Nov. 6, 1923. 1,473,116

E. A. MAYHEW

REVERSIBLE BRAKE BEAM FULCRUM

Filed April 4, 1921

Fig. 1

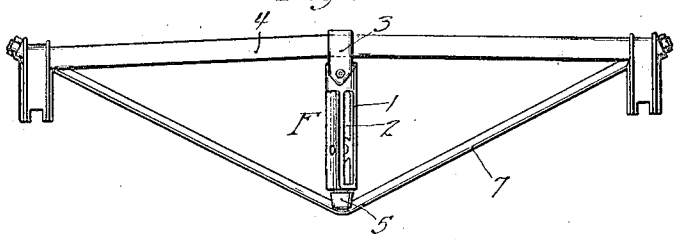


Fig. 2

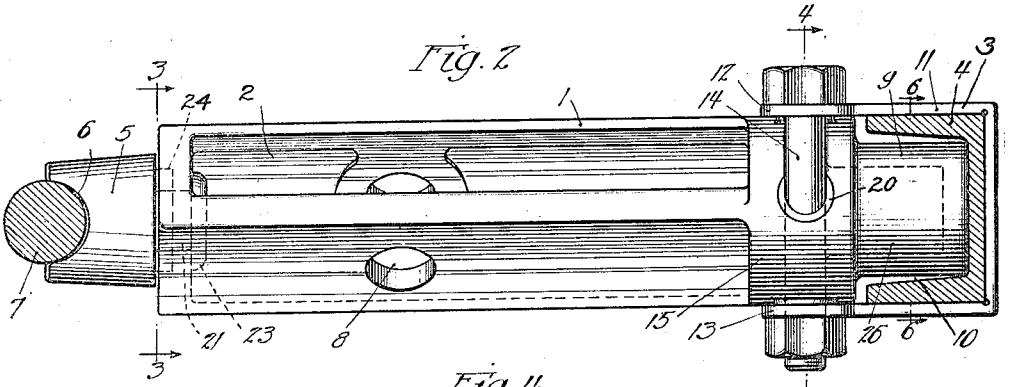


Fig. 4

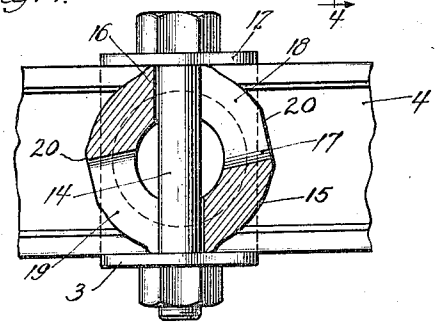


Fig. 3

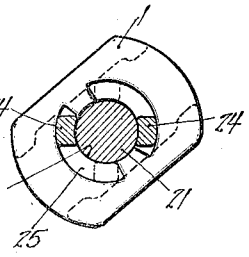


Fig. 6.

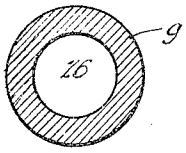
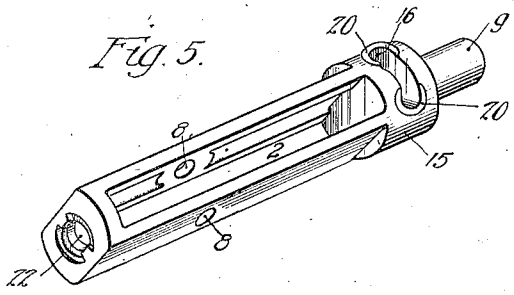


Fig. 5.



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UNITED STATES PATENT OFFICE.

EDWARD A. MAYHEW, OF CLEVELAND, OHIO, ASSIGNOR TO THE DAMASCUS BRAKE BEAM COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

REVERSIBLE BRAKE-BEAM FULCRUM.

Application filed April 4, 1921. Serial No. 458,278.

To all whom it may concern:

Be it known that I, EDWARD A. MAYHEW, 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 Reversible Brake-Beam Fulcrums, of which the following is a specification.

This invention relates to a fulcrum for brake beams of the trussed type, the slotted portion of the fulcrum being rotatable about its longitudinal axis to permit its use in either right or left hand beams.

The types of reversible fulcrums for trussed brake beams heretofore known have been made up of three or more pieces with the accompanying objection by railroad officials that where so many parts are employed in making a reversible strut or fulcrum, the element of strength and rigidity evolved in the strut is weakened by the number of parts involved. The greater the number of parts used the more joints will necessarily be present, thus making as one of the great dangers in the use of the old type of fulcrum, the opening of one or more of the joints and especially that joint between the slotted portion of the fulcrum and a foot member heretofore secured to the main beam or compression member, to serve as a bearing for the cylindrical extension of the slotted member to permit rotation thereof. In the present invention this objectionable foot member or separate bearing is omitted, thus eliminating any objectionable joint to open at the base of the fulcrum.

Among the objects of my invention is to provide a reversible brake beam fulcrum possessing a maximum of strength with a minimum of parts; further to provide a fulcrum of the class described consisting of but few parts; further to eliminate in reversible fulcrums for trussed brake beams the objectionable joint heretofore occurring between the inner end of the slotted member and the old form of foot member or bearing on the compression member, by producing a structure in which the foot member or separate bearing is omitted; further to provide novel means for permitting rotation of the slotted member or main body of the fulcrum with relation to the main cross beam or compression member of the brake beam; further to generally improve the construction of brake beam fulcrums, further to provide a more simple, economical and efficacious fulcrum of the class described; and such further objects, advantages and capabilities as will later more fully appear.

My invention further resides in the combination, construction and arrangement of parts shown in the accompanying drawing, and while I have illustrated therein a preferred embodiment, I wish it to be understood that the same is susceptible of modification and change, without departing from the spirit of my invention.

In the drawings:—

Fig. 1 is a plan view of a trussed brake beam including my improved fulcrum.

Fig. 2 is an elevation of my improved fulcrum, the tension rod and compression member being shown in cross section.

Fig. 3 is a section taken on line 3—3 of Fig. 2.

Fig. 4 is a section on line 4—4 of Fig. 2.

Fig. 5 is a perspective view of the slotted portion of my fulcrum.

Fig. 6 is a section on line 6—6 of Fig. 2.

An important feature of my invention is to provide a reversible fulcrum that has no joint between the reversible part and the bearing on the compression member. A fulcrum is necessarily a strut which resists compression at each end, and should be as rigid in construction as possible. Owing to the camber in the compression member, the connection between the fulcrum and the device that clamps it to the compression member must be strong enough to overcome the tension set up by the camber, that tends to pull the compression member away from the fulcrum. In all prior designs of reversible fulcrums of which I am aware, the compression clamping member is connected to the movable member by a joint directly behind the end of the lever slot, and when such a form of fulcrum is put under load, the tension occasioned by the camber in the compression member develops a tendency to open up this joint.

In my design the joint is entirely done away with, and the entire body of the fulcrum, with the exception of the rod seat, is revolved in changing from a right hand to a left hand position. The turning movement from right to left hand is limited by the dimensions of the slot through which the clamp bolt is inserted, as will be hereinafter more fully pointed out, as well as by the

stops on the stud of the rod seat. It will thus be seen that my fulcrum has the advantage of a small number of parts (there being only one more part than in a solid fulcrum, i. e. the rod seat), and is easy to manufacture, light of weight, and easy of application.

Referring to the drawings, my improved fulcrum is designated generally at F in Fig. 1, and comprises the main body portion or slotted portion 1, provided with the usual lever receiving slot 2, and is secured at its inner end by means of clamp 3 to the main cross beam or compression member 4, while at its opposite end it has rotatable connection with the head or rod seat 5, which latter element is formed with the usual groove 6, to receive the tension rod 7. Referring more particularly to Fig. 2, the slotted portion 1 is provided with the aligned openings 8 for the reception of the fulcrum pin of the brake lever, while at its inner end is formed the journal extension 9, preferably cylindrical in cross section, and which journal extension is seated within the channel 10 in the compression member 4. I do not, however, wish to be limited to this particular form of compression member, since as is obvious the same may be of different cross section, and a non-channelled cross section might be used. It is important to note that regardless of the particular form of compression member used the journal extension 9 bears directly against the compression member, as is clearly shown in Fig. 2, and is rotatably held in place therein in the manner now to be described.

Passing around the three sides of compression member 4, and closely fitting the same is the clamp member 3, having sides 11, extending upwardly beyond the edge of the compression member, to form upstanding ends 12 and 13, which are provided with aligned openings to receive bolt 14. The substantially cylindrical portion 15 of the slotted member 1, adjacent journal extension 9, as will be seen in Fig. 4, is formed with two openings 16 and 17, passing transversely therethrough, at an angle to each other, the metal between openings 16 and 17 being removed at opposite sides of the cylindrical portion 15, to provide for the passing entirely through portion 15, to permit rotation of the slotted member 1 of the fulcrum, such rotation being limited by the stops at the edges of slots 18 and 19 which are formed at each of the openings 16 and 17, which function, when portions 12 and 13 of clamp 3 are clamped against by tightening the nut of bolt 14, to give additional bearing for the inner ends of clamp 3. The rotation of the fulcrum from a right hand position to a left hand position, or vice versa, can readily be effected by simply applying sufficient pressure for rotating the fulcrum as desired. The flat seats 20 will not be so great as to necessitate loosening the nut of bolt 14 to permit turning of fulcrum member 1.

To permit a rotative movement between slotted member 1 and the rod seat, the latter is provided with a swivel stud 21, passing through hole 22, in the outer end of the slotted portion of the fulcrum, the end of swivel stud 21 being flanged at 23 to prevent withdrawal or disconnection of these parts, but permit of free swivel movement therebetween. To limit the amount of rotation between these parts, rod seat 5 is provided with integral lugs 24, which move in slots or circular notches 25, formed in the outer end of the slotted portion of the fulcrum, such rotation being permitted only until lugs 24 strike the ends of slots 25.

The cylindrical journal extension 9 may be provided with a hollow interior space 26, for the sake of lightness, or may be solid if desired. As seen in Figs. 2 and 4, when the interior hollow space 26 is used, it may extend outwardly to intersect slots 18 and 19, to facilitate movement of the fulcrum in relation to bolt 14.

While I have illustrated my fulcrum as being of cast formation, it is, of course, understood that the same may be either malleable iron, forging, or other suitable material, as desired.

Having now described my invention, I claim:—

1. A reversible fulcrum for trussed brake beams, consisting of a relatively movable part and a relatively stationary part, said parts having means limiting the relative movement of the parts.

2. In a reversible fulcrum for brake beams, a slotted body member having a journal portion at one end of the body member for rotatably fitting directly against the compression member of the brake beam, and a transverse member fastened to said brake beam and connected to said journal portion for limiting the rotation of said body member.

3. In a reversible fulcrum for brake beams, a slotted body portion having a journal at one end for rotatably fitting directly against the compression member of the brake beam, and means at its opposite end for rotatably carrying a rod seat, said means being operable to limit the rotation of said body.

4. In a reversible fulcrum for brake beams, a slotted body member having a journal portion at one end of the body member for rotatably fitting directly against the compression member of the brake beam, and means at the opposite end of the body member for rotatably carrying a rod seat, said last mentioned means having means for limiting the amount of rotation of said body member.

5. A brake beam fulcrum comprising a slotted body member having a journal extension on one end thereof and a transverse opening adjacent said extension, and a rod seat rotatably mounted at the other end of said body portion.

6. In combination in a trussed brake beam, a main cross-beam or compression member, a fulcrum having a journal extension at one end entering and rotatably mounted directly on said compression member, and means extending transversely to said extension and firmly but rotatively holding said fulcrum journal extension in engagement with said compression member.

7. In combination in a trussed brake beam, a main cross-beam or compression member, a fulcrum having a journal extension rotatably mounted directly against said cross-beam member, and means connected to the fulcrum remote from the end of the extension and to the compression member for preventing movement of said journal extension longitudinally of said cross-beam or laterally thereof, but permitting rotation of said fulcrum with respect thereto.

8. In combination in a brake-beam, a main cross-beam or compression member, a fulcrum having a journal extension on one end fitting directly against said compression member to rotate with relation thereto, a clamp passing around said compression member and extending at its ends along a portion of each side of said fulcrum, and means passing through said extending ends and said fulcrum to permit a limited rotation of the latter with respect to said compression member.

9. In combination in a brake-beam, a main cross-beam or compression member, a fulcrum having a journal extension on one end snugly fitting directly against said compression member to rotate with relation thereto, a clamp passing around said cross-beam member and extending at its ends along a portion of each side of said fulcrum, and means passing through said extending ends and said fulcrum to permit a limited rotation of the latter with respect to said compression member, said fulcrum having opposed slotted openings beneath said extending ends, said last mentioned means comprising a bolt passing through said ends and said slotted openings.

10. A brake beam fulcrum comprising a slotted body member having a journal extension at one end and a substantially cylindrical portion formed with intersecting openings passing transversely therethrough, a portion of the metal of said body member being removed between said openings to form oppositely disposed slots to permit a limited rotary movement of the fulcrum upon a bolt passed through one of said openings.

11. In a trussed brake beam, a cross-beam or compression member, a fulcrum comprising a slotted body portion having a journal extension at one end thereof and a substantially cylindrical portion between the extension and said body portion and formed with intersecting openings passing transversely therethrough, a portion of the metal of said body portion being removed between said openings to form oppositely disposed slots to permit a limited rotary movement of the fulcrum upon a bolt passed through one of said openings, and a bolt passing through one of said tranverse openings to rotatably connect the fulcrum to the compression member.

12. In a trussed brake beam, a compression member, a clamp member tightly fitting around said compression member, a fulcrum having a journal extension rotatably seated against said compression member, said fulcrum having a slotted passageway extending from each side through the center, and a bolt passing through said passageway and said clamp member to hold the fulcrum substantially against longitudinal or lateral movement with relation to the compression member, but permitting a rotary movement of the fulcrum.

13. In a trussed brake beam a compression member having a clamp tightly fitting therearound a fulcrum having a journal extension on one end rotatably seated against said compression member, the fulcrum having a transverse slot therethrough, a bolt passing through said slot and secured to said clamp, said fulcrum also having an elongated lever receiving slot, a rod seat rotatably mounted in the end of the fulcrum opposite said journal extension, and means to limit the rotary movement of the fulcrum.

14. A reversible fulcrum comprising a rod seat, a slotted body portion rotatably connected therewith at one end, said body portion having a journal at its opposite end adapted to rotatably seat against a compression member, a clamp, an approximately rounded portion on said body portion adjacent said journal and having openings extending at an angle to each other therethrough, flat seats at the outer extremities of each of said openings, the adjacent ends of said openings being connected by slots passing through the axis of the said body portion, said slots permitting rotational sliding of said body portion on a bolt passed through said openings and securing the journal against the compression member, and said flat seats providing additional bearing surface between the fulcrum and said clamp when the bolt is tightened.

15. In a brake beam comprising a compression member, a reversible fulcrum comprising a rod seat, a slotted portion rotatably connected therewith, and means rotatably connecting the slotted portion directly to the

compression member, said means being held in fixed position during the rotation of the slotted portion.

16. In a reversible fulcrum for brake beams, a slotted body member having a journal portion at one end of the body member for rotatably fitting directly against the compression member of the brake beam, and means connected to said compression member and said journal and operable to limit the rotation of said body member.

17. A reversible fulcrum for brake beams having a compression member, comprising a slotted strut member, a journal bearing between one end of the strut member and the compression member whereby said strut member may turn about its longitudinal axis, and means connected to the compression member and the strut member and cooperable with the strut member for limiting the amount of turn of the strut member.

18. A reversible fulcrum for brake beams having a compression member, a slotted strut member, a journal bearing between one end of the strut member and the compression member whereby the strut member may turn about its longitudinal axis, and a strap embracing the compression member and connected to the strut member for limiting the amount of turn of the strut member.

In witness whereof, I hereunto subscribe my name to this specification.

EDWARD A. MAYHEW.