No. 712,483. Patented Nov. 4, 1902.

W. P. BETTENDORF.

TRUSS BEAM.

(Application filed June 21, 1900. Renewed July 25, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

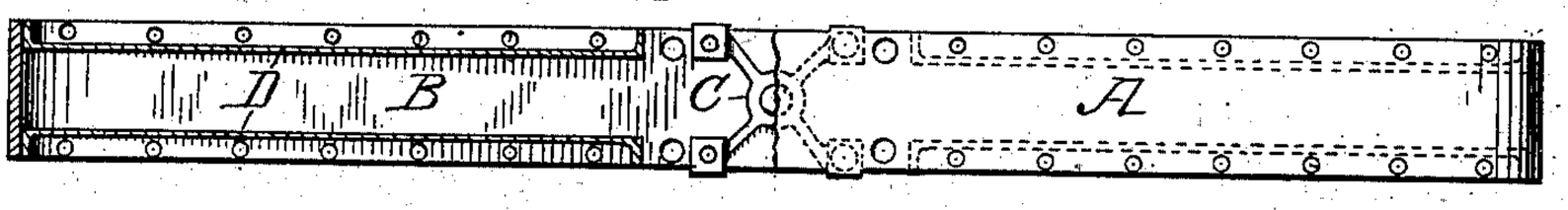


Fig. 2.

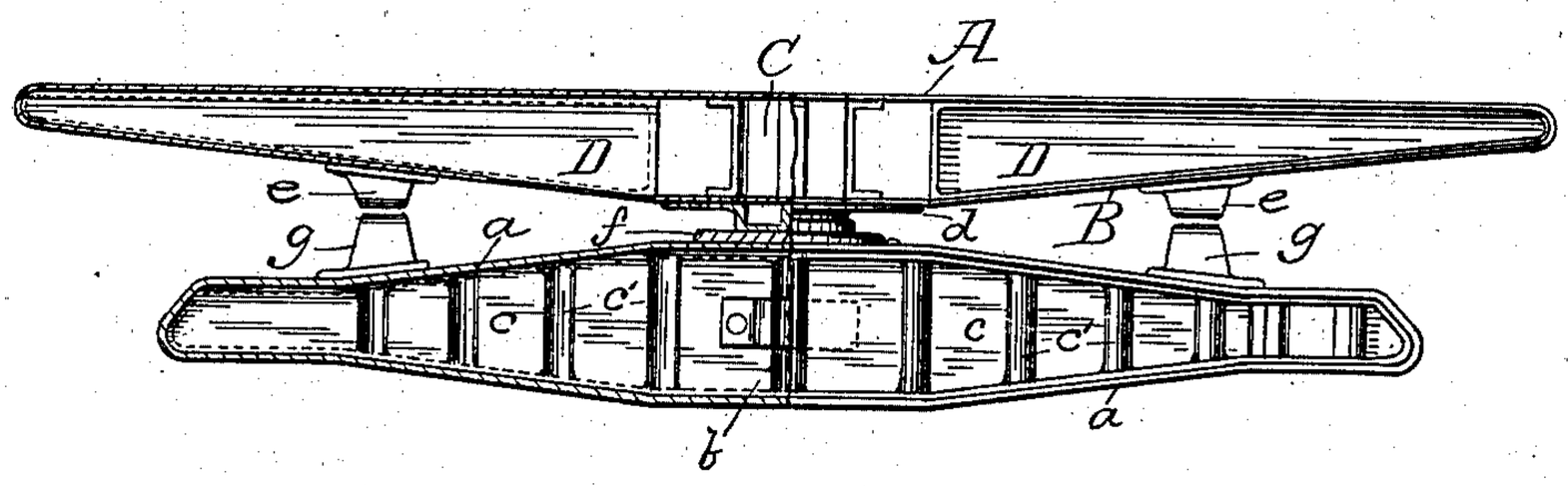
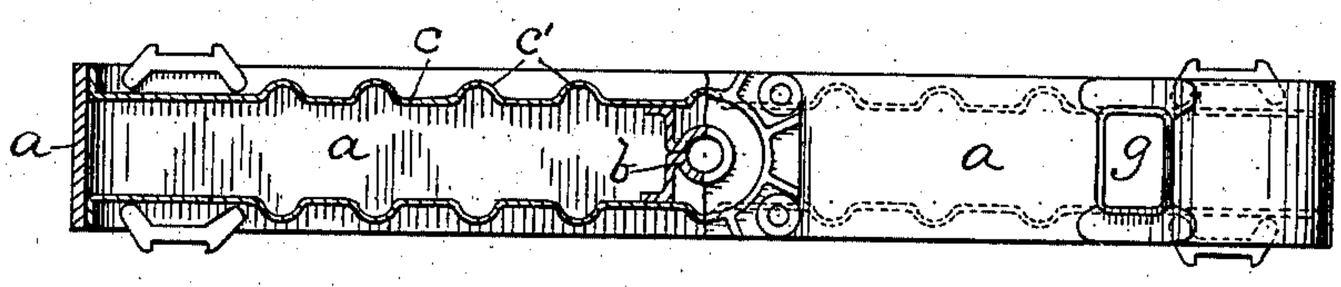


Fig. 3.



Witnesses.
L. Emory Thomason
M. Friel.

Inventor.
William P. Bettendorf
By Thompson
Atty

No. 712,483. Patented Nov. 4, 1902.

W. P. BETTENDORF.

TRUSS BEAM.

Application filed June 21, 1900. Renewed July 25, 1902.)

(No Model.) 2 Sheets—Sheet 2.

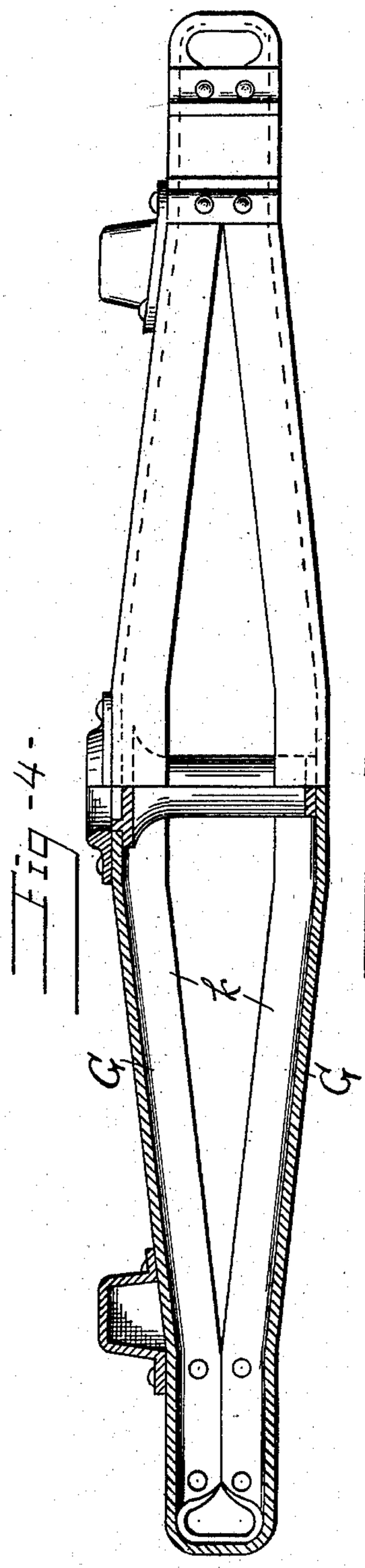


Fig. 4.

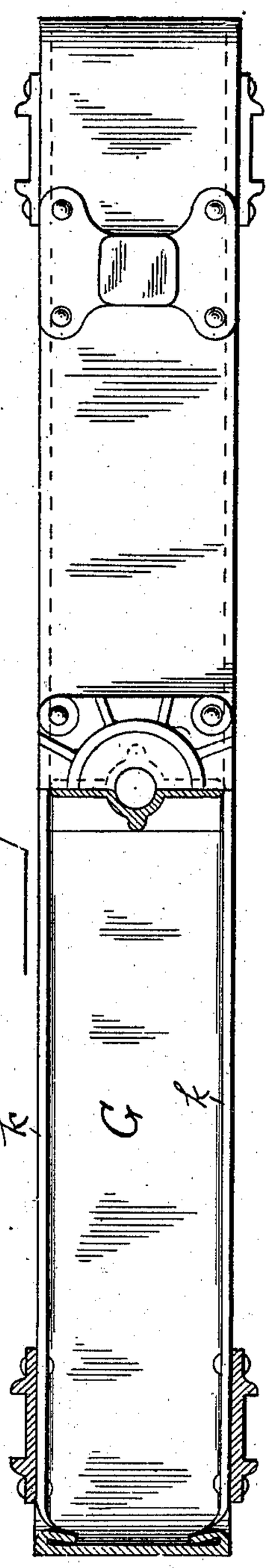


Fig. 5.

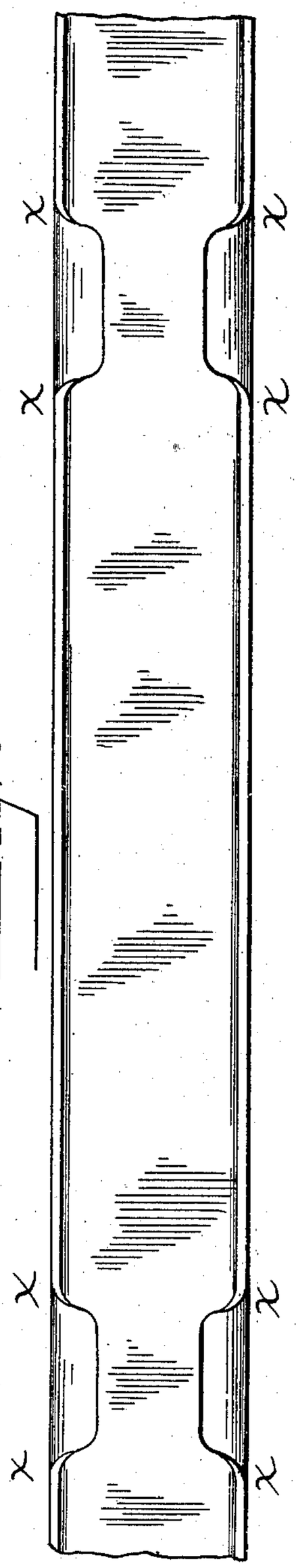


Fig. 6.

Witnesses:—
Louis S. Thomason
M. Friel.

Inventor
William P. Bettendorf.
By Frank D. Thomason.
Atty

UNITED STATES PATENT OFFICE.

WILLIAM P. BETTENDORF, OF DAVENPORT, IOWA.

TRUSS-BEAM.

SPECIFICATION forming part of Letters Patent No. 712,483, dated November 4, 1902.

Application filed June 21, 1900. Renewed July 25, 1902. Serial No. 116,885. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. BETTENDORF, of Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Truss-Beams, of which the following is a full, clear, and exact description.

My invention relates to a form of truss-beams which while applicable for a great many purposes is, in so far as its immediate use is concerned, particularly adaptable for car-bolsters.

The object of my invention is to simplify the construction of a truss-beam, so as to greatly economize the cost and weight of the same and so as to absolutely avoid the shearing effect at the point of unition of the compression and tension members of the truss, as well as elsewhere, to which truss-beams have heretofore been subject. This I accomplish by the means hereinafter fully described and as particularly pointed out in the claims.

In the drawings, Figure 1 is a plan view of a body-bolster embodying my invention and showing one-half its length in section. Fig. 2 is a side view of the body and truck bolsters of a car embodying two forms of my improved truss-beam, showing one-half their length in cross-section. Fig. 3 is a plan view of the truck-bolster, showing one-half its length in section. Fig. 4 is a side view of a modified construction of my improved truss-beam designed for a body-bolster for cars. Fig. 5 is a plan view thereof. Fig. 6 is a side view of yet another modification thereof.

The principal feature of my invention consists in making the skeleton or outer frame of the truss, or, more technically speaking, the compression and tension members thereof, of one continuous length of heavy metal plate or bar-iron or flanged beam.

In the construction of a body-bolster for cars, as shown in Figs. 1 and 2 of the drawings, A represents the upper or compression member of the truss, and B the tension member. These two members, composing the outer frame of the truss, are made of one continuous length of heavy metal plate. To accomplish this, about one foot, more or less, from and on each side of its center of length the plate is inclined upward at corresponding angles to form the tension member, and the ends are bent back over the inclined tension members, so that their extremities can meet and be welded together by a butt-weld or be otherwise secured together. While the reverse method of bending the metal-plate blank could be adopted and the end edges thereof be brought together and welded at the center of length of the under side of the truss, it is desirable to bring these end edges together and weld or otherwise unite them at the center of length of the upper compression member, for the reason that the downward strain on said compression member has a tendency to cause all portions thereof to crowd toward the center, but to tear said tension members apart. I desire, however, to be understood as considering it within the scope of my invention, no matter at what point the end edges of the plate are brought together and secured.

The construction of the outer frame of the truss, as hereinbefore described, causes the compression and tension members to be farthest apart and parallel at their centers of length, at which point a strut, or in the case of a body-bolster such as shown, a king-bolt bearing C is placed between them. This king-bolt bearing consists of a vertical central tubular part having radially-projecting wings the end edges of which are flattened, so as to afford opportunity for rivets to be employed to secure them to said compression and tension members.

In order to reinforce and strengthen the acute-angular end portions of the body-bolster truss on each side of said central portion, whose width is the same throughout, I insert one or more fillers D D. These fillers may be of pressed steel or cast metal, having their edges flanged so as to lap against the inner surface of the metal plate composing the compression and tension members, to which they are secured by riveting or in any other suitable manner.

In the body-bolster shown in the drawings the end of the fillers nearest the center do not extend clear to the king-post bearing, but terminate a sufficient distance therefrom to permit of the center sill-timbers of the under-

frames of cars to be passed between them. If desired, however, these fillers may extend clear to said king-post.

The truck-bolster shown in Figs. 2 and 3 of the drawings shows a different form of my improved truss-beam. In this the separation of its compression and tension members is greatest at its center of length and least at the ends, and both at its center of length and to a corresponding extent at its ends the upper and lower surfaces are parallel. Between its ends and said central portion the upper and lower surfaces are inclined or converged in a symmetrical manner toward each other, substantially as shown. The outer frame *a* of this truck-bolster is likewise composed of one continuous length of metal plate, which is bent so as to shape the compression and tension members of the truss on lines substantially as just described and so that the end edges of the plate will meet and be welded by a butt-weld or be otherwise secured ogether on substantially the same principle and in the same way as heretofore explained when describing the body-bolster. The center of length of the compression and tension members of this truck-bolster are separated by a suitable strut or king-bolt bearing *b*, and near each side edge fillers *c c* are placed. These fillers consist of sheet-metal plates or cast metal so constructed as to be provided with a series of vertical corrugations *c'*, which are designed to strengthen the same in a vertical direction and can be utilized, if desired, to partially inclose and accommodate the barrel of vertical bolts connecting the compression and tension members of the truss. These fillers are also provided with inwardly-projecting edge flanges, which lap against and are connected to the inner surface of the continuous metal plate forming the outer frame for the truss by rivets or otherwise.

When my invention is utilized for car-truck bolsters, the body-bolster is provided with a central bearing-plate *d* and with side bearings *e e* of the usual construction, and the truck-bolster is provided with a bearing-plate *f* and with side bearings *g* of suitable construction to coöperate with the companion parts of the body-bolster. In addition to these attachments the truck-bolster is provided with suitable column-guides *h*, substantially as shown. I make no claim herein, however, to any of these accessories of said car-bolsters. That may be changed according as desired, so as to suit the requirements of the purchaser.

In Figs. 4, 5, and 6 I show a modified construction of my invention which enables me to entirely dispense with the fillers which were described in connection with the bolsters illustrated in the first three figures of the drawings.

The tension or the tension or compression member of the truss-beam shown in Figs. 4 and 5 is made of one continuous stretch of channel-beam G, which is bent in substantially the same shape as the plate forming the compression and tension members of the truck-bolster shown in Figs. 2 and 3. There is, however, this very essential difference, to wit: In the form of bolsters shown in Figs. 1, 2, and 3 of the drawings no special conformation of the continuous metal plate forming the outer frame of the truss is necessary, whereas in this modification the side flanges *k* of the channel-beam at or between the points *x x*, which indicate the limit of the portion describing or forming the end bends of the truss, are lapped inward flat against the inner surface of the web of the beam between the flanges, substantially as shown in Figs. 4, 5, and 6, or cut as or otherwise displaced, so as not to present any resistance and so that for a short distance from said bends the edges of the overlapping parts be welded or otherwise suitably secured together and so that the upper and lower surfaces of the end portions of the truss may be parallel, substantially as shown.

If my improved truss-beam were formed of angle-iron or T-iron, the flange thereof would have to be lapped inward or otherwise lapped in substantially the same manner and on the same principle of construction as hereinbefore described.

What I claim as new is—

1. A truss-beam having its compression and tension members formed of one continuous stretch of suitably-bent metal having its end edges meet and united together at its center of length.

2. A truss-beam having its compression and tension members formed of one continuous stretch of suitably-bent metal having its end edges meet and united together at the center of length of the compression member.

3. A truss-beam having its compression and tension members formed of one continuous stretch of flanged metal beam, flanged portions of which are displaced.

4. A truss-beam having its compression and tension members formed of one continuous stretch of flanged metal beam, the flanges of the bent end portions of which are lapped inward parallel to the inner surface thereof.

5. A truss-beam having its compression and tension members formed of one continuous stretch of flanged metal beam having its end edges meet and united together.

6. A truss-beam having its compression and tension members formed of one continuous stretch of suitably-bent metal the end edges of which are brought together and united.

7. A truss-beam having its compression and tension members formed of one continuous stretch of flanged metal beam having its end edges brought together and united at the center of length of said truss.

8. A truss-beam having its compression and tension members formed of one continuous stretch of flanged metal beam the end edges of which are brought together and united at

the center of length of its compression member.

9. A truss-beam having its ends made of a continuous bend of flanged metal beam which is homogeneous with the adjacent portions of the compression and tension members of said truss.

10. A truss-beam having its ends made of a continuous stretch of metal I-beam, the inclosed flanges of the portion forming the bends of said truss being displaced laterally toward each other, and the edges of said flanges adjacent to said displaced portion being suitably united together.

11. A truss-beam having its compression and tension members formed of one continuous stretch of metal I-beam, the inclosed flanges of the bent end portions of which are displaced laterally and the edges of said flanges of said members adjacent thereto brought together and united.

12. A bolster having an upright strut, and tension and compression members, which consist of a single piece or bar bent at the ends of the bolster, and the ends of which have abutting relation to each other at a point opposite one end of said strut.

13. A bolster having a central strut, end filler-pieces, a bar bearing with its central portion against said strut, extending to and around said filler-pieces, and having its ends in abutting relation at a point opposite one end of said strut.

WILLIAM P. BETTENDORF.

Witnesses:
MARCIA FRIEL,
FRANK D. THOMASON.