No. 865,668. PATENTED SEPT. 10, 1907.

J. S. ANDREWS.

UNDERFRAME FOR CARS.

APPLICATION FILED JUNE 1, 1907.

3 SHEETS—SHEET 1.

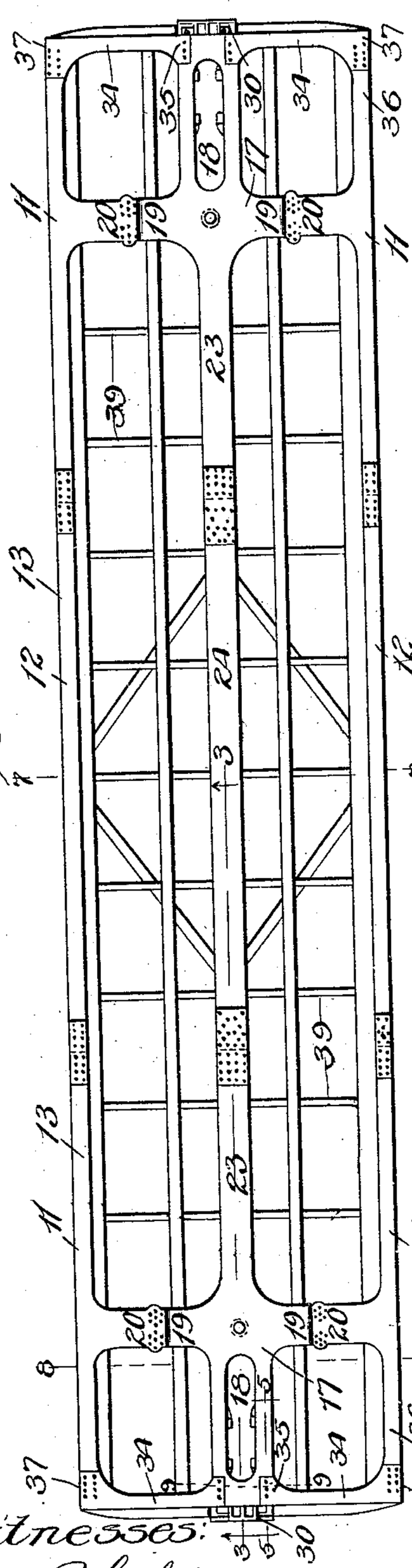

Fig. 1

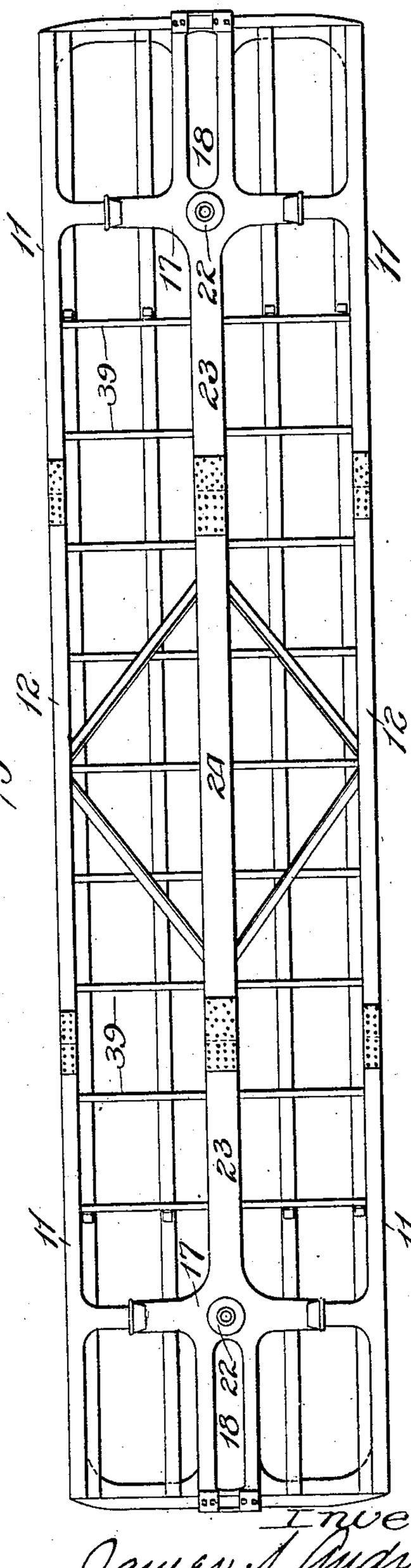

Fig. 2

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Fig. 3.

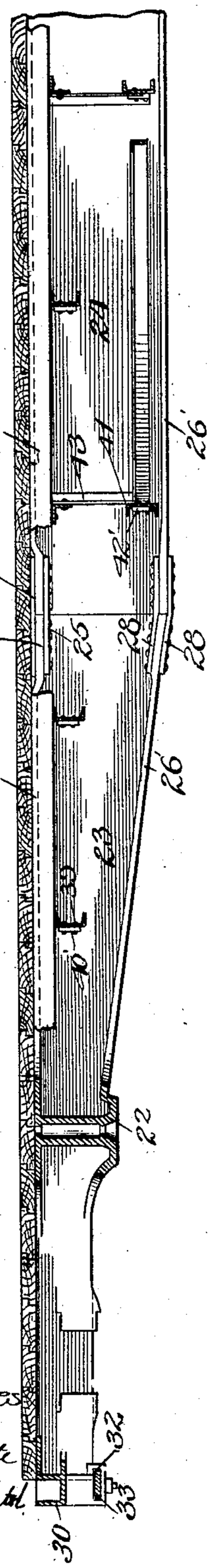


Fig. 5.

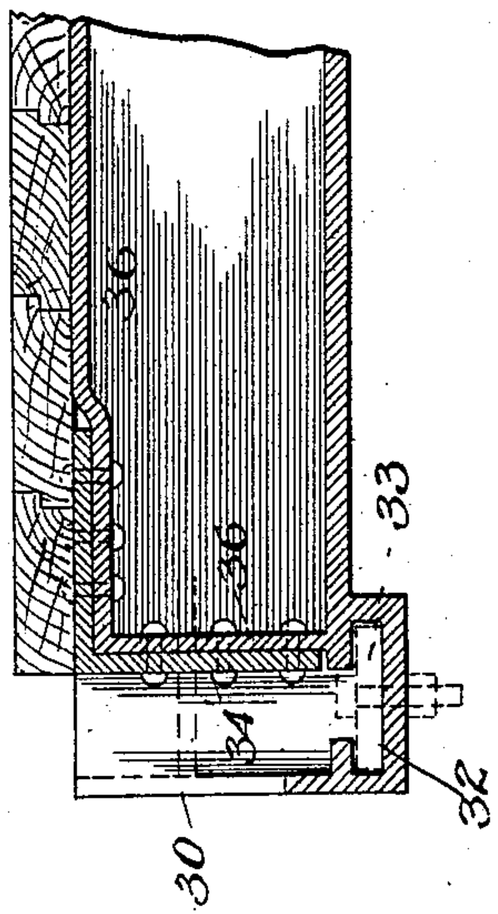
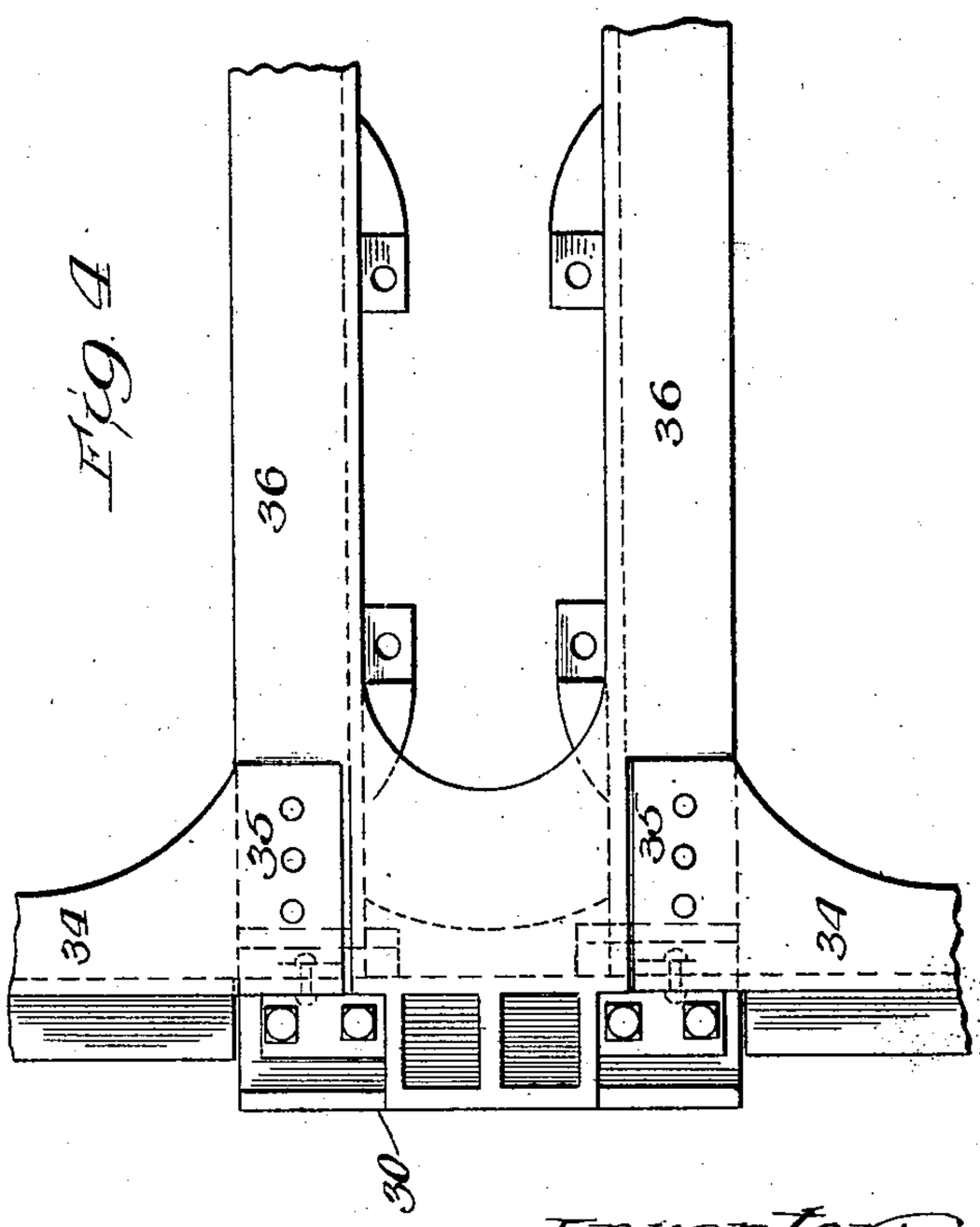


Fig. 4



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3 SHEETS—SHEET 3.

Fig. 6.

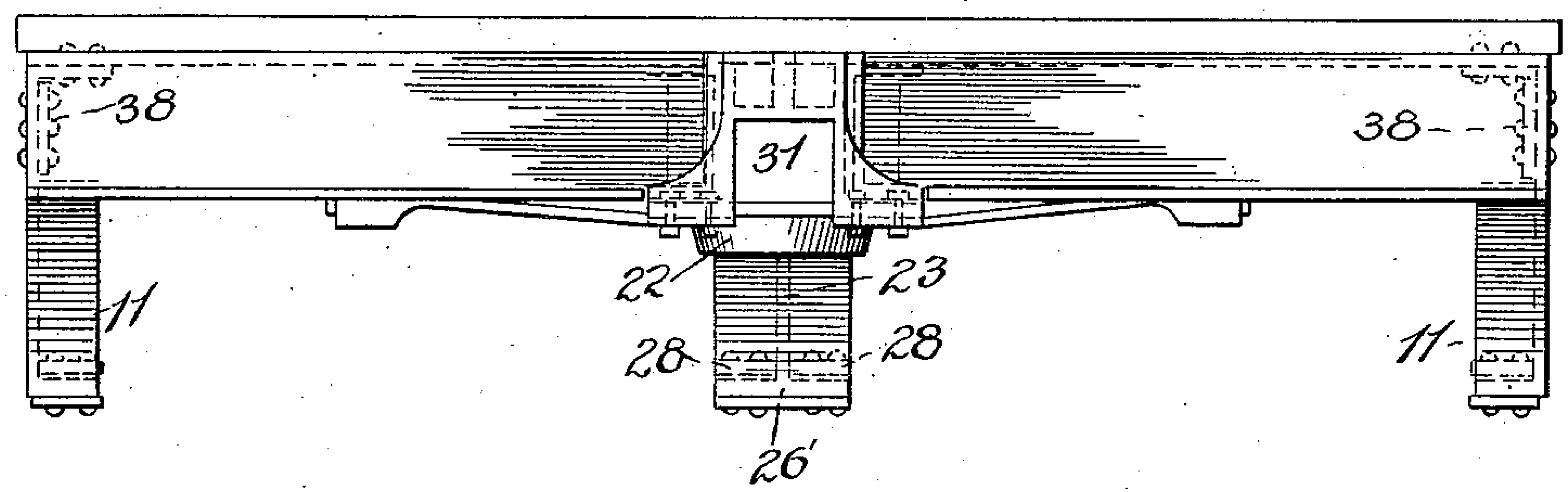


Fig. 7.

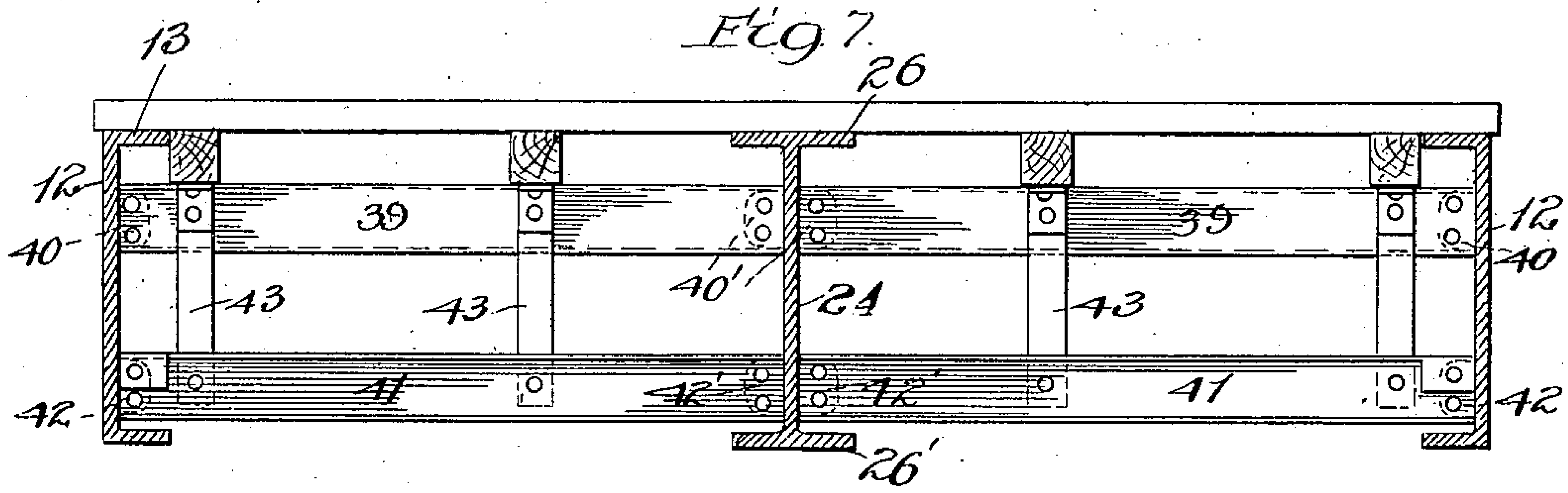


Fig. 8.

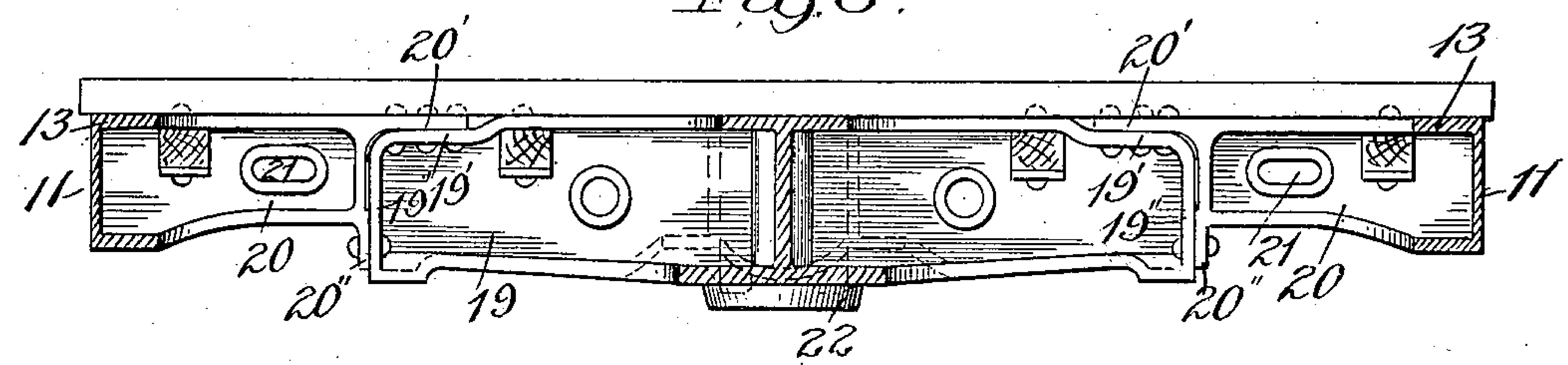


Fig. 9

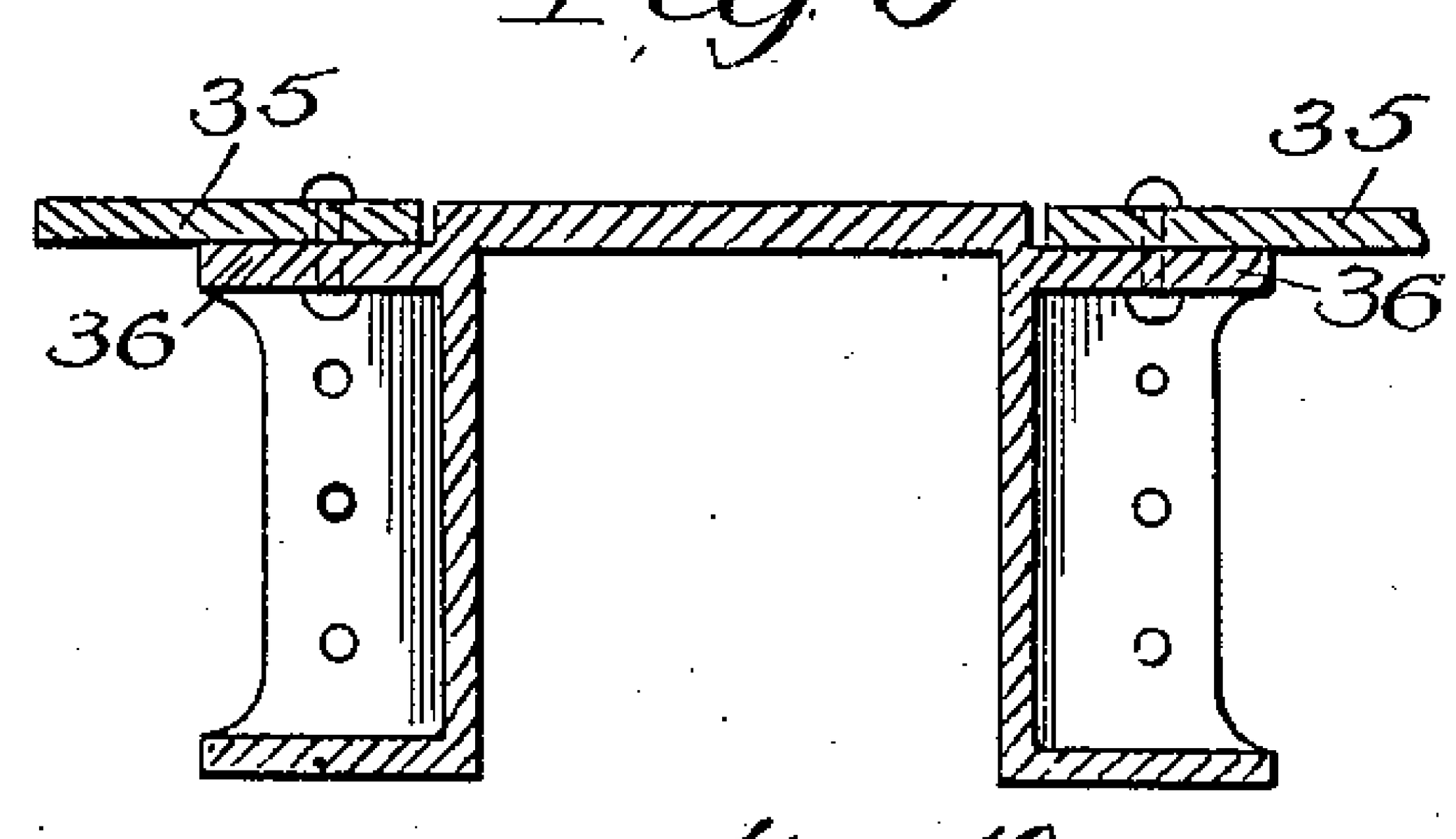
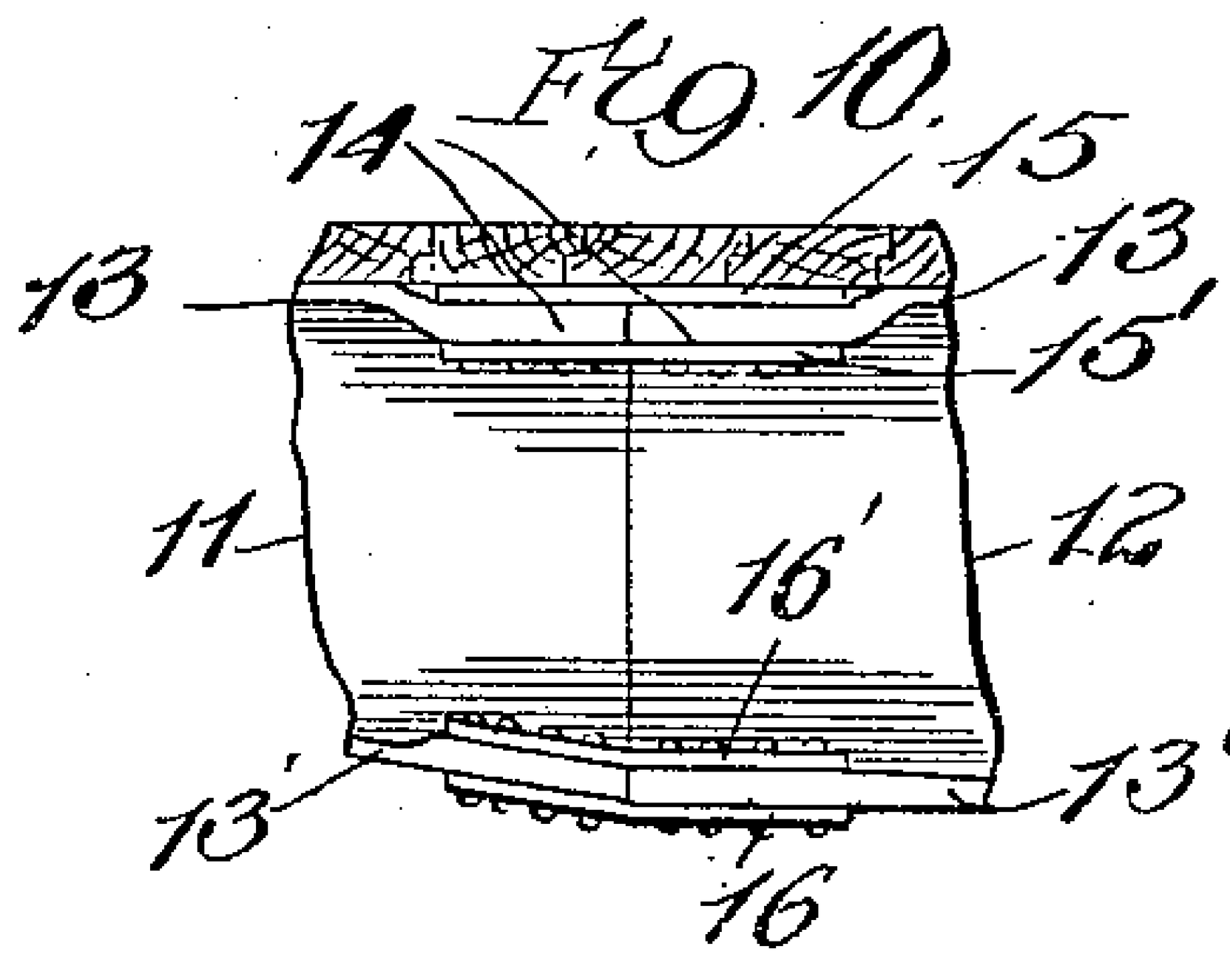


Fig. 10.



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JAMES S. ANDREWS, OF NEW YORK, N. Y.

UNDERFRAME FOR CARS.

No. 865,668. Specification of Letters Patent. Patented Sept. 10, 1907.

Application filed June 1, 1907. Serial No. 376,854.

To all whom it may concern:

Be it known that I, JAMES S. ANDREWS, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented new and useful Improvements in Underframes for Cars, of which the following is a specification.

This invention relates to underframes for railway cars and its object is, primarily, to provide a metal underframe of strong and substantial construction and composed of standard sections consisting of steel castings and bars.

Another object of the invention is to reduce the cost of manufacture, assembling and repairing by making the sections according to a comparatively few patterns and so as to be interchangeable, and assembling them in a manner which will permit the sections to be easily replaced.

In the accompanying drawings illustrating one embodiment of the invention Figure 1 is a top plan view. Fig. 2 is a bottom plan view. Fig. 3 is a sectional view on the line 3—3 of Fig. 1. Fig. 4 is an enlarged detail view of the forward end of one draw-bar sill and showing parts of the end sill. Fig. 5 is a sectional view on the line 5—5 of Fig. 4. Fig. 6 is an end view. Fig. 7 is a sectional view on the line 7—7 of Fig. 1. Fig. 8 is a sectional view on the line 8—8 of Fig. 1. Fig. 9 is a detail sectional view on the line 9—9 of Fig. 1. Fig. 10 is a detail view showing the joint between two sections of a side sill.

Referring to the drawings the side sills consist of two end sections 11 and a central section 12 (Fig. 1), these sections being made of cast steel in channel form (Figs. 7, 8). The upper flanges 13 of the sections of the side sills are depressed at their adjacent ends 14 to receive the upper tie plate 15 and rivets or bolts pass through this tie plate, the flanges 13 and the bottom tie plate 15′ to secure the sections together. The lower flanges 13′ are also secured together by rivets or bolts passing through said flanges and through tie plates 16, 16′ on opposite sides thereof (Fig. 3).

At each end of the frame is a draw-bar sill 17 which is provided with an opening 18 to receive the draw-bar and its attachments. The draw-bar sill has side projections 19 which abut against side projections 20 on the side sill sections 11 and form the body bolster. The projections 20 have inwardly extending flanges 20′ to lap over the adjacent ends of the projections 19 and the latter are preferably depressed at 19′ to accommodate said flanges and so that the top of the bolster will be substantially flat and level. The projections 20 also have downwardly extending flanges 20″ which lie against the outer ends of the projections 19, and the projections 19, 20 are secured together by rivets or bolts passing through flanges 20′, 20″ and the flange 19″ on the projections 19. These projections are provided with suitable openings 21 for the brake rods and other parts (Fig. 8).

The draw-bar sill has a center bearing 22 on the bottom thereof (Figs. 2, 8). The draw-bar sills also have I-shape projections 23 which constitute the end sections of the center sill and are connected at their inner ends to the ends of the middle I-shape section 24 of the center sill. The sections 23 and 24 are secured together in the same manner as the sections 11 and 12 of the side sills, by rivets or bolts passing through tie plates 25, 25′ and the upper flange 26 of said sections, said upper flange being depressed at the ends 27 so that the upper tie plate 25′ will lie flush with the top of the sections of the center sill. Tie plates 28 are arranged on the upper and lower sides of the lower flange 26′ of the sections 23 and 24 and are secured thereto by rivets or bolts (Fig. 3). Each draw-bar is provided at its forward end with an integral buffing surface 30, an opening 31 for the draw-bar (Fig. 6), and a pocket 32 for the draw-bar carry-iron 33 (Fig. 5). The end sill is made in two sections 34 and these sections are provided on their inner ends with ears 35 which lap over the side flanges 36 on the draw-bar sill and are riveted or bolted thereto (Figs. 4, 5, 9). The web 34′ of each end sill section is riveted or bolted to a front flange 36 on the draw-bar sill (Fig. 5). The outer end of each end sill section has an ear 37 at the top which is riveted or bolted to the upper flange 13 of the side sill section 11 and it also has a flange 38 which is riveted or bolted to the web of the side sill section (Fig. 6).

The transoms 39 are preferably made of channel iron and riveted or bolted at their ends to lugs 40 on the side sills and lugs 40′ on the center sill (Fig. 7). Diagonal braces 41 are secured to lugs 42 on the side sills and to lugs 42′ on the center sill, and straps 43 connect these braces to the transoms above them (Fig. 7).

The underframe consists of comparatively few parts, many of which are duplicates so that they can be made with the same patterns. This enables many of the parts to be used interchangeably; for example, the draw-bar sills are made alike and are interchangeable and the end section of each side sill is interchangeable with the end section at the opposite end of the other side sill. The sections of the underframe are made so that they can be easily secured together in a strong and rigid manner and any section can be readily removed and repaired or replaced.

What I claim and desire to secure by Letters Patent is:

1. An underframe for cars comprising a metal side sill provided with an integral projection constituting a part of the body bolster.

2. An underframe for cars comprising a metal side sill, said side sill comprising a cast steel section provided with an integral projection constituting a part of the body bolster.

3. An underframe for cars comprising a metal side sill composed of a plurality of sections, two of said sections being made of cast steel and each provided with a projection constituting a part of the body bolster.

4. An underframe for cars comprising a metal side sill composed of a plurality of sections arranged end to end, the adjacent ends of said sections having depressions at the top, a tie plate over-lapping the ends and arranged in said depressions, and means for securing said tie plate to the sections.

5. An underframe for cars comprising a metal draw-bar sill having side projections extending part-way between the draw-bar sill and the side sills to constitute parts of the body bolster.

6. An under frame for cars comprising two metal side sills, each of said side sills having an integral projection constituting a part of the body bolster, and a metal draw-bar sill having side projections constituting parts of the body bolster.

7. An underframe for cars comprising two metal side sills, each of said side sills having integral projections constituting parts of the body bolsters, two metal draw-bar sills, each of said draw-bar sills having integral side projections to abut against the projections on the side sills and constituting parts of the body bolster, and means for securing the projections on the side sills to the projections on the draw-bar sills.

8. An underframe for cars comprising two side sills, each of said side sills having projections constituting parts of the body bolster, two metal draw-bar sills, each of said draw-bar sills having side projections to abut against the projections on the side sills and constituting parts of the body bolsters, said projections on the side sills having flanges to overlap the ends of the projections on the draw-bar sills and downwardly projecting flanges to lie against the ends of the projections on the draw-bar sills, and means for securing said flanges to the draw-bar sills.

9. An underframe for cars comprising two metal draw-bar sills, each of said sills comprising an integral end projection extending a distance lengthwise of the frame and constituting a section of the center sill, and a section connected at its ends to the ends of said projections to complete the center sill.

10. An underframe for cars comprising a cast steel draw-bar sill having integral side projections extending part-way between the draw-bar sill and side sills and constituting parts of the body bolster and an integral end projection extending a distance lengthwise of the frame and constituting a part of the center sill.

11. An underframe for cars comprising two side sills, each of said side sills consisting of a plurality of sections and two of said sections being made of cast steel and having integral side projections constituting parts of the body bolster, two cast steel draw-bar sills having side projections to abut against the projections on the side sills and constituting parts of the body bolster, means for securing said projections together, and a section secured to the end projections on the body sills to complete the center sill.

12. An underframe for cars comprising two cast steel draw-bar sills, each of said draw-bar sills having integral end projections constituting parts of the center sill, an intermediate cast steel section abutting at its ends against the ends of said projections to complete the center sill, said projections and intermediate section being made in the form of channel bars, the top flanges on said projections and intermediate section being depressed at their ends, tie plates arranged in said depressions in the top flanges and beneath the same, bolts or rivets passing through said flanges and tie plates, tie plates arranged above and below the bottom flanges on said projections and intermediate section, and bolts or rivets passing through said tie plates and bottom flanges, all of said tie plates overlapping the ends of said flanges.

13. An underframe for cars comprising a pair of side sills, a draw-bar sill, and an end sill made in two sections, each of said sections being arranged between the draw-bar sill and a side sill and fastened thereto.

14. An underframe for cars comprising a draw-bar sill casting having side projections extending part-way between the draw-bar sill and the side sills to constitute parts of the body bolster and provided at its forward end with an integral buffing surface and a pocket for the draw-bar carry iron.

15. An underframe for cars comprising a draw-bar sill casting having side projections extending part-way between the draw-bar sill and the side sills to constitute parts of the body bolster, and an integral rear end projection extending a distance lengthwise of the frame to constitute a part of the center sill and at its forward end an integral buffing surface and a pocket for the draw-bar carry iron.

16. An underframe for cars comprising sectional cast stell side sills having integral lugs thereon, a sectional cast steel center sill having integral lugs thereon, and transoms arranged between the center sill and each of the side sills and secured at their ends to said lugs.

17. An underframe for cars comprising a pair of side sills, each of said side sills consisting of two cast steel end sections having integral projections constituting parts of the body bolster, intermediate sections secured at their ends to the ends of the end sections, two cast steel draw-bar sills having integral side projections to abut against the projections on the side sills and constituting parts of the body bolsters, and also having integral end projections constituting parts of the center sill, an intermediate section secured at its ends to the ends of the end projections on the draw-bar sills to complete the center sill, and diagonal braces secured at their ends to the intermediate sections of the side sills and the intermediate section of the center sill.

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