

No. 831,648.

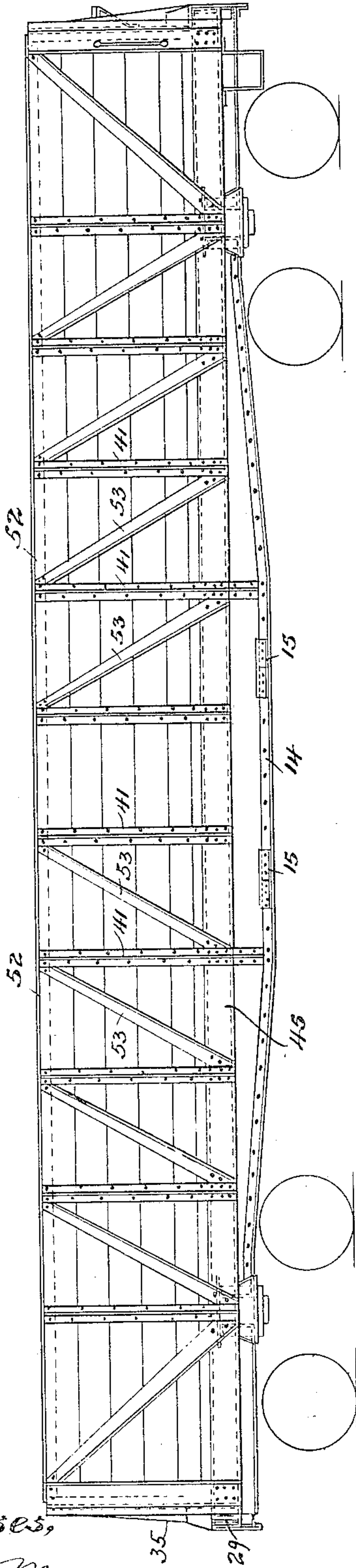
PATENTED SEPT. 25, 1906.

E. I. DODDS.
GONDOLA CAR.

APPLICATION FILED JULY 24, 1905.

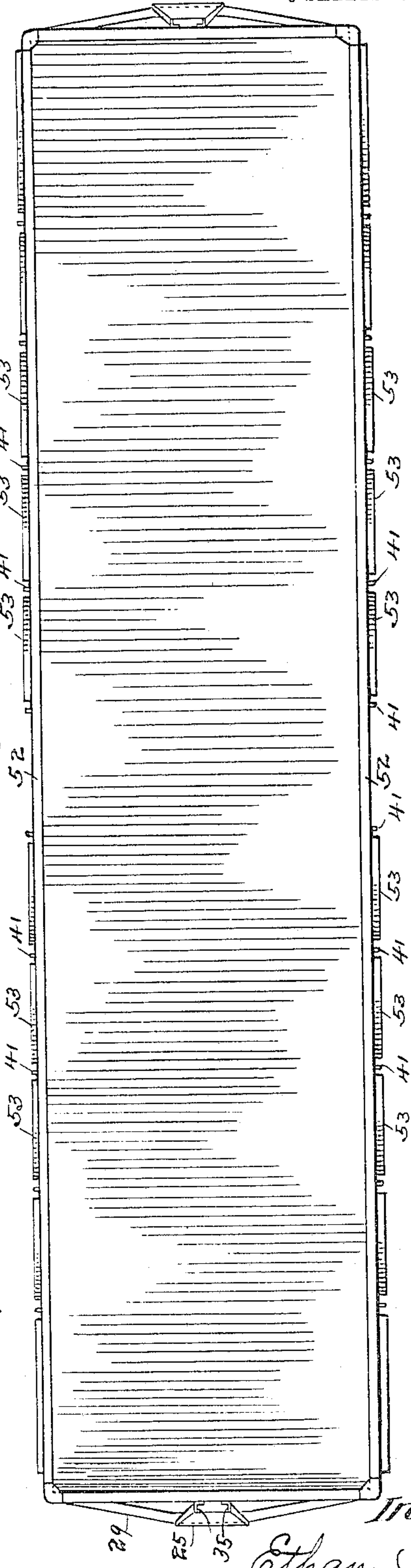
6 SHEETS—SHEET 1.

Fig. 1.



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Fig. 2.



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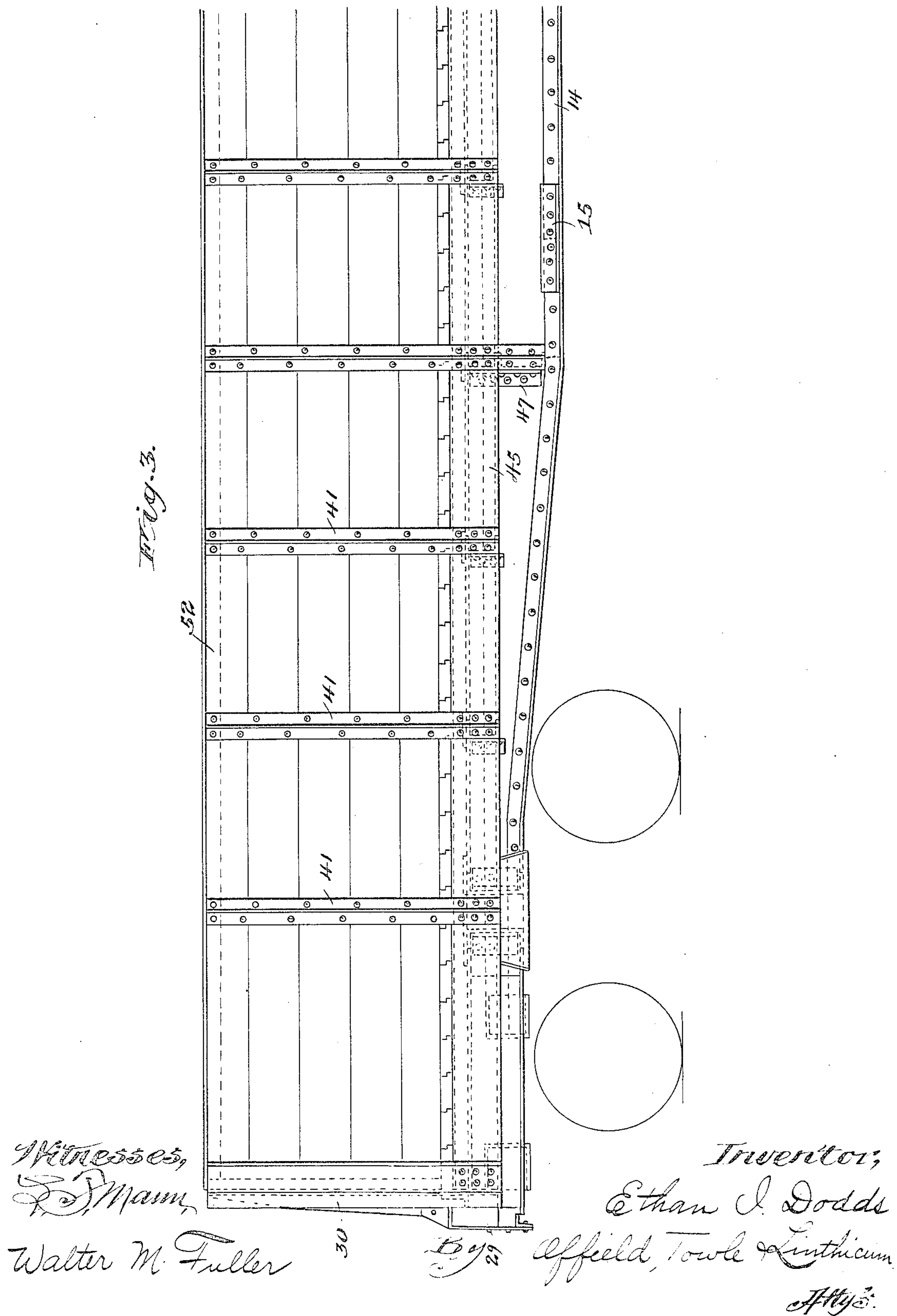
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6 SHEETS—SHEET 3.

Fig. 4.

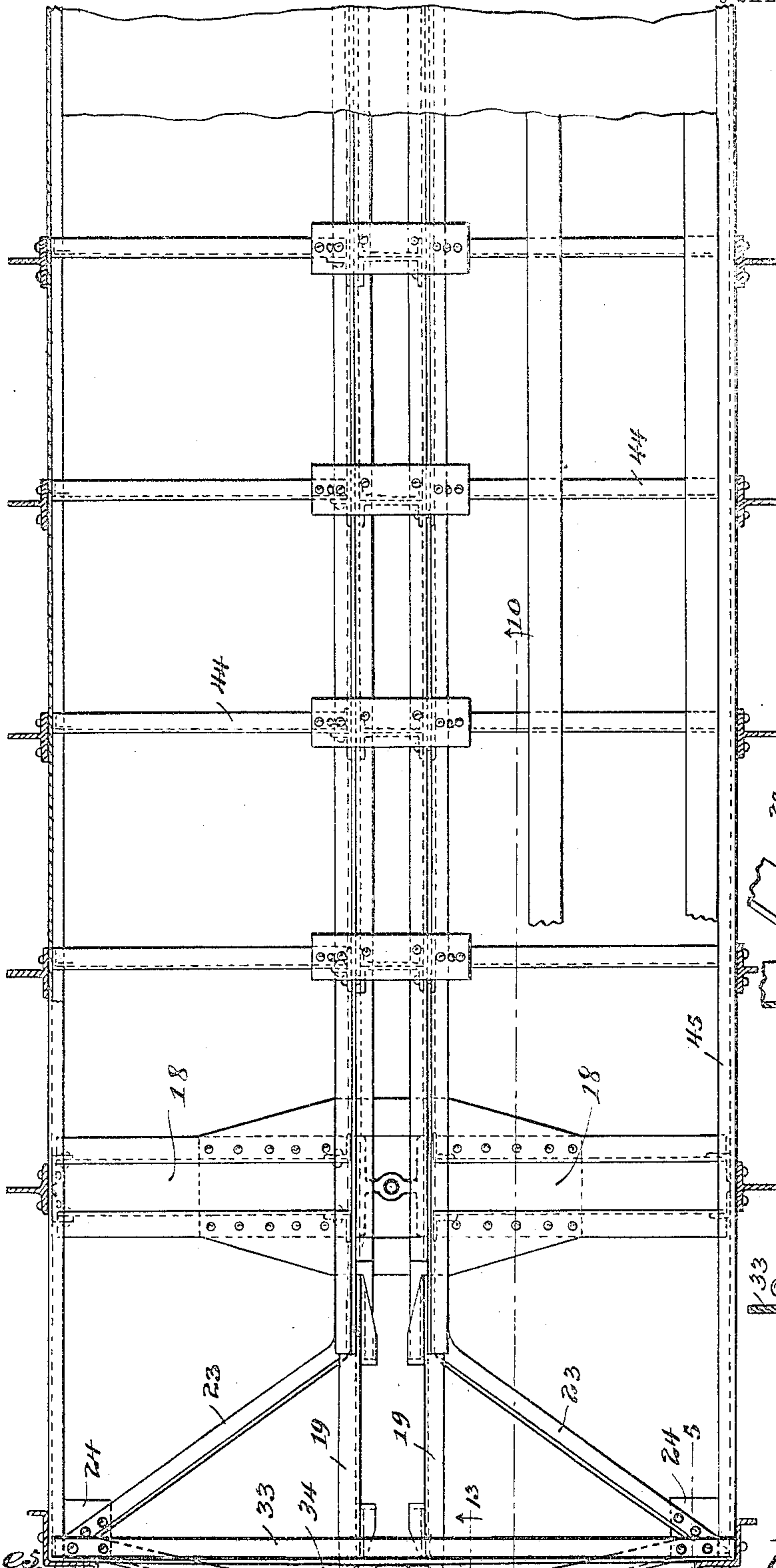


Fig. 6.

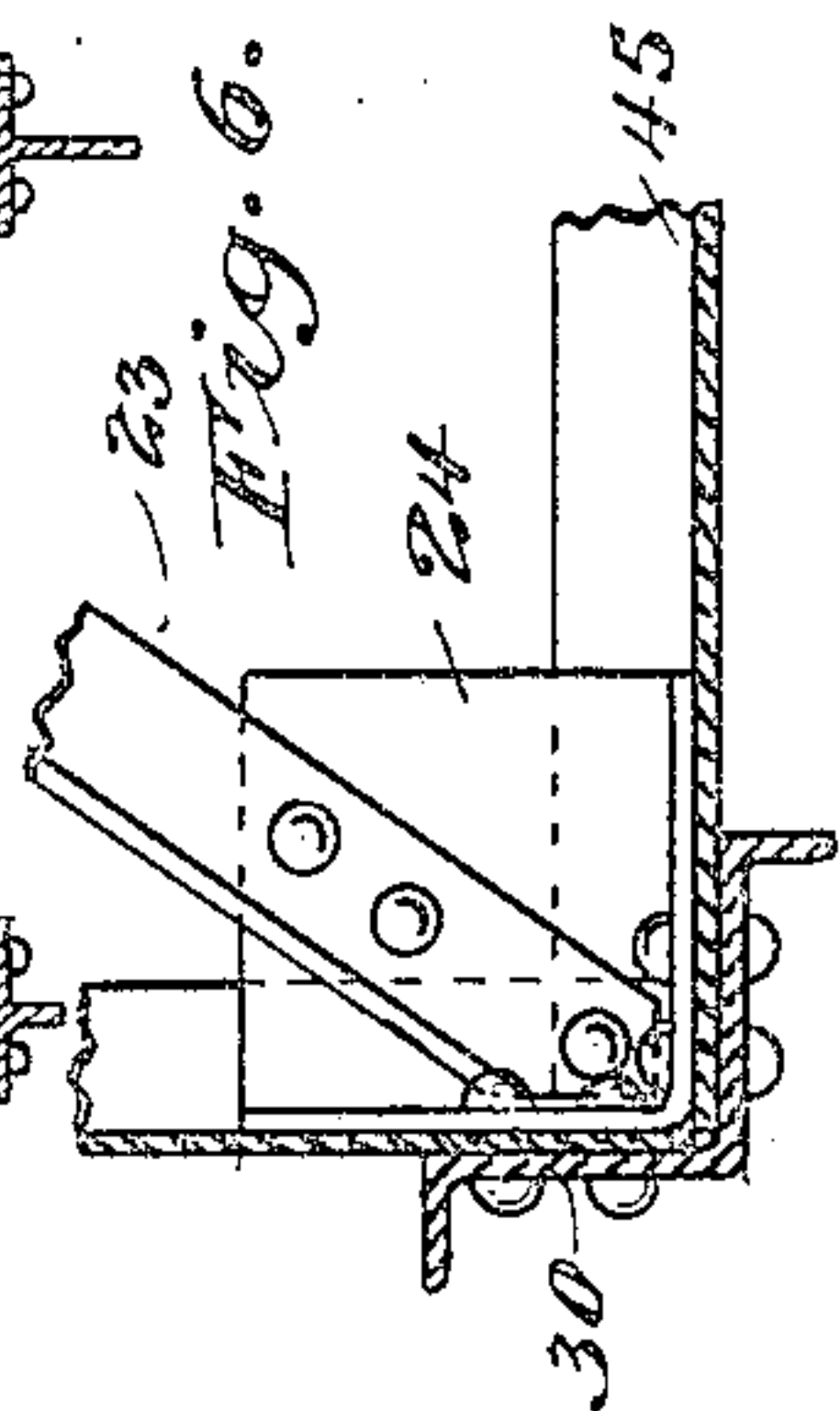
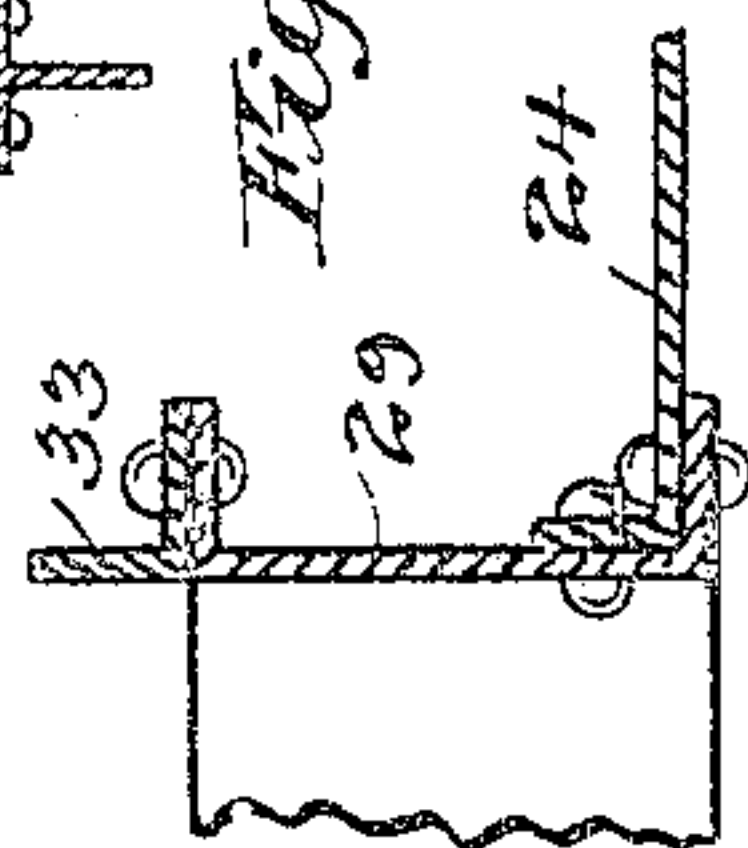


Fig. 5.



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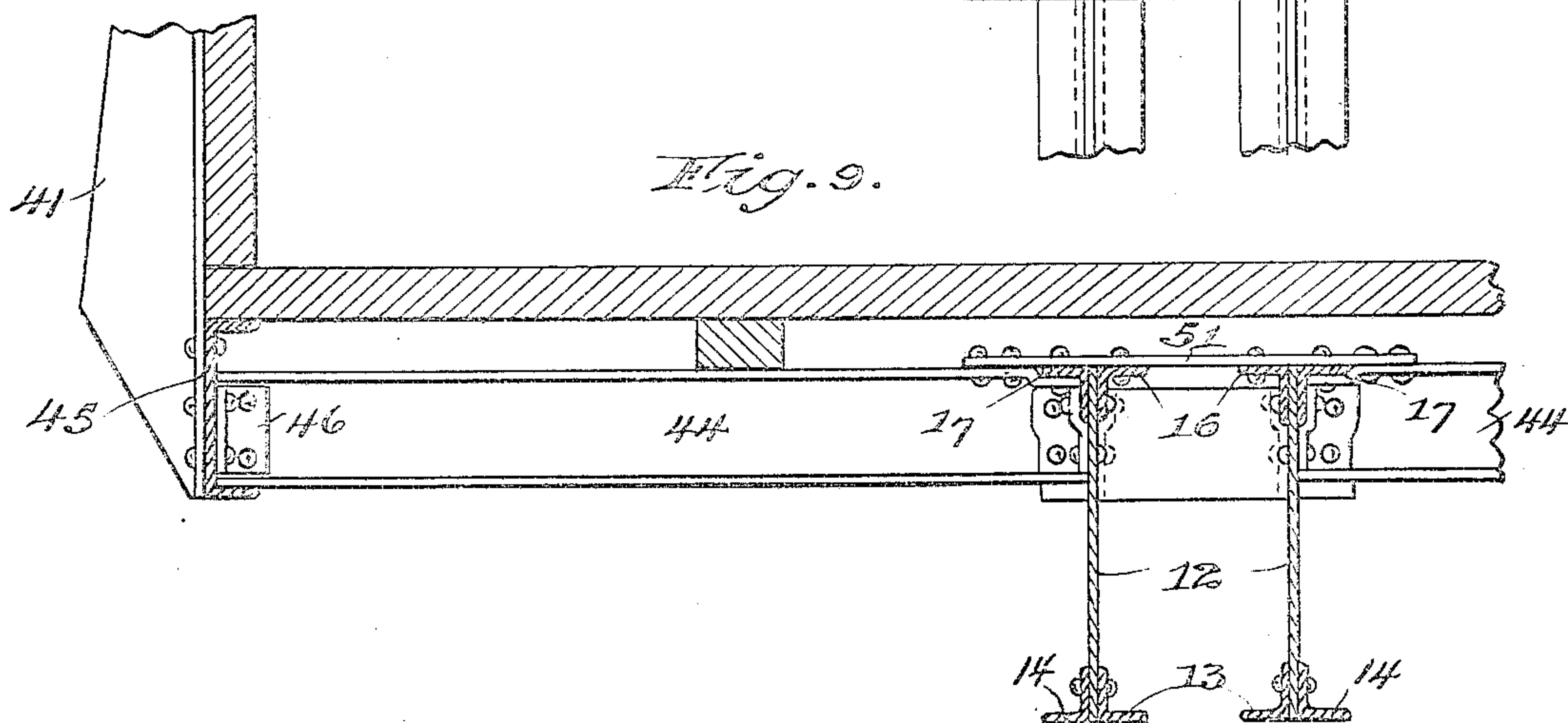
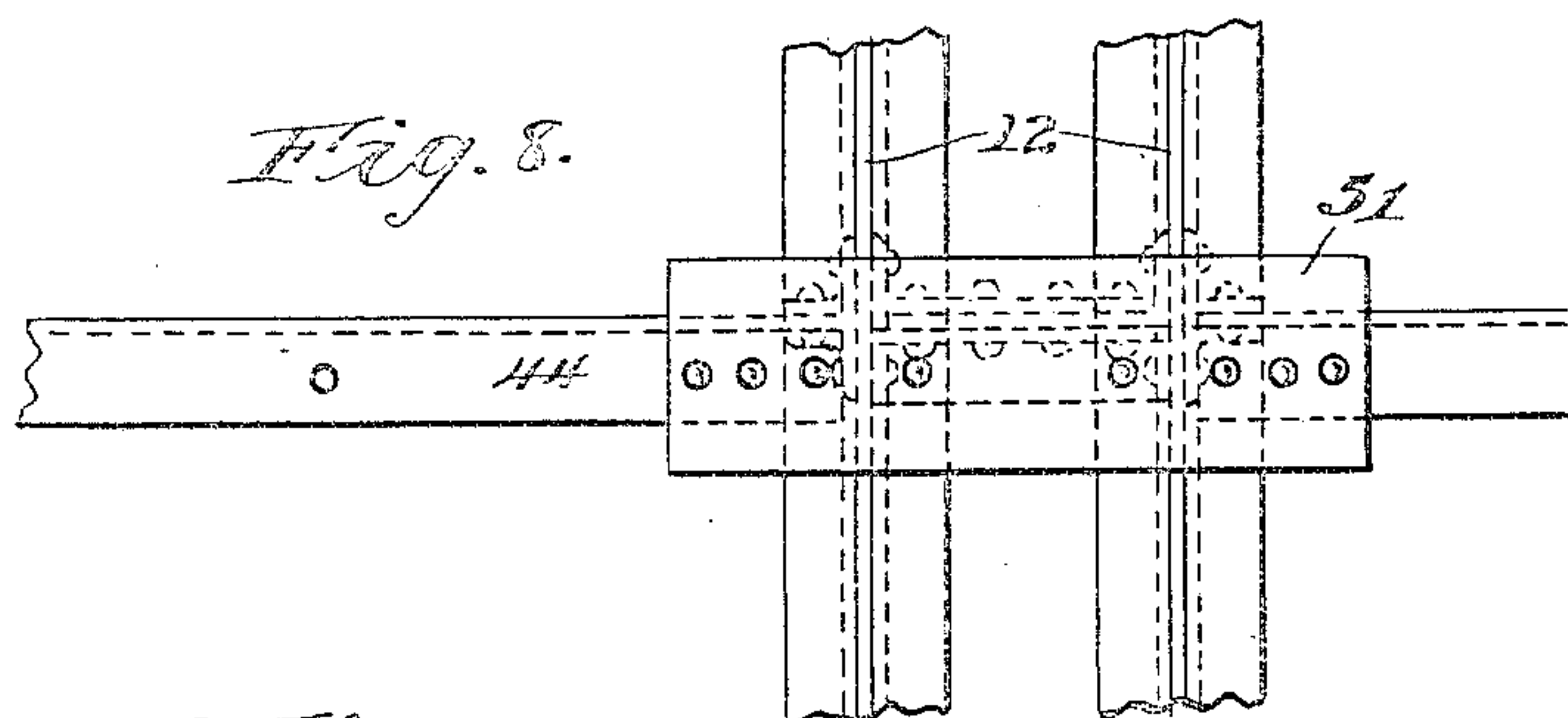
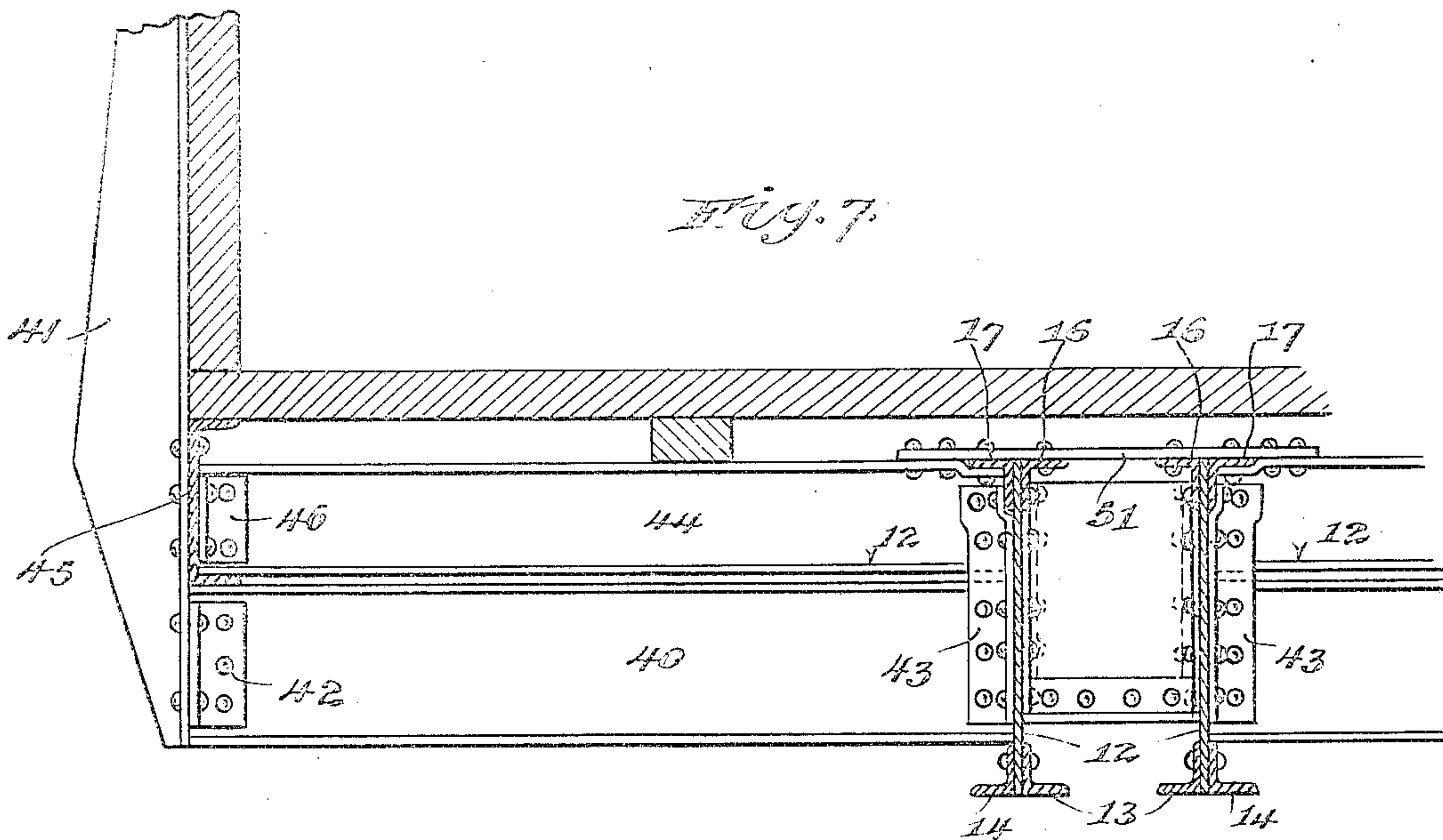
No. 331,648.

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6 SHEETS—SHEET 4.



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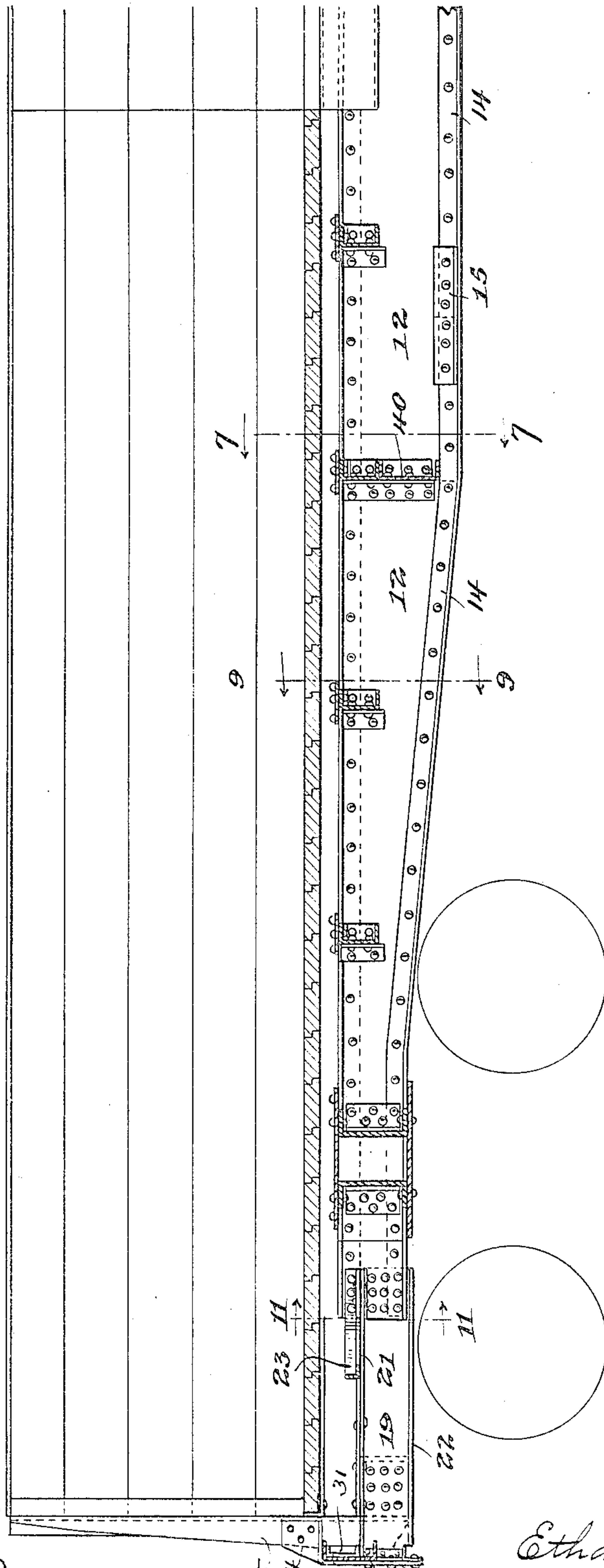
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6 SHEETS—SHEET 5.

Fig. 10.



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Fig. 11.

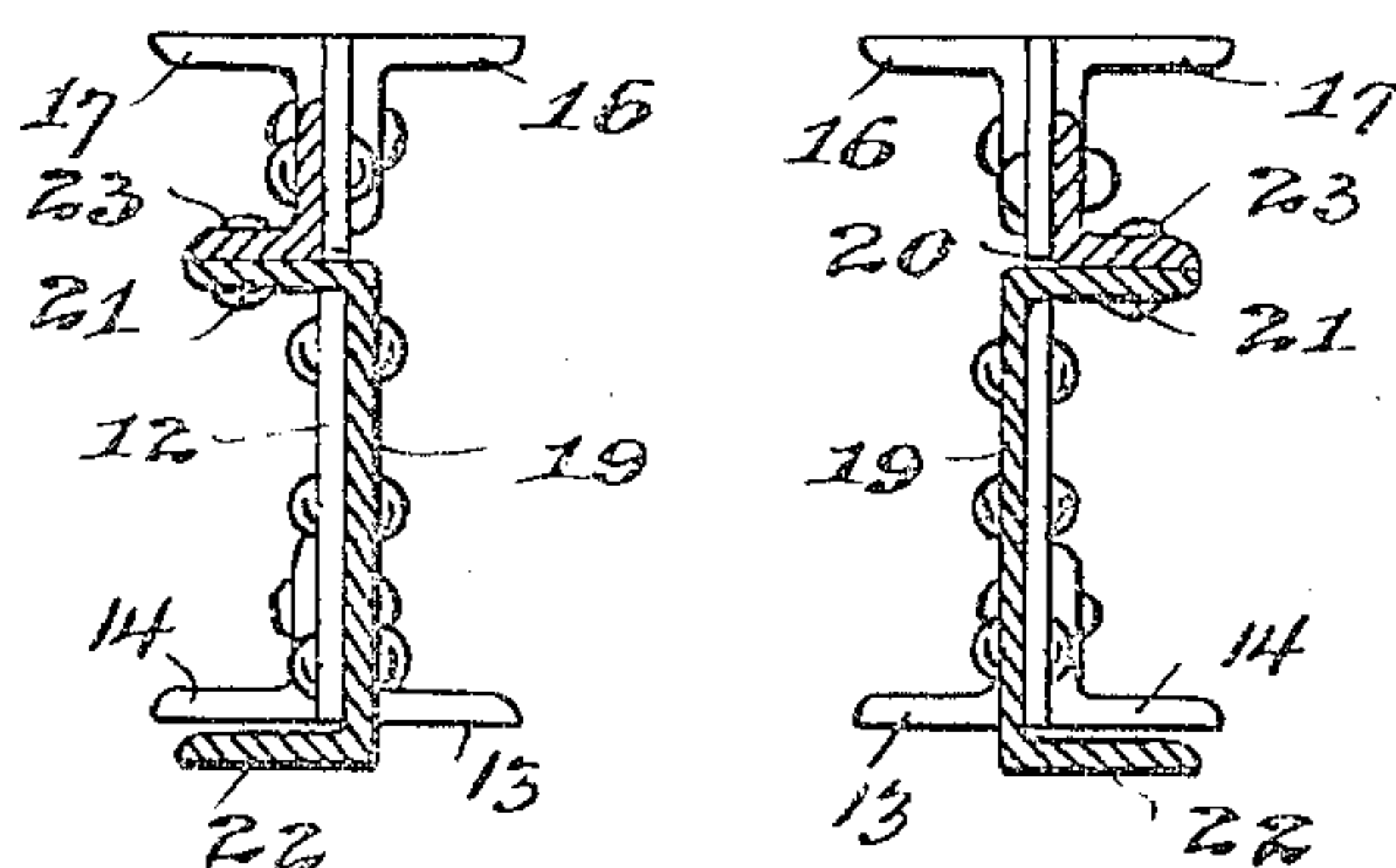


Fig. 12.

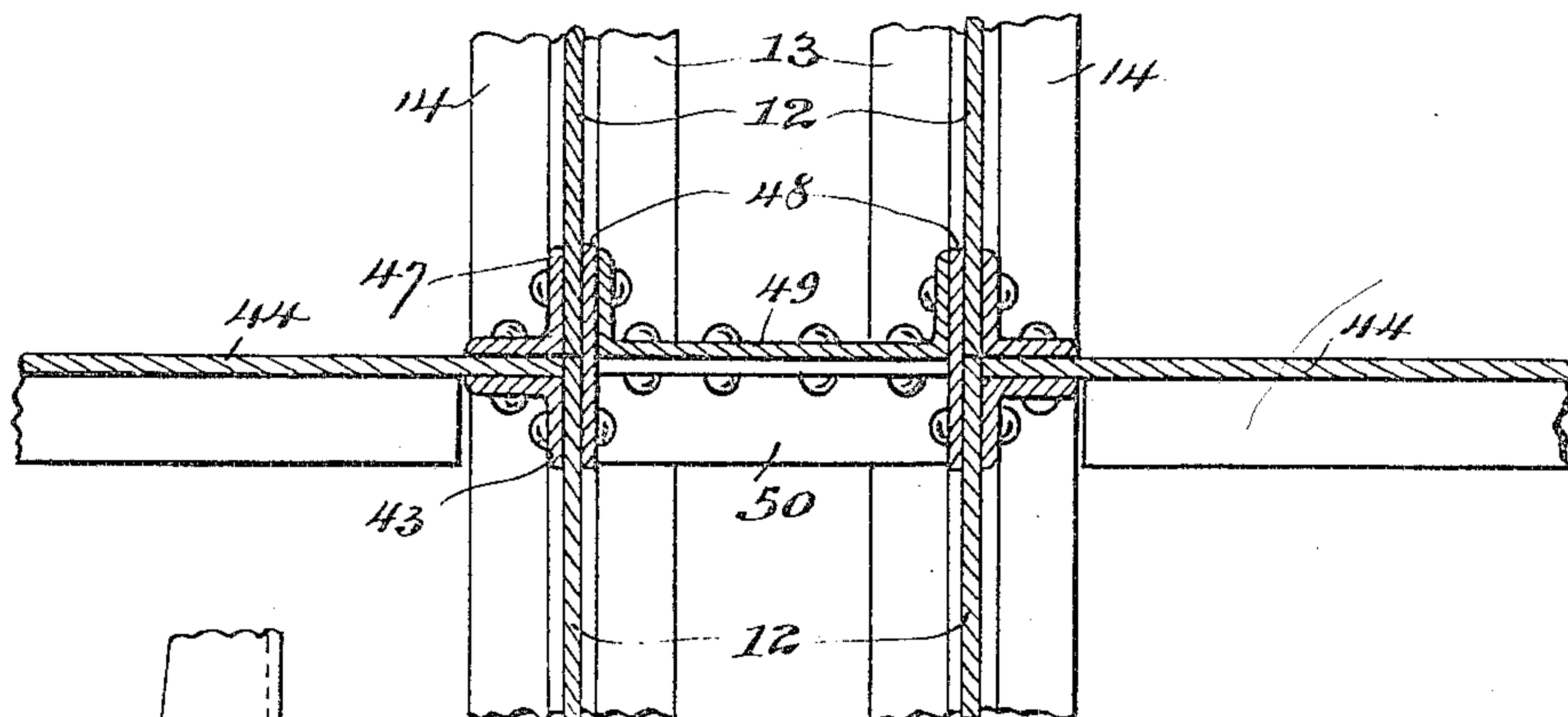
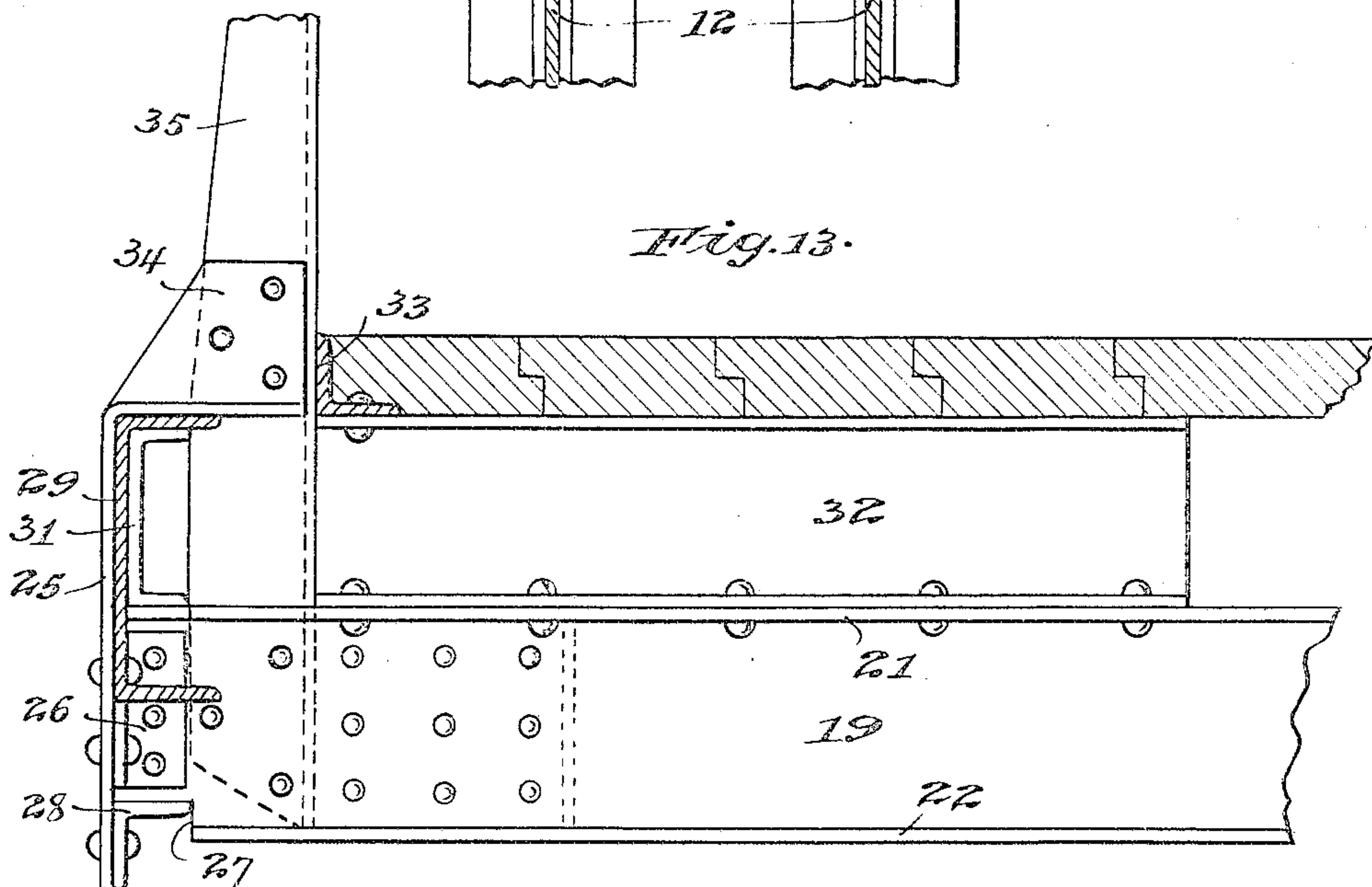


Fig. 13.



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UNITED STATES PATENT OFFICE.

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GONDOLA CAR.

No. 831,648.

Specification of Letters Patent.

Patented Sept. 25, 1906.

Application filed July 24, 1905. Serial No. 270,994.

To all whom it may concern:

Be it known that I, ETHAN I. DODDS, a citizen of the United States, residing at Pullman, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gondola Cars, of which the following is a specification.

My invention pertains to cars, and is especially directed to improvements in gondola cars with wooden superstructures, although it is not limited to such type of superstructure. In order to facilitate repairs, I provide a spliced center sill, and with such a structure only those portions of the sill which have been damaged need be taken out of place to effect repairs, and since the sill is made of comparatively small parts the injured portion can be easily replaced or repaired. To remove an entire sill and repair it is a difficult task; but the removal of a section of the sill used in my form of car can be accomplished easily and quickly.

My invention also includes an improved means for securing the draft-sills to the ends of the center sills, and for this purpose I provide a slot in the end of each beam used in the center sills, the channel draft-sills being riveted to the webs or plates of the center-sill beams with the upper flange of the channel extending outwardly through the slot of the beam. Diagonal braces are provided, the same being riveted at their outer ends to gusset-plates at the corners of the frame and at their inner ends to the upper flanges of the draft-sills and to the webs or plates of the center sills. I also employ diagonal side stakes, one of the flanges of each of which is tapering. The side planks of the car are secured to the tapering flanges, and the other flanges extend outwardly. These side stakes may be economically made by cutting the web of a channel-beam on the bias.

Another feature of my invention is the provision of short tension-plates extending across the tops of the center sills and attached thereto and to the flanges of the transverse cross-bearers.

In the accompanying drawings, which form a part of this specification, I have illustrated one embodiment of my invention, and, referring thereto, Figure 1 is a side elevation

of a car constructed according to my invention. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation, enlarged, of one longitudinal half of the car, the diagonal side stakes being omitted. Fig. 4 is a plan view of the underframe of the car. Fig. 5 is a section on the line 5 5 of Fig. 4, the diagonal brace being omitted. Fig. 6 is a plan view of the corner construction of the underframe of the car, the corner-post being shown in section. Fig. 7 is an enlarged vertical cross-section of the underframe and a portion of the body of the car on the line 7 7 of Fig. 10. Fig. 8 is a plan view of a portion of the center sills and cross-bearers, showing one of the short tension-plates riveted thereto. Fig. 9 is an enlarged vertical cross-section on the line 9 9 of Fig. 10. Fig. 10 is a longitudinal vertical section on the line 10 10 of Fig. 4. Fig. 11 is a detail cross-section on the line 11 11 of Fig. 10, illustrating the manner of attaching the draft-sills to the center sills. Fig. 12 is a detail horizontal cross-section on the line 12 12 of Fig. 7 and shows the method of splicing the parts of the center sill; and Fig. 13 is a longitudinal vertical section on the line 13 13 of Fig. 4, showing the central end construction of the underframe.

The center sills comprise spaced, bellied, and spliced plates 12 12, each of which has riveted thereto on opposite sides and adjacent to its lower edge two tension angle-bars 13 and 14, spliced, as at 15, at each side of the center of the car, and at the upper edge of each plate 12 are riveted two compression angle-bars 16 and 17, as illustrated on Fig. 7. The center sills are attached to body-bolsters 18, Fig. 4, and extend beyond them a sufficient distance to leave stock for the attachment of channel draft-sills 19. Through longitudinal slots 20 in sills 12, Fig. 11, extend outwardly the upper flanges 21 of channel draft-sills 19, (see Figs. 10 and 11,) the lower flanges 22 of the same projecting in the same direction below the angle-bars 14, the webs on the channel-beams 19 being riveted to the inner sides of the center-sill plates 12.

To form a strong construction and at the same time to compensate for cutting the slots in the ends of the center sills, I rivet diagonal angle-braces 23, Fig. 4, at their outer

ends to corner gusset-plates 24, and at their inner ends their lower flanges are riveted to the upper flanges 21 of the draft-sills, and their upstanding flanges are riveted to the plates 12, this structure being clearly shown in Figs. 10 and 11.

The outer ends of the channel draft-sills 19 are secured to a face-plate 25 by means of angles 26, (see Fig. 13,) the lower flange of the draft-sill being cut away to permit the passage of a transverse stiffening-angle 28, riveted to the lower inner side of the face-plate. The ends of channel end sills 29 are riveted to the face-plate 25 and to the upright corner-bars 30, which are constructed by bending the web of a channel-beam longitudinally to form an angle of ninety degrees. The inner ends of sills 29 are tied together and reinforced by a smaller short channel-bar 31, which fits between the flanges of these end channel-sills 29 and is riveted thereto and to the face-plate, the construction being shown in Figs. 4 and 13.

I provide filler channel beams or bars 32 to support the floor of the car, the same being riveted to the upper flanges 21 of the draft-sills 19. A transverse angle-bar 33 rests upon, is supported by, and is riveted to the upper flanges of the filler-bars 32, the outer ends of the transverse bar 33 being fastened, by means of rivets, to the upper flanges of the channel end sills 29.

The face-plate 25 has two backwardly-bent ears or lugs 34, to which are riveted the outstanding tapering ribs of end stakes 35, which are also fastened to the flanges of the draft-sills, as shown in Figs. 4 and 13.

The gusset-plate 24 at each corner of the car, Figs. 4, 5, and 6, rests upon the bottom flange of the end sill 29 and by means of its vertical flanges is riveted to the web of the end sill, to the web of the side sill 45, and to the corner beam or post 30.

The bellied portions or plates 12, forming the center sills, are spliced at the points where the needle-beams are attached thereto, the construction being shown in Figs. 7 and 12. A channel needle-beam 40, Fig. 7, is secured to the flanges on the lower end of a side stake 41 by an angle-plate 42, the inner end of the needle-beam being fastened to the plate 12 by means of angle-plate 43, which also fastens the inner end of cross-bearer 44 immediately above the needle-beam to the center sill 12, the outer end of the cross-bearer being held to the web of the channel side sill 45 by an angle-plate 46. The lower flange of cross-bearer 14 and the upper flange of needle-beam 40 are cut away at their inner ends for a portion of their length to provide for the passage of angle-plate 43, as is shown in Fig. 7. Referring to Fig. 12, it will be seen that an angle 47 on the opposite side of the needle-beam and cross-bearer also secures these parts to the center sills 12, the in-

ner sides of the two abutting center-sill plates 12 being supplied with a splicing butt-strap 48 and channel-spacer 49, the rivets fastening angle-bar 47 to the center sill also passing through the butt-strap and the flange of the spacer 49 and other rivets holding together angle 43, plate 12, and the butt-strap, the spacer 49 having at its lower edge the stiffening angle-bar 50. The remaining cross-bearers of the underframe are secured to the side sill 45 and to the center sill 12 in a similar manner; but of course no butt-strap is used, since the center sill is not spliced at those points. I employ also short transverse tension-plates 51, which are riveted to the angle-bars 16 and 17, attached near the upper edges of plates 12, and to the upper integral flanges of each of the cross-bearers 44, as is illustrated in Figs. 7 and 8.

On the side of the car I employ both vertical and inclined side stakes, (see Fig. 1,) vertical stakes 41 being riveted to the outside of the web of the sill 45 and also to the coping angle-bar 52. Each of these stakes has an outstanding flange which is broadest at the point approximately opposite the top of the side sill, Fig. 9, and which tapers toward its opposite ends, the flanges against the side of the car being untapered. The side stakes 41, which abut against the ends of the needle-beams, extend below the side sills for the purpose of attachment to the needle-beams, this construction being shown in Figs. 1 and 7.

The diagonal side stakes 53 have flanges of uniform width extending outwardly and tapering flanges next to the side of the car-body, the flanges tapering toward the top of the stake. These tapering flanges are riveted to the side sill and also to coping angle-bar 52, and by the use of such stakes I secure the greatest strength at the points where it is most needed without surplus metal, the side stakes, both vertical and inclined, being strongest at their points of attachment to the side sill.

From the foregoing it will be seen that my invention involves several improvements in the underframe and in the side construction of a railway-car, which include the use of short and easily-removed tension-plates, a new method of attaching the draft to the ends of the center sills in combination with diagonal braces, a spliced center sill, and a novel method of accomplishing the splicing, together with a side construction for the car, including stakes, vertical and inclined, the former with outwardly-projecting tapering flanges and the latter with similar flanges against the side of the car.

To those skilled in the art to which my invention pertains various modifications will suggest themselves which would fall within the substance of my invention as defined by the appended claims.

This patent is intended to embrace only so much of the disclosure made herein as is covered by the claims.

I claim—

- 5 1. In a railway-car, the combination of a center sill provided with a slot, and a flanged draft-sill secured thereto with its flange extending through said slot, substantially as described.
- 10 2. In a railway-car, the combination of a center sill having a longitudinal slot, a flanged draft-sill secured thereto with its flange extending through said slot, and an angle-plate fastened to said flange and to said center sill, substantially as described.
- 15 3. In a railway-car, the combination of a center sill having a slot, a flanged draft-sill secured thereto with its flange extending through said slot, and a diagonal brace secured to said flange, substantially as described.
- 20 4. In a railway-car, the combination of a center sill having a slot, a flanged draft-sill secured thereto with its flange extending through said slots, and a diagonal brace riveted to said flange and to said center sill, substantially as described.
- 25 5. In a railway-car, the combination of a center sill having a slot, a flanged draft-sill secured thereto with its flange extending through said slot, a corner gusset-plate, and a diagonal brace fastened to said gusset-plate, to the flange of said draft-sill, and to said center sill, substantially as described.
- 30 6. In a railway-car, the combination of two spaced center sills, each having a longitudinal slot, two flanged draft-sills secured to said center sills with their flanges extending outwardly through said slots, corner gusset-plates, and diagonal braces secured to said gusset-plates, to the flanges of said draft-sills, and to said center sills, substantially as described.
- 35 7. A stake for a car, having a tapering portion disposed against the side of the car-body and a portion of uniform width extending outwardly from the side of said body, substantially as described.
- 40 8. A diagonal side stake for a car having a tapering portion disposed against the side of the car-body and a portion of uniform width extending outwardly from the side of said car-body, substantially as described.
- 45 9. In a railway-car, the combination of a side sill, a coping angle-bar, and a diagonal side stake, having a tapering portion riveted to said side sill and to said coping angle-bar, and also having an outwardly-extended portion of uniform width, substantially as described.
- 50 10. In a car, the combination of spaced center sills, each having an angle-bar riveted thereto adjacent to its upper edge, cross-

bearers, and short tension-plates extending transversely of the sills and riveted to said angle-bars and cross-bearers, substantially as described. 65

11. In a car, the combination of spaced center sills, each having an angle-bar riveted thereto adjacent to its upper edge, flanged cross-bearers secured to said sills, and short tension-plates extending transversely of the sills and riveted to said angle-bars and to the flanges of the cross-bearers, substantially as described. 70

12. A gondola car having a center sill and a needle-beam secured thereto, said center sill being spliced at the point where the needle-beam is fastened to it, substantially as described. 75

13. In a car, the combination of two endwise adjacent portions of a center sill, a transverse beam, an angle-bar secured to each side of said beam, a butt-strap, and rivets fastening together one of said angle-bars, one portion of said center sill, and said butt-strap, and other rivets fastening together the other angle-bar, the other portion of said center sill, and the butt-strap, substantially as described. 80

14. In a car, the combination of two endwise adjacent portions of a center sill, a transverse beam, an angle-bar secured to each of two opposite sides of said beam, a butt-strap, a flanged spacer for the center sills, rivets fastening together one of said angle-bars, one portion of said center sill, said butt-strap, and the flange of the spacer, and other rivets securing together the other angle-bar, the other portion of said center sill, and the butt-strap, substantially as described. 85

15. In a car, the combination of two endwise adjacent portions of a spliced center sill, a cross-bearer, and a needle-beam on one side of said sill, a butt-strap on the other side, and two angle-plates riveted to the opposite sides of said cross-bearer and needle-beam, and to the portions of said sill and butt-strap, substantially as described. 90

16. In a car, the combination of a center sill, a cross-bearer, a needle-beam, and an angle-plate riveted to said cross-bearer, needle-beam and center sill, substantially as described. 100

17. In a car, the combination of side stakes, having tapering flanges extending outwardly from the car-body and diagonal side stakes having tapering portions lying against the car-body, and portions of uniform width extending outwardly from the body, substantially as described. 115

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