No. 803,333. PATENTED OCT. 31, 1905.

E. I. DODDS.

CAR PART.

APPLICATION FILED FEB. 23, 1904.

4 SHEETS—SHEET 1.

Fig. 1.

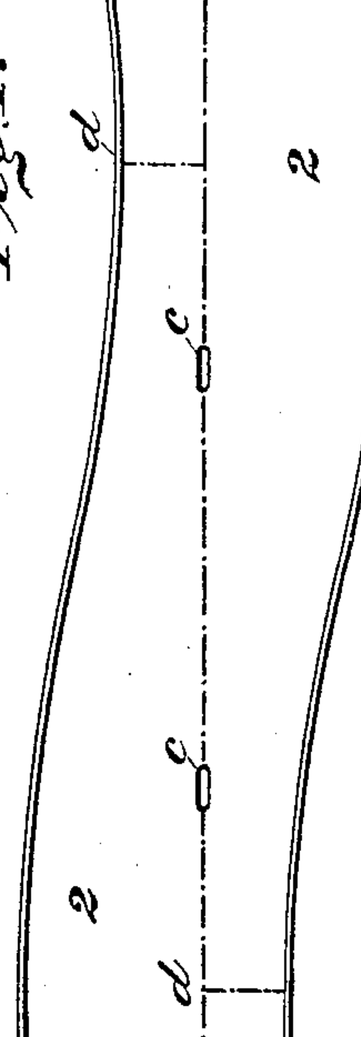


Fig. 5.

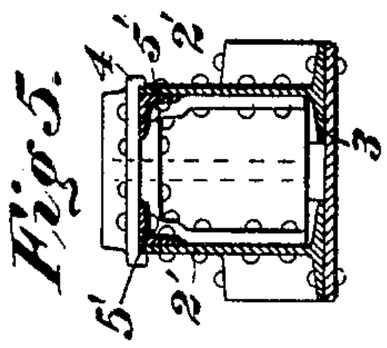


Fig. 8.

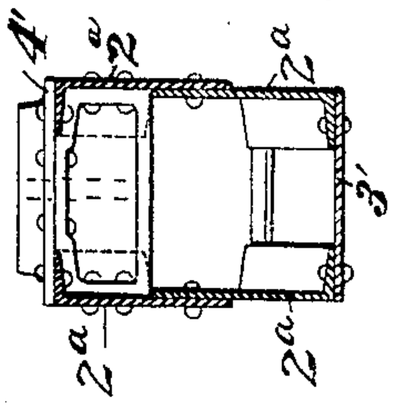


Fig. 2.

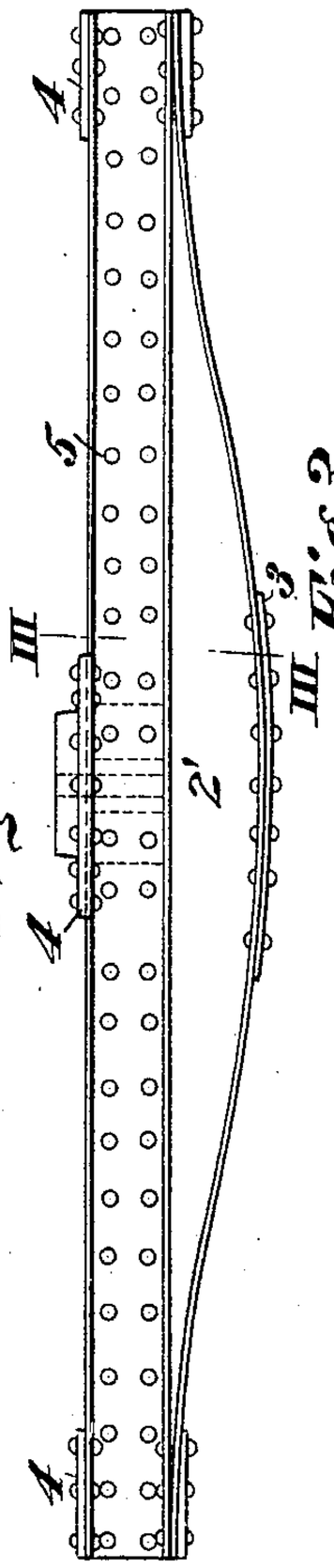


Fig. 3.

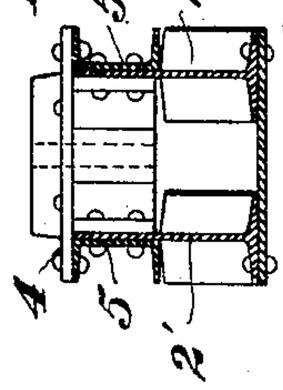


Fig. 6.

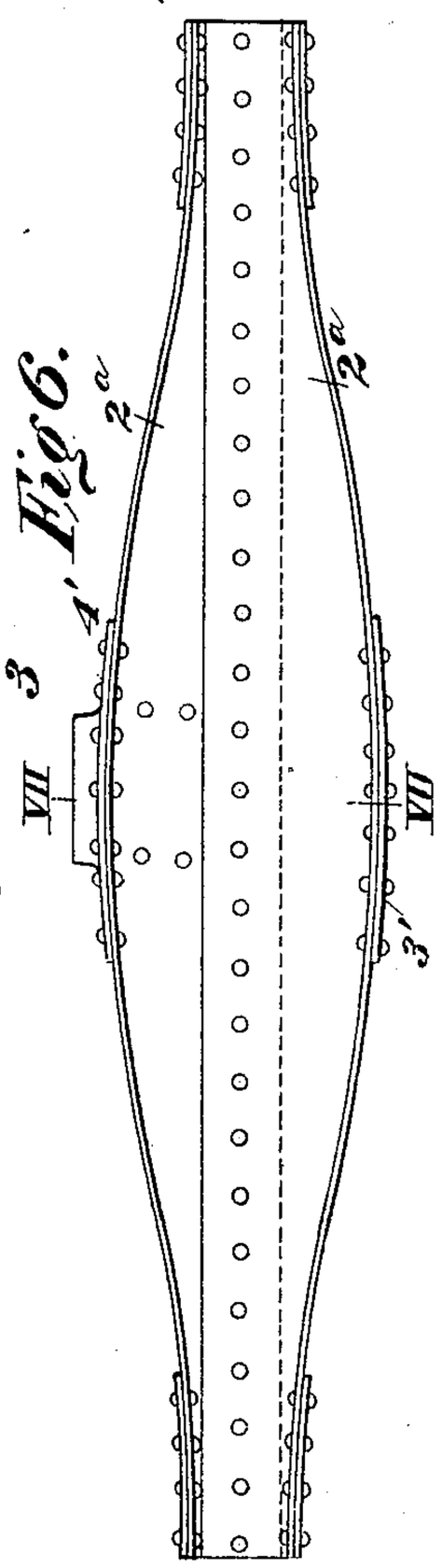


Fig. 4.

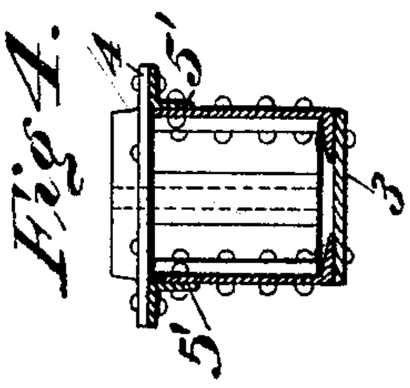
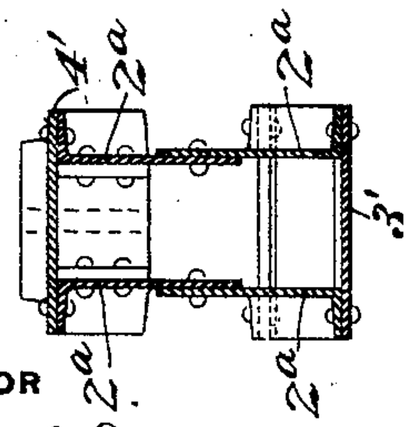


Fig. 7.



WITNESSES

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4 SHEETS—SHEET 2.

Fig. 10.

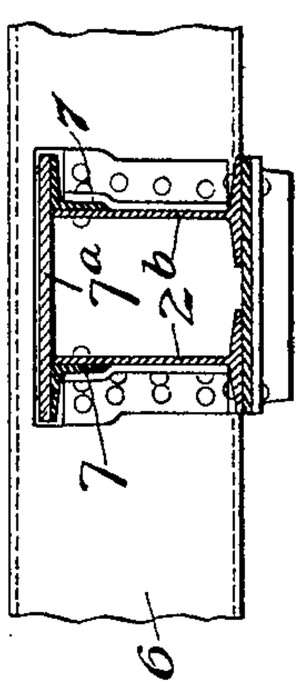

Fig. 11.

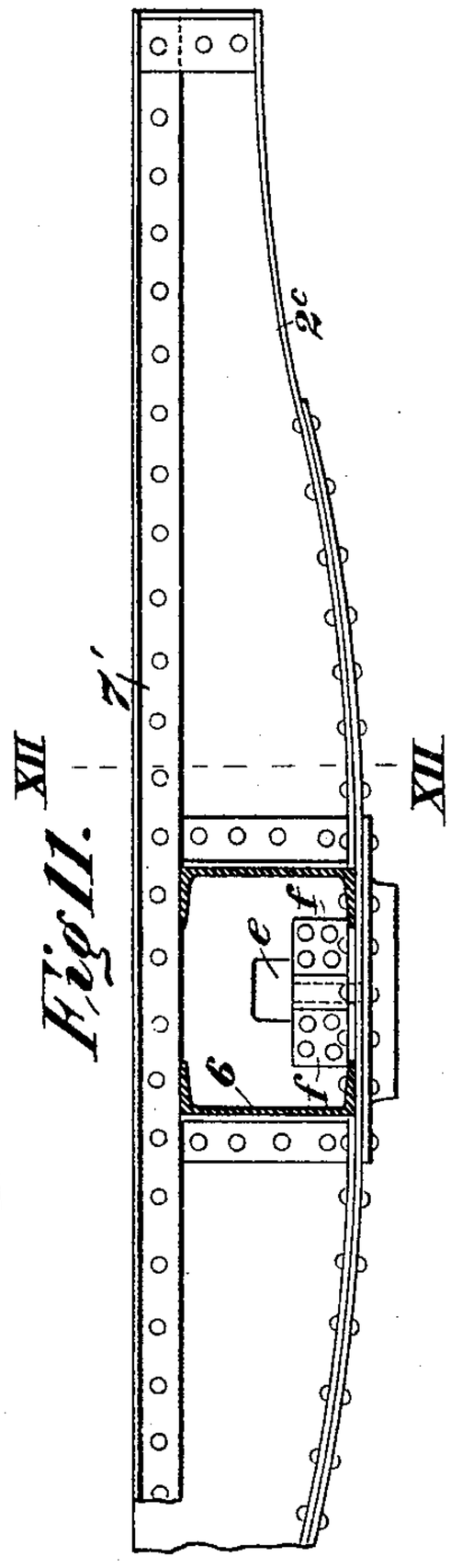

Fig. 14.

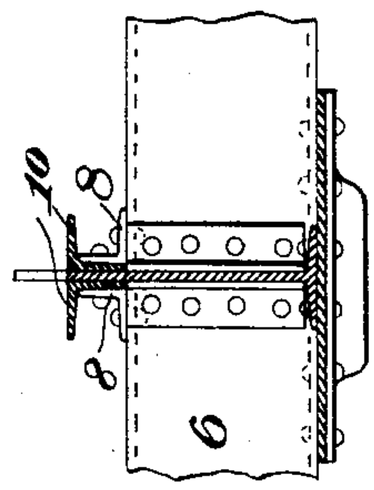

Fig. 13.

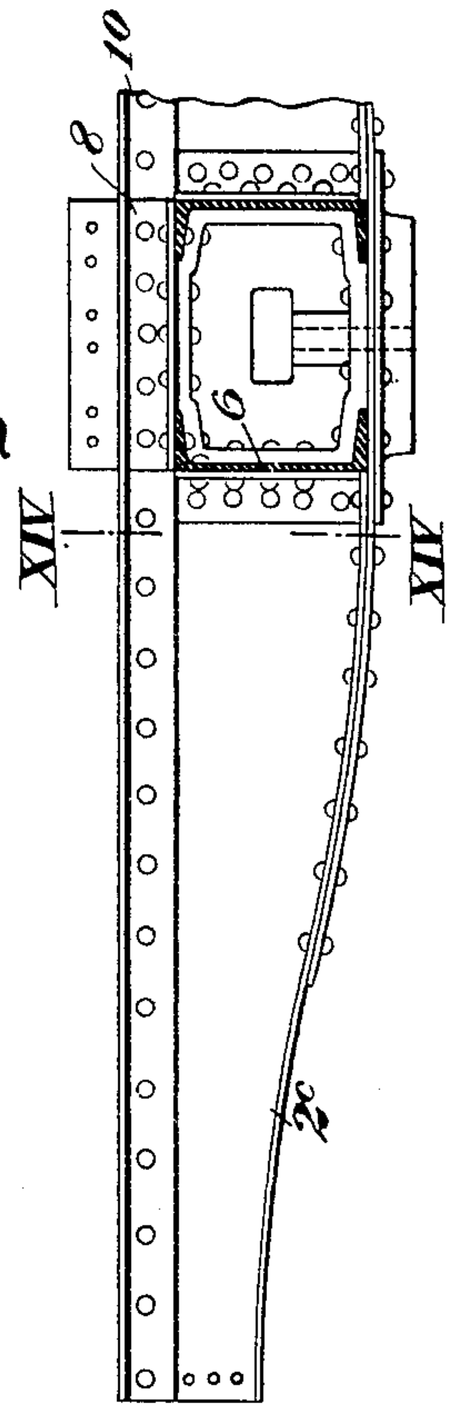

Fig. 9.

Fig. 12.

Fig. 15.

WITNESSES

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4 SHEETS—SHEET 3.

Fig. 16.

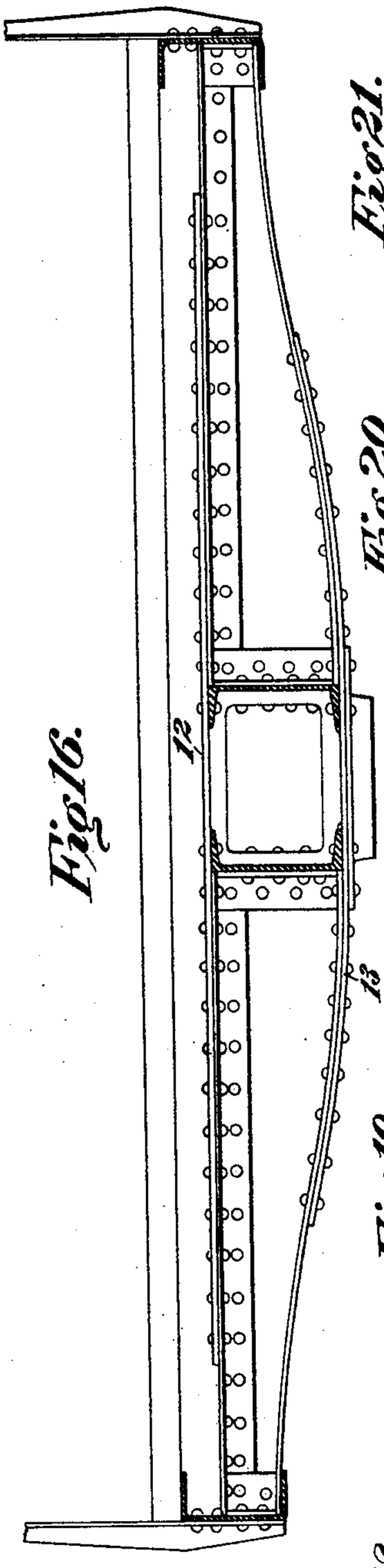


Fig. 17.

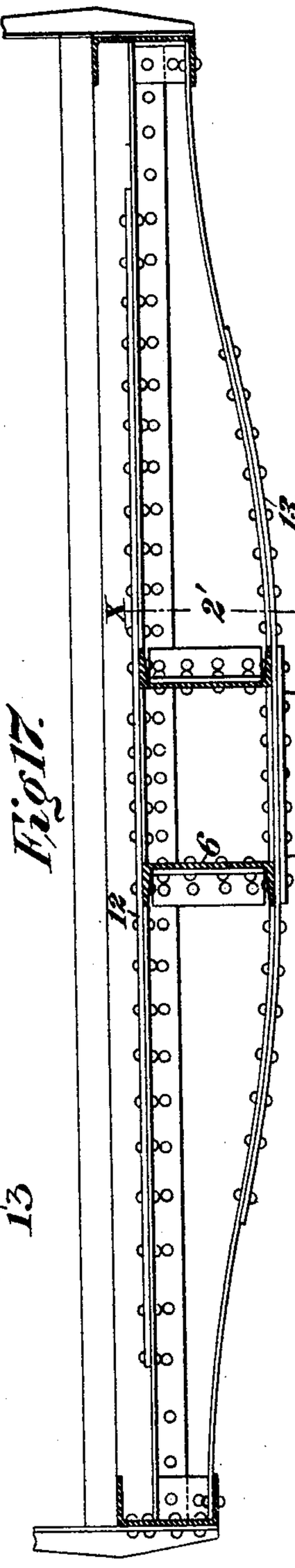


Fig. 18.

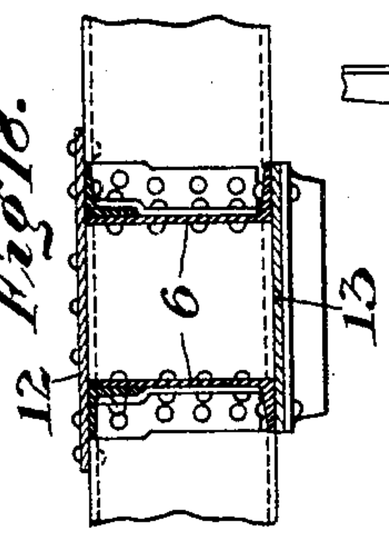


Fig. 19.

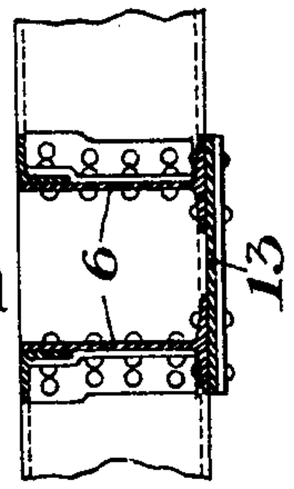


Fig. 20.

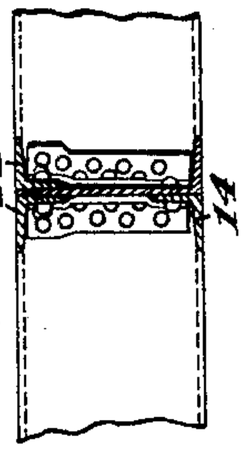


Fig. 21.

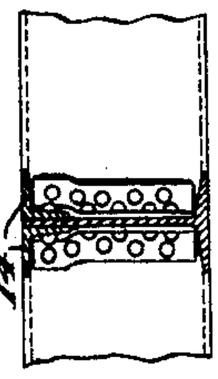


Fig. 22.

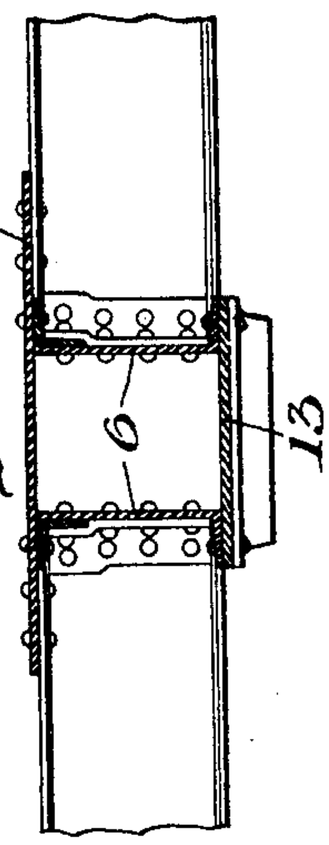
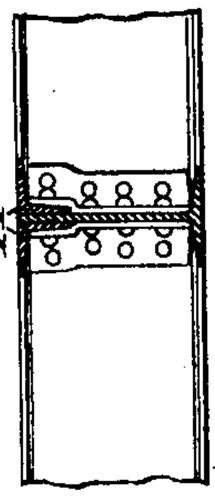


Fig. 23.



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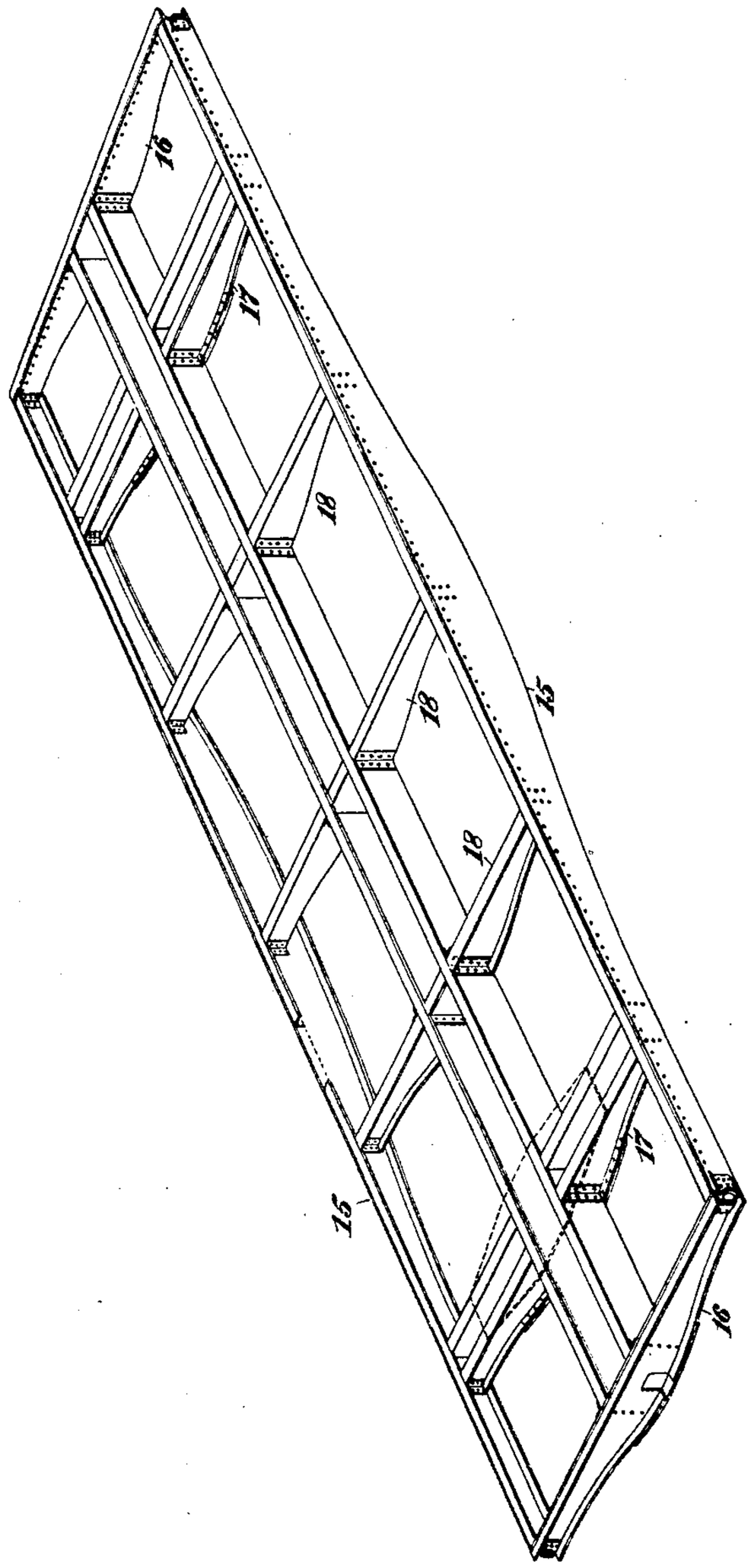
4 SHEETS—SHEET 4.

Fig. 24.



WITNESSES

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G. M. Viers.

INVENTOR

Ethan I. Dodds

UNITED STATES PATENT OFFICE.

ETHAN I. DODDS, OF AVALON, PENNSYLVANIA, ASSIGNOR TO PRESSED STEEL CAR COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

CAR PART.

No. 803,333. Specification of Letters Patent. Patented Oct. 31, 1905.

Application filed February 23, 1904. Serial No. 194,642.

To all whom it may concern:

Be it known that I, ETHAN I. DODDS, of Avalon, Allegheny county, Pennsylvania, have invented a new and useful Car Part, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 shows in plan a blank from which my improved car part is made. Fig. 2 shows in elevation a truck-bolster embodying my invention. Fig. 3 is a vertical section on the lines III III of Fig. 2. Figs. 4 and 5 are similar sections illustrating modifications. Fig. 6 is an elevation of a truck-bolster of modified construction. Fig. 7 is a vertical section on the line VII VII of Fig. 6, and Fig. 8 is a similar section illustrating a modified construction. Fig. 9 is an elevation of a built-up body-bolster embodying my invention. Fig. 10 is a vertical section on the line X X of Fig. 9. Fig. 11 is an elevation of a continuous body-bolster. Fig. 12 is a vertical section taken as if on the line XII XII of Fig. 11, showing the vertical plate for the support of the floor-sheets of the car. Fig. 13 is a view similar to Fig. 11, showing a built-up body-bolster. Fig. 14 is a vertical section on the line XIV XIV of Fig. 13. Fig. 15 is a similar cross-section illustrating a modification. Fig. 16 is an elevation of a built-up body-bolster, illustrating a modification. Fig. 17 is a similar view of a continuous body-bolster. Figs. 18, 19, 20, 21, 22, and 23 are vertical sections taken as if on the line X X of Fig. 17, also illustrating modifications. Fig. 24 is a perspective view showing a car-frame whose end sills, body-bolster, flying transoms, and side sills are made in accordance with my invention.

The purpose of my invention is to provide means for making bellied or curved car parts—such as bolsters, sills, and flying transoms—with the greatest possible strength and with a minimum waste of material. I make such car parts by bending a flanged beam edgewise, preferably into a sinuous curve, and then dividing it by a longitudinal cut through its web and by transverse cuts, so as to produce pieces having a curved flanged edge and also an unflanged cut edge. These pieces can readily be made into the car parts above mentioned.

In Fig. 1 I show a blank constituted of a channel or **I** beam, indicating how it is bent and cut to produce parts in accordance with my invention. This flanged blank is bent edgewise in the plane of its web, preferably in a sinuous curve, as shown in Fig. 1, and is then cut with a longitudinal cut *b b*, extending through the web, holes *c c* being preferably first formed along the line of the intended cut. The beam is then divided further by transverse cuts *d d*, so as to produce a number of parts 2 2, each of which, as shown, has a curved flanged edge and also an unflanged, preferably straight, edge. At each end of the beam so bent there will be a section *a* in shape of one-half of the section 2, illustrated in Fig. 1, and two of such end sections can be combined together to form a built-up bolster or transom. In Fig. 2 I show how the parts 2 are utilized in making a continuous truck-bolster. As shown in Figs. 2 and 3, two **I**-beam sections 2′ 2′, made as shown in Fig. 1, are set side by side in parallel position, with their flanged edges downward. They are connected at the bottom by plates 3 and at the top by plates 4, and each is reinforced along the side by a riveted flange-piece 5. This produces a truck-bolster the bottom of which is curved and the top of which is flat. In Fig. 4 I show a similar bolster construction made up of channel-beam sections connected by plates at the top and bottom and strengthened by lateral angles 5′.

In Fig. 5 the bolster is made of **I**-beam sections 2′, connected at the bottom and top by plates 3 4 and having reinforcing-angles 5′ along the inner sides of the webs.

In Figs. 6 and 7 I show a truck-bolster made of the parts illustrated in Fig. 1, arranged in such manner as to constitute a bolster curved on both top and bottom. In this case there are two pairs of the sections 2^a 2^a, the members of each pair being placed, respectively, with their webs overlapping and with their curved flanged edges outermost. The overlapping edges are riveted together, and the composite side members of the bolster thus constituted are connected at the bottom and top by plates 3′ and 4′.

In Figs. 6 and 7 the members 2^a have their flanges directed outwardly and are constituted of sections of channel-beams. In Fig. 8 the flanges of these members 2^a are directed inwardly.

In Fig. 9 I show a built-up body-bolster in which two half-sections 2^b like the sections *a* of Fig. 1 are applied endwise at the opposite side of a center sill 6, which is made up of parallel channel-beams set with their webs in vertical position. These members 2^b are connected together by a tension-plate 7^a, which extends along their upper cut edges and through the webs of the beams which constitute the center sill. The cut edges of the bolster members are reinforced by riveted angles 7, as shown in Figs. 9 and 10.

In Figs. 11 and 12 I show a continuous body-bolster made up of one of the sections 2 shown in Fig. 1, the center sill 6 being abutted against its middle portion and its upper cut edge being reinforced by a riveted angle 7′.

In Fig. 11 I show a novel construction for the king-pin of the truck. Here I drill through the center of the bottom flange of the bolster a hole for the king-pin and slot the web with a slot and hole *e* for the body and head of the king-pin. The web is reinforced by a riveted plate *f*, so as to compensate for the slotted portion. This makes a very cheap and simple construction for the application of the king-pin to a bolster made of a single continuous beam-section. In Fig. 12 I show a bolster of this kind combined with a strut or tension-plate 8, which is connected with the floor-plate 9 of the car.

In Figs. 13 and 14 I show a built-up body-bolster made of two members 2^e of the same kind as the member 2^b of Fig. 9. The webs of these members extend vertically above the top of the center sill 6, and the members on the opposite sides of the sill are connected by riveted angles 8 8.

In Fig. 15 I show the bolster made up of two channel-beam sections 2^d, which may be like the half-section shown in Fig. 9, or may be continuous like the section shown in Fig. 17. These two parts 2^d are placed back to back and are reinforced at the upper cut edges by angles 10′. A strut or tension-plate 11 extends upwardly from between the members 2^d.

Fig. 16 shows a built-up body-bolster made as shown in Fig. 11, except that the webs of the bolster members do not extend above the level of the center sill, and the members on the opposite sides of the center sill are connected by a tie-plate 12. As shown in this section, each bolster member is composed of two similar members set parallel and side by side at suitable distances apart and connected at top and bottom by the tension-plate 12 and plates 13.

The bolster shown in Fig. 18 is built up of channel-sections and in Fig. 19 of the sections of I-beams.

In Figs. 20 and 21 I show how the bolster of Fig. 16 can be of a single member on each side of the center sill. The bolster of Fig. 20 is made of a section of a channel-beam, reinforced at the top and bottom by angles 14, and the bolster member of Fig. 21 is made of an I-beam section, reinforced at the top of angle-sections 14′.

The bolster shown in Fig. 17 differs from the bolster shown in Fig. 16 only that it is continuous, being made of a continuous section 2′, the center sill 6 being abutted against the bolster.

Fig. 22 is a vertical section of the bolster of Fig. 17, showing it constituted by two parallel channel-sections, separated laterally from each other, and in Fig. 23 the bolster is shown as constituted of an I-beam section, reinforced along the upper cut edge by angles 14′.

In Fig. 24 I show a car-frame whose different parts are made as above described and embody my invention. These parts consist of side sills 15, end sills 16, body-bolsters 17, and flying transoms 18. The car-frame so made is light in proportion to its stength and can be made very cheaply and with as little waste of metal as possible.

Those skilled in the art will be able to modify the construction of the parts without departing from the principle of my invention as stated in the following claims, since

What I claim is—

1. A bellied car part having an integral curved flanged edge bent in the transverse plane of the web and having its other edge a cut edge; substantially as described.

2. A bellied car part having a curved flanged edge bent in the transverse plane of the web and having its other edge a straight and cut edge; substantially as described.

3. A bellied car part having an integral curved flanged edge bent in the transverse plane of the web and having its other edge a cut edge, said cut edge being reinforced by a flanged or angled piece; substantially as described.

4. A car part comprising a member having one edge bent to a curve in the transverse plane of the web and having an integral flange and the other edge a cut edge, said member being deeper at one end than the other; substantially as described.

5. A car part comprising a member having one edge bent to a curve in the transverse plane of the web with an integral flange and the other edge a cut edge, said members being deeper at one end than the other and constituted of one-half of a continuous section such as the section 2 of Fig. 1; substantially as described.

6. A car part comprising a flanged section bent in the transverse plane of the web along its flanged edge and having the other edge a cut edge, said section being constructed substantially as shown at 2 in Fig. 1; substantially as described.

7. A metal sill for cars having a curved flanged edge bent in the transverse plane of the web and having the other edge a cut edge, and being produced by cutting longitudinally

and transversely a bent flanged beam; substantially as described.

8. A metal sill for cars having a curved flanged edge bent edgewise and having the other edge a cut edge, said sill being produced by cutting longitudinally and transversely a bent flanged beam, said sill being reinforced along its cut edge; substantially as described.

9. A blank for car parts consisting of a flanged section bent in the transverse plane of the web into sinuous form; substantially as described.

In testimony whereof I have hereunto set my hand February 18, 1904.

ETHAN I. DODDS.

Witnesses:
GEO. B. BLEMING,
H. M. CORWIN.