

No. 821,279.

PATENTED MAY 22, 1906.

J. A. BRILL & W. S. ADAMS.

CAR TRUCK.

APPLICATION FILED APR. 4, 1900.

5 SHEETS—SHEET 1.

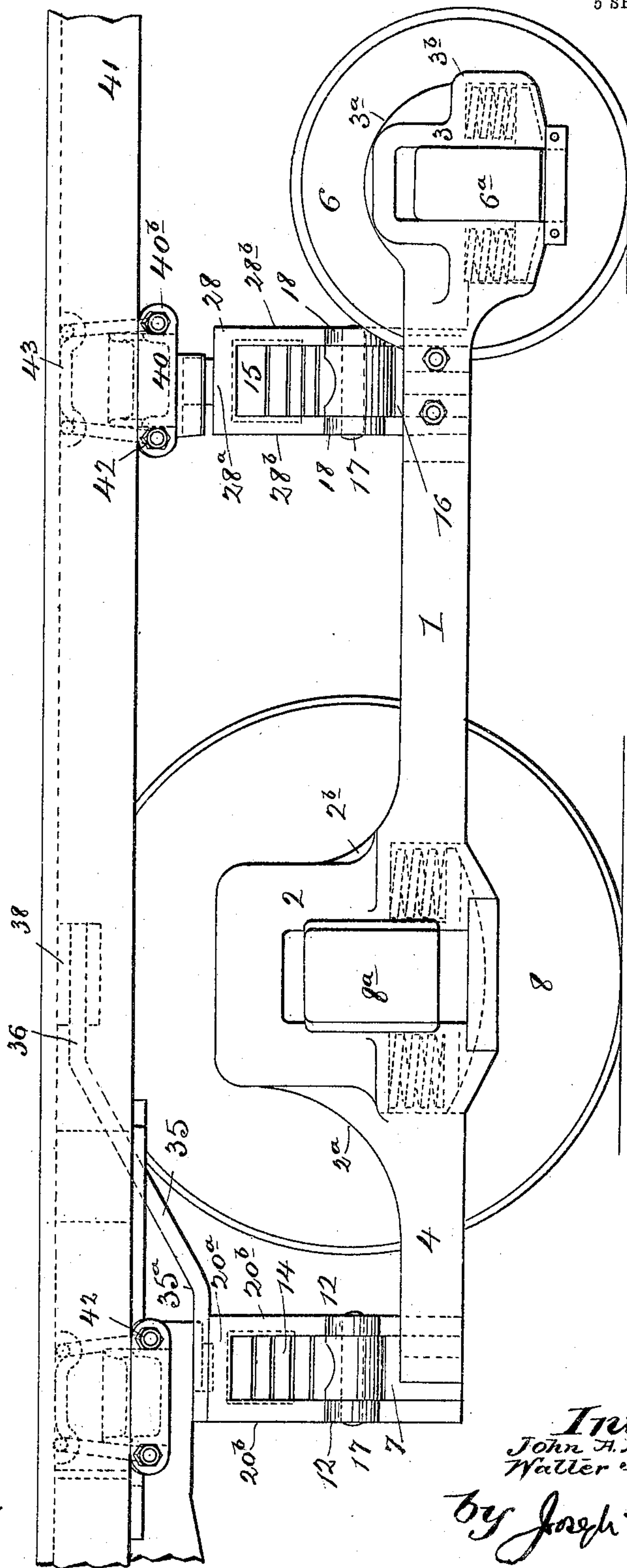


Fig. 1.

Witnesses,
C. R. Benjamin
C. G. Kinsley

Inventors,
John A. Brill, and
Walter S. Adams,
by Joseph L. Luy
att'y

No. 821,279.

PATENTED MAY 22, 1906.

J. A. BRILL & W. S. ADAMS.

CAR TRUCK.

APPLICATION FILED APR. 4, 1900.

5 SHEETS—SHEET 2.

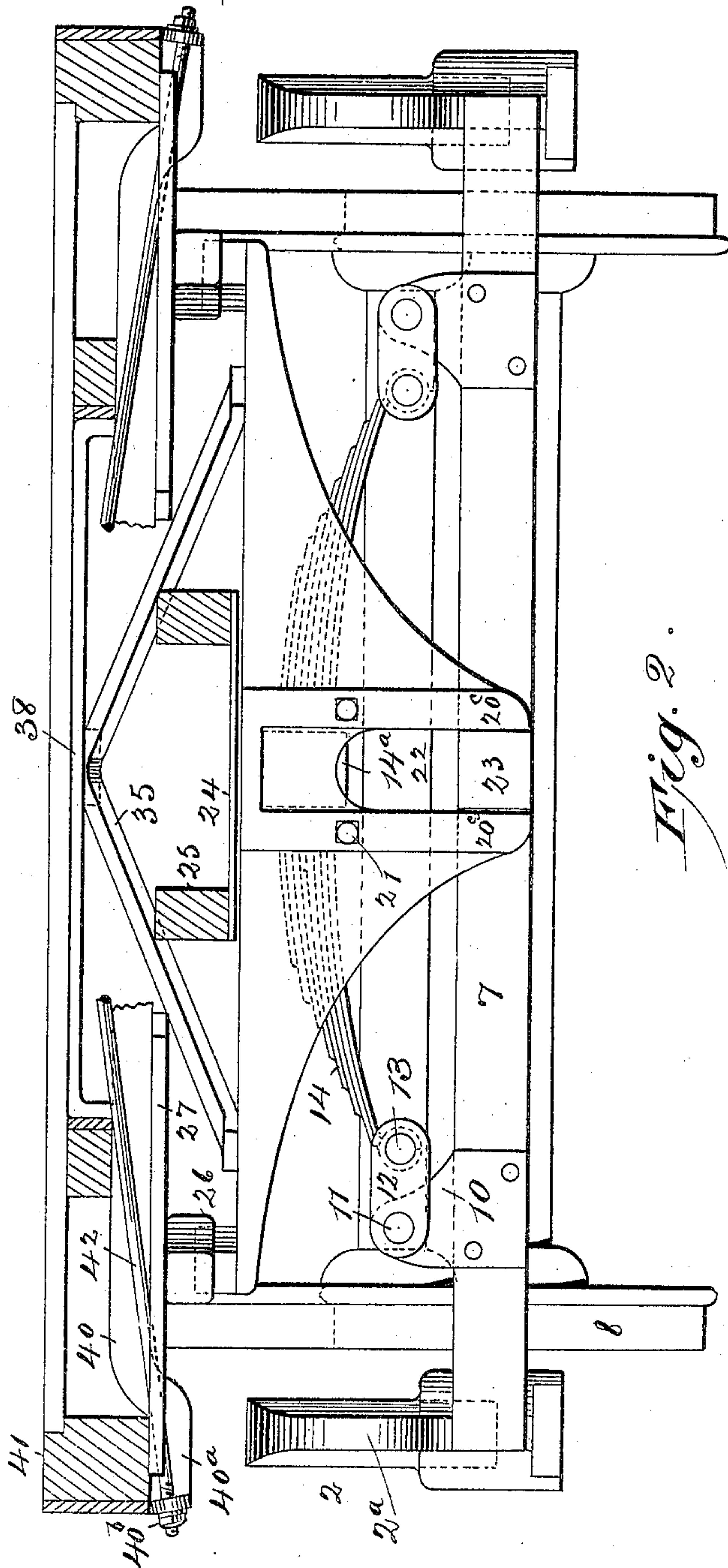


Fig. 2.

Witnesses:
C. W. Benjamin
C. H. Kersley

Inventors:
John A. Brill, and
Walter S. Adams,
by Joseph R. Levy
att'y

No. 821,279.

PATENTED MAY 22, 1906.

J. A. BRILL & W. S. ADAMS.

CAR TRUCK.

APPLICATION FILED APR. 4, 1900.

5 SHEETS—SHEET 3.

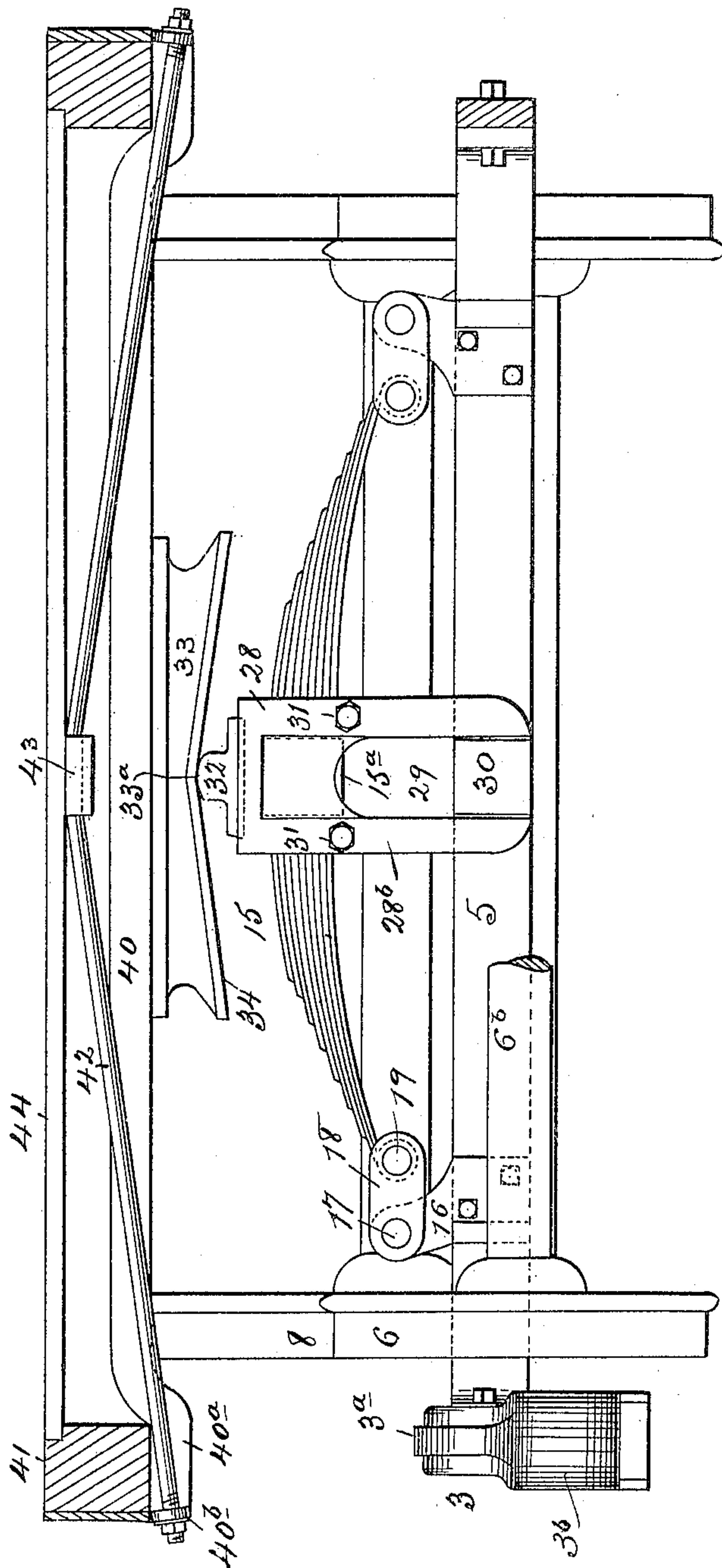


Fig. 3.

Witnesses,
C. W. Benjamin
C. G. Hensley

Inventors,
John A. Brill, and
Walter S. Adams,
by Joseph L. Lury
att'y

No. 821,279.

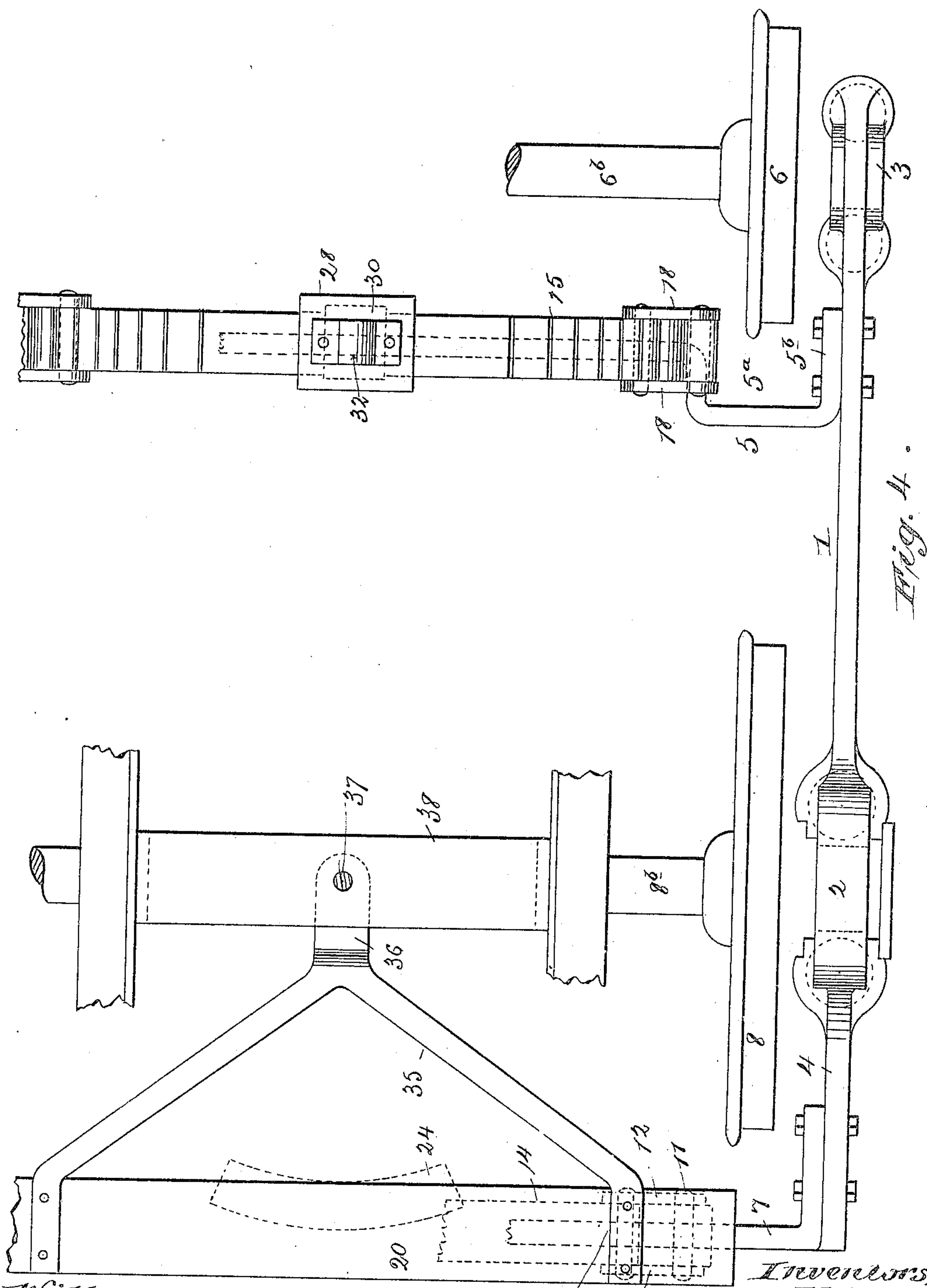
PATENTED MAY 22, 1906.

J. A. BRILL & W. S. ADAMS.

CAR TRUCK.

APPLICATION FILED APR. 4, 1900.

5 SHEETS—SHEET 4.



Witnesses;
C. W. Benjamin
C. S. Hensley

Inventors,
John H. Brill and
Walter S. Adams.

by Joseph R. Cuy
att'y.

No. 821,279.

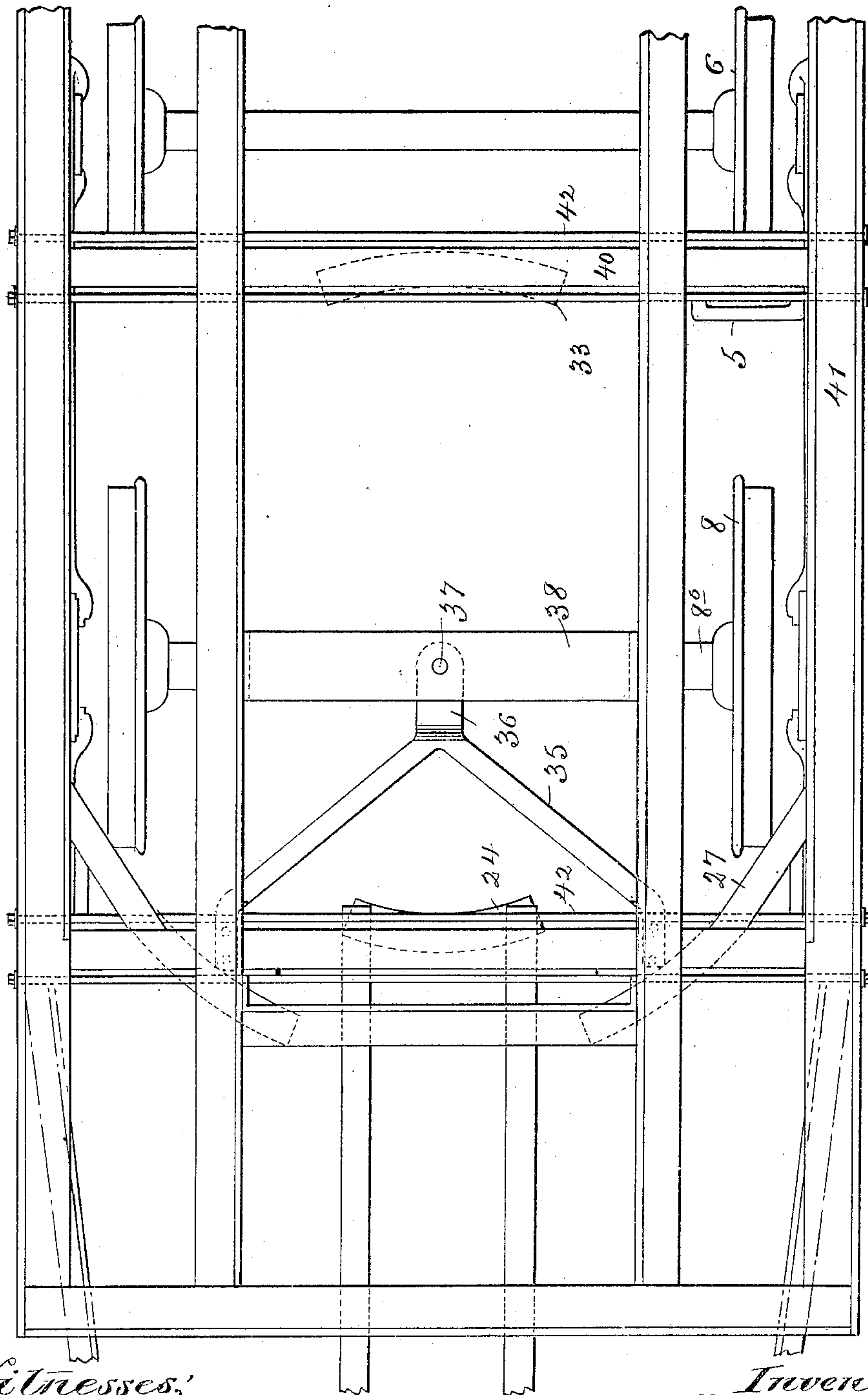
PATENTED MAY 22, 1906.

J. A. BRILL & W. S. ADAMS.

CAR TRUCK.

APPLICATION FILED APR. 4, 1900.

5 SHEETS—SHEET 5.



Witnesses;
C. W. Benjamin
C. G. Hensley

Inventors;
John A. Brill, and
Walter S. Adams
by Joseph R. Perry
att'y

UNITED STATES PATENT OFFICE.

JOHN A. BRILL AND WALTER S. ADAMS, OF PHILADELPHIA, PENN-
SYLVANIA.

CAR-TRUCK.

No. 821,279.

Specification of Letters Patent.

Patented May 22, 1906.

Application filed April 4, 1900. Serial No. 11,562.

To all whom it may concern:

Be it known that we, JOHN A. BRILL and
WALTER S. ADAMS, citizens of the United
States, and residents of the city and county
5 of Philadelphia, State of Pennsylvania, (whose
post-office addresses are respectively care of
J. G. Brill Company, same place,) have in-
vented certain new and useful Improvements
in Car-Trucks, of which the following is a
10 specification.

Our invention relates to certain improve-
ments in car-trucks generally, and more espe-
cially to the maximum-traction class of piv-
otal trucks.

15 Our invention has for its object to provide
an efficient truck and one economical in con-
struction and maintenance.

The invention consists, therefore, in the
construction and combination of parts here-
20 inafter described, and further pointed out in
the claims.

Reference is to be had to the accompanying
drawings, forming part hereof, wherein—

Figure 1 is a side elevation of a car-truck
25 and a portion of a car-body embodying our
invention. Fig. 2 is an end elevation there-
of looking from the left in Fig. 1, part of the
car-body being in section. Fig. 3 is an end
view looking from the right in Fig. 1, part of
30 the truck being broken away and part of the
car-body being in section. Fig. 4 is a detail
plan view of a portion of the car-truck, and
Fig. 5 is a plan view showing the sills of the
car-body and a portion of the truck beneath
35 the same.

Similar numerals of reference indicate cor-
responding parts in the several views.

The car-truck we have shown comprises side
bars 1, axle-box yokes 2 3, connected there-
40 with, arms 4, extending forwardly from the
yokes 2, a cross-bar 5, connecting the side
bars 1 near the small wheels 6, and a cross-
bar 7, connecting the arms 4 in advance of
the large or driving wheels 8. The axle-
45 boxes 8^a 6^a resiliently support the side bars
through the springs 1^a, located in recesses in
the yokes, and which springs rest upon ears
extending from the axle-boxes. At the junc-
tion of the arms 4 with the yokes 2 is a web
50 2^a, that is cast integral with said parts and
serves to strengthen the same, and at the
junction of the side bar 1 with the yoke 2 is a

web 2^b, similarly arranged and for the same
purposes as web 2^a. 3^a is a web that extends
over the top of axle-box 3 and joins the side 55
bar 1 and the projecting portion 3^b of said
yoke, whereby those parts are stiffened. In
order to carry the cross-bar 5 well back to-
ward the axle 6^b of wheels 6, while at the
same time permitting the wheels 6 to clear 60
said cross-bar, the latter is bent at 5^a in line
with said wheels and is also shown bent at 5^b
transversely to its length and in line with the
side bars 1, to which the part 5^b is bolted.
(See Fig. 4.)

65 The car-body is resiliently supported from
the cross-bars 5 7 of the truck, and the ar-
rangements we have shown for this purpose
are as follows: 10 represents supports or up-
rights secured upon the cross-bars 7 near op- 70
posite sides of the truck and carrying at their
upper ends a pivot or pin 11, to which are piv-
otally connected links 12, arranged in pairs,
spaced apart, and having a pivot-pin 13 at
the free ends around which the correspond- 75
ing ends of a semi-elliptic spring 14 are coiled,
said spring being bowed upwardly from the
pivots 13, as shown in Fig. 2. To the cross-
bars 5 a spring 15 is similarly connected, where-
in 16 represents supports secured to said cross- 80
bar and provided with a or pin pivot 17, upon
which links 18, arranged in pairs and spaced
apart, are mounted, and at the free ends of
said links is a pin 19, upon which the end of
spring 15 is coiled, as shown in Fig. 3. Thus 85
it will be seen that the springs 14 and 15 are
movably suspended at their ends from the
cross-bars 5 and 7, and it will be understood
that as more or less weight is applied to said
springs and they lengthen or contract the 90
links 12 and 18 will swing on their pivots,
and thus accommodate for the movement of
said springs, the springs thus having suspen-
sion-supports that are adapted to have a sub-
stantially vertical movement. 95

The spring 14 supports a bolster 20, that
extends transversely of the truck and com-
prises a cross-piece 20^a and opposed cen-
trally-depressed depending webs 20^b, that are
spaced apart and receive the spring 14 be- 100
tween them. (See Fig. 1.) The cross part 20^a
of the bolster rests upon the spring 14, and 21
represents cross pins or bolts passing under-
neath the spring and suitably secured to the

depending webs of the bolster, whereby the spring is firmly held in the bolster, the strap 14^a of the spring being shown located between the pins or bolts 21. (See Fig. 2.) At the central portion of the bolster 20 it is provided with a vertical slot 22, (see Fig. 2,) and at the sides of this slot the bolster is shown provided with vertically-extending strengthening-webs 20^c. There is a slot 22 in each depending web of the bolster 20, which slots are in alinement, and the portions of the bolster at the sides of said slot straddle the cross-bar 7 and projections 23 on the cross-bars, (see Fig. 2,) whereby the bolster is free to vibrate vertically relatively to said cross-bar, and yet the projection 23 in conjunction with the walls of the slot 22 prevent lateral movement of the bolster relatively to said cross-bar.

The bolster 20 supports a superposed car-body, and its top surface at its central portion is flat in the form of a wear-plate and receives upon it a central bearing 24, carried by the car-body, being shown in the form of a plate attached to intermediate sills of the car-body 25. (See Fig. 5.) At its outer ends the bolster 20 carries side bearings 26, upon which rest wear-plates 27, that are carried by the car-body. These parts 26 and 27 serve to resist the rolling motion of the car-body upon the truck, and the center bearing 24 is in an arc derived from the pivotal center of the truck.

From the spring 15 a yoke 28 depends. This yoke is shown composed of a transverse top piece 28^a with depending webs 28^b, that straddle the spring 15 and also straddle the cross-bar 5 of the truck. (See Figs. 1 and 3.) The depending webs of this yoke also have vertical slots 29, that receive between them projections 30, extending from opposite sides of the cross-bar 5. (See Fig. 3.) The top portion 28^a of web 28 rests upon spring 15, being shown as overlying the strap 15^a thereof, and bolts or the like 31 pass through the webs 28^b beneath the spring 15, whereby the parts are firmly secured together. It will thus be seen that the yoke 28 is suspended from spring 15 and is prevented from having lateral movement relatively to the car-truck by the projection 30 of cross-bar 5, and thus the spring 15 is kept from moving laterally of the truck bodily.

The yoke 28 receives part of the weight of the car-body, and the spring 15 and this yoke also serve to keep the small wheels 6 from jumping from the track. For this purpose we have shown a wear-piece 32, secured upon the top of yoke 28 and in line with a wear-plate 33, carried by a cross-sill of the car-body. This plate 33 is shown cam-like on its wearing or under surface—that is to say, from its central point 33^a its under surface extends downwardly and outwardly at 34 in opposite directions transversely of the car

and in such position as to ride upon the wear-piece 32. (See Fig. 3.) From this it will be understood that as the car-truck swivels beneath the car-body the wear-plate 33 will press upon the part 32 with more or less pressure, and the spring 15, being interposed between the truck and said wear-plate, will tend not only to support the body from the truck, but to keep the truck-wheels from rising from the track, and the more the truck swivels beneath the car-body the greater will be the pressure of the cam-plate 33 upon spring 15.

We have provided a drawing connection between the car-body and the truck which is arranged as follows: 35 is a draw-bar, shown bifurcated or provided with two arms that extend from a head portion 36 forwardly to the bolster 20, to which they are secured. (See Figs. 1 and 4.) The head 36 of this draw-bar is pivotally connected with the car-body, as by a pivot 37, connected with a cross sill or beam 38 of the car-body, the head 36 having a suitable aperture to receive the pivot 37, and this pivot is shown located over the axle 8^b of the drive-wheels 8. As the pivot of the draw-bar 35 is above the plane of the top of bolster 20, the draw-bar 35 from its head 36 extends downwardly and forwardly to a point 35^a, whence it extends horizontally at 35^b to the top of the bolster.

We have shown improved means for bracing the car-body transversely, which are arranged as follows: 40 is a beam extending horizontally between the side sills 41 of the car-body, and at its ends it is bent downwardly and outwardly at 40^a beneath the sills 41, and at its ends it is provided with eyes 40^b. The beam 40 may be in the form of a channel-beam having its channel facing upwardly, as shown in dotted lines in Fig. 1. 42 represents tie-rods which are connected with the eyes 40^b of the beam 40 and converge from said eyes to a point midway in the central longitudinal line of the car-body, where their centrally-bent portions are received in holding pieces or stays 43, secured to a cross-sill 44 of the car-body. (See Figs. 1 and 3.) It will be understood that as the tie-rods 42 are connected to the eyes 40^b by nuts more or less tension between the parts 40 and 42 may be applied, and as the rods are hung from the car-body at the central points 43 a strong bracing can be accomplished between the car-body and the parts 40 and 42.

It is apparent that many of the details of construction herein described can be used in trucks of other design without departing from the spirit of our invention.

Having now described our invention, what we claim is—

1. The combination of a car-truck having cross-bars and a spring extending transversely of the truck and movably supported by a cross-bar, with a bolster mounted upon said

spring, and means interposed between the bolster and the cross-bar for permitting the bolster to have vertical movement while preventing lateral movement thereof.

2. The combination of a car-truck having a cross-bar and a spring extending transversely thereof and movably supported upon the cross-bar, with a bolster having a pair of opposed vertically-disposed plates spaced apart and receiving the spring between them and depending below the spring and receiving the cross-bar between them.

3. The combination of a car-truck having a cross-bar and a spring extending transversely thereof and movably supported upon the cross-bar, with a bolster having a pair of opposed vertically-disposed plates spaced apart and receiving the spring between them and depending below the spring and receiving the cross-bar between them, and a projection extending from the cross-bar and located in a vertical slot in the bolster.

4. The combination of a car-truck having cross-bars and a spring extending transversely thereof and movably connected with the cross-bar, with a bolster comprising a horizontal plate having depending webs provided with a space between them in which said spring lies, and means for retaining the spring within said space.

5. The combination of a car-truck having cross-bars and a spring movably connected with a cross-bar, with a bolster comprising a horizontal plate having depending webs provided with a space between them in which said spring lies, means for retaining the spring within said space, said bolster depending below the spring and straddling the cross-bar, and provided with a slot receiving a projection on said cross-bar.

6. The combination of a car-truck having cross-bars, with two springs extending transversely of the car and each movably connected with a cross-bar, a bolster supported by one spring, a yoke supported by the other spring, and means interposed between said bolster and yoke for supporting a car-body.

7. The combination of a car-truck having cross-bars, with a spring extending transversely thereof and movably connected with a cross-bar, a yoke connected with said spring and depending therefrom and guided by the cross-bar, a wear-piece upon said yoke, and a wear-plate carried by a car-body above said wear-piece.

8. The combination of a car-truck having cross-bars and a spring extending transversely of the truck and movably connected with a cross-bar, with a yoke connected with and depending from the spring, said yoke having a vertical slot, a projection carried by the cross-bar and entering said slot, a wear-piece upon said yoke, and a wear-plate carried by a car-body above the wear-piece.

9. The combination of a car-truck and a

spring extending transversely thereof and connected therewith, with a bolster carried by said spring, a car-body above said bolster, and a draw-bar having a head portion and two arms extending therefrom and connected with said bolster, and a car-body to which the head portion of a draw-bar is pivotally connected.

10. The combination of a truck having cross-bars and a spring extending transversely thereof and movably connected therewith, with a bolster carried by said spring and a draw-bar having a horizontal portion secured to the bolster, an upwardly and outwardly extending portion, and a horizontally-disposed head at the end thereof pivotally connected with a car-body.

11. The combination in a car-body, a beam extending transversely thereof and bent downwardly at its ends under the side sills of the body and having eyes at its ends, and a tie-bar connected with said eyes and extending therefrom upwardly to the central portion of the car-body, and means for attaching it thereto.

12. The combination in a car-body, a channel-beam extending transversely thereof and having its ends bent to pass under the sills of the body and provided with eyes at the ends thereof, with a pair of tie-bars attached to said eyes and extending therefrom upwardly to the central portion of the car, and a clip secured to said car and attached to the central portion of the tie-bars, substantially as described.

13. In a car-truck, the side frames and a transverse cross connection, links pivotally connected on the cross connection, bolts connecting the free end of the links, combined with a transversely-disposed leaf-spring supported by said bolts, and a channeled bolster receiving and resting upon said spring.

14. In a car-truck, the combination with a cross-bar of the truck-frame, a half-elliptic spring movably supported on said bar, a guide extending from the center of said spring and coacting below with the cross-bar, a car-body bearing carried by said guide over the spring.

15. In a car-truck, the combination with the cross-bar of the truck-frame, of a half-elliptic spring suitably mounted on said cross-bar, movable supports for the ends of said spring, and a bearing over said spring having a rounded surface adapted to coact with a car-body.

16. The combination with a car-truck equipped with a center bearing, a car-body-supporting bolster, of a spring traction-regulating appliance located on the end of the truck adjacent one set of wheels, whereby variation in traction is obtained on the wheels adjacent the bolster.

17. In a car-truck, the combination with a bearing-bolster and the driving-wheels, of a

half-elliptic spring movably supported on a cross-bar of the truck located on the outside of said wheels, and provided with a bearing adapted to coact with a car-body, substantially as described.

18. A bolster comprising a cross-piece with centrally-depressed depending webs and slots in said webs, the walls of which are adapted to engage guides on the frame of the truck.

19. A bolster comprising a cross-piece with oppositely-disposed and centrally-depressed depending webs having slots in their lower portions and strengthening-webs on the sides of said slots.

20. A bolster comprising a cross-piece with oppositely-disposed and centrally-depressed depending webs, and a draw-bar secured to said bolster.

21. A bolster comprising a cross-piece with oppositely-disposed and centrally-depressed depending webs, and a draw-bar secured to the said cross-piece.

22. A bolster comprising a cross-piece with oppositely-disposed and centrally-depressed slotted webs, and side bearings on said cross-piece.

23. A bolster comprising a cross-piece with oppositely-disposed and centrally-depressed slotted webs, and a center bearing secured to said cross-piece.

24. A bolster comprising a cross-piece with oppositely-disposed and centrally-depressed slotted webs, side bearings, and a center bearing on said cross-piece.

25. In a car-truck, a bolster comprising a cross-piece and oppositely-disposed and centrally-depressed webs, and a frame provided with a transversely-disposed leaf-spring secured to and supporting said bolster.

26. In a car-truck, a bolster comprising a cross-piece and oppositely-disposed and cen-

trally-depressed webs, and a frame with a cross-bar engaging said webs.

27. In a car-truck, a bolster comprising a cross-piece and oppositely-disposed and centrally-depressed webs with slots, a frame, a cross-piece on said frame engaging said webs, and projections on said cross-piece engaging said slots.

28. In a car-truck, a bolster comprising a cross-piece and oppositely-disposed and centrally-depressed webs, a frame, a leaf-spring supported by said frame, and secured to said bolster, and a cross-piece on said frame engaging said webs.

29. The combination of a car-truck having a cross member, a spring extending transversely thereof and adjacent the cross member, and movably supported by the cross member, a bolster supported by said spring, the spring, cross member, and bolster constituting the car-supporting means, a car-body above said bolster, and a draw-bar connected with said car-supporting means and with the car-body.

30. The combination of a truck having a cross member, a spring extending transversely thereof, and adjacent to the cross member, a bolster supported by the spring; the spring, cross member, and bolster constituting the car-supporting means, and a draw-bar connected with said car-supporting means, and adapted to be secured to the car-body.

Signed in the city and county of Philadelphia, State of Pennsylvania, this 8th day of January, 1900

JOHN A. BRILL.
WALTER S. ADAMS.

Witnesses:

W. H. HEULINGS,
WM. J. FERDINAND.