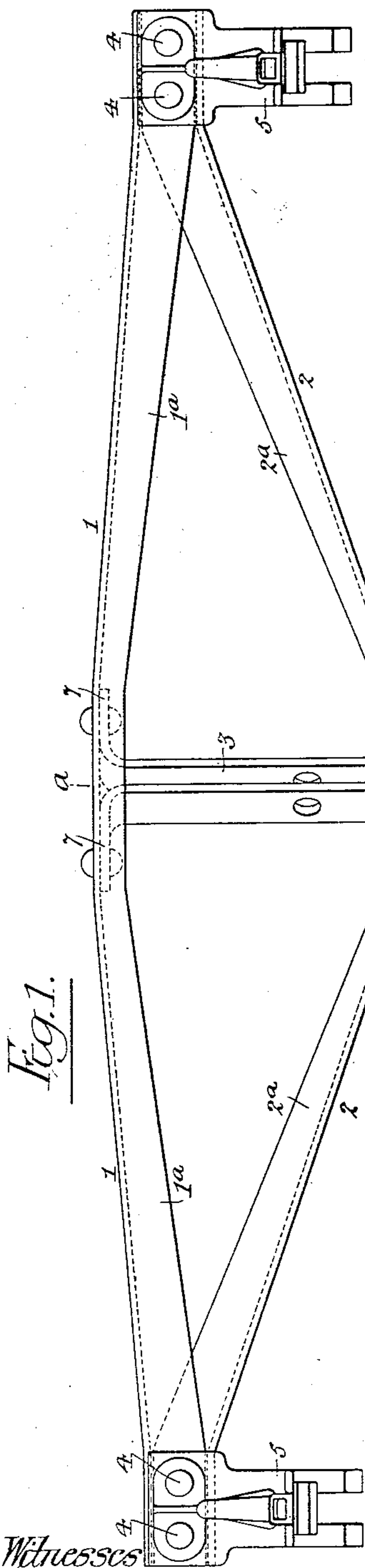


No. 750,732.

PATENTED JAN. 26, 1904.

A. STUCKI.
METALLIC BRAKE BEAM.
APPLICATION FILED JAN. 5, 1903.

NO MODEL.



Witnesses
Frank L. G. G. G.
Herman E. M. M.

Fig. 6.

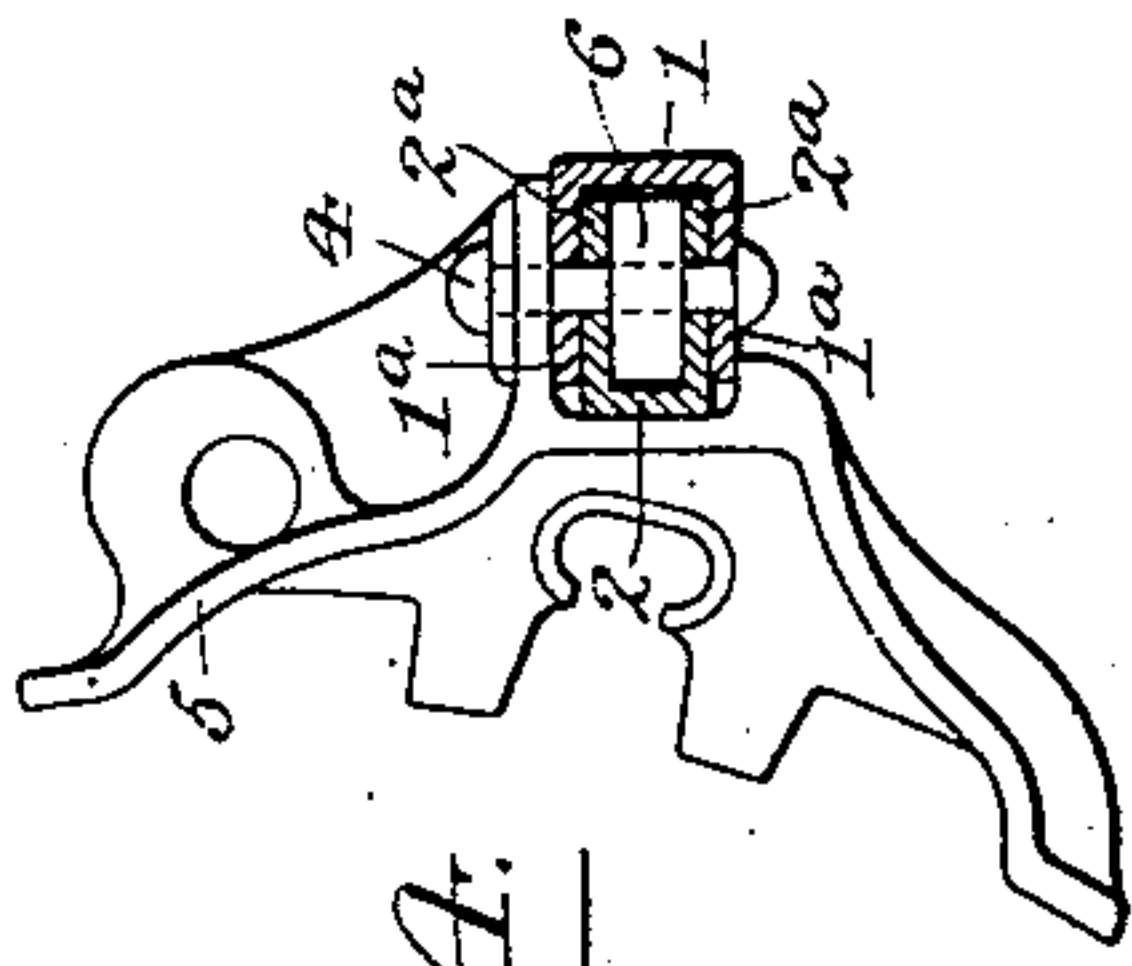


Fig. 4.

Fig. 5.

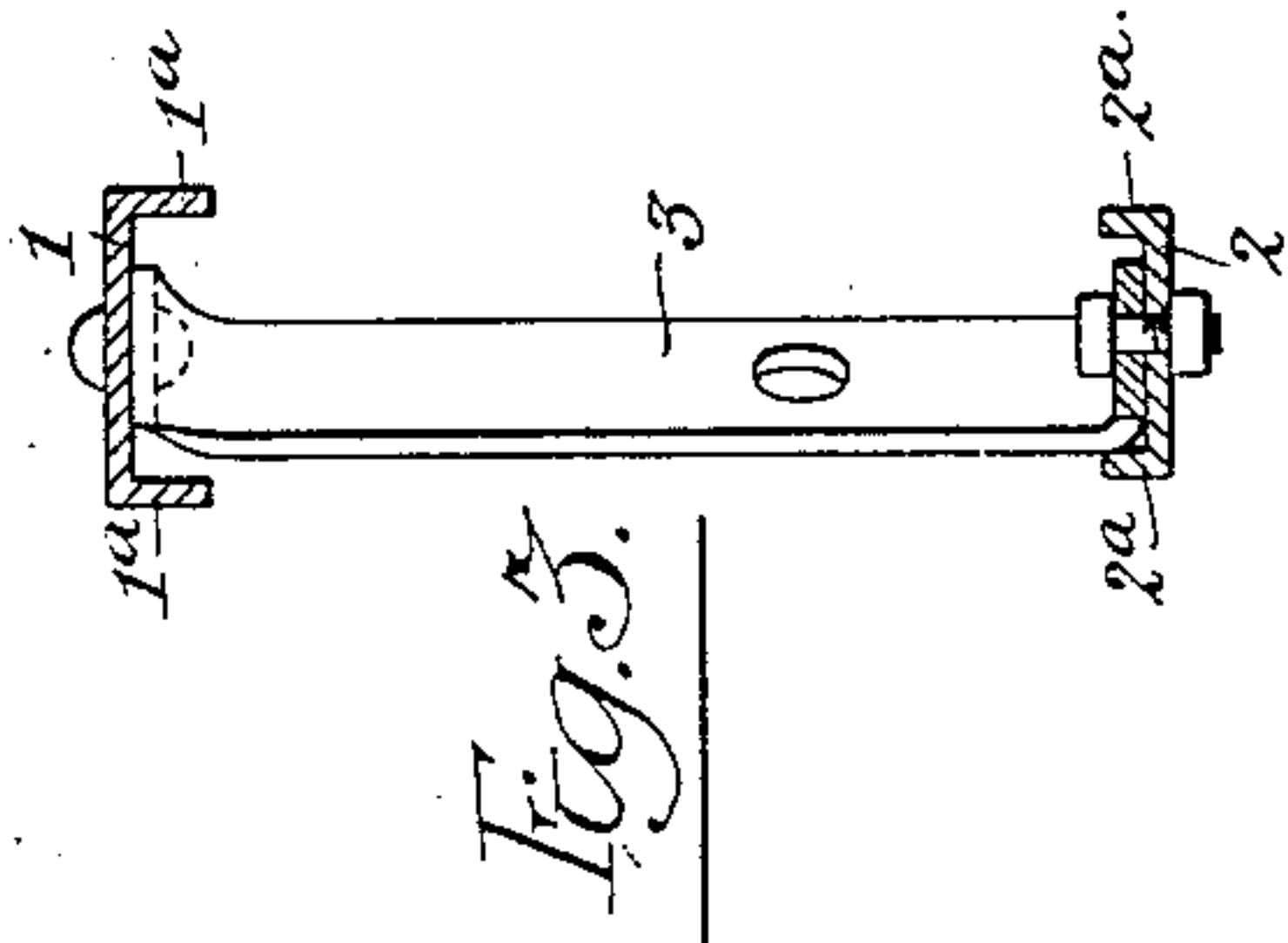
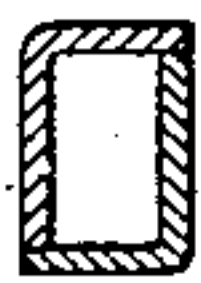
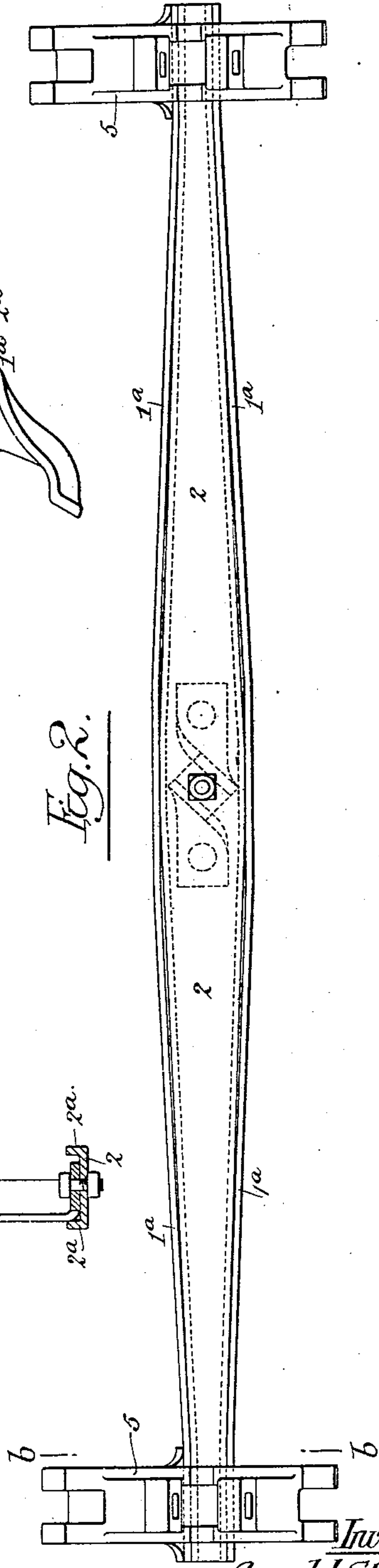


Fig. 3.

Fig. 2.



Inventor:
Arnold Stucki,
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UNITED STATES PATENT OFFICE.

ARNOLD STUCKI, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO STANDARD STEEL CAR COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

METALLIC BRAKE-BEAM.

SPECIFICATION forming part of Letters Patent No. 750,732, dated January 26, 1904.

Application filed January 5, 1903. Serial No. 137,828. (No model.)

To all whom it may concern:

Be it known that I, ARNOLD STUCKI, a citizen of the United States, and a resident of Allegheny, Pennsylvania, have invented certain
5 Improvements in Metallic Brake-Beams, of which the following is a specification.

My invention relates to that class of brake-beams which is composed wholly or mainly of pressed plates of steel or other wrought
10 metal, the object of my invention being to so construct a brake-beam of this class that it can be made without waste of material or labor and will have the material so disposed in it that each part of the beam will be best calcu-
15 lated to resist the particular strain to which that part of the beam is subjected when in use.

In the accompanying drawings, Figure 1 is a plan or top view of a metallic brake-beam constructed in accordance with my invention,
20 this view showing also the brake-heads applied to the ends of the beam. Fig. 2 is a face view of the beam. Fig. 3 is a section on the line *a a*, Fig. 1. Fig. 4 is a section on the line *b b*, Fig. 2; and Figs. 5 and 6 are sectional views illustrating modifications of the
25 invention.

The beam consists of two members 1 and 2, disposed so as to form a truss, of which 1 is the compression member and 2 the tension
30 member, the two members of the truss being connected together at their opposite ends, but separated at their central portions, by means of an interposed strut 3, which also serves as a hanger for the brake-lever.

Each of the members of the truss consists of a plate bent or pressed so as to form a channel with upper and lower flanges, those of the member 1 being represented at 1^a and those of the member 2 at 2^a. Each member
40 of the truss is deepest in its central portion and gradually tapers toward each end, where it is shallowest, and the flanges are graduated in reverse order—that is to say, they are widest at the shallow ends of each truss member and narrowest at the deep central portion of the same—as clearly indicated in Figs. 1 and 2. By reason of this construction the end
45 portions of the beam will effectually resist

bending strains exerted at points adjacent to the brake-heads and to which all brake-beams
50 are subjected, while the depth of the beam at the center will enable it to best resist the strains due to the sagging of the beam. This disposition of the metal in the two members of the beam also enables me to form each mem-
55 ber from a straight plate with a minimum of labor and without any waste of material or expense of cutting, shearing, or otherwise shaping the blank.

The flanged ends of one member of the beam
60 fit within the flanged ends of the other member, as shown, and these engaging ends are rigidly secured together by means of bolts or rivets 4, which also serve to secure in place the break-head 5, a filling-piece 6 being inter-
65 posed between the flanges of the two members of the beam in order to prevent distortion or crushing of said flanges when the ends of the rivets 4 are being upset by the riveting-machine. Rigid and lasting connection of the
70 brake-heads with the beam is thus insured, and twisting or other displacement of the brake-heads upon the beam is effectually prevented.

The strut 3 may, if desired, consist of a cast-
75 ing of malleable iron or steel; but it is by preference formed of a plate of steel or other wrought metal bent into U form, the bend of the U being bolted or riveted to one member of the truss and the open end of the U being
80 provided with laterally-extending flanges 7, bolted or riveted to the other member of the truss, as shown in Fig. 1.

Although I prefer in all cases to provide each of the members of the truss with flanges
85 at both their upper and lower edges, a single flange on each member of the truss may in some cases be sufficient. For instance, the member 1 may have a flange upon its upper edge and the member 2 may have a flange upon
90 its lower edge, as shown in Fig. 5, and instead of disposing the members of the beam so that their edge flanges overlap each other at the ends of the beam said members may be placed
95 back to back, as shown in Fig. 6, or a compression member of the character specified

may be combined with a tension member of a different character. Sufficient strength may also be obtained by making the flanges and the depth of either member uniform throughout its length.

I am aware that it has been proposed to construct brake-beams having compression and tension members each consisting of a plate with a hollow central rib struck up therefrom and also that such plates have been deeper in the center than at the ends and that the ribs have been graduated in size. Hence I do not claim any such construction; but

I claim as my invention and desire to secure by Letters Patent—

1. A metallic brake-beam having compression and tension members deep in the center and shallow at the ends and having edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, substantially as specified.

2. A metallic brake-beam having compression and tension members with edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, such edge flanges being widest at the ends of each truss member and gradually diminishing in width toward the center of the same, substantially as specified.

3. A metallic brake-beam having compression and tension members deep in the center and shallow at the ends, and having edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said flanges being widest at the shallow ends of each truss member and gradually diminishing in width toward the center of the same, substantially as specified.

4. A metallic brake-beam having compression and tension members each deep in the center and shallow at the ends and each having top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, substantially as described.

5. A metallic brake-beam having compression and tension members each with top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, such flanges being widest at the ends of each truss member and gradually diminishing in width toward the center of the same, substantially as specified.

6. A metallic brake-beam having compression and tension members deep in the center and shallow at the ends and each having top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, such flanges being widest at the ends of each truss member and gradually diminishing in width toward the center of the same, substantially as specified.

7. A metallic brake-beam having compression and tension members deep in the center and shallow at the ends and having edge flanges

projecting therefrom in a direction parallel with the direction of thrust upon the beam, said flanges overlapping each other at the ends of the beam, substantially as specified.

8. A metallic brake-beam having compression and tension members with edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, such edge flanges being widest at the ends of the truss member and overlapping each other at such ends and gradually diminishing in width toward the center of the beam, substantially as specified.

9. A metallic brake-beam having compression and tension members deep in the center and shallow at the ends, and having edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said flanges being widest at the shallow ends of each truss member and overlapping each other at such ends, and gradually diminishing in width toward the center of the beam, substantially as specified.

10. A metallic brake-beam having compression and tension members each deep in the center and shallow at the ends and each having top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, and overlapping each other at the ends of the beam, substantially as described.

11. A metallic brake-beam having compression and tension members each with top and bottom edge flanges projecting therefrom in a direction parallel with the direction of thrust upon the beam, such flanges overlapping each other and being widest at the ends of each truss member and gradually diminishing in width toward the center of the beam, substantially as specified.

12. A metallic brake-beam having compression and tension members deep in the center and shallow at the ends and each having top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, such flanges overlapping each other and being widest at the ends of each truss member and gradually diminishing in width toward the center of the beam, substantially as specified.

13. A metallic brake-beam consisting of a compression member, and a tension member, each deep in the center and shallow at the ends, and each having an edge flange projecting therefrom in a direction parallel with the direction of the thrust upon the beam, and said members being connected together at the ends of the beam but separated from each other by an interposed strut at the center of the beam, substantially as specified.

14. A metallic brake-beam consisting of a compression member and a tension member each having an edge flange projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said edge flange

being widest at the ends of each member and gradually diminishing in width toward the center of the same, and the two members being connected together at the ends of the beam but
5 separated from each other by an interposed strut at the center of the beam, substantially as specified.

15. A metallic brake-beam consisting of a compression member and a tension member
10 each deep in the center and shallow at the ends, and each having an edge flange projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said flange being widest at the shallow ends of the mem-
15 ber and gradually diminishing in width toward the center of the same, and said members being connected together at the ends of the beam but separated from each other by an interposed strut at the center of the beam, substan-
20 tially as specified.

16. A metallic brake-beam consisting of a compression member and a tension member each deep in the center and shallow at the ends and each having top and bottom edge flanges
25 projecting therefrom in a direction parallel with the direction of thrust upon the beam, said members being connected together at the ends of the beam but separated from each other by an interposed strut at the center of the
30 beam, substantially as specified.

17. A metallic brake-beam consisting of a compression member and a tension member each having top and bottom edge flanges projecting therefrom in a direction parallel with
35 the direction of the thrust upon the beam, said flanges being widest at the ends of the beam and gradually diminishing in width toward the center of the same and said members being connected together at the ends of the beam
40 but separated from each other by an interposed strut at the center of the beam, substantially as specified.

18. A metallic brake-beam consisting of a compression member and a tension member
45 each deep in the center and shallow at the ends, and each having top and bottom edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said flanges being widest at the ends of
50 the beam, and gradually diminishing in width toward the center of the same, and said members being connected together at the ends of the beam, but separated from each other by an interposed strut at the center of the beam, sub-
55 stantially as specified.

19. A metallic brake-beam consisting of a truss with compression and tension members each deep in the center and shallow at the ends and having edge flanges which project in a di-
60 rection parallel with the direction of thrust upon the beam and overlap each other at the ends of the beam, substantially as specified.

20. A metallic brake-beam consisting of a truss with compression and tension members
65 having edge flanges wide at the ends of the

beam and narrower at the center, said edge flanges overlapping each other at the ends of the beam, substantially as specified.

21. A metallic brake-beam consisting of a truss with compression and tension members
70 each deep at the center and shallow at the ends and having edge flanges which are widest at the ends and gradually decrease in width toward the center, said edge flanges overlapping each other at the ends of the beam, substan-
75 tially as specified.

22. A metallic brake-beam consisting of a truss with compression and tension members each deep in the center and shallow at the ends and each having top and bottom edge flanges
80 which overlap each other at the ends of the beam, substantially as specified.

23. A metallic brake-beam consisting of a truss with compression and tension members each having top and bottom edge flanges widest
85 at the ends of the beam and narrower toward the center, said edge flanges overlapping each other at the ends of the beam, substantially as specified.

24. A metallic brake-beam consisting of a
90 truss with compression and tension members each deep at the center and shallow at the ends and each having top and bottom edge flanges which are widest at the ends and narrower toward the center, said edge flanges overlapping
95 each other at the ends of the beam, substantially as specified.

25. A metallic brake-beam consisting of truss members having edge flanges projecting therefrom in a direction parallel with the di-
100 rection of thrust upon the beam and overlapping each other at the ends of the beam, brake-heads, and fastening devices which serve to secure said overlapping flanges together at the ends of the beam, and also secure the brake-
105 heads to said beam, substantially as specified.

26. A metallic brake-beam consisting of truss members having edge flanges which overlap each other at the ends of the beam, interposed filling-pieces, brake-heads and fastening
110 devices which serve to secure together at each end of the beam the brake-head, the filling-piece and the overlapping flanges of the truss members, substantially as specified.

27. A metallic brake-beam consisting of
115 truss members each having top and bottom edge flanges which overlap each other at the ends of the beam, brake-heads and fastening devices which serve to secure said overlapping flanges together and also to secure the brake-
120 heads to the beam, substantially as specified.

28. A metallic brake-beam consisting of truss members having upper and lower edge flanges which overlap each other at the ends of the beam, interposed filling-blocks, brake-
125 heads and fastening devices which serve to secure together at each end of the beam a brake-head, a filling-block and the overlapping flanges of the truss members, substantially as
130 specified.

29. A metallic brake - beam consisting of truss members connected together at the ends of the beam, and separated at the center by means of a strut consisting of a strip of metal
5 bent into U form and having lateral flanges at the open end of the U, substantially as specified.

30. A metallic brake - beam consisting of compression and tension members having edge
10 flanges projecting in a direction parallel with the direction of the thrust upon the beam, said members being secured together at the ends of the beam, and separated by an interposed strut at the center of the beam, substantially
15 as specified.

31. A metallic brake - beam consisting of compression and tension members each having top and bottom edge flanges projecting in a direction parallel with the direction of the
20 thrust upon the beam, said members being secured together at the ends of the beam, and separated by an interposed strut at the center of the beam, substantially as specified.

32. A metallic brake - beam consisting of
25 compression and tension members having edge flanges projecting therefrom in a direction parallel with the direction of the thrust upon the beam, said flanges overlapping and being secured together at the ends of the beam, the
30 central portions of said members being separated by an interposed strut, substantially as specified.

33. A metallic brake - beam consisting of compression and tension members each having

top and bottom edge flanges projecting there- 35
from in a direction parallel with the direction of the thrust upon the beam, said flanges overlapping and being secured together at the ends of the beam, the central portions of said members being separated by an interposed strut, 40
substantially as specified.

34. A brake-beam, having a compression and a tension member, each of which has flanged sides, the flanged edges of one member being nested within the flanged ends of 45
the other member, and a liner or filler-block in each end.

35. A brake-beam, having a compression and a tension member, each of which has flanged sides, the flanged edges of one member being nested within the flanged ends of 50
the other member, and a liner or filler-block in each end, combined with brake-shoe heads, and fastening devices connecting the brake-shoe heads, liners or filler-blocks and tension 55
member.

36. A brake-beam, having a compression member and a tension member, each of which has flanged sides, and liners or filler-blocks arranged within the ends of the channels, and 60
all united by suitable fastenings.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARNOLD STUCKI.

Witnesses:

WM. HARTMAN,
J. C. LANGFITT.