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PATENTED JAN. 24, 1905.

S. OTIS.  
RAILWAY CAR AND BODY BOLSTER THEREFOR.  
APPLICATION FILED OCT. 1, 1903.

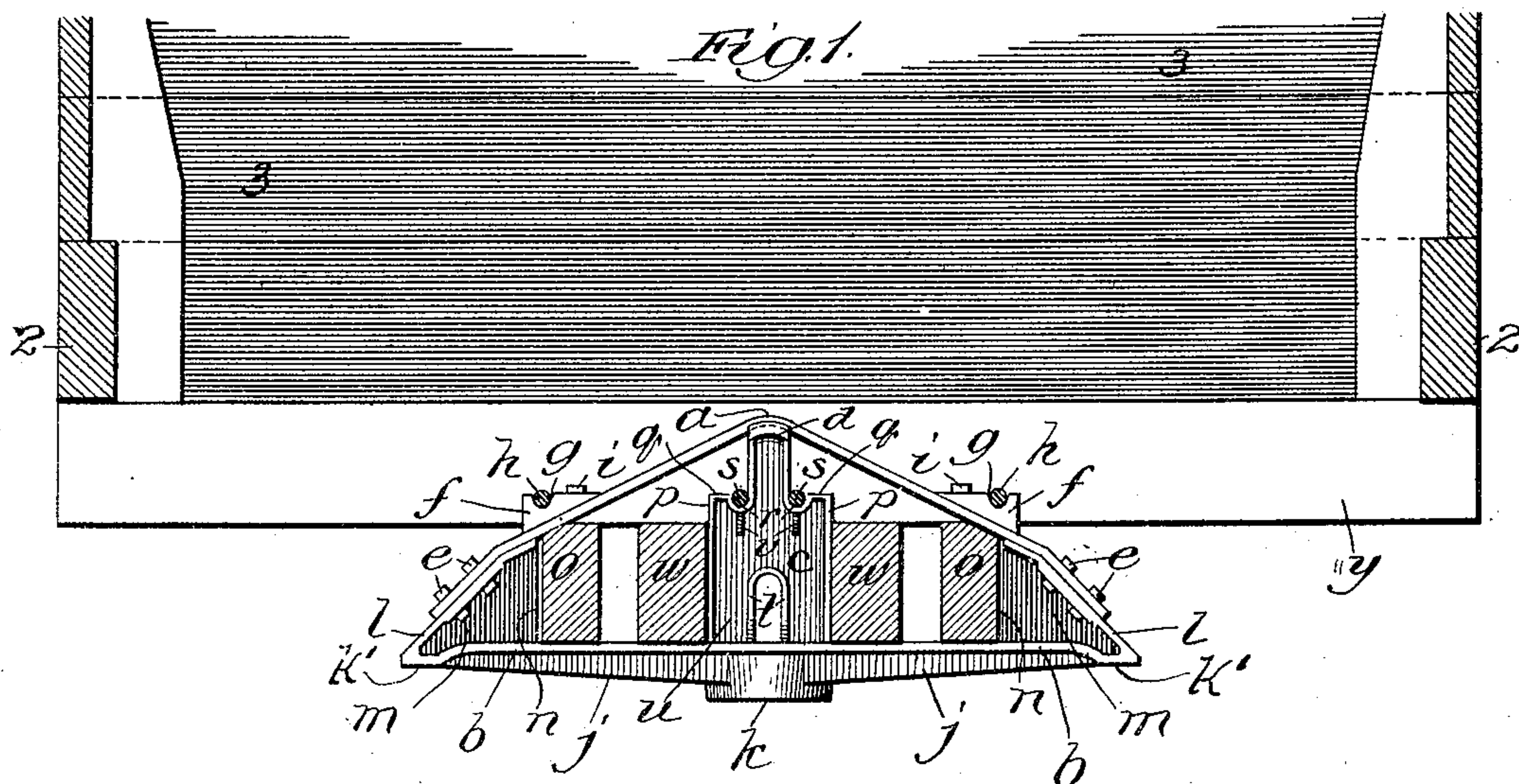


Fig. 2.

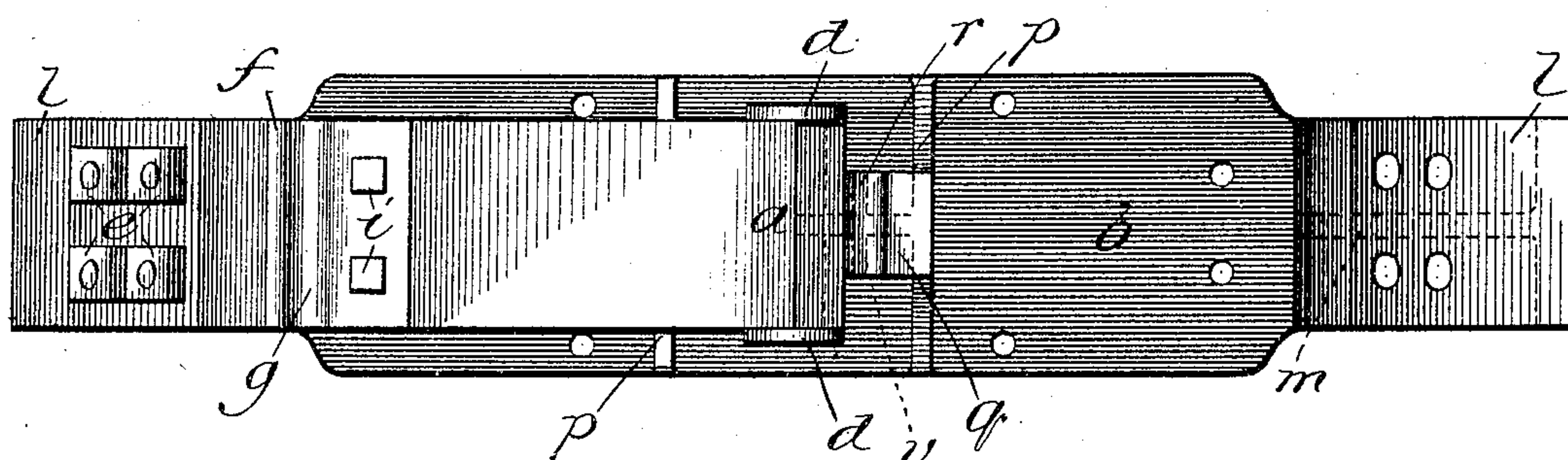
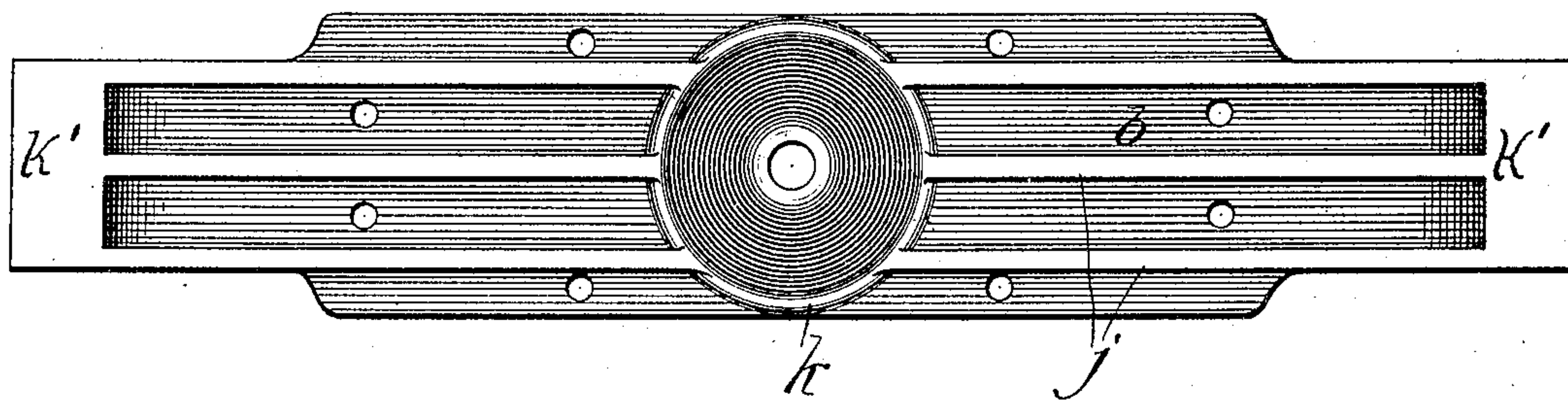


Fig. 3.



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## UNITED STATES PATENT OFFICE.

SPENCER OTIS, OF CHICAGO, ILLINOIS.

## RAILWAY-CAR AND BODY-BOLSTER THEREFOR.

SPECIFICATION forming part of Letters Patent No. 780,766, dated January 24, 1905.

Application filed October 1, 1903. Serial No. 175,283.

*To all whom it may concern:*

Be it known that I, SPENCER OTIS, of Chicago, Illinois, have invented certain new and useful Improvements in Railway-Cars and Body-Bolsters Therefor, of which the following is a specification.

My invention relates to that class of body-bolsters having upper and lower metallic members provided with a centrally-disposed strut, such upper and lower members forming a space therebetween adapted to receive the longitudinal center sills of a car.

The principal object of my invention is to provide a railway-car having a simple, economical, and efficient body-bolster.

A further object of the invention is to provide a short body-bolster which supports the centrally-disposed longitudinal sills, but is out of engagement with the side frames and side sills, forming a space between the ends of the bolster and such side frames and side sills.

A further object of the invention is to provide a body-bolster for railway-cars adapted to inclose the longitudinal centrally-disposed sills of the car-frame and support them, and thereby the transverse beams mounted thereon, such bolster being of a less length than the transverse beams, whereby the bolsters may be mounted at any desired point independently of the position of the transverse beams and form an efficient support for the longitudinal sills and the transverse beams resting thereon. This arrangement also accomplishes the further object of providing a sufficient space between the ends of such bolsters and the side frames and side sills to permit dumping-doors to extend, if desired, over the ends of the bolsters and be raised and lowered into dumping position between the ends of the bolsters and the side sills or side frames.

A further object of the invention is to provide a short bolster adapted to have longitudinal center sills of the car mounted therein, transverse beams mounted on such sills, and side frames mounted upon such beams and supported thereby, the ends of the bolster being at a distance from the side sills and side frames, whereby sufficient space is provided

between the ends of the bolster and the side sills and side frames to permit the dumping of the load and efficient operation of the dumping-doors between such parts.

Other and further objects of the invention will appear from an examination of the drawings and the following description and claims.

The invention consists in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a cross-sectional elevation of a car provided with my improved bolster; Fig. 2, a plan view of the bolster, showing the upper side of the lower compression member and a portion of the center strut on one side and the upper tension member on the opposite side; and Fig. 3, a bottom plan view of the bolster, showing the integral longitudinal ribs and central bearing upon the lower compression member.

In constructing a body-bolster and car-frame in accordance with my improvements I provide a body-bolster comprising an upper metallic bar forming an upper tension member *a*, a lower metallic bar forming a lower compression member *b*, and a central strut *c*, which I prefer to make integral with the lower compression member. The upper end of the strut is provided with side flanges *d*, between which is mounted the upper tension member which extends downward and outward at an incline therefrom to the opposite ends of the lower compression member, to which it is connected by means of bolts *e* or in any ordinary and well-known manner. Shoulders *f* are provided upon the upper side of the upper tension member, having suitable pockets *g*, in which are mounted side truss-rods *h*. These shoulders may be made integral with the upper tension member or attached thereto by means of bolts *i*. The lower compression member is provided with integral longitudinal ribs *j*, which are cambered or tapered from the center toward the outer ends of such lower member, and a central bearing *k* is also provided integral therewith, the purposes of which are well known to those skilled in the art. Side bearings *k'* are provided at the extreme ends of the bolster, and preferably integral



with the lower member thereof, and the bolster extends only to such side bearings and not to the side frames, thus leaving the desired space between the ends of the bolster and the side frames. The lower tension member is also provided with substantially triangular end shoulder portions at each end comprising upper inclined flanged portions *l*, integral web portions *m*, and inner vertical flange portions *n*, together forming suitable shoulders for strengthening the bolster, and against which the outer central longitudinal sills *c* are mounted. The central strut above mentioned comprises outer perpendicular walls *p*, connected at the upper end by the upper wall *q*, which is provided with suitable pockets *r*, in which are mounted the central truss-rods *s* of the car, the inner walls *t* and central web portion *u* serving, in connection with the transverse ribs *v*, to provide the necessary rigidity and strength to such strut. The outer surface of the side walls of the strut engage center sills *w* of the car-frame and in connection with the inner surfaces of the end shoulders form suitable pockets for holding such longitudinal sills and bolsters in rigid engagement with each other, so as to form a suitable support for the transverse beams and other parts of the car-frame. Transverse beams *y* are mounted upon the upper sides of these longitudinal sills, and side frames comprising side sills 2 and end frames 3, which may be of any ordinary and well-known type, are mounted upon such transverse beams and supported thereon and thereby. Suitable bottom portions (not shown) are provided and mounted on the car-frame in any desired and well-known manner.

By this arrangement it will be readily understood that a body-bolster mechanism is provided which is of less length than the transverse beams of the car-frame and having both ends entirely out of engagement with the side frames or side sills, so as to provide a sufficient space between the ends of such bolster mechanism and the side frames or side sills of the car to allow the load to be dumped and, if desired, permit the dumping-doors to extend over the ends of such bolster and to be readily moved to their upper closed or lower open position without being interfered with by the bolster. The bolster at the same time furnishes an efficient support for the longitudinal sills and car-frame resting thereon and is adapted to be placed in any desired position along such longitudinal sills independently of the position of the transverse beams. It will also be readily understood that this arrangement of the upper tension member and lower compression member with the central strut therebetween—the upper member being mounted at an incline outward and downward from the center toward the ends of the bolster, so as to form a substantially A-shaped or tri-

angular bolster in longitudinal section—produces a construction of great rigidity and strength and one which is well adapted to perform the functions required.

I claim—

1. In a body-bolster for railway-cars, the combination with a car having side frames, of a bolster having a lower member provided with an upwardly-extending central strut, an upper member mounted in engagement with such central strut and connected with the lower member forming a space therebetween for receiving the centrally-disposed longitudinal sills of the car, the bolster being of less length than the distance between the side frames of the car in connection with which it is used and providing a space between its ends and such side frames, substantially as described.

2. In a bolster for railway-cars, the combination of a lower member provided with an upwardly-extending central strut, and an upper member mounted in engagement with the upper end of such central strut and extending outward and downward at an incline from the top of the strut to the ends of the lower member and forming a space between such upper and lower members for receiving the centrally-disposed longitudinal sills of the car therebetween, substantially as described.

3. In a body-bolster for railway-cars, the combination with a car having side frames, of a bolster having a lower member provided with an integral upwardly-extending central strut, and an upper member mounted upon and in engagement with the upper end of such strut and connected to the lower member forming a space between such upper and lower members for receiving the centrally-disposed longitudinal sills of the car therebetween, the bolster being of less length than the distance between the side frames of the car and providing a space between its ends and such side frames for permitting the movement of dumping-doors between the end of such bolster and the side frames, substantially as described.

4. In a body-bolster for railway-cars, the combination with a car having side frames, of a bolster having a lower member provided with an integral upwardly-extending central strut and having integral end shoulders at each end of such bolster forming pockets in the upper face of such lower member between such shoulders and the central strut for receiving longitudinal sills of the car, and an upper member mounted upon and in engagement with the upper end of such central strut and extending over such pockets downward and outward at an incline from the top of the strut to the ends of the lower member, the bolster being of less length than the distance between the side frames of the car and providing a space between its ends and such side frames for permitting the movement of dumping-doors between the ends of such bolster



and the side frames, substantially as described.

5. In a body-bolster for railway-cars, the combination of a lower member provided with an integral central strut and integral upwardly-extending end shoulders, and an upper member formed of a single flat metallic strap mounted upon and in engagement with the upper end of such central strut and extending outward and downward at an incline from the top of the strut to the ends of the lower member and rigidly connected thereto forming a space between such upper and lower members for receiving the centrally-disposed longitudinal sills of the car therebetween, substantially as described.

6. In a body-bolster for railway-cars, the combination of a lower member provided with an integral upwardly-extending central strut having pockets therein for receiving the center truss-rods of a car, and an upper tension member mounted in engagement with such central strut extending outward and downward at an incline from the top of the strut to the ends of the lower member and provided with pockets for receiving the side truss-rods of the car and forming a space between such upper and lower members for receiving the centrally-disposed longitudinal sills of the car therebetween, substantially as described.

7. In a body-bolster for railway-cars, the combination of a lower member provided with an upwardly-extending central strut having integral end shoulder portions, an upper tension member mounted upon such central strut and extending downward and outward at an incline in engagement with the ends of the lower member and forming a space between such upper and lower members for receiving the centrally-disposed longitudinal sills of a car, such bolster being provided with pockets for receiving the truss-rods of the car, substantially as described.

8. In a body-bolster for railway-cars, the combination of a lower member upon which the centrally-disposed longitudinal sills of the car are mounted provided with a central strut extending upwardly between such longitudinal sills, an upper member resting upon such strut extending over the longitudinal sills and connected to the lower member, transverse beams mounted upon such longitudinal sills, and side frames comprising side sills mounted upon such transverse beams, the ends of the bolster being out of engagement with the side

sills and forming a space therebetween, substantially as described.

9. In a body-bolster for railway-cars, the combination of a lower member provided with an integral upwardly-extending central strut and having center and side bearings, and an upper member mounted upon and in engagement with the upper end of such strut extending downward and outward therefrom in a substantially direct line toward the side bearings and connected to the lower member forming a space between such upper and lower members for receiving the longitudinal sills of a car therebetween, such bolster extending to but not beyond the outside of the side bearings, and providing a space between its ends and the side frames of the car for permitting the movement of dumping-doors between its ends and such side frames, substantially as described.

10. In a body-bolster for railway-cars, the combination of a lower compression member provided with an upwardly-extending centrally-disposed strut and having integral center and side bearings, and integral longitudinal ribs upon its under side and upwardly-extending integral end shoulders over the side bearings, and an upper tension member mounted and in engagement with the upper end of such strut and connected to the lower member forming a space between such upper and lower members for receiving the longitudinal sills of a car therebetween, the bolster being of a length equal to the distance from outside to outside of the side bearings, and providing a space between its ends and the side frames of the car for permitting the movement of dumping-doors between its ends and such side frames, substantially as described.

11. In a bolster for railway-cars, the combination of a lower member provided with an integral upwardly-extending central strut and integral upwardly-extending end shoulders and having integral center and side bearings upon its lower side, and an upper member mounted upon such strut and connected to the lower member forming a space between such upper and lower members for receiving longitudinal sills of a car therebetween, the bolster extending to but not beyond the outside of the side bearings, substantially as described.

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Witnesses:

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