R. E. FRAME & J. M. ROHLFING.

LOG CAR.

APPLICATION FILED DEC. 4, 1908.

934,906.

Patented Sept. 21, 1909.

2 SHEETS—SHEET 1.

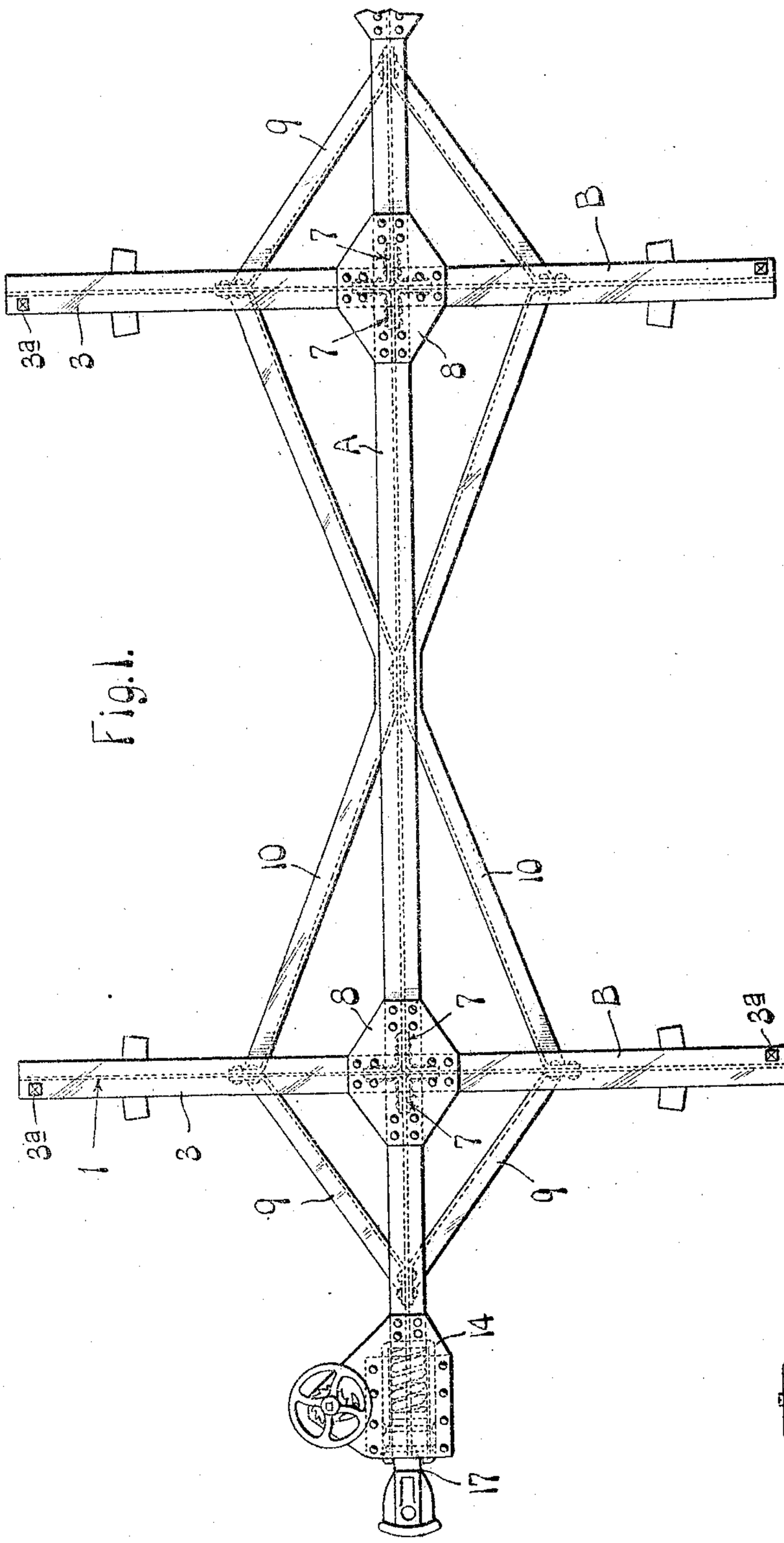

Fig. 1.

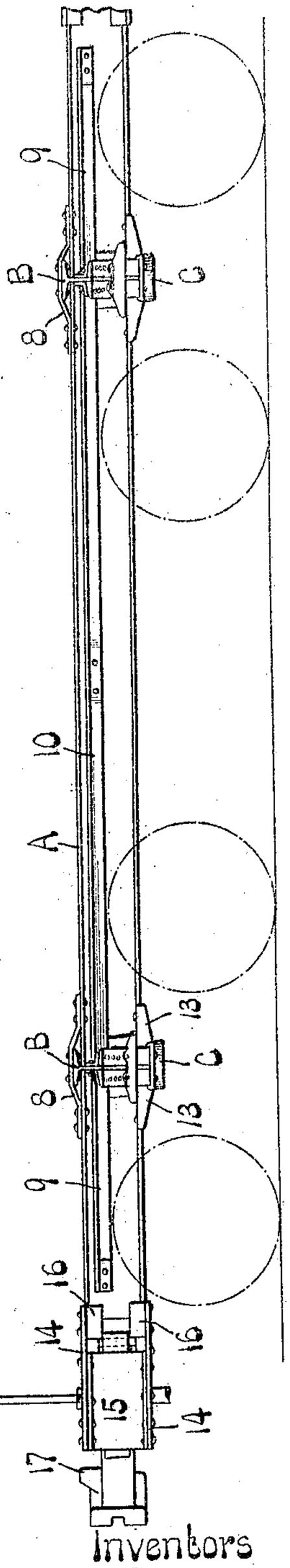

Fig. 2.

Witnesses
A. J. McCauley.
Wells L. Church.

Inventors
Robert E. Frame and
John M. Rohlfing.
by Bakewell & Cornwall Atty's.

R. E. FRAME & J. M. ROHLFING.

LOG CAR.

APPLICATION FILED DEC. 4, 1908.

934,906.

Patented Sept. 21, 1909.

2 SHEETS—SHEET 2.

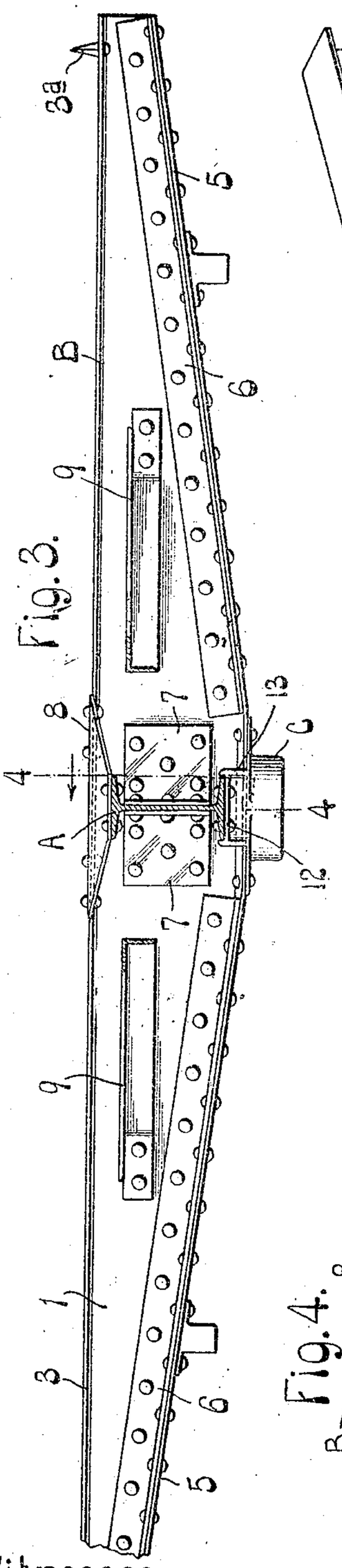

Fig. 3.

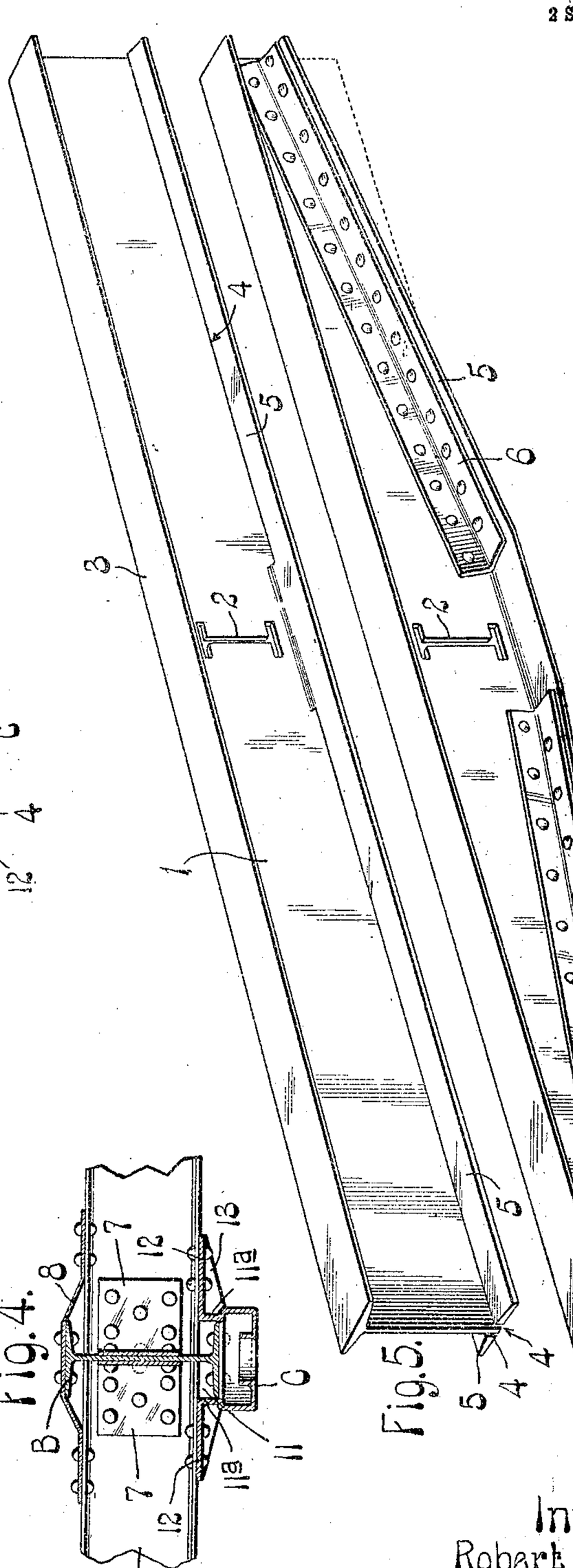

Fig. 5.

Fig. 6.

Fig. 4.

Witnesses

A. J. McCauley

Wells L. Church

Inventors:

Robert E. Frame and

John M. Rohlfing

by Bakewell & Cornwall Atty's.

UNITED STATES PATENT OFFICE.

ROBERT E. FRAME AND JOHN M. ROHLFING, OF ST. LOUIS, MISSOURI, ASSIGNORS TO AMERICAN CAR & FOUNDRY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

LOG-CAR.

934,906. Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed December 4, 1908. Serial No. 465,965.

To all whom it may concern:

Be it known that we, ROBERT E. FRAME and JOHN M. ROHLFING, both citizens of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvements in Log-Cars, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view of a log car constructed in accordance with our invention; Fig. 2 is a side elevational view of said car; Fig. 3 is an elevational view of one of the bolsters or bunks; Fig. 4 is a vertical sectional view taken on approximately the line 4—4 of Fig. 3; Fig. 5 is a perspective view of the member from which the bolster is formed and illustrates the way in which the lower flange of said member is severed; and Fig. 6 is a perspective view of the bolster illustrating the way in which the lower flanges of the bolster member are connected to the vertical web of same.

This invention relates to cars, and particularly to cars provided with steel underframes.

The main object of our invention is to provide a steel log car of novel construction which is strong and inexpensive to manufacture.

Briefly described, our improved log car consists of a single continuous center sill provided at its opposite ends with draft riggings, bunks or bolsters arranged transversely of the center sill and adapted to support a pile of logs, and braces connected to the center sill and to the bunks for reinforcing and strengthening the bunks.

Referring to the drawings which illustrate the preferred form of our invention, A designates a continuous center sill which preferably consists of a rolled I-beam that extends from end to end of the car. If desired, however, this center sill could be a built-up structure or a commercially rolled member of any desired shape in cross section. Two bolsters or bunks B are arranged transversely of the center sill, and in the construction herein shown, each of said bunks consists of a rolled I-beam of greater depth than the center sill and provided in its vertical web 1 with an I-shaped opening 2 through which the center sill passes. Each of the bunks or bolsters B diminishes gradually in depth from its center to its outer ends, as shown in Fig. 3, and its top flange 3 lies in a horizontal plane so as to provide a flat supporting surface for the logs, each bolster being provided at its opposite ends with pointed projections 3^a connected to the top flange 3 and adapted to form a fulcrum on which the logs can be placed to swing them off the car.

To produce a bolster of the construction herein shown, we first partially sever the lower flange of the I-beam from its vertical web 1 by vertical cuts 4 that extend from the outer ends of the beam to points adjacent the middle of the beam, as shown in Fig. 1, thus producing a laterally projecting flange 5 on each side of the web that has only its central or middle portion connected to the web. The opposite ends of these flanges 5 are then bent upwardly and the portion of the vertical web 1 that extends below said flanges, as shown in dotted lines in Fig. 6, is sheared off so as to produce an I-shaped bolster that diminishes gradually in depth from its center to its opposite ends. The flanges 5 can be connected to the web 1 by any suitable means but we prefer to employ two pairs of angles 6 for this purpose, the vertical legs of said angles being riveted to the opposite sides of the web 1 and the horizontal legs of said angles being riveted to the flanges 5, as shown in Fig. 6.

The center sill is connected to the bolsters by means of corner irons 7 arranged at the junction of the webs of the bolsters and center sill, as shown in Fig. 3, each bolster being connected to the center sill by four corner irons 7, as shown in dotted lines in Fig. 1. An octagonal-shaped top plate 8 is connected to the top flange of each bolster and to the top flange of the center sill, and said plate is bent downwardly on each side of the bolster, as shown in Figs. 3 and 4 in view of the fact that the top flange of the bolster lies in a higher horizontal plane than the top flange of the center sill.

The bolsters are reinforced and strengthened by means of an X-shaped brace arranged between the bolsters, and also a number of inclined braces 9 connected to the bolsters and to the portions of the center sill that project beyond same. The X-shaped brace is preferably formed from two mem-

bers 10 arranged on opposite sides of the center sill and bent inwardly intermediate their ends so that their central portions will contact with the vertical web of the center sill to which they are securely connected by fastening devices. The outer ends of the members 10 are connected to the vertical webs of the bolsters adjacent the points where the inclined braces 9 are connected to the bolsters so that each bolster forms the minor axis of an approximately diamond-shaped structure whose major axis consists of the center sill A. The brace members 9 and 10 preferably consist of rolled angles, and the connection between said members and the center sill and bolsters is preferably effected by shearing off portions of the horizontal legs of the angles and then bending the unflanged portions of the vertical legs laterally to form integral flanges through which the fastening devices pass. The members 9 and 10 are so arranged that the fastening devices which connect the members 10 to the bolsters also secure the members 9 to the bolsters, the intermediate portions of both members 10 being connected to the center sill by the same fastening devices and the ends of each pair of diagonal braces 9 being connected to the center sill by the same fastening devices. It will be obvious, however, that our broad idea is not limited to this exact construction as the brace members could be connected to the parts with which they cooperate in numerous other ways.

A center bearing C is connected to the under side of each bolster and in the construction herein shown each center bearing consists of a cast member that is provided with a pocket 11 to receive the bolster and portions 12 that project laterally from each side of said pocket to form supports for the center sill, said portions 12 being located in a higher horizontal plane than the bottom of the pocket 11, as shown in Fig. 4.

The portions 12 are substantially channel-shape in cross section so as to embrace the lower flange of the center sill, as shown in Fig. 3, and said portions are connected to said lower flange by fastening devices, the bottom wall of the pocket 11 also being connected to the lower flange of the bolster by fastening devices. The portions 12 on which the center sill rests are reinforced and strengthened by means of tapered flanges or gussets 13 that have their inner ends connected to the side walls 11^a of the pocket 11.

Draft riggings are mounted on each end of the center sill inside of housings connected to the center sill, each of said housings consisting of top and bottom plates 14 which are fastened to the upper and lower flanges of the center sill, and channel-shaped members 15 arranged between said top and bottom plates on each side of the center sill, as shown in Figs. 1 and 2. The vertical web of the center sill is slotted to receive a spring and followers, and stops 16 are connected to the center sill to coöperate with said followers, the draw-bar 17 being provided with a yoke arranged horizontally in the slot in the center and extending around the spring and followers. The top and bottom plates 14 also form a support for a vertically disposed shaft 18 to which the brake chains, not shown, are connected.

An underframe of the construction above described is very strong and can be manufactured at a low cost, and while we have herein stated that it forms part of a log car, we do not wish it to be understood that it is limited to this use as it could be used as the underframe of various other types of cars.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. In a car underframe, a center sill, bolsters arranged transversely of the center sill, and brace members connected to the center sill and bolsters in such a manner that they form two approximately diamond-shaped structures whose major axes consist of the center sill and whose minor axes consist of the bolsters, the inner ends of said diamond-shaped structures terminating at approximately the middle of the center sill.

2. A car underframe provided with a center sill which consists of a single member that extends from end to end of the car, bolsters arranged transversely of the center sill intermediate the ends thereof, and inclined brace members arranged on opposite sides of the center sill and having their inner ends connected to the center sill and their outer ends connected to the bolsters at a point intermediate the ends of the bolsters and the center sill.

3. In a car underframe, a center sill, bolsters arranged transversely of the center sill, and an approximately X-shaped brace arranged between the bolsters and connected to same and having its central portion connected to the center sill.

4. In a car underframe, a center sill, bolsters arranged transversely of the center sill, inclined members connected to each bolster and to the portion of the center sill that projects beyond same and arranged in such a manner that they form an approximately V-shaped brace, and an X-shaped brace arranged between the bolster and having its ends connected to the bolsters and its intermediate portion to the center sill.

5. In a car underframe, a single center sill member, bolsters arranged transversely of the center sill member, and approximately V-shaped brace members arranged on opposite sides of the center sill member and having their ends connected to the bolsters at a point intermediate the ends of said bolsters and the center sill.

6. In a car underframe, a single center sill member, bolsters arranged transversely of the center sill member and provided with vertical webs, and inclined brace members projecting outwardly from each side of the center sill member and detachably connected to said center sill member and to the opposite sides of the webs of each bolster.

7. In a car underframe, a continuous center sill, continuous bolsters provided with openings through which the center sill passes, and inclined brace members extending from bolster to bolster on opposite sides of the center sill and having their intermediate portions connected to said center sill.

8. In a car underframe, a continuous center sill, bolsters having vertical webs provided with openings through which the center sill passes, and an approximately X-shaped brace having its outer ends connected to the webs of the bolsters and its intermediate portion connected to the center sill.

9. In a car underframe, a continuous center sill, bolsters arranged transversely of the center sill and having vertical webs provided with openings through which the center sill passes, inclined braces connected to the bolsters and to the portions of the center sill which project beyond same, and brace members arranged between the bolsters on each side of the center sill and connected intermediate their ends to the center sill.

10. In a car underframe, a continuous center sill, bolsters having vertical webs provided with openings through which the center sill passes, corner irons arranged at the junctions of the bolsters and center sill and connected to the center sill and to the webs of said bolsters, top cover plates connected to the bolsters and to the center sill, and inclined brace members connected to each bolster, to the intermediate portion of the center sill and to the portions of the center sill that project beyond said bolsters.

11. In a car underframe, a continuous flanged center sill, continuous flanged bolsters having vertical webs provided with openings through which the center sill passes, octagonal-shaped cover plates connected to the top flanges of the bolsters and to the top flange of the center sill, corner irons connected to the vertical webs of the bolsters and center sill, and inclined brace members connected to the bolsters and to the center sill.

12. In a car underframe, a continuous center sill, bolsters having vertical webs provided with openings through which the center sill passes, and an X-shaped brace arranged between the bolsters and consisting of two flanged members that have their intermediate portions connected to the opposite sides of the center sill.

13. In a car underframe, a continuous flanged center sill, I-shaped bolsters provided with openings through which the center sill passes, and inclined brace members connected to the vertical webs of the center sill and bolsters and consisting of rolled angles having portions of their horizontal legs sheared off so that the vertical legs can be bent to form attaching flanges.

14. In a car underframe, a center sill and a bolster arranged transversely of the center sill, said bolster consisting of an I-beam whose lower flanges are partially severed and then bent upwardly into engagement with reinforcing members that are connected to the vertical web of said beam.

15. In a car underframe, a center sill, and a bolster arranged transversely of the center sill and consisting of a rolled I-beam whose lower flange is partially severed by four vertical cuts that extend inwardly from the ends of the beam to points adjacent the center of the beam, said severed portions being bent upwardly into engagement with angles that are connected to the vertical web of the beam.

16. In a car underframe, a center sill and a bolster arranged transversely of the center sill, said bolster consisting of a flanged member whose lower flange is partially severed and then bent upwardly so as to produce a bolster that diminishes gradually in depth from its center to its outer ends.

17. In a car underframe, a center sill, a bolster arranged transversely of the center sill and consisting of an I-beam whose lower flange is severed into four parts that are bent upwardly, and angles connected to the vertical web of said beam and to the severed portions of said lower flange.

18. In a car underframe, a center sill, a bolster provided with a vertical web in which an opening is formed to receive the center sill, and a center bearing connected to the lower side of the bolster and provided with pockets projecting laterally from opposite sides of the bolster for receiving the lower edge of the center sill.

19. In a car underframe, a flanged center sill, a flanged bolster provided in its vertical web with an opening through which the center sill passes, and a center bearing provided with a pocket that receives the lower flange on the bolster and laterally projecting portions that are connected to the lower flange of the center sill.

20. In a car underframe, a center sill, a bolster having an opening through which the center sill passes, a center bearing consisting of a cast member provided with a pocket that receives the lower edge portion of the bolster, and channel-shaped portions on said center bearing that receive the lower portion of the center sill.

21. In a car underframe, a center sill, a

bolster having a vertical web provided with an opening through which the center sill passes, a center bearing connected to the lower flange of the bolster, and laterally projecting portions on said center bearing that are connected to the center sill.

22. In a car underframe, a continuous center sill that projects beyond the bolsters of the underframe, top and bottom plates connected to the end portions of said center sill, and members arranged between said top and bottom plates to form the side walls of draft rigging housings.

23. In a car underframe, a continuous flanged center sill that extends from end to end of the underframe, a top and a bottom plate connected to the upper and lower flanges of the center sill at one end thereof, and channel-shaped pieces arranged between said top and bottom plate to form merely the side walls of a draft rigging housing.

24. A car underframe, consisting of a continuous I-beam center sill, draft rigging housings connected to the end portions of said center sill, bolsters arranged transversely of the center sill and each consisting of an I-beam provided in its vertical web with an opening through which the center sill passes, the lower flange of each bolster beam being severed into four parts and bent upwardly into engagement with reinforcing members on the vertical web thereof, an X-shaped brace arranged between the bolsters and having its ends connected to the webs of the bolsters and its intermediate portion to the web of the center sill, and inclined braces connected to the web of each bolster and to the portion of the center sill which projects beyond same.

25. In a car underframe, a center sill, and continuous cross members consisting of commercially rolled members having vertical webs through which said center sill passes.

26. In a car underframe having no side sills, a center sill, cross members through which said center sill passes, and longitudinally extending braces connected to the cross members located adjacent the opposite ends of the underframe.

27. In a car underframe, a center sill, and rolled cross members having openings through which the center sill passes.

28. In a car underframe, a continuous center sill, and commercially rolled cross members extending from side to side of the car and having vertical webs provided with openings through which the center sill passes.

29. In a car underframe, a continuous center sill, and a continuous bolster arranged transversely of the center sill and provided with a vertical web, one of said members being so constructed that the other can pas through same.

30. In a car underframe, a rolled center sill, and rolled bolsters or cross members arranged transversely of the center sill and provided with openings through which the center sill passes.

31. In a car underframe, a rolled center sill, rolled cross members arranged transversely of the center sill and provided with openings through which the center sill passes, and means for bracing and strengthening said cross members.

32. In a car underframe, a rolled center sill, rolled bolsters arranged transversely of the center sill and provided with openings through which the center sill passes, and longitudinally extending braces arranged on each side of the center sill and connected to the bolsters.

In testimony whereof, we hereunto affix our signatures in the presence of two witnesses, this first day of December, 1908.

ROBERT E. FRAME.
JOHN M. ROHLFING.

Witnesses:
WELLS L. CHURCH,
GEORGE BAKEWELL.