

J. S. SHEAFE.
 REINFORCED BRAKE BEAM.
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1,060,140.

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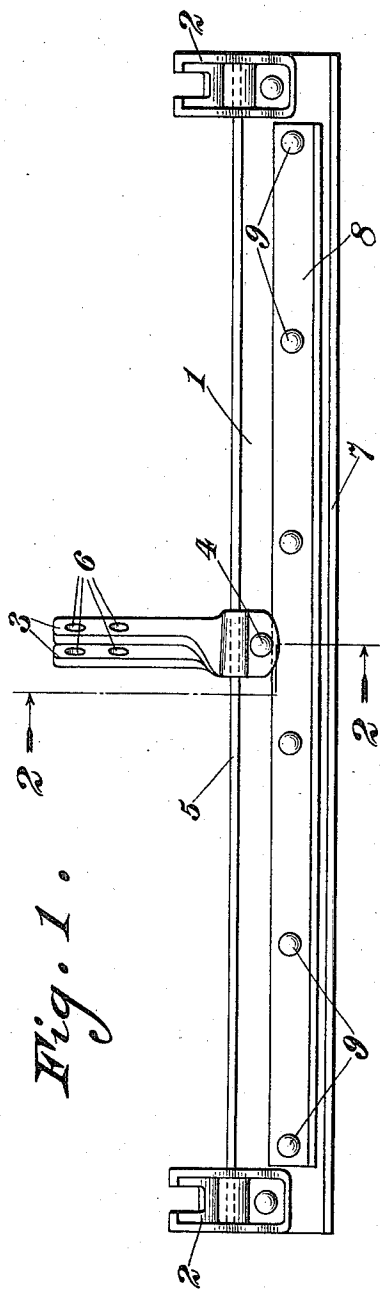


Fig. 1.

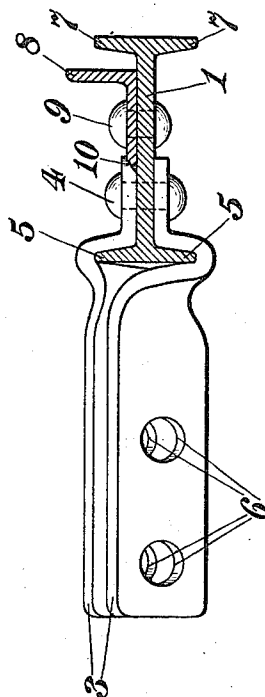


Fig. 2.

Witnesses:

Harry H. Peiss.
 George L. Anderson.

Inventor,
 James S. Sheafe,
 By Hugh N. Wagner,
 His Attorney.

UNITED STATES PATENT OFFICE.

JAMES S. SHEAFE, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
GENERAL APPLIANCE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF
MISSOURI.

REINFORCED BRAKE-BEAM.

1,060,140.

Specification of Letters Patent.

Patented Apr. 29, 1913.

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To all whom it may concern:

Be it known that I, JAMES S. SHEAFE, a citizen of the United States, residing at the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Reinforced Brake-Beams, of which the following is a specification.

This invention relates to new and useful improvements in brake-beams, and has for its object to provide an improved brake-beam in which parts of minimum size are utilized and united to produce a structure of maximum strength and efficiency.

In the accompanying drawings forming part of this specification, in which like numbers of reference denote like parts wherever they occur, Figure 1 is a top plan view of an improved brake-beam embodying the present invention; and, Fig. 2 is a sectional view, on an enlarged scale, on the line 2—2, Fig. 1.

The brake-beam of the present invention consists of an I-beam 1, to the ends of which are riveted, bolted, or otherwise secured the brake-heads 2 which support the brake-shoes (not shown in the drawings) in the usual manner. The brake-beam is suspended in the usual manner from the framework of a car or other conveyance (not shown) so that the web of the I-beam is substantially horizontal, and has a pair of plates 3 secured thereto by means of the rivet 4 or the like, which passes through openings in each plate 3 adjacent to an end thereof and, also, through an opening in the web of the I-beam 1 at a point in the middle of said I-beam and near the flanges 5 borne by the particular side of said I-beam on which the brake-heads are located. The end portion of one of the plates 3 that is secured to the web of the I-beam 1 by the rivets 4 is bent so as to fit snugly against the upper flange 5 and the upper surface of the web of the I-beam 1, and the same end portion of the other plate 3 is similarly bent so as to fit snugly against the lower flange 5 and the lower surface of the web of said I-beam as clearly illustrated in Fig. 2. The plates 3 extend outwardly from the flanges 5 and are twisted in the usual manner in order to grip said flanges tightly, the free ends of said plates being spaced apart so as to receive the brake-rod (not shown) therebetween and having register-

ing openings 6 to receive a bolt or rivet (not shown) or a plurality of bolts or rivets by means of which the brake-rod is secured to said plates in the usual manner. The other side of the I-beam 1 that bears the flanges 7 is subjected to strains of compression by the pull of the brake-rod upon the plates 3, and in order to strengthen the I-beam, so as to prevent the pull upon said plates from causing the I-beam 1 to bend between the brake-heads 2, an angle-iron 8 is provided and is secured to the web of said I-beam by means of rivets 9 or the like. The angle-iron 8 is preferably arranged to extend substantially parallel to the flanges 7 borne by the I-beam 1 and, also, so that the leg of same that projects outwardly from the web of said I-beam is near one of the flanges 7, while the other leg of said angle-iron that is riveted to the web of the I-beam 1 extends toward the end of the particular plate 3 on the same side of the web with said angle-iron, the end of said plate 3 being beveled at 10, so as to overlap the edge of the riveted leg of the angle-iron 8, which edge of said angle-iron is, also, beveled at the point where the beveled end of said plate 3 overlaps same, as depicted in Fig. 2.

Heretofore, when a brake-beam formed of an I-beam was reinforced by an angle-iron, it was necessary to form a cut-away part in the riveted leg of the angle-iron in order to allow the riveted end of one of the brake-rod-connecting plates 3 to fit therein. This was due to the fact that the riveted leg of the angle-iron was wider than absolutely necessary and, also, that an excess of metal was left between the rivet 4 and the end of the plate 3. These features made the cost of manufacturing the brake-beam more than was absolutely necessary, but have been obviated by the present invention so that the cost of manufacturing such brake-beams has been reduced to the minimum, due to the fact that the riveted leg of the angle-iron 8 is narrower than ordinarily used, while at the same time is of ample width to add the necessary strength to the I-beam 1 and, also, that less metal is left between the rivet 4 and the end of the brake-rod-connecting plate 3 than the usual amount, but at the same time is sufficient to withstand the strain to which the plate 3 is ordinarily subjected, so that the end of said

plate merely touches and slightly overlaps the edge of the riveted leg of the angle-iron 8 as hereinabove described, thereby obviating the necessity of forming a cut-away portion in the riveted leg of said angle-iron.

In actual practice it has been found that after a brake-beam formed of an I-beam without any reinforcing has become bent from use and then heated and straightened, the strength of the straightened I-beam is approximately eighty-six per cent. of the original strength of the I-beam, but when the straightened I-beam is reinforced by an angle-iron in the manner hereinabove described, the strength of the reinforced I-beam is approximately twenty-nine per cent. greater than the original strength of the I-beam. For example a brake-beam formed of a 5" I-beam of light section withstood a test of 16,010 pounds maximum pressure, but after same was bent and then heated and straightened it withstood a test of 13,830 pounds maximum pressure, or approximately eighty-six per cent. of its original strength. After the straightened I-beam was reinforced by a 2½" x 2" angle-iron 54½" long, the reinforced brake-beam withstood a maximum pressure of 20,690 pounds, or in other words the strength of the reinforced brake-beam was approximately twenty-nine per cent. greater than the original strength of the I-beam. It has also been found in actual practice that a brake-beam formed of an I-beam which has become bent from use can be straightened and reinforced at a relatively smaller cost than the original cost of the I-beam alone.

I claim:

1. A reinforced brake-beam embodying an I-beam having brake-heads secured to the ends thereof, an angle-iron secured to the web of said I-beam and extending longitudinally of same, and a brake-rod-connecting plate located intermediate the brake-heads and secured to the web of said I-beam so that one end of said plate touches the edge of the leg of said angle-iron that is secured to the web of said I-beam.

2. A reinforced brake-beam embodying an

I-beam having brake-heads secured to the ends thereof, an angle-iron secured to the web of said I-beam and extending longitudinally of same, and a pair of brake-rod-connecting plates located intermediate the brake-heads and secured to the web of said I-beam so that the end of one of said plates touches the edge of the leg of said angle-iron that is secured to the web of said I-beam.

3. A reinforced brake-beam embodying an I-beam having brake-heads secured to the ends thereof, an angle-iron secured to the web of said I-beam and extending longitudinally of same, and a brake-rod-connecting plate located intermediate the brake-heads and having one end thereof secured to the web of said I-beam, the secured end of said plate being beveled to overlap part of the leg of said angle-iron that is secured to the web of said I-beam.

4. A reinforced brake-beam embodying an I-beam having brake-heads secured to the ends thereof, an angle-iron secured to the web of said I-beam and extending longitudinally of same, and a brake-rod-connecting plate located intermediate the brake-heads and having one end thereof secured to the web of said I-beam and beveled to overlap part of the edge of the leg of said angle-iron that is secured to the web of said I-beam, said part of the edge of the secured leg of said angle-iron being, also, beveled.

5. A reinforced brake-beam embodying an I-beam having brake-heads secured to the ends thereof, an angle-iron secured to the web of said I-beam and extending longitudinally thereof, and a pair of brake-rod-connecting plates located intermediate the brake-heads and secured to the web of said I-beam, the end of one of said plates being beveled to overlap a beveled part of the edge of the secured leg of said angle-iron.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

JAMES S. SHEAFE.

Witnesses:

SIMON F. FOGG,
C. T. RICE.