Oct. 17, 1950 R. B. COTTRELL 2,525,775

BRAKE BEAM CASTING

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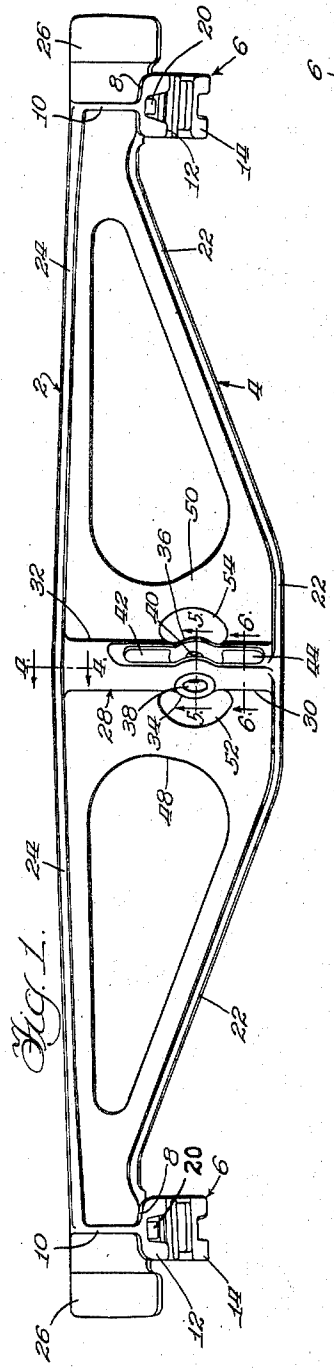


Fig. 1.

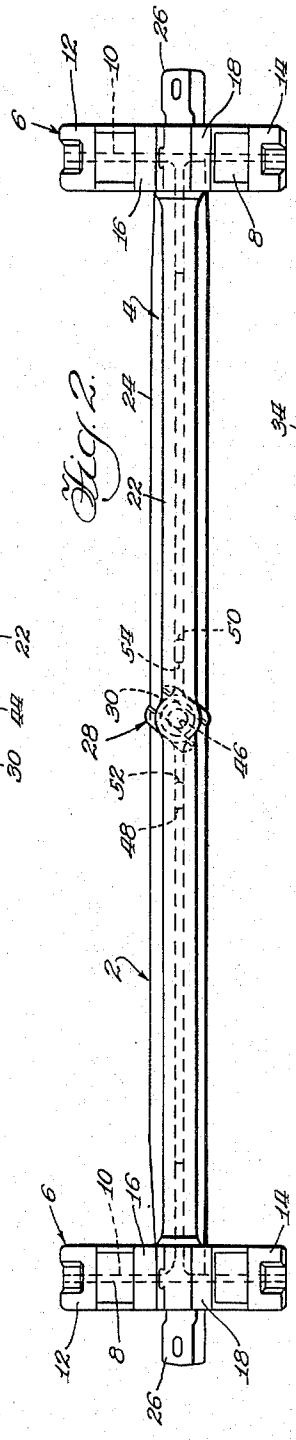


Fig. 2.

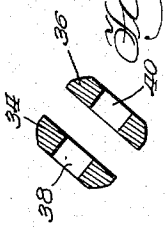


Fig. 5.

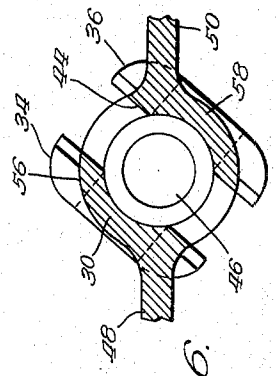


Fig. 6.

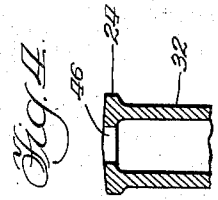


Fig. 4.

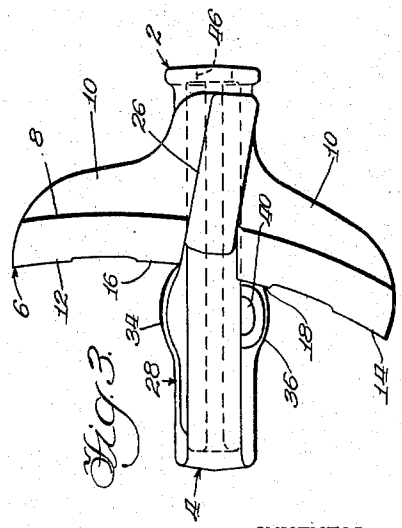


Fig. 3.

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BRAKE BEAM CASTING

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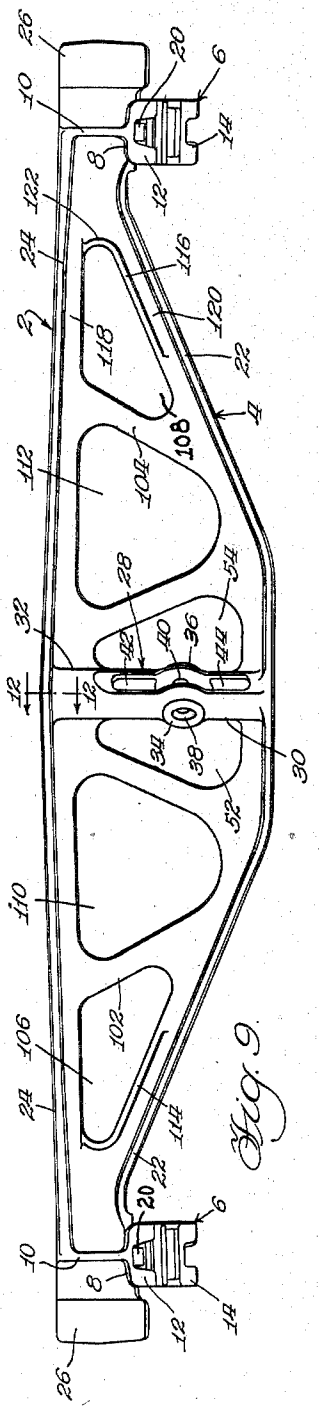


Fig. 9.

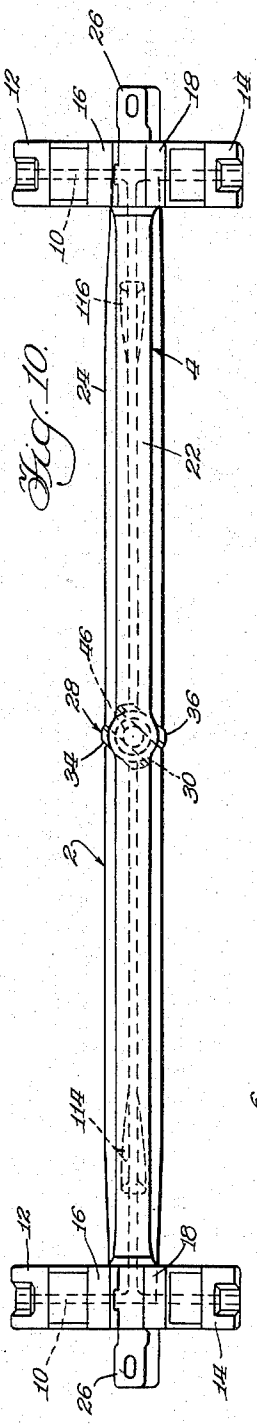


Fig. 10.

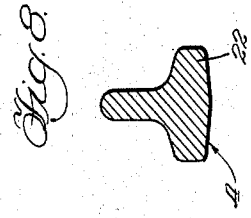


Fig. 8.

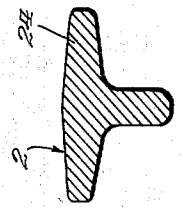


Fig. 7.

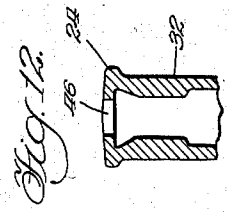


Fig. 12.

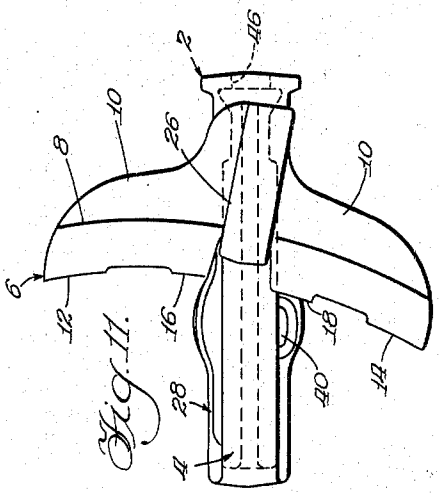


Fig. 11.

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BRAKE BEAM CASTING

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Application September 30, 1948, Serial No. 52,049

4 Claims. (Cl. 188—222.6)

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This invention relates to railway brake beams and more particularly to a novel brake beam having the characteristic of unusual rigidity and resistance to deformation due to braking forces.

A primary object of the invention is to provide a truss type brake beam having struts connecting the tension and compression members of the beam at opposite sides of the brake lever fulcrum.

Another object of the invention is to devise a brake beam such as above described wherein the struts are provided with openings accommodating insertion and removal of a brake lever fulcrum pin with respect to the fulcrum.

A further object of the invention is to form a brake beam of the above-described type as a single casting having its parts interconnected in such a manner as to afford maximum rigidity and minimum weight.

The foregoing and other objects and advantages of the invention will become apparent from a consideration of the following specification and the accompanying drawings wherein:

Figure 1 is a top plan view of a brake beam casting embodying the invention;

Figure 2 is a front elevational view of the beam;

Figure 3 is an end view of the beam;

Figure 4 is a fragmentary sectional view on the line 4—4 of Figure 1;

Figure 5 is a fragmentary sectional view on the line 5—5 of Figure 1;

Figure 6 is a fragmentary sectional view on the line 6—6 of Figure 1;

Figures 7 and 8 are vertical sectional views taken respectively through the compression member and the tension member of the beam; and

Figures 9–12, inclusive, illustrate a modified form of beam embodying the invention, Figure 9 being a top plan view, Figure 10 being a front elevational view, Figure 11 being an end view, and Figure 12 being a fragmentary sectional view on the line 12—12 of Figure 9.

Describing the invention in detail and referring first to the preferred embodiment illustrated in Figures 1 to 8, the novel brake beam is preferably formed as a single casting having a T-section compression member 2 and a T-section tension member 4 merging at each end of the beam with a brake head, generally designated 6.

The brake head comprises an arcuate front wall 8 having a vertical rear wall 10 connected to its rear surface. The wall 8 is formed on its front surface with bifurcated top and bottom end or toe lugs 12 and 14 and with spaced intermediate lugs 16 and 18 affording a seat for associated brake shoe means (not shown) secured by key means (not shown) extending through a keyway 20 (Figure 1).

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The front wall 8 is connected at its inboard edge to a vertical web 22 forming the head of the T-section tension member 4 and a rear end of the rear wall 10 is connected to a web 24 forming the head of a T-section compression member 2. The outboard edge of the wall 8 and the outboard surface of the wall 10 are integrally formed with a support lug or extension 26 disposed in a plane diagonal with respect to the plane of the truss defined by the tension and compression members 2 and 4, as best seen in Figures 2 and 3, said lug 26 being adapted to support the beam on an associated truck frame support ledge or bracket (not shown).

At the transverse center line of the beam the tension and compression members are connected by a brake lever fulcrum, generally designated 28, said fulcrum comprising front and rear barrel portions 30 and 32 connected respectively to the webs 22 and 24. The adjacent ends of the barrel portions 32 are connected by annular top and bottom bearing pads 34 and 36 having aligned openings 38 and 40 defining a brake pin hole intersecting a brake lever slot defined by the space between the bearing pads 34 and 36 and by slots 42 and 44 through the barrel portions 32 and 30, respectively. The brake lever slot defined by the slotted portions 42 and 44 and by the bearing pads 34 and 36 is adapted to receive an associated brake lever (not shown) which is pivotally fulcrumed within the slot by a brake pin (not shown) extending through the pinhole defined by the openings 38 and 40.

The connection between the rear barrel portion 32 and the compression member web 24 is best seen in Figure 4 wherein it will be noted that the web 24 is provided at this point with an opening 46 for convenient foundry practice.

The tension and compression members are interconnected at opposite sides of the fulcrum 28 by a pair of struts 48 and 50, each strut being connected to the tension and compression member webs 22 and 24 and to the barrel portions 30 and 32. The struts are provided with openings 52 and 54 aligned with the pinhole openings 38 and 40 to accommodate application and removal of the brake pin (not shown).

As best seen in Figure 6, the barrel portion 30 is divided by the slot 44 into upper and lower segments 56 and 58, the upper end of the lower segment 58 being connected to the strut 50 and the lower end of the upper segment 56 being con-

nected to the strut 48 to accommodate a symmetrical structure wherein the struts 48 and 50 are approximately coplanar. It will be understood that the rear barrel portion 32 is similarly constructed with an upper segment connected at its lower extremity to the strut 48 and a lower segment connected at its upper extremity to the strut 50, the struts being spaced from the bearing pads 34 and 36 as above noted to define application openings 52 and 54 accommodating insertion and removal of the brake pin.

Figures 9 to 12, inclusive, illustrate a modified form of brake beam embodying the invention wherein parts corresponding to those of Figures 1 to 8 are identified by corresponding numerals.

The modification is substantially identical with the preferred embodiment with the exception that the brake pin application openings 52 and 54 are somewhat larger and the beam is additionally reinforced by a pair of struts 102 and 104 connected between the tension and compression members 2 and 4 adjacent the ends of the beam, thereby defining windows 106 and 108 outwardly of the struts 102 and 104 and windows 110 and 112 inwardly of these struts. The beam is also reinforced at the outer ends of the windows 106 and 108 by vertical ribs or webs 114 and 116 connected to substantially horizontal webs 118 and 120 defining the legs of the T-section compression and tension members 2 and 4. Each rib 114 and 116, as best seen in Figure 9, extends outwardly along the tension member web 120 and then arcuately rearwardly at 122 to merge with the compression member web 118 at the rear extremity of the window 106 or 108.

I claim:

1. A truss type railway brake beam casting comprising a tension member of T-section having a substantially vertical front web and a substantially horizontal rear web, a compression member of T-section having a substantially vertical rear web and a substantially horizontal front web, the front web of the compression member and the rear web of the tension member merging at each end of the beam, a brake head at each end of the beam having a rear wall connected to the rear web of the compression member and a front wall connected to the front web of the tension member, said head having a front wall adapted to support associated brake shoe means, a support lug connected to said walls and extending outwardly from the rear wall, a brake lever fulcrum including spaced barrels connected respectively to the front web of the tension member and to the rear web of the compression member, aligned slots through said barrels dividing the same into upper and lower webs, a pair of annular bearing pads, one of said pads being connected between the upper webs and the other being connected between the lower webs, aligned openings through said bearing pads defining a pinhole, and a pair of flat, substantially coplanar struts connected to the rear web of the tension member and to the front web of the compression member, one of said struts being connected to the upper extremities of the lower webs and the other of said struts being connected to the lower extremities of the upper webs, both of said struts being spaced from said pads to define openings accommodating application and removal of an associated brake pin with respect to said pinhole.

2. A truss type railway brake beam casting comprising a tension member, a compression member, a brake lever fulcrum comprising a pair of spaced barrels connected to the respective members, said barrels being slotted to define upper and lower arcuate webs adapted to receive an associated brake lever therebetween, upper and lower annular bearing pads, the upper pad being connected between the upper webs of respective barrels and the lower pad being connected between the lower webs of respective barrels, aligned openings through said pads defining a pinhole, a flat strut connected to the upper extremities of the lower webs and to said members, and another flat strut connected to the lower extremities of the upper webs and to said members, said struts being approximately coplanar and spaced from said pads to define openings accommodating application and removal of an associated fulcrum pin with respect to said pinhole.

3. A brake beam casting, according to claim 2, wherein the bearing pads are diagonal to the plane of the tension and compression members.

4. A truss type railway brake beam casting comprising a tension member, a compression member, a brake lever fulcrum comprising a pair of spaced barrels connected at their remote ends to the respective members and slotted to define upper and lower arcuate webs adapted to receive an associated brake lever, a top bearing pad connected between the upper webs of respective barrels at their adjacent ends, a lower bearing pad connected between the adjacent extremities of the lower webs of respective barrels, aligned openings through said pads defining a pinhole, a flat strut connected to the upper extremities of the lower webs and to said members, and another flat strut approximately coplanar to the first-mentioned strut and connected to the lower extremities of the lower webs and to said members, said struts having openings aligned with said pinhole, the inboard edge of each opening being defined by one of said pads.

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