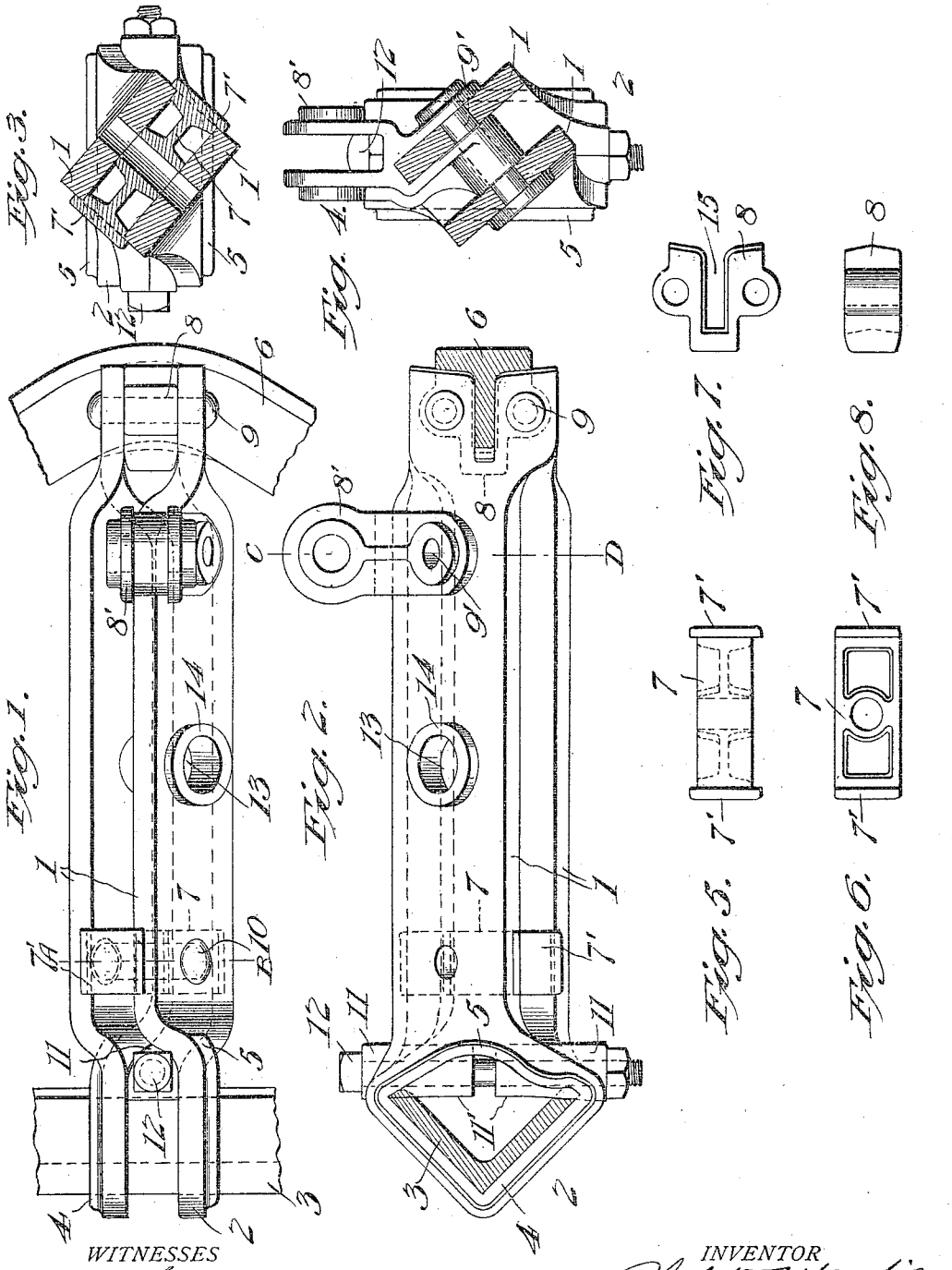
P. T. HANDIGES.

FORGED STEEL FULCRUM FOR TRUSSED TYPE OF BRAKE BEAMS.

APPLICATION FILED MAR. 1, 1910.

959,524. Patented May 31, 1910.

3 SHEETS—SHEET 1.



WITNESSES

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3 SHEETS—SHEET 2.

Fig. 10.

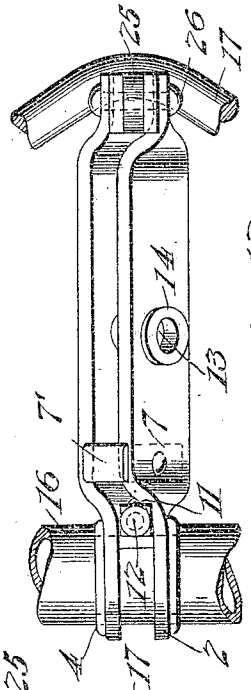


Fig. 12.

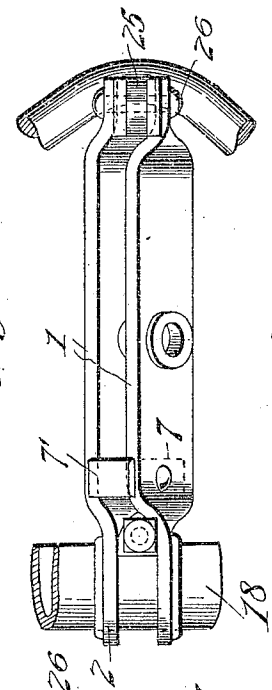


Fig. 14.

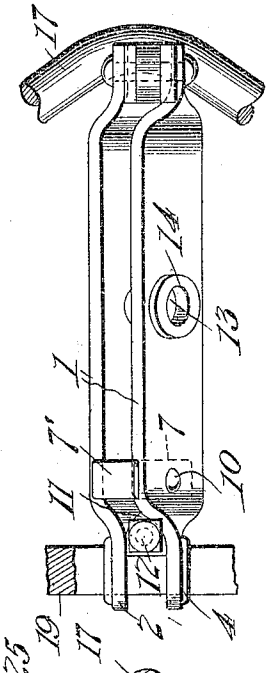


Fig. 9.

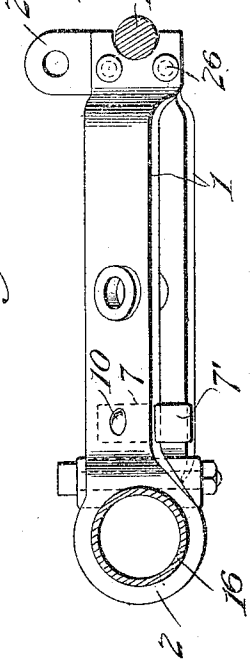


Fig. 11.

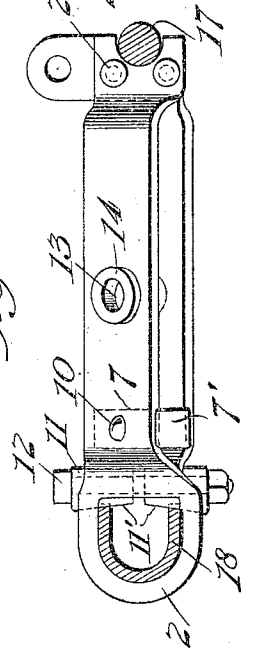
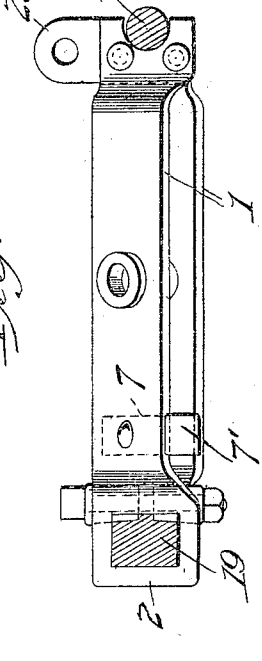


Fig. 13.



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3 SHEETS—SHEET 3.

Fig. 16.

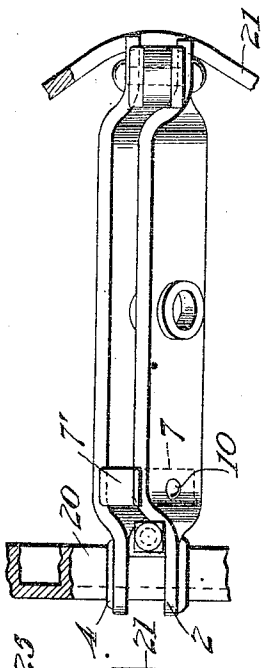

Fig. 18.

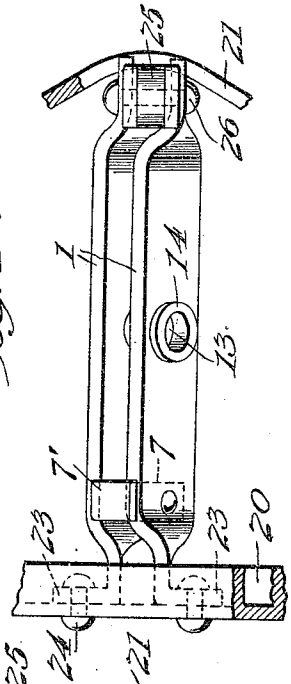

Fig. 20.

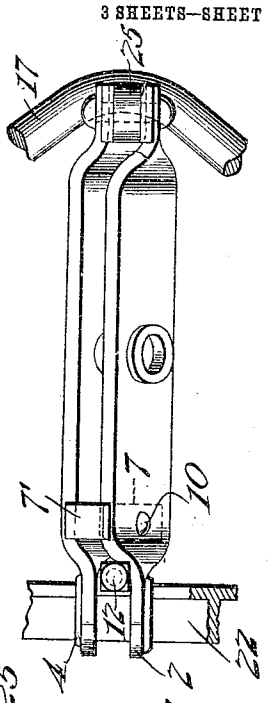

Fig. 15.

Fig. 17.

Fig. 19.

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UNITED STATES PATENT OFFICE.

PHILIP T. HANDIGES, OF CLEVELAND, OHIO, ASSIGNOR TO THE DAMASCUS BRAKE BEAM CO., OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

FORGED-STEEL FULCRUM FOR TRUSSED TYPE OF BRAKE-BEAMS.

959,524. Specification of Letters Patent. Patented May 31, 1910.

Application filed March 1, 1910. Serial No. 546,665.

To all whom it may concern:

Be it known that I, PHILIP T. HANDIGES, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Forged-Steel Fulcrums for Trussed Type of Brake-Beams, of which the following is a specification.

The present invention has reference to brake-beam fulcrums of the forged steel type and has for its purpose the construction of a fulcrum in a two-part forging which during the forging process is simultaneously given the shape necessary for its application to the compression and tension members of the brake beam.

The structure herein disclosed further contemplates the idea of a fulcrum block, which in the formation of the eye for the compression member utilizes the metal cut away to provide additional bearings for the strut; and wherein the means for securing the strut to the compression member effects to increase the general trussing effect of the brake beam as a whole in direct proportion to the securement of the fulcrum on the compression member. The fulcrum is designed with especial reference to that type of brake beam known as the Waycott brake beam, and by reason of its general pattern it may be, with slight changes, fitted to various types of brake beams.

In the illustrations shown herein, the fulcrum is disclosed in various structures and manners of application.

In said views: Figure 1 is a top plan view of one type; Fig. 2 is a side elevation thereof; Fig. 3 is a transverse sectional view taken on the line A—B of Fig. 1; Fig. 4 is a sectional view taken on C—D of Fig. 2; Fig. 5 is a detail view of the spacing block employed; Fig. 6 is a side elevation thereof; Fig. 7 is a detail view of the saddle piece; Fig. 8 is a plan view of that member, and Figs. 9 to 20 inclusive show other structures, in elevation and plan, of which the fulcrum is capable.

In that arrangement shown in Figs. 1 to 8, the strut consists of the two forgings 1, each member whereof has its end 2 expanded, and said expanded portion is perforated with an eye for the mounting of said fulcrum part upon the compression member 3 of the brake beam, and which in this instance is an angle bar. In the perforating of the eye, the metal punched therefrom is flared outwardly to one side and compressed to form a ridge or flange 4 whose inner diameter meets flush with the inner surface of the eye and in that relation affords an additional bearing element for the eye of the fulcrum upon the compression member 3 of the brake beam. That part of the eye and its adjacent flange 4 which is disposed to the front of the compression member 3 is bowed or curved, as indicated by the character 5, the purpose whereof being to permit of slight resiliency for the securement of the eye upon the compression member and simultaneously therewith to effect an endwise stressing of the strut against the compression and tension members, thus increasing the general trussing of the brake beam as a whole.

The strut parts 1 are torsionally deflected immediately adjacent the front face of the compression member, and in like manner and disposed in the same direction said members are shaped adjacent the rear side of the tension member 6. The length of the fulcrum intermediate said compression and tension members is thus set at a diagonal to the dividing plane of the eyes and tension rod gripping members.

The fulcrum members 1 are held in their proper assembled relation through the medium of the block 7, the saddle piece 8, and the mounting of the third hanger or ear 8′. The two former members are secured in place by the bolts 9 and 10 to accommodate which said members and the strut parts are suitably perforated, and the mounting of the suspension ear 8′ is made secure by a bolt 9′. The block 7 is further provided with opposed head portions 7′, the marginal edges whereof overlie the side edges of the truss sections 1, and in that position tend to hold those parts against relative displacement.

For securing the fulcrum to the compression member of the brake beam, that space between the torsional part of the strut and the front face of the compression member is utilized to receive a clamping device consisting of a pair of wedges or tapered thimbles 11, and a compression screw bolt 12 therefor. Each of the parts 11 is of sub-

stantially triangular design in cross section and has a tapered face 11′ lying within a cut away portion on the front face of the compression member 3, as shown in Fig. 1. Through the medium of this compressing means, the eye portions 2 and ridge 4 of the strut members are simultaneously and uniformly clamped to the bar 3, and in being thus secured the bowed or curved part of the eye and ridge 4 tend to give in direct proportion thereto and effect to distend the fulcrum against the tension rod 6. From the foregoing, it will be apparent that the means which secures the strut to the compression member simultaneously serves to increase the general trussing of the brake beam as a whole.

At a point intermediate the ends of the fulcrum, both members thereof are perforated as at 13 and the metal struck therefrom is flared outwardly to provide collars or bearings 14, which with the perforations 13 afford a journal bearing for the braking lever.

The ends of the fulcrum sections are suitably bifurcated to receive the tensioning member 6 which in the present instance is shown as an angle bar of T-shape in cross section. The strain of said bar is, however, borne directly by the saddle member 8 which lies intermediate the bifurcated portions of the two strut sections; and which is suitably recessed, as at 15, to conform with the above-mentioned bifurcations.

In the several arrangements disclosed in Figs. 9 to 20, the above-described fulcrum is shown applied to various types of compression and tension members, viz. in Figs. 9 and 10, the compression member consists of a hollow tube 16 and the tension member 17 of a round rod. In Figs. 11 and 12, the compression member 18 is of U-shape in cross section, and in Figs. 13 and 14, this part 19 is a solid bar. In Figs. 15 to 18, U-shaped angle bars are used, and the tension elements 21 thereof comprise straps. In Figs. 19 and 20, an angle T-iron is used. In all of the arrangements shown in these figures, excepting that in Figs. 17 and 18, the fulcrum parts are torsionally deflected after the manner explained above and each member is formed with an eye portion 2 shaped to conform to its respective compression member, and which through the medium of the clamping thimbles 11 and bolts 12 are compressed and secured upon said compression members. In Figs. 17 and 18, the strut ends 23 are oppositely disposed and lie within the trough of the compression member 20, being secured therein by rivets 24. In all of the structures, the opposite end of the fulcrum has interposed between its sections a spacing and suspension block 25 secured therein by rivets 26. In all other respects these structures are substantially the same as that disclosed in Figs. 1 and 2, and need not therefore be described in detail here.

What is claimed is:

1. In a trussed brake beam, a fulcrum comprising a forging having a torsionally deflected and expanded end portion, an eye formed within said expanded portion and adapted to be secured by compression to the compression member of the brake beam, and a means adapted to effect said compression and simultaneously therewith to tension the fulcrum against the compression and tension members.

2. In a trussed brake beam, a fulcrum comprising a two-part forging designed to conform to and embrace a section of the compression member of the beam, and means whereby to secure the same thereon, and simultaneously therewith to tension said fulcrum against the compression and tension members.

3. In a trussed brake beam, a fulcrum comprising a two-part forging formed at one end with eyes adapted to embrace a section of the compression member of the beam, and means for clamping said fulcrum parts to the beam and simultaneously therewith tensioning the same against the compression and tension members.

4. In a trussed brake beam, a fulcrum comprising a two-part forging having expanded end portions provided with eyes adapted to be secured by compression to the compression member of the brake beam, and a means adapted to effect the compression of said expanded eye portions and to simultaneously therewith tension the fulcrum against the compression and tension members.

5. In a trussed brake beam, a fulcrum comprising a two-part forging, each member whereof is torsionally deflected and is formed with an eye, said eyes adapted to embrace a section of the compression member and provide a free space immediately adjacent the front face thereof, and a clamping device interposed between the fulcrum parts adjacent the compression member and adapted to secure said fulcrum to the beam and simultaneously therewith effect the tensioning of the fulcrum against the compression and tension members, said free space permitting of the compression of the eyes and tensioning of the fulcrum parts.

6. In a trussed brake beam, a fulcrum comprising a two-part forging, each member whereof is torsionally deflected adjacent one end and formed with an eye, said eyes adapted to embrace a section of the compression member and having an open free space immediately adjacent the front face of said compression member, a clamping device for the fulcrum disposed intermediate the fulcrum parts and adapted to compress

the eyes thereof onto the compression member, and a means for holding the forged parts at their relative spaced distance apart and preventing relative movement between said parts.

7. In a trussed brake beam, a fulcrum comprising a two-part forging, the parts whereof are expanded at one end and have eyes formed therein provided with marginal ridges, said eyes adapted to embrace a section of the compression member of the brake beam, said fulcrum parts being torsionally deflected adjacent the eye portions, and a wedging device interposed within the space provided by the torsioned parts and the compression member and adapted to secure the fulcrum to the compression member, and simultaneously therewith tension the same against the compression and tension members.

8. In a trussed brake beam, a fulcrum comprising a two-part forging, the parts whereof are torsionally deflected adjacent the compression and tension members respectively of the brake beam and the portion intermediate thereof disposed at an angle to the dividing plane of the compression and tension gripping members, said compression member gripping means comprising eyes formed in expanded end portions of the fulcrum parts and adapted to embrace a section of the compression member, and a clamping device disposed intermediate the fulcrum parts and against the compression member and adapted to clamp the said parts to the compression member and simultaneously therewith to tension the fulcrum against the compression and tension members.

9. In a trussed brake beam, a fulcrum comprising a two-part forging, the parts whereof have each an expanded and torsionally deflected end portion, said expanded portions being provided with eyes and adapted to embrace a section of the compression member of the brake beam, means for holding the fulcrum parts spaced from each other and against relative movement, and a clamping device interposed between the fulcrum parts and against the compression member for securing said fulcrum to the compression member, said clamping device comprising a pair of oppositely disposed tapered thimbles and a screw-threaded bolt coupled therewith, said clamping device adapted to tension the fulcrum parts against the compression and tension members.

10. A fulcrum or strut for trussed brake beams comprising a two-part forging, each member whereof is at one end torsionally deflected and expanded, said expanded portions being perforated with eyes and the metal struck therefrom formed in a ridge on the marginal edges thereof to provide bearing elements, said eyes and ridges adapted to embrace a section of the compression member of the brake beam, a pair of oppositely disposed and tapered thimbles disposed intermediate the fulcrum parts and against the compression member, a screw bolt connected with the thimbles and adapted to compress the eye members of the fulcrum to the compression member; and the opposite end of the fulcrum parts being torsionally deflected and having a spacing member therebetween serving as a bearing for the tension member of the brake beam.

The foregoing specification signed at Cleveland Ohio this 16th day of February, 1910.

PHILIP T. HANDIGES.

In presence of—
D. E. PUGH,
G. W. CLEMMONS.