shaped compression member, a strut, a tension member, brake-shoe-heads mounted at the ends of said compression member, each of said heads being formed of a single piece, and having therein a socket fitting the corresponding end of said compression member, and shoulders integral with said heads and fitting against the inner face of said compression member,

and said heads being shaped to provide a passage between said shoulders for receiving the end of the tension member.

2. In a brake-beam, the combination of a substantially U-shaped compression member, a strut, a tension member, brake-shoe-heads mounted at the ends of said compression member, each of said heads being formed of a single piece and having therein a socket fitting the corresponding end of said compression member, and having shoulders integral with said heads and fitting against the inner face of said compression member, there being an aperture between said shoulders for receiving the end of the tension member, and said aperture extending through said head in a direction substantially parallel with said compression member.

3. In a brake-beam, the combination with a tension-member and a strut, of a cambered compression member of U-shaped cross-section, whose back and legs are substantially straight, the legs being substantially parallel and of substantially the same width as the back, brake-shoe-heads mounted at the ends of said compression member, each of said heads being formed of a single piece, and having therein a socket fitting the corresponding end of said compression member and shoulders integral with said heads and fitting against the inner face of said compression member, there being an aperture between said shoulders for receiving the end of the tension member, and said aperture extending through said head in a direction substantially parallel with said compression member.

4. In a brake-beam, the combination of a U-shaped compression member and a strut having therein a transverse opening fitting the outside of said compression member, a filler block fitting the interior of said compression member, and a wedge or key bearing between said filler block and strut, for securing said strut against shifting along said compression member.

5. In a brake-beam, the combination of a U-shaped compression member and a strut having therein a transverse opening fitting the outside of said compression member, a filler block fitting the interior of said compression member, opposed key-ways in said filler block and strut, and a wedge or key seated in said key seats and bearing between said filler block and strut, for securing said strut against shifting along said compression member.

6. In a brake-beam, the combination of a U-shaped compression member and a strut having therein a transverse opening fitting the outside of said compression member, a filler block fitting the interior of said compression member, and a wedge or key bearing between said filler block and strut, for

securing said strut against shifting along said compression member, said key being located between the flanges of said compression member and extending substantially parallel therewith.

5 7. In a brake-beam, the combination of a U-shaped compression member and a strut having therein a transverse opening fitting the outside of said compression member, a
10 filler block fitting the interior of said compression member, a wedge or key bearing between said filler block and strut, for securing said strut against shifting along said compression member, said filler block and strut
15 having co-acting shoulders adapted to prevent the movement of said filler block in one direction, and said key having its pointed end bent over to bear against said strut and thereby prevent shifting of said filler block
20 and key in the opposite direction relative to said strut.

8. In a brake-beam, the combination of a compression member of U-shaped cross-section, a part mounted on said compression
25 member and having therein an aperture shaped to fit around the outside of said compression member, a filler block fitting the interior of said compression member within said part, co-acting shoulders adapted to
30 prevent relative shifting of said filler block and part in one direction, and a key inter-

posed between said filler block and part and adapted to prevent relative shifting of said filler block and part in the opposite direction, and at the same time secure said part
35 against shifting on said compression member.

9. In a brake-beam, the combination of a compression member of U-shaped cross-section, a part mounted on said compression
40 member and having therein an aperture shaped to fit around the outside of said compression member, a filler block fitting the interior of said compression member within said part, co-acting shoulders adapted to
45 prevent relative shifting of said filler block and part in one direction, and a key interposed between said filler block and part and adapted to prevent relative shifting of said
50 filler block and part in the opposite direction, and at the same time secure said part against shifting on said compression member, said key being located between the
55 flanges of said compression member and extending longitudinally thereof.

Signed at Chicago this 17th day of August, 1909.

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Witnesses:

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