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BRAKE BEAM.

APPLICATION FILED JAN. 10, 1905.

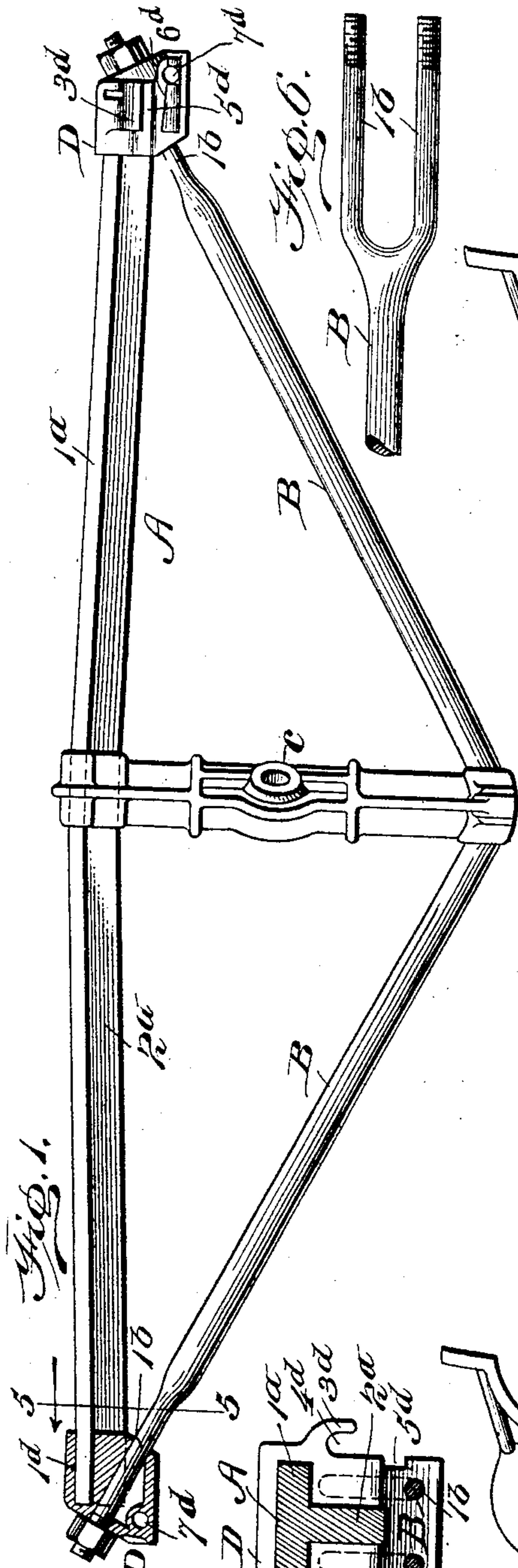


Fig. 1.

WITNESSES:

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Fig. 6.

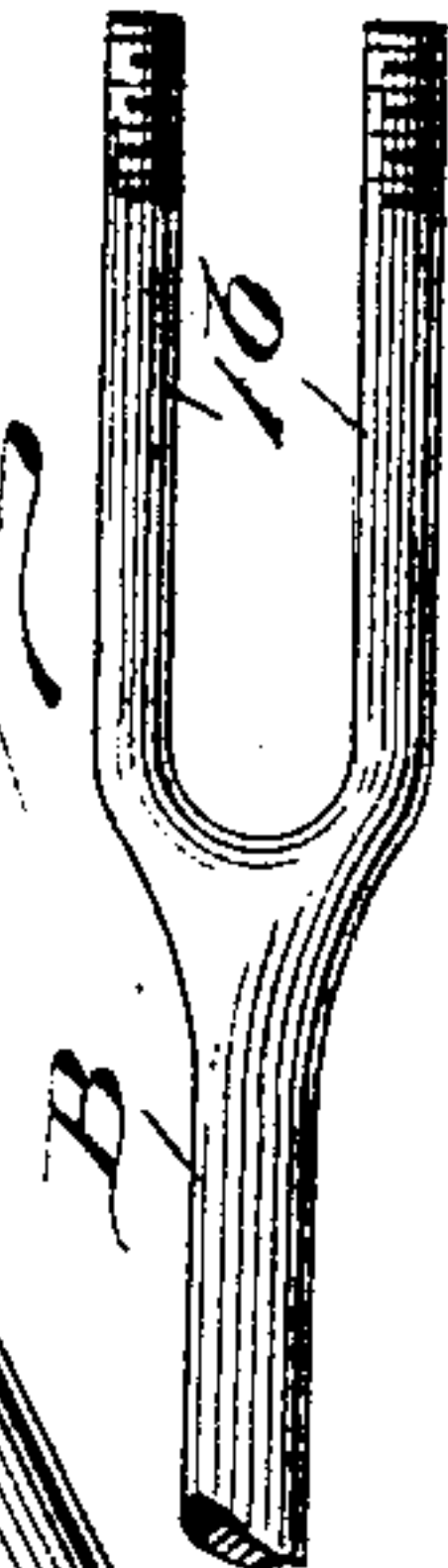


Fig. 3.

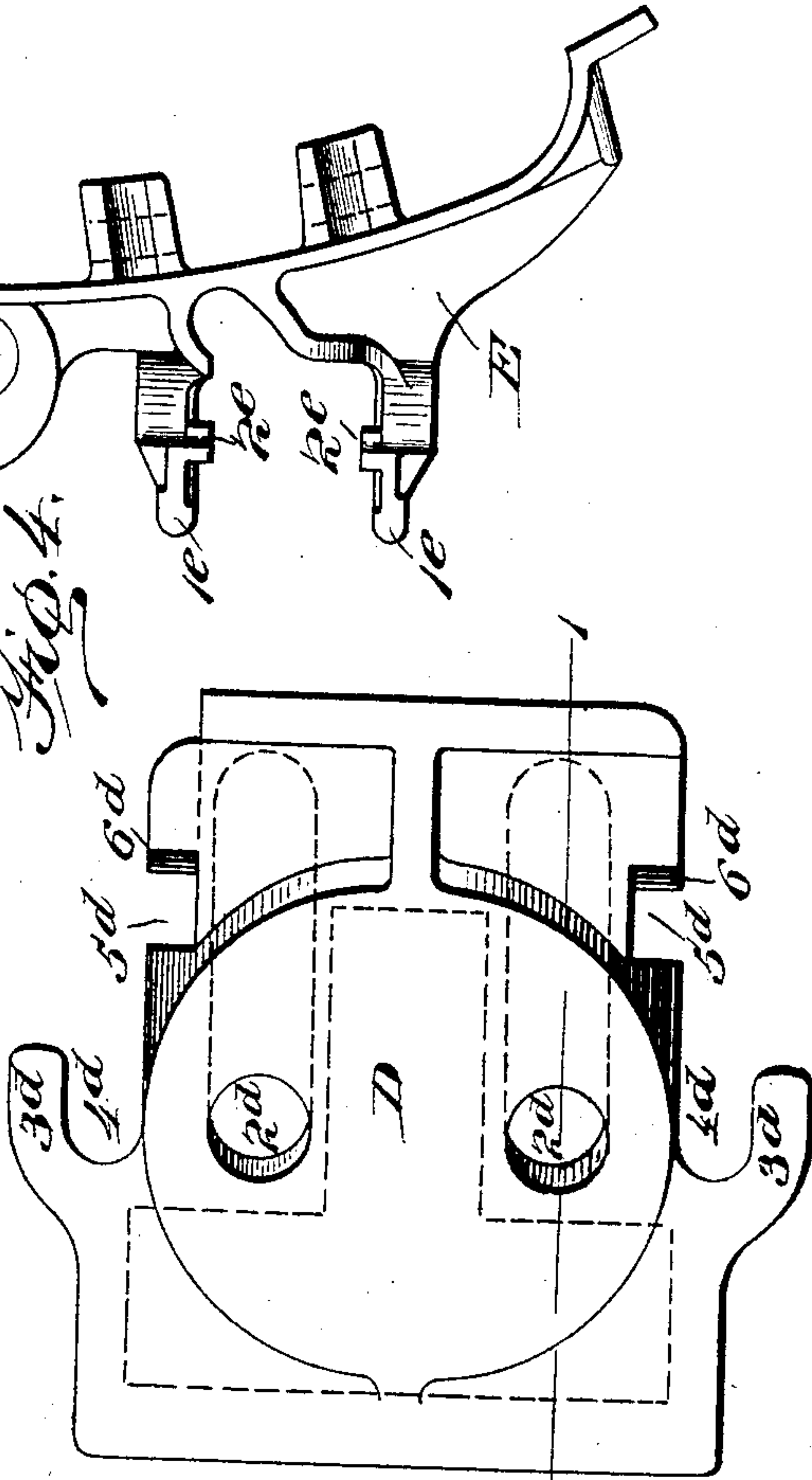


Fig. 4.

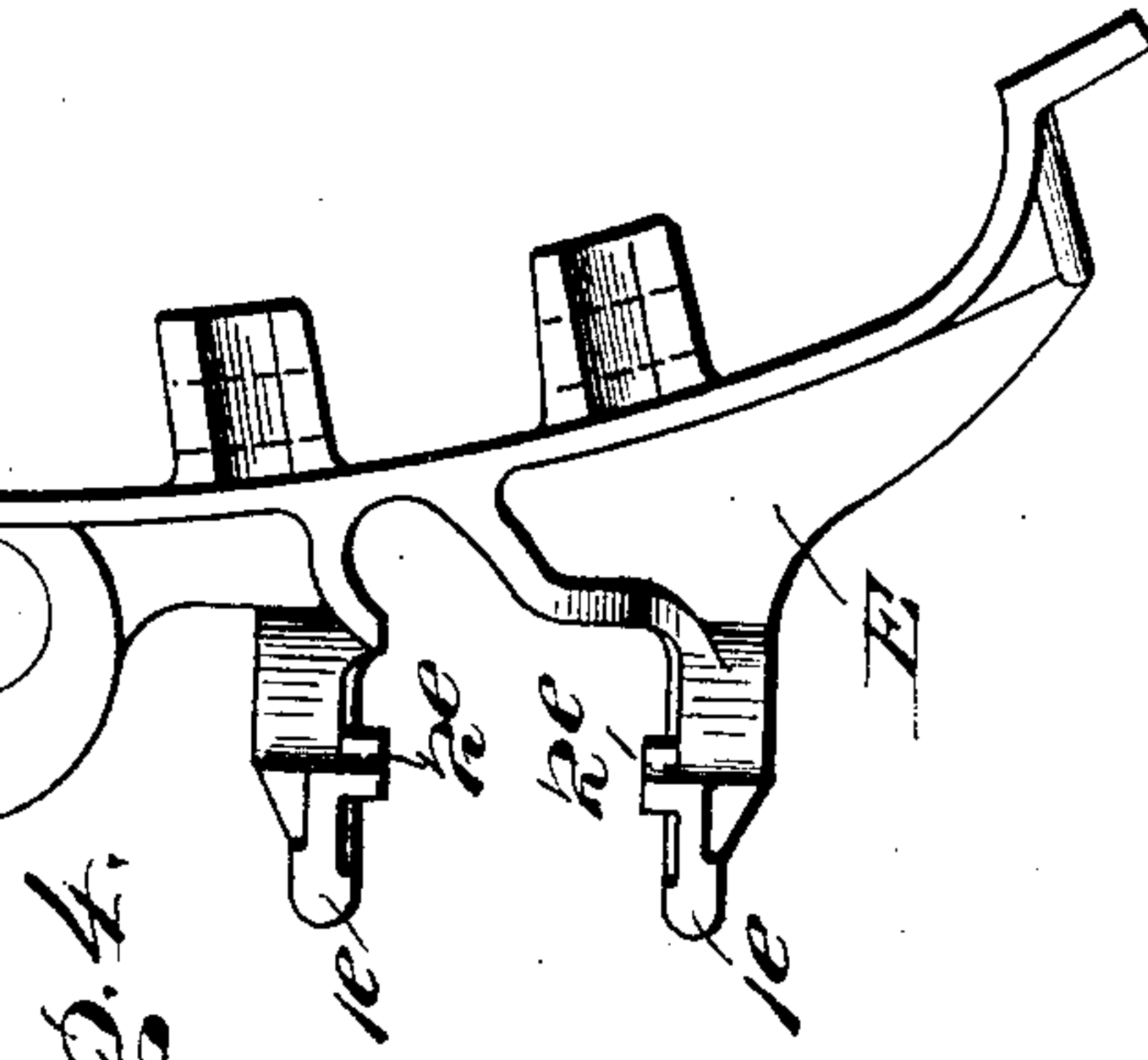
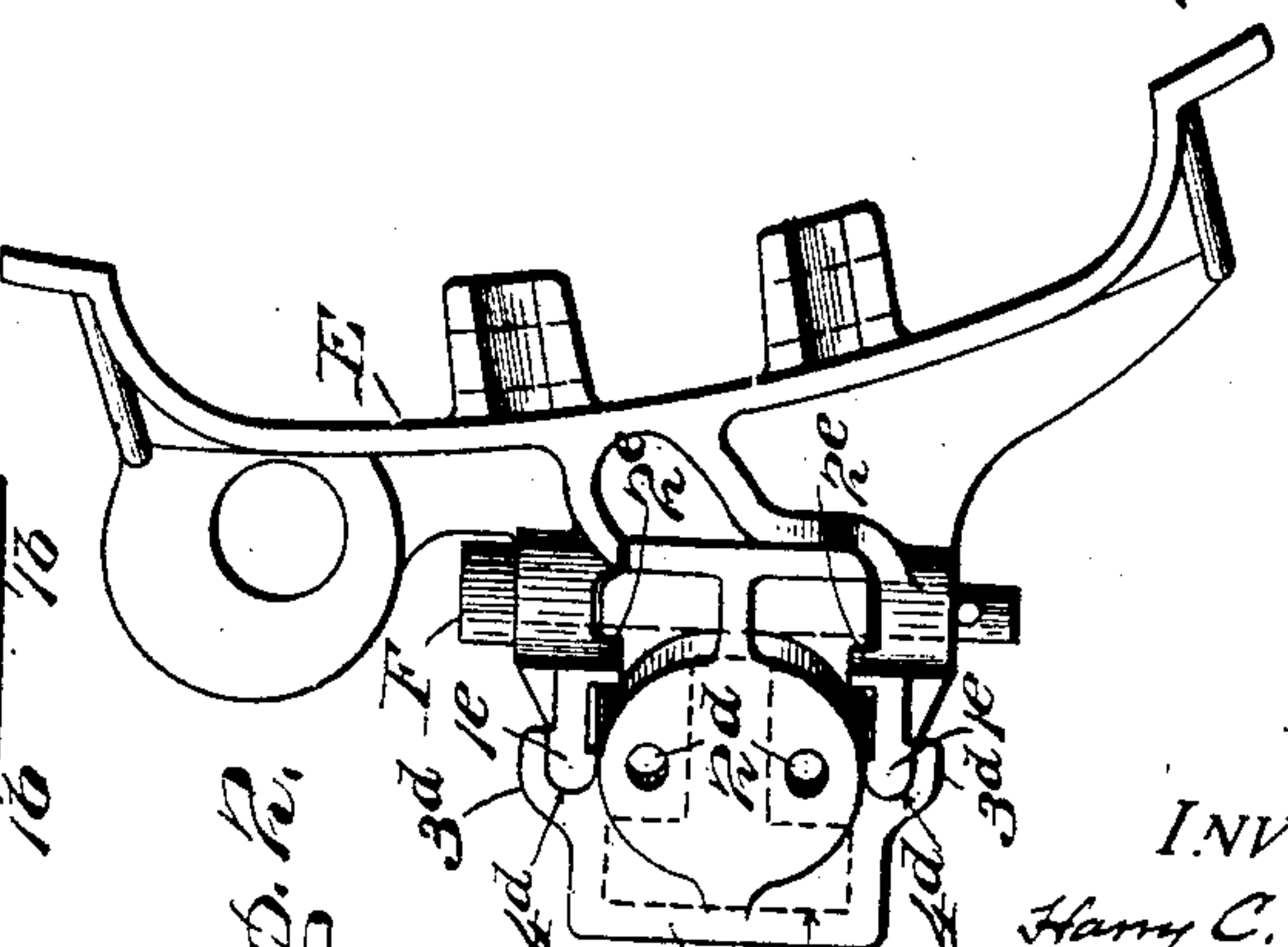


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## BRAKE-BEAM.

No. 803,874.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed January 10, 1905. Serial No. 240,389.

*To all whom it may concern:*

Be it known that we, HARRY C. BUHOUP and GILBERT P. RITTER, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Brake-Beams; and we hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a brake-beam embodying our invention, the brake-heads omitted and one end cap or end coupling for the compression and tension members being shown in section on the line 1 1, Fig. 3. Fig. 2 is an enlarged side elevation showing the relation of the end cap or end coupling and the brake-head. Fig. 3 is an enlarged side elevation of the end cap or end coupling shown in Fig. 2. Fig. 4 is an enlarged side elevation of the brake-head shown in Fig. 2. Fig. 5 is an enlarged section on the line 5 5, Fig. 1, looking toward the adjacent end of the brake-beam. Fig. 6 is a detached view of one end of the tension member, showing the forked ends thereof.

Like symbols refer to like parts wherever they occur.

Our invention relates to the construction of brake-beams for railway-cars, and has for its object the production of a structure which shall be strong, simple, and cheap in construction, easily and quickly assembled and repaired, and which shall afford great rigidity to strains transversely of the plane of its truss.

To this end our invention, generally stated, consists in combining with the compression member, tension member, and strut of a trussed brake-beam end caps or end couplings for said compression and tension members and brake-heads applied thereto, said end caps or end couplings being adapted to receive the brake-heads and to afford a stable and firm bearing thereto by means integral with said couplings and said heads, and such a construction embodies one feature of our invention.

A further feature of our invention in trussed brake-beams consists in combining with a tension member having forked ends integral therewith a compression member having legs, webs, or flanges extending at an angle to each other, the forked ends of said tension member including a flange of the compression member between them.

There are other minor features of invention residing in particular constructions and ele-

mental combinations, all as will hereinafter more fully appear.

We will now proceed to describe our invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings chosen to illustrate our invention, the scope whereof is pointed out in the claims, A is the compression member; B, the tension member; C, the strut; D D, end caps or end couplings for the tension and compression members, and E E brake-heads of a trussed brake-beam.

To better withstand strains transversely of the plane of the truss, the compression member A is formed of a member or members having legs, webs, or flanges extending at an angle to each other; but a single member of T-shape cross-section is preferably employed, its flanges 1<sup>a</sup> 1<sup>a</sup> extending transversely of the plane of the truss and its flange 2<sup>a</sup> lying in the plane thereof. If desired, however, compression members having other forms of cross-section with flanges lying in and extending transversely of the plane of the truss may be employed.

The tension member B, which passes over the end of the strut C and through the end caps or end couplings D D, in which the compression member A is socketed, is provided with forked ends, preferably integral therewith, and each consisting of a plurality of members 1<sup>b</sup> 1<sup>b</sup>, passing through suitable passages or openings in the end caps or end couplings D D and being maintained in engagement therewith by nuts or in other suitable manner. By employing a single tension-rod having forked ends, the members of which include between them the flange of the compression member lying in the plane of the truss, the necessity of cutting the flange of the compression member at the ends is obviated and a strong beam is thus secured, while yet maintaining a head or equivalent head and end cap or coupling which is of small dimensions. By this means also a single tension-rod may be employed, with the attendant lightness, cheapness, and uniformity of stress in such tension member.

The construction in so far as heretofore described may be employed in conjunction with rigid brake-heads; but it is preferred to apply the brake-heads to end caps or end couplings D D, which form sockets or seats for the ends of the compression member A and through which the forked ends 1<sup>b</sup> 1<sup>b</sup> of the tension member B pass. The socket or seat



1<sup>d</sup> of the end coupling D for the compression member is preferably of a form corresponding to the cross-section of the compression member employed, in the present instance of  
 5 T form, and the passages or openings 2<sup>d</sup> 2<sup>d</sup> for the forked ends 1<sup>b</sup> 1<sup>b</sup> of the tension member are disposed at an angle thereto. For the purpose of attaching the brake-head E to the end cap D and as a means for resisting  
 10 any relative twisting or rising of the said head to the said end cap when in service the latter is preferably provided with laterally-extending lugs or ears 3<sup>d</sup> 3<sup>d</sup>, forming horizontally-extending channels or grooves 4<sup>d</sup> 4<sup>d</sup>  
 15 for the reception of lugs or complementary members 1<sup>e</sup> 1<sup>e</sup> upon the brake-head E, said cap or coupling D being also preferably provided with laterally-extending guideways 5<sup>d</sup> 5<sup>d</sup> and inclined faces 6<sup>d</sup> 6<sup>d</sup> for the reception  
 20 of the correspondingly-inclined lateral projections 2<sup>e</sup> 2<sup>e</sup> or other inclined portion of the brake-head E. The channels 5<sup>d</sup> 5<sup>d</sup> of the cap D are somewhat wider than the projections 2<sup>e</sup> 2<sup>e</sup> of the head E, so that the inclined faces 6<sup>d</sup> 6<sup>d</sup>  
 25 6<sup>d</sup> 6<sup>d</sup> upon the said end cap coact with the corresponding inclines upon the projections 2<sup>e</sup> 2<sup>e</sup> of the head or with other suitable inclines upon the brake-head, and the brake-head is thus brought to a stable and firm  
 30 bearing contact with the said end cap or end coupling.

It will be noted that while the channels 4<sup>d</sup> 4<sup>d</sup> and 5<sup>d</sup> 5<sup>d</sup> all extend laterally of the end cap D they are disposed at an angle to each other  
 35 and that the lugs or projections 1<sup>e</sup> 1<sup>e</sup> and 2<sup>e</sup> 2<sup>e</sup> of the brake-head E also extend laterally and are similarly disposed at an angle to each other, the result being that when the brake-head is applied to the end cap any relative  
 40 twisting of these members in service is efficiently resisted. It may also be noted that by means of the laterally-extending engaging channels and lugs upon the end caps D D and brake-heads E E the dimensions of said end  
 45 caps and brake-heads may be decreased, since the tension member B may be interposed between such channels and lugs as are on opposite sides of the end caps and brake-heads.

In order to prevent displacement of the  
 50 brake-heads E E after they have been placed in position, a bolt F or a key may be passed through both the end caps or end couplings D D and their attached brake-heads E E, the end caps D D having bolt-holes 7<sup>d</sup> or equivalent provision for the bolt F.  
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The construction of the several parts being substantially such as hereinbefore pointed out, the device may be assembled by passing the compression member A through the strut  
 60 C, then applying the end caps or end couplings D D, and passing the tension member B over the strut and its forked ends 1<sup>b</sup> 1<sup>b</sup> through the said end caps, after which the nuts are applied and tightened. The brake-heads E E  
 65 may then be applied by sliding them laterally

in the direction of length of the compression member onto the end caps D D, so that the corresponding parts of each engage or register, the inclined faces of the end caps and brake-heads coacting with each other, as before described, to bring the parts into firm  
 70 contact. Thereafter the bolts F F may be passed through each of the said end caps and brake-heads to secure the latter against lateral displacement.  
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Obviously many modifications may be made in the construction heretofore described without departing from the scope of the claims, and it is also apparent that the construction of end caps and brake-heads may be applied  
 80 to suitable beam members constituting other than trussed brake-beams.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—  
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1. In a brake-beam, the combination with brake-heads, of a strut, a compression member having flanges extending at an angle to each other, and a tension member having ends which include a flange of said compression  
 90 member between them.

2. In a brake-beam, the combination with brake-heads, of a strut, a compression member having a single flange in the plane of the truss, and a tension member having ends which  
 95 include said flange between them.

3. In a brake-beam, the combination with brake-heads, of a strut, a compression member having a flange transversely of and a flange in the plane of the truss, and a tension  
 100 member having forked ends which include the flange in the plane of the truss.

4. In a brake-beam, the combination with brake-heads, of a strut, a compression member of T cross-section, and a tension member  
 105 having forked ends which include a flange of the compression member between them.

5. In a brake-beam, the combination with a compression member, a tension member and a strut, of end caps, and brake-heads relatively movable both longitudinally and transversely with respect to said end caps, said end caps and brake-heads having integral there-  
 110 with means for causing said end caps and brake-heads to firmly engage each other, said means extending laterally in the direction of length of the compression member.  
 115

6. In a brake-beam, the combination with a compression member, a tension member and a strut, of end caps and brake-heads each having a plurality of laterally-extending lug and groove connections between them, said tension member being interposed between such  
 120 laterally-extending connections.

7. In a brake-beam, the combination with suitable beam members, of end caps and brake-heads each having engaging corresponding inclined faces extending laterally in the direction of length of the compression member.  
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8. In a brake-beam, the combination with  
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a compression member, a tension member and a strut, of end caps provided each with channels and lugs extending laterally in the direction of length of the compression member, and brake-heads having complementary members adapted to rigidly engage the channels and lugs of said end caps.

9. In a brake-beam, the combination with brake-heads, of a strut, a compression member of T cross-section, and a tension member having forked ends integral therewith which include a flange of the compression member.

10. In a brake-beam, the combination with a strut, of a compression member having a flange in the plane of the truss and a flange extending transversely thereto, a tension member having forked ends integral therewith which include a flange of the compression member between them, end caps for the said compression and tension members, and brake-heads engaging said end caps, said end caps and said brake-heads having engaging inclined faces.

11. In a brake-beam, the combination with

a tension member, end caps and strut, of a compression member of T cross-section having a flange extending inwardly toward the tension member, and brake-heads independent of said end caps.

12. In a brake-beam, the combination with a compression member having flanges perpendicular to each other, of a strut, a tension member, end caps secured to said compression member by said tension member, and brake-heads independent of and rigidly engaging said end caps.

13. A brake-head for brake-beams, said head having inclines upon the rear face thereof extending laterally in a direction transverse to the shoe-receiving face of said head.

In testimony whereof we affix our signatures, in presence of two witnesses, this 3d day of January, 1905.

HARRY C. BUHOUP.  
GILBERT P. RITTER.

Witnesses:

M. D. BALLAUF,  
HUGH M. STERLING.