

No. 848,265.

PATENTED MAR. 26, 1907.

W. F. RICHARDS,
TRUCK BOLSTER.
APPLICATION FILED MAY 28, 1906.

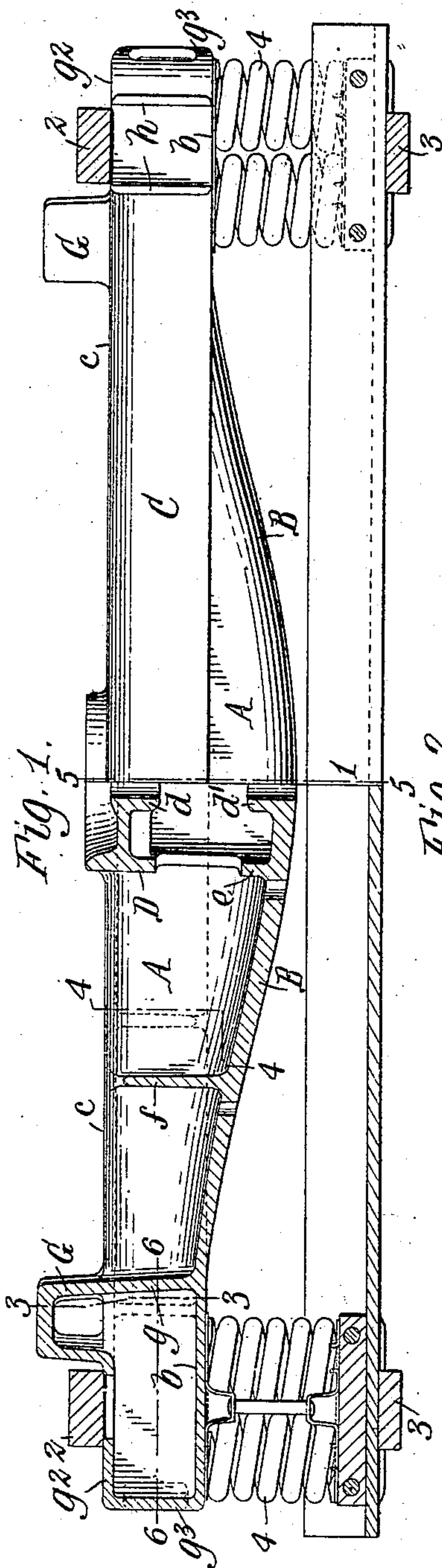


Fig. 1.

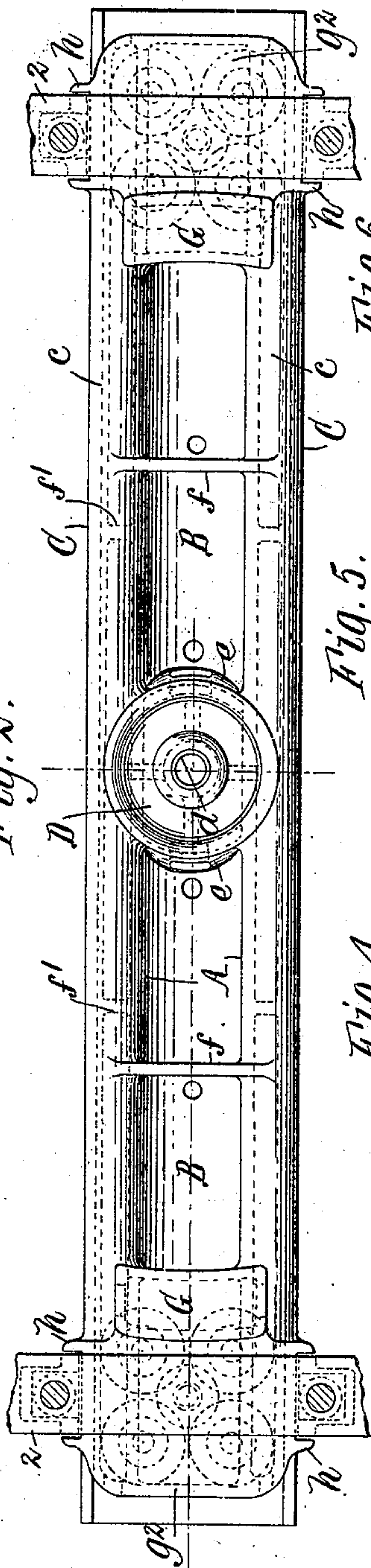


Fig. 2.

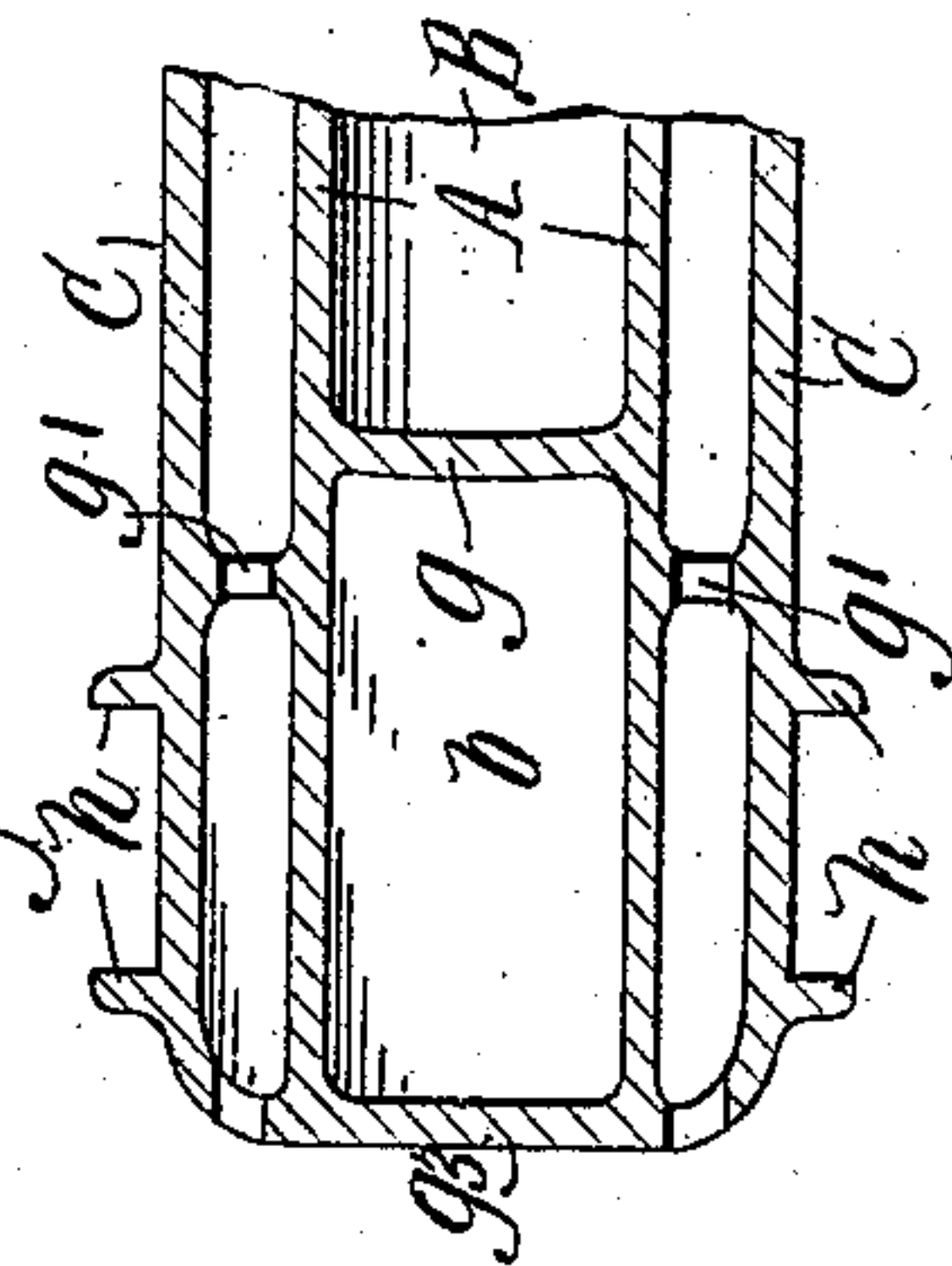


Fig. 3.

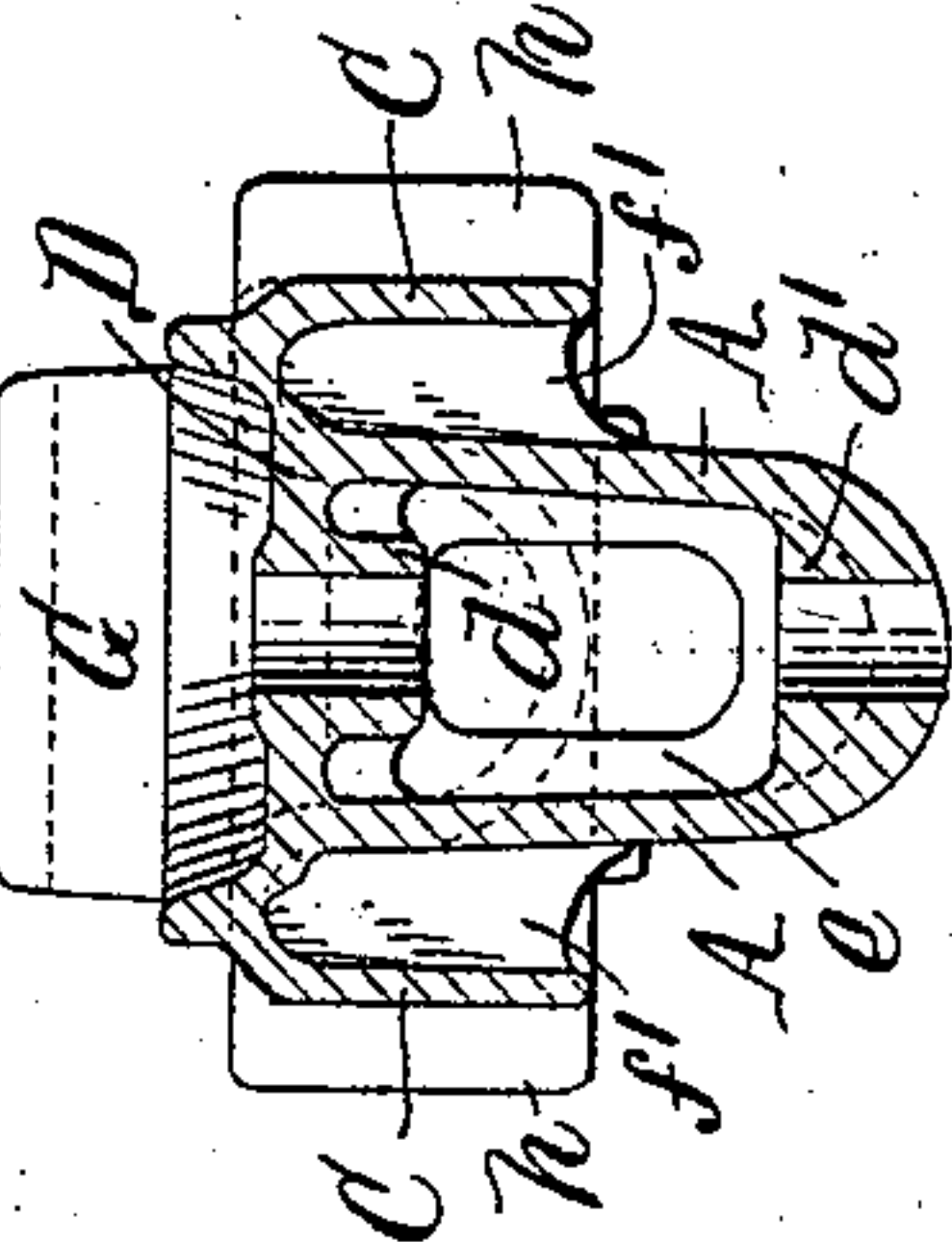


Fig. 4.

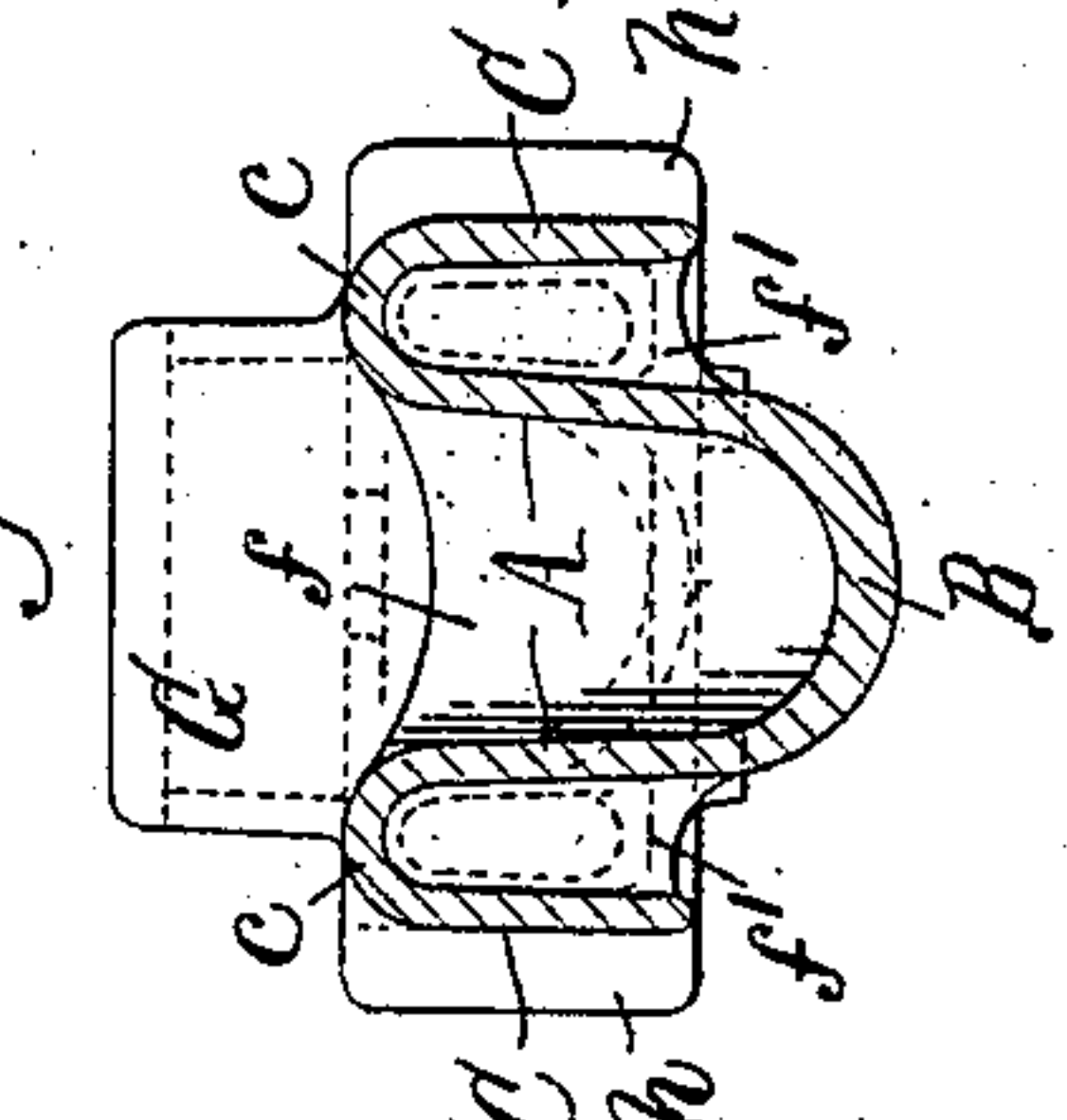


Fig. 5.

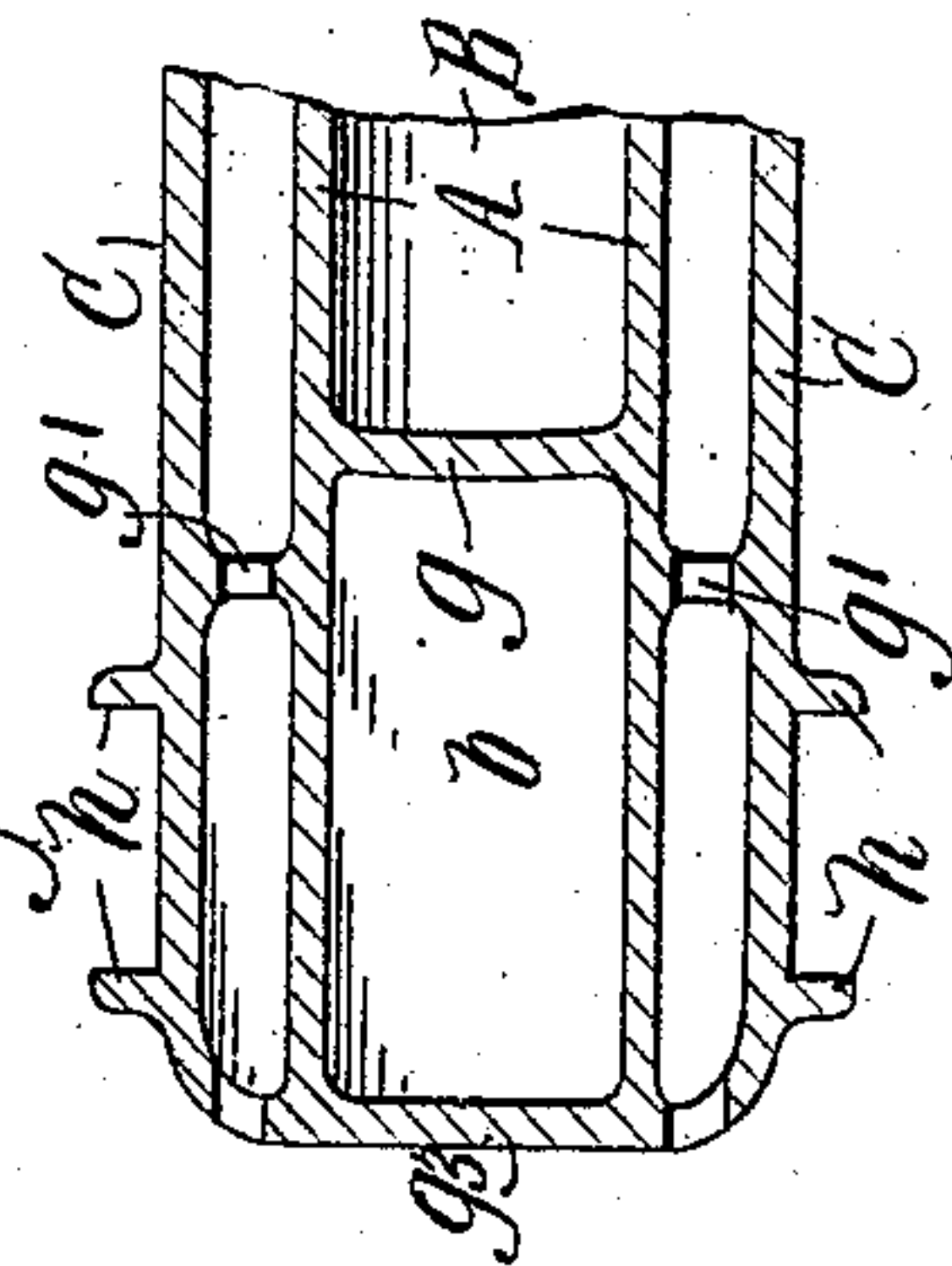


Fig. 6.

Witnesses:

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UNITED STATES PATENT OFFICE.

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TRUCK-BOLSTER.

No. 848,265.

Specification of Letters Patent.

Patented March 26, 1907.

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To all whom it may concern:

Be it known that I, WILLARD F. RICHARDS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Truck-Bolsters, of which the following is a specification.

This invention relates more particularly to cast-steel truck-bolsters for railway-cars; but it is also applicable with immaterial changes to bolsters or supporting members for other purposes.

The primary object of the invention is to make the bolster of such form that it will have the maximum carrying capacity and strength and rigidity both in a vertical and horizontal direction for the weight of metal used and can be economically cast without flaws.

Other objects of the invention are to so form the bolster that the same will be in the nature of a truss, with the metal disposed to the best advantage to carry the load and withstand the strains and stresses to which it is subjected in use without being needlessly heavy, to concentrate a proper amount of the metal of the bolster centrally between the ends and sides of the bolster beneath the center bearing for the car, and to secure these results in a bolster without sharp angles which can be easily and economically cast without checking.

In the accompanying drawings, Figure 1 is a view, one-half in side elevation and one-half in central vertical section, of a truck-bolster embodying the invention and portions of a car-truck. Fig. 2 is a plan view thereof. Fig. 3 is a cross-section of the end portion of the bolster in line 3 3, Fig. 1. Fig. 4 is a cross-section of the bolster in line 4 4, Fig. 1. Fig. 5 is a central cross-section thereof in line 5 5, Fig. 2. Fig. 6 is a horizontal section of one end of the bolster in line 6 6, Fig. 1.

Like letters of reference refer to like parts in the several figures.

1 represents the central cross-beam of a car-truck; 2 and 3, the upper and lower members of the side frames of the truck, and 4 the springs, which are carried by the truck and yieldingly support the bolster.

The bolster is cast in one integral piece and has the general shape and characteristics of a

truss. It is preferably of substantially uniform width throughout and has upper or compression members or flanges and a lower or tension member depressed at the center of the bolster and inclining upwardly from this depressed central portion to the ends of the upper or compression chords.

The bolster has two spaced vertical walls or webs A, which extend from end to end thereof and are connected at their lower edges by a bottom B, thus forming a trough-shaped structure. The webs A are deepest at the center of the bolster, and their lower edges taper or incline upwardly in opposite directions from the center toward the ends of the bolster. The end portions *b* of the bottom B (see Fig. 3) are made flat and horizontal for bearing on the supporting-springs 4 of the truck, and the remainder of the bottom is preferably rounded or concavo-convex in cross-section, (see Figs. 4 and 5,) and the bottom is preferably thickest at the center beneath the axis of the center bearing and gradually decreases in thickness toward the ends of the bolster and also toward the vertical webs A, which are thinner than the bottom. This bottom B constitutes the tension member of the truss-shaped bolster.

C represents side flanges, which are located outside of the webs A and extend from end to end of the bolster, being preferably of the same depth throughout as the end portions of the webs A. These side flanges are spaced from the webs and joined to the upper edges of the latter by rounded or concavo-convex top or connecting portions *c*, which, together with the flanges, constitute the compression members of the truss-shaped bolster. The bolster is thus of substantially M shape in cross-section. (See Figs. 4 and 5.)

The upper portions of the webs A are joined by a horizontal circular center plate or portion D, which forms the center bearing of the bolster and is suitably shaped to receive the complementary center bearing-plate on the car and has a central bearing boss or sleeve *d*, in which and a corresponding boss or sleeve *d'* on the bottom B the king-pin bears. Transverse upright walls *e*, connecting the webs A and also connecting the bottom B with the center bearing D, form a central hollow box, which stiffens the center of the bolster and constitutes the center strut of the

bolster. The webs are also preferably joined by transverse upright struts f , arranged between the center and ends of the bolster, and struts f' likewise connect the webs A and side flanges C. Suitable side bearings are provided, consisting, preferably, of hollow upwardly-projecting lugs G, which bridge or connect the tops of the webs A near the ends of the bolster, and these are braced by upright transverse walls g or extensions of the inner vertical walls of the bearing-lugs, which extend down between and join the webs A and bottom B. Transverse struts g' , Fig. 6, which join the webs and side flanges opposite the ends of the side bearings and add to the support of the side bearings, are also shown. Top plates g^2 , Fig. 1, also preferably join the tops of the webs between the side bearings and ends of the bolster, and end plates g^3 , Figs. 1 and 6, join the ends of the webs A to each other and to the side flanges. The end portions of the bolster which bear on the truck-springs are thus of substantially hollow rectangular or box form having double side walls, the tops g^2 being preferably flat or horizontal from side to side of the bolster to properly conform to the upper members 2 of the side frames of trucks. The usual guide-lugs h are provided on the sides of the end portions of the bolster for cooperation with the truck-guides.

The struts and other walls are perforated where necessary for casting the bolster, and the bottom B is preferably perforated for the escape of water, dirt, or other matter accumulating in the trough formed between the webs A.

By the described construction of the bolster with vertical webs connected at their lower edges by the bottom and joined at their upper edges to the side flanges a light hollow bolster is produced, in which the greater portion of the metal is concentrated where most needed—that is, at the center beneath the center bearing. It is much stronger in this regard than a hollow box-bolster of similar width and weight. The truss shape of the bolster, with the compression and tension members, gives it great load-supporting strength, and the bottom B and portions c , connecting the upper edges of the webs and flanges, enable the bolster to withstand all bending or twisting moments in a horizontal direction to which it might be subjected.

The bolster shown is provided with the center and side bearings and guide-lugs, thus adapting it for a truck-bolster; but these could be omitted and the bolster thereby adapted for other uses without changing in any wise its characteristic features.

I claim as my invention—

1. A bolster or the like consisting of an integral casting of substantially M shape in cross-section, substantially as set forth.

2. A bolster or the like comprising sub-

stantially vertical spaced webs connected at their lower edges, and substantially vertical flanges arranged outside of said webs and connected to the upper edges of said webs, substantially as set forth.

3. A bolster or the like comprising substantially vertical spaced webs, a tension member arranged between and joining said webs, and compression members located outside of and spaced from but joined to said webs, substantially as set forth.

4. A bolster or the like comprising substantially vertical spaced webs which decrease in depth from the center toward the ends of the bolster, a tension member arranged between and joining said webs, and compression members of substantially uniform depth throughout located outside of and spaced from but joined to said webs, substantially as set forth.

5. A bolster or the like consisting of an integral casting having substantially vertical spaced webs which decrease in depth from the center toward the ends of the bolster, a bottom joining said webs, substantially vertical side flanges of approximately the depth of the end portions of said webs located outside of and joined to said webs, and a central strut between said bottom and the upper portions of said webs, substantially as set forth.

6. A bolster or the like consisting of an integral casting having substantially vertical spaced webs which decrease in depth from the center toward the ends of the bolster, a transversely-curved bottom joining said webs, substantially vertical side flanges of approximately the depth of the end portions of said webs located outside of and joined to said webs by transversely-curved top portions, and a central strut between said bottom and the upper portions of said webs, substantially as set forth.

7. A cast-metal bolster or the like having integral substantially vertical spaced webs, a bottom connecting the lower portions of said webs, and flanges substantially parallel with said webs and joined to the upper portions thereof, substantially as set forth.

8. A cast-metal bolster or the like having integral substantially vertical spaced webs connected by a transversely-curved bottom, and flanges substantially parallel with said webs and joined to the upper portions thereof by transversely-curved portions, substantially as set forth.

9. A cast-metal bolster or the like of substantially trough shape having webs connected by a bottom, and flanges spaced from said webs and connected to the upper portions thereof, substantially as set forth.

10. A cast-metal truck-bolster having integral substantially vertical spaced webs, a bottom connecting the lower portions of said webs, flanges substantially parallel with said

webs and joined to the upper portions thereof, and center and side bearings, substantially as set forth.

11. A cast-metal truck-bolster or the like
5 of substantially trough shape having webs connected by a bottom, and flanges spaced from said webs and connected to the upper portions thereof, said bolster having hollow box-like end portions, substantially as set
10 forth.

12. A cast-metal truck-bolster or the like
of substantially trough shape having webs connected by a bottom, and flanges spaced from said webs and connected to the upper
15 portions thereof, said bolster having hollow box-like end portions with upward extensions forming side bearings, substantially as set forth.

13. A truck-bolster or the like having four

substantially parallel spaced longitudinal
20 walls or portions, two of which are connected to each other at the bottom of the bolster and to the remaining two walls or portions at the top of the bolster, substantially as set forth.

14. A truck-bolster or the like having four
25 substantially parallel spaced longitudinal walls or portions, the two inner walls or portions being connected together at the bottom of the bolster and to the two outer walls or
30 portions at the top of the bolster, substantially as set forth.

Witness my hand this 22d day of May,
1906.

WILLARD F. RICHARDS.

Witnesses:

CHARLES W. PARKER,
A. L. MCGEE.