

No. 708,994.

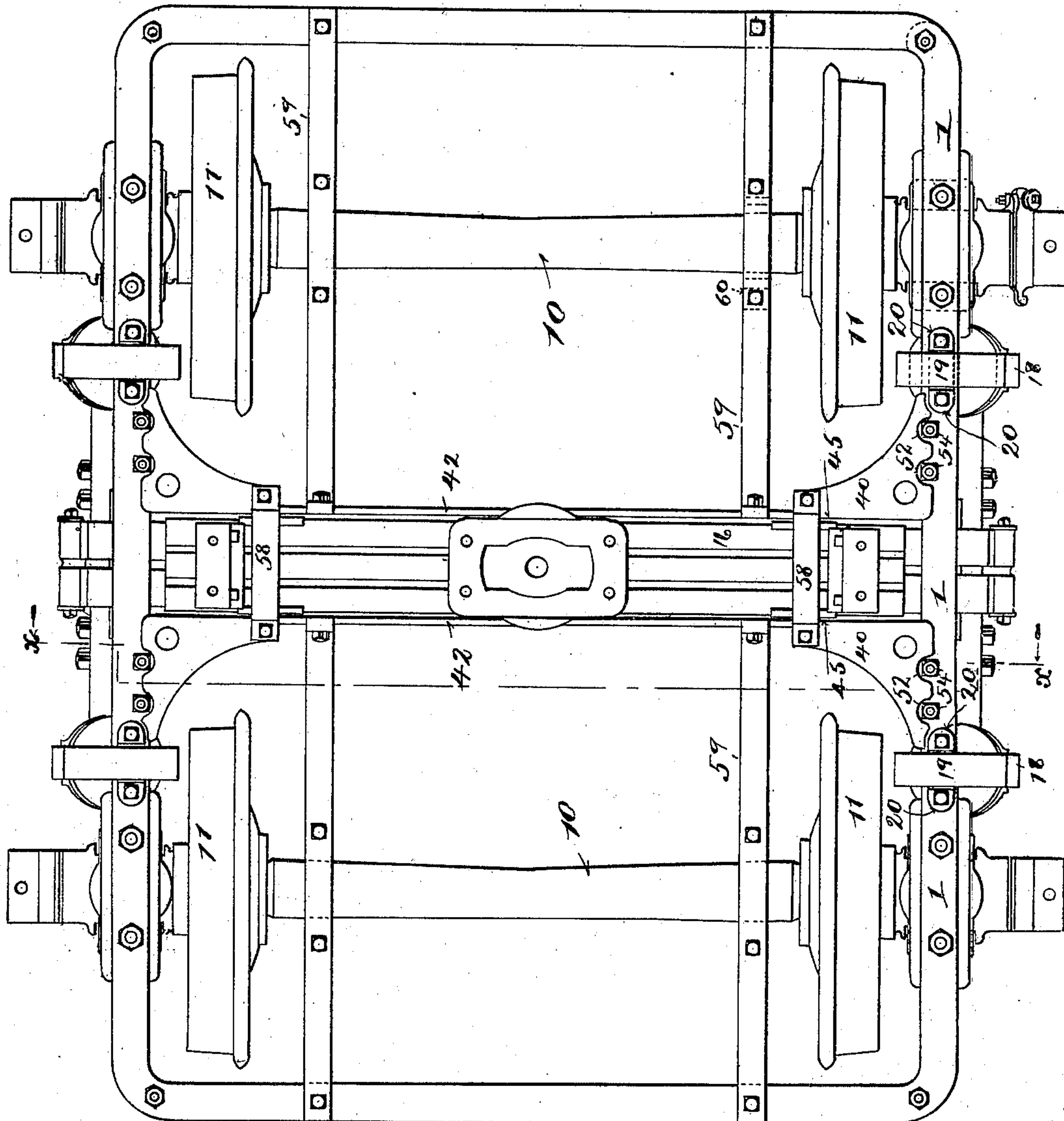
Patented Sept. 16, 1902.

J. A. BRILL.
CAR TRUCK.

(Application filed Jan. 10, 1902.)

(No Model.)

4 Sheets—Sheet 1.



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

Fig. 1.

Inventor,
John A. Brill,
by
Joseph R. Levy
att'y

No. 708,994.

Patented Sept. 16, 1902.

J. A. BRILL.
CAR TRUCK.

(Application filed Jan. 10, 1902.)

(No Model.)

4 Sheets—Sheet 2

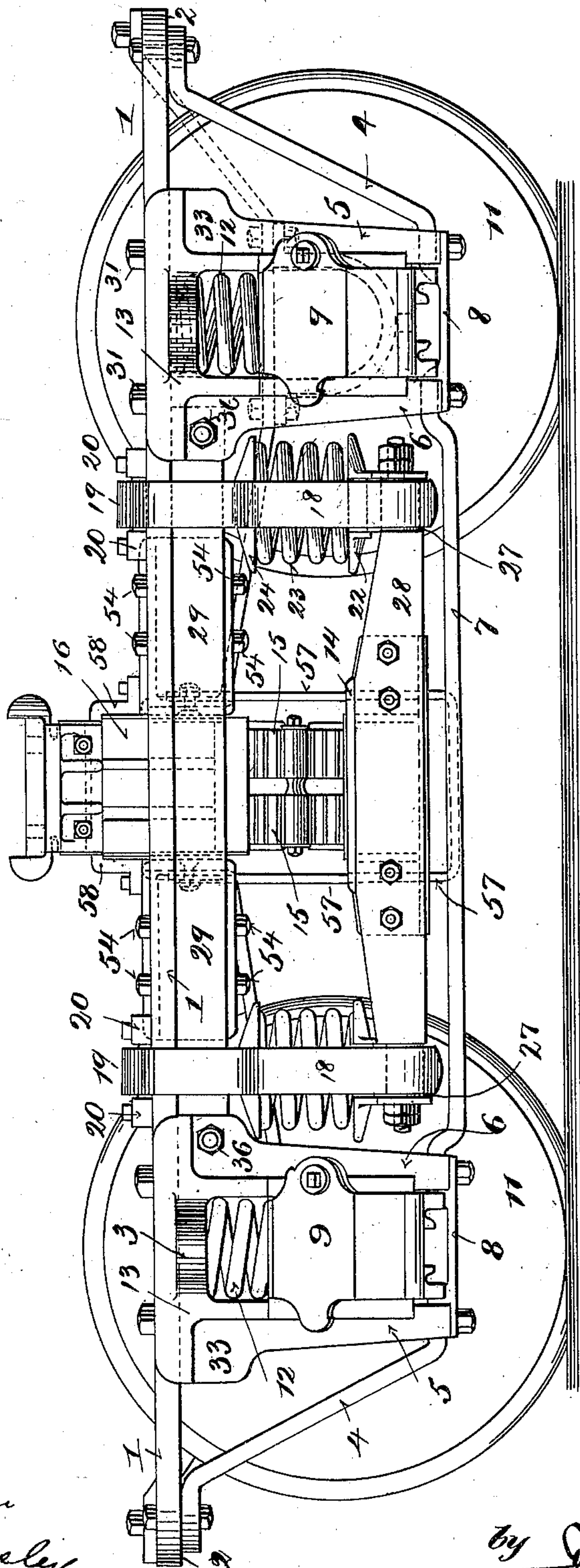


Fig. 2.

Witnesses:
C. R. Benjamin
P. S. Newley

Inventor:
John A. Brill.
by Joseph L. Levy
att'y

No. 708,994.

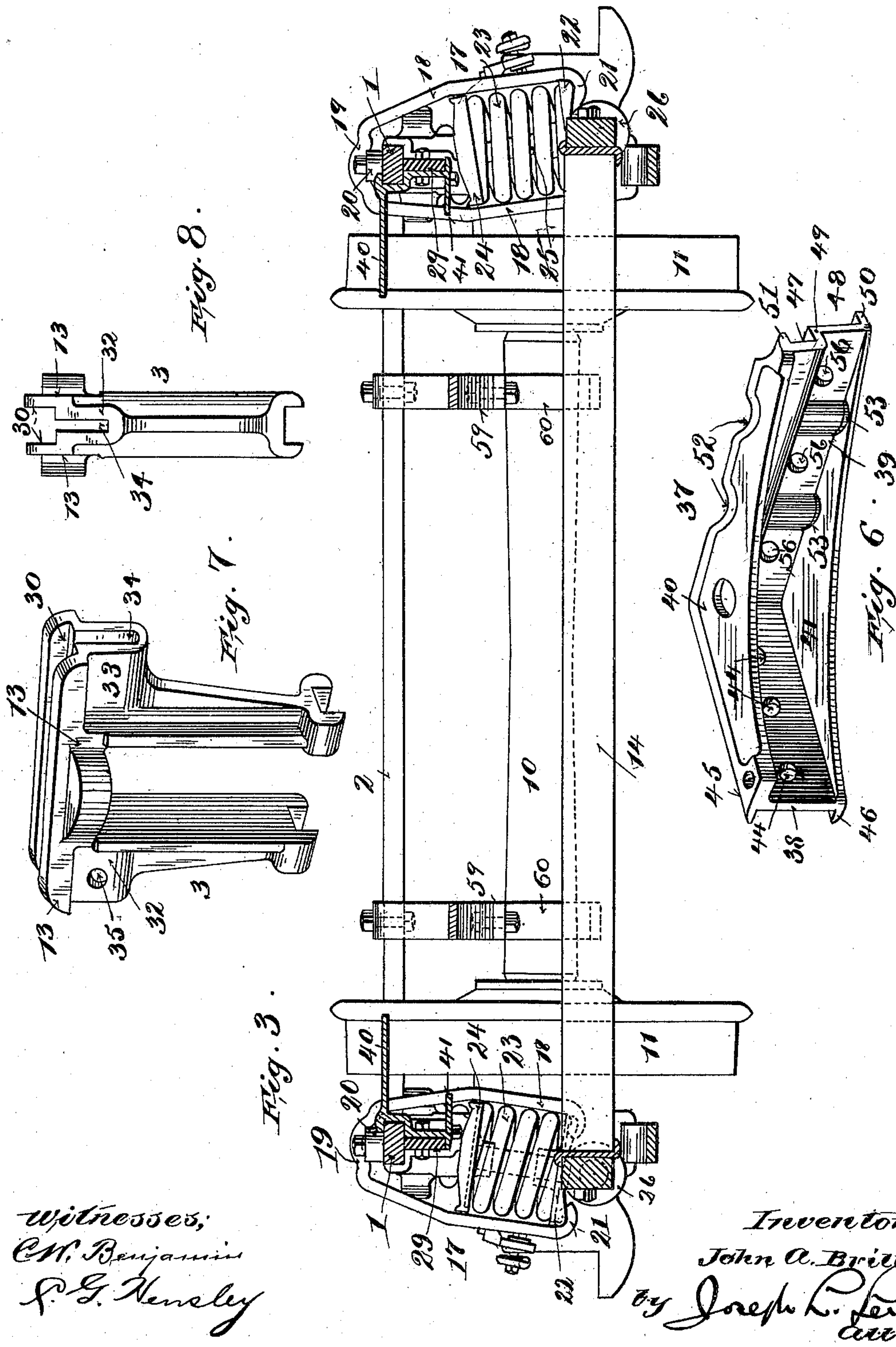
Patented Sept. 16, 1902.

J. A. BRILL.
CAR TRUCK.

(Application filed Jan. 10, 1902.)

(No Model.)

4 Sheets—Sheet 3.



Witnesses;
C. M. Benjamin
J. G. Kersley

Inventor:
John A. Brill
by Joseph R. Levy
att'y

No. 708,994.

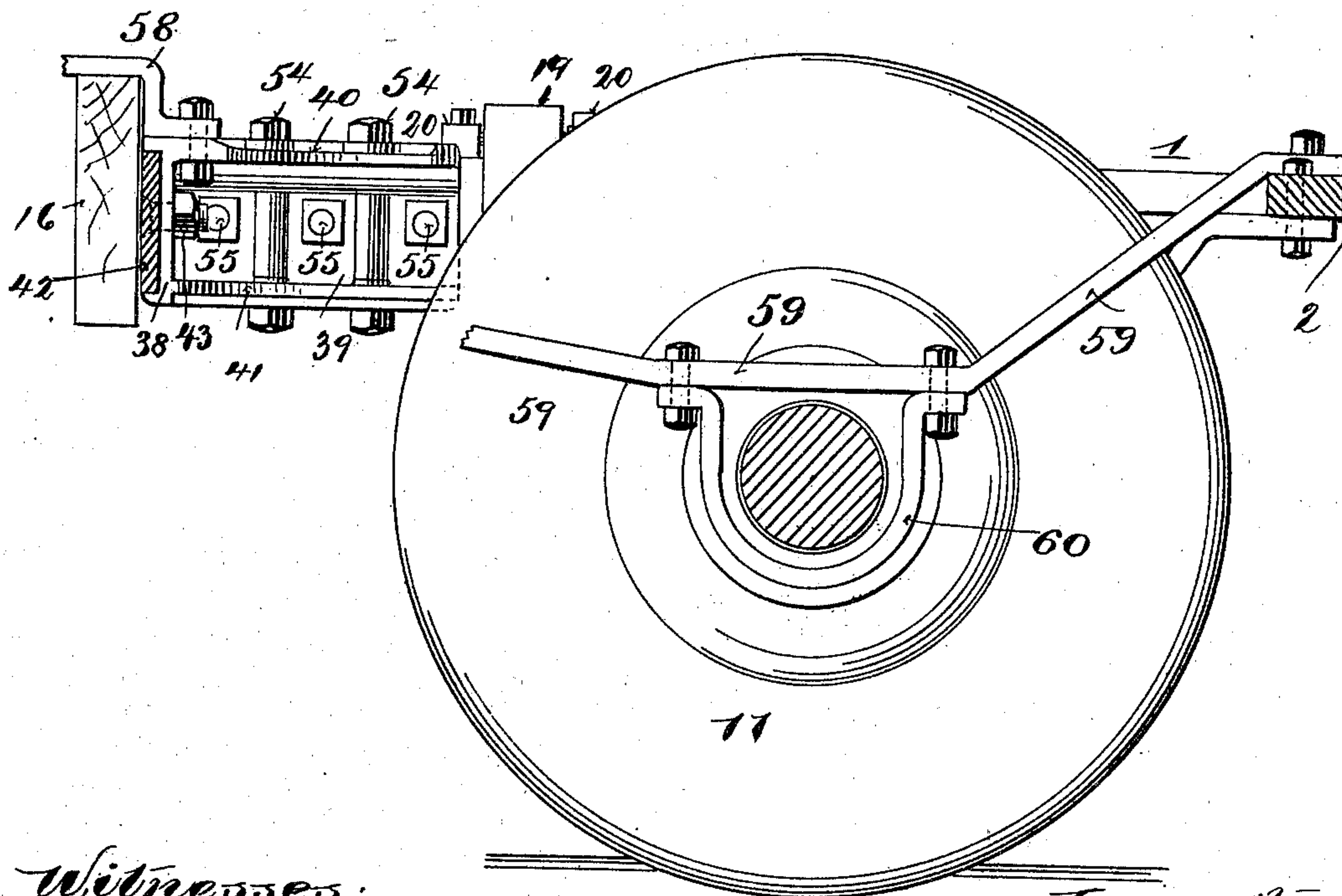
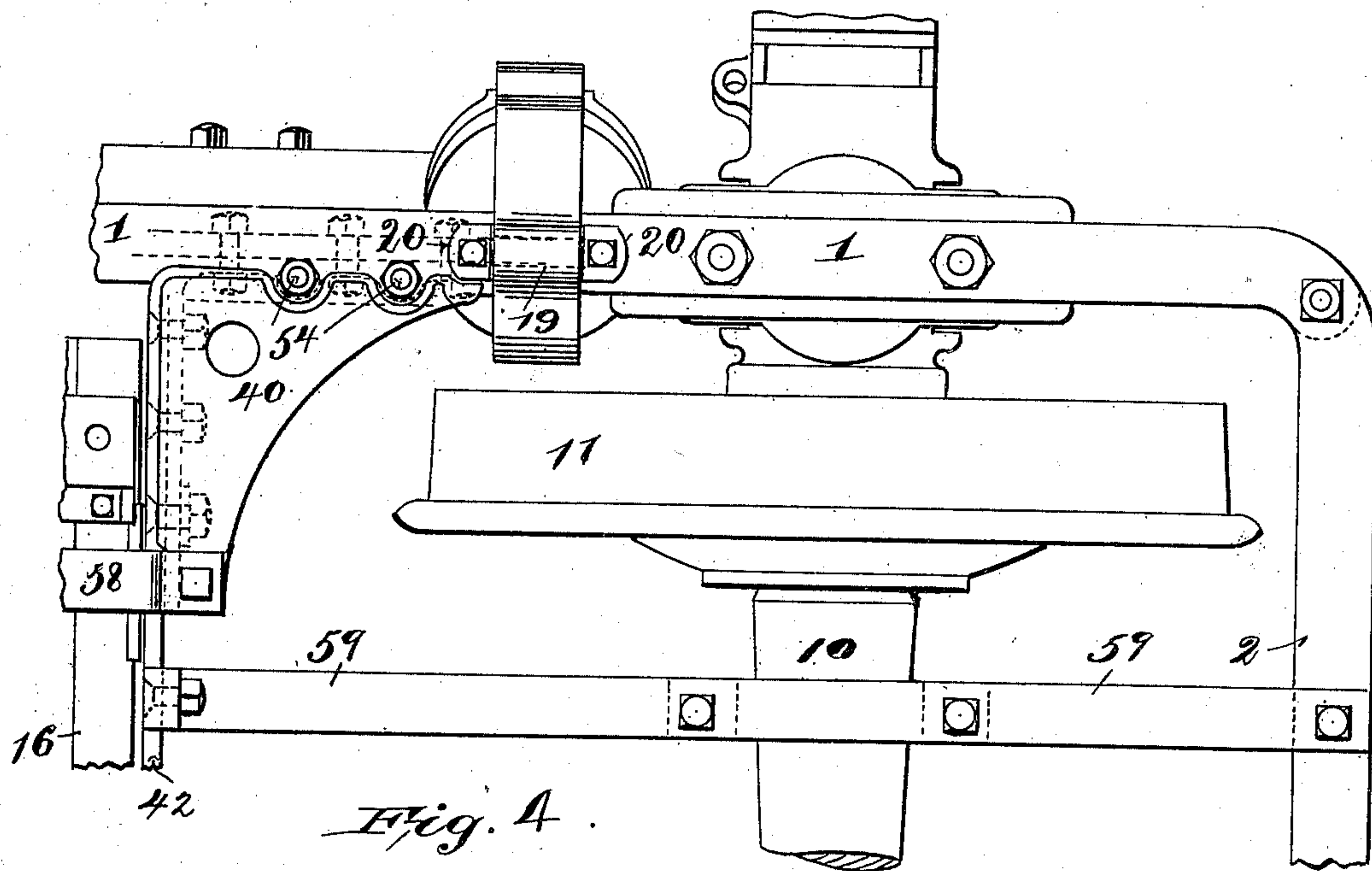
Patented Sept. 16, 1902.

J. A. BRILL.
CAR TRUCK.

(Application filed Jan. 10, 1902.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses:
C. W. Benjamin
S. G. Hensley

Inventor:
John A. Brill,
by Joseph L. Levy
att'y

UNITED STATES PATENT OFFICE.

JOHN A. BRILL, OF PHILADELPHIA, PENNSYLVANIA.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 708,994, dated September 16, 1902.

Application filed January 10, 1902. Serial No. 89,102. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. BRILL, a citizen of the United States, and a resident of the city and county of Philadelphia, State of Pennsylvania, (whose post-office address is care of the J. G. Brill Company, in said city,) have invented certain new and useful Improvements in Car-Trucks, of which the following is a specification.

My invention has relation to improvements in pivotal equalizing-trucks wherein transversely-swinging spring-links are supported upon the side frames of the truck, which spring-links in turn support an equalizer, the latter in turn supporting the truck-bolster; and my improvements specifically consist in the details of construction permitting the application of this form of bolster suspension to a truck which is more or less of the "Master Car-Builders' standard" and in which the usual rectangular top or upper chord is employed.

My invention also includes improvements in the method of constructing the bolster-transoms and in the form of their connection with the top chord of the truck.

My invention therefore resides in the novel details of construction and combination of parts hereinafter set forth and finally pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a plan view; Fig. 2, a side elevation; Fig. 3, a transverse sectional elevation on the line xx , Fig. 1. Fig. 4 is a plan of one corner of the truck. Fig. 5 is a side elevation of the parts shown in Fig. 4. Fig. 6 is a perspective view of the transom angles or brackets. Fig. 7 is a perspective view, and Fig. 8 is an end elevation, of the axle-box yoke or pedestal.

I have shown my improvements as being embodied in a type of truck approximating what is known in the art as the "Master Car-Builders' standard truck" and which is more or less of the type familiarly called a "diamond-frame" truck; but I do not limit myself to the form of truck to which my improvements, hereinafter more fully described, are applied, as they may be embodied in trucks of other construction.

The truck herein illustrated comprises a

rectangular top chord having the longitudinal side pieces 1 and the lateral cross-pieces 2, the axle-box yokes or pedestals 3, the angle-braces 4, extending from the outer of the legs 5 6 of the pedestals to the top chord, the pedestal tie-bar 7, extending between the inner legs 6, the cross-bar 8, and constituting with the angle-braces the lower chord of the truck, the axle-box 9, adapted for vertical movement within the jaws of the pedestals, the axles 10, the wheels 11, the axle-box springs 12, interposed between the axle-boxes and the top bar 13 of the pedestals, the sand or spring planks 14, the transverse elliptical bolster-springs 15, and the bolster 16, with its usual or desired accessories resting upon semi-elliptic springs.

In the form of truck specifically or generally constructed as above indicated considerable difficulty has been encountered in suspending the sand or spring plank or other form of bolster construction from the top chord, where extensible spring and swing links have been employed for such purpose, and it has also been found very difficult, if not entirely impracticable, to provide a sufficiently-strong connection of the transverse transoms with the top chord, even where the sand or spring plank links or "hangers," as they are termed in the form of truck generically illustrated herein, are hung from the transoms. With my improvements I am enabled to efficiently and mechanically support the lateral swinging and extensible spring-links from a truck having a top chord of the usual construction and provide efficient means for the securement of the transoms to such a top chord, thereby strengthening the support of the swing-links upon the top chord and providing means whereby the usual swing-links can be efficiently supported directly from the side frames or transoms without involving the necessity of inserting the usual pedestal between the ends of the transoms and the lower chord or pedestal tie-bar of a truck-frame.

At 17 is illustrated a form of swinging and spring extensible links comprising a strap 18, pivotally supported at the top 19 upon a pivot-block 20, bolted to the top chord adjacent the inner ends of the pedestals 3, the lower in-

turned ends 21 of the strap supporting a spring-cup 22, upon which rests the link-springs 23, and upon the link-springs rests a cap 24, from which depends a bolt 25, passing through the cap 22 and having an eye 26, pivotally securing a trunnion 27, formed on the end of the longitudinal equalizing-bar 28, which in turn is secured to the sand or spring plank 14, both sides of the truck being likewise equipped. The links 17 take the weight of the bolster and superposed car-body, the initial stress of the strain being primarily imposed upon the top chord. It will be noted that of itself and as usually constructed the top chord would not form an efficient and stable support for the spring-links, especially under the conditions of the heavy loads of the great stresses to which long cars used in present street-railway practice subject the truck. To strengthen the chord at this point, as well as to provide means for efficiently securing the transoms to the top chord and also to more rigidly secure the pedestals together longitudinally of the truck, I employ the following construction, which may be varied within considerable limits and still involve the essentials of my improvements: At 29 is a bar (preferably of greater depth than thickness) disposed on edge—viz., its greatest thickness vertically and located directly under the top chord, which is composed of flat bar iron—so that the top chord overlaps the bar. The top bars 13 of the pedestals are provided with a longitudinal furrow or groove 30, extending entirely across the top of the pedestal and in which the top chord lies, the bolts 31 securing the top chord and pedestal together. At one or both sides of the angles formed by the vertical jaws 5 6 and top bar 13 of the pedestals are formed lugs 32 33, extending beneath and longitudinally with reference to the pedestal top bar, each of the lugs being provided with a vertical groove 34, having sufficient lateral and vertical dimension to receive the end of the bar 29, the inner lugs 32 being pierced by a hole 35. The ends of the bar 29 are inserted into the groove in the inner lugs, and bolts 36, passing through both the holes 35, lugs 32, and the ends of the bar 29, securely tie the pedestals 3 together. The pedestals are preferably cast each with both of the grooved lugs 32 33 in order to avoid casting them with the right and left lugs—that is, so that the pedestals can be used at either end or either side of the truck interchangeably.

To more efficiently tie the bar 29 to the top chord and at the same time affording improved means for supporting the transoms upon the top chord and tying the sides of the top chord together, I have employed the following construction, which, however, apart from its connection with the transoms may be substituted by any other means for connecting the bar 29 to the top chord between the pedestals. At 37 are corner or angle

brackets comprising the transversely-disposed vertical webs 38, the longitudinally-disposed vertical webs 39, and the upper and lower horizontally-disposed connecting-webs 40 41. The transoms, comprising flat bars 42, disposed on the edge, are secured by the bolts 43, passing through the holes 44, to the vertical transverse web 38 of the brackets, the horizontal webs 40 41 having flanges 45 46 slightly overlapping the top of the bars. The longitudinal vertical web 39 of the bracket is provided with stepped recesses 47 48, vertically disposed, the upper one, 47, receiving the edge of the top chord 1, Fig. 3, the lower one, 48, the vertical face of the bar 29, the horizontal stepped ledges 49 50, abutting against the lower longitudinal faces of the top chord and bar 29, respectively, the horizontal web 40, having a flange 51, overlying the top chord, in which flange 51 recesses 52 are formed. On the vertical longitudinal web 39 of the brackets are formed bolt-recesses 53, through which extend bolts 54, Fig. 4. These bolts pass through the inner overlapping edge of the top chord, the nut resting upon the top chord and lying within the recesses 52 in the horizontal web 40 of the bracket, the lower nut of the bolt bearing against the lower ledge 50 and in line with the bar 29. By tightening up these bolts 54 the brackets are firmly secured to the top chord 1 and to the bar 29, so as to efficiently resist vertical stress, and the bar and top chord are firmly secured together. At 55 are bolts which pass through holes 56 in the vertical longitudinal web 39 of the brackets and pass through the bar 29, thereby firmly tying the bar 29, the top chord 1, and the transom together, the several overlying flanges of the brackets restraining shearing stresses. The bolster is also provided with safety-straps 57 58, secured to the transoms and to the brackets 37, going over the bolster and under the spring-plank in the usual manner, and the truck may also have the axle safety-strapping, comprising the bars 59, deflected centrally and secured to the chord ends 2 and transoms 42, and the yokes 60, bolted to the bars 59.

From the foregoing it will be obvious that many changes and modifications may be made in the adaptation of my improvements to trucks of varying construction without departing from the spirit of my invention.

Having described my invention, I claim—

1. In a car-truck, the combination with the side members of the truck-frame, and the axle-pedestals; of a top chord included by said side members, and a reinforcing-bar extending between said pedestals, upon which said chord rests.

2. In a car-truck, the combination with the top chord, and the pedestals, of a bar set on edge and extending between said pedestals parallel to said top chord, adapted to reinforce said top chord between the pedestals.

3. In a truck, the combination with the ped-

estals, a top chord having sections extending between the pedestals, separate bars supported below and closely adjacent the said top-chord sections and secured at their ends to the pedestals, links suspended from the top chord in line with the said bars, and a bolster supported by said links, substantially as described.

4. In a car-truck, the combination with the flat side members of the top chord, the axle-box pedestals, and a bar set on edge secured to the pedestals, and abutting against the under side of the top-chord side members, substantially as described.

5. In a car-truck, the combination with the top chord and the pedestals, provided with recessed lugs projecting laterally therefrom; of a reinforcing-bar seated in said recesses and extending between said pedestals immediately beneath said top chord.

6. In a car-truck, the combination with the top chord, and the pedestals having laterally-projecting recessed lugs; of a reinforcing-bar set on edge and having its ends resting in said recesses in said pedestals, said bar abutting against and reinforcing said top chord between said pedestals.

7. The combination with the truck having a top chord and an underlying bar, brackets secured to the chord and bar, and transoms extending between the inner members of said brackets, substantially as described.

8. The combination in a car-truck, of the top chord 1, the pedestals having the top grooves 30 receiving the top chord, the lugs 32 on the pedestals extending inwardly and having the grooves 34 in line with the top chord, and the bar 29 with its ends inserted in the groove 34 and abutting against the top chord, substantially as described.

9. The combination in a car-truck, of the top chord, the recessed pedestals, a bar inserted in said recesses and extending below the top chord, brackets having longitudinal and transverse webs secured to the said bar and top chord intermediate of the pedestals, and transoms secured to and extending between the transverse webs, substantially as described.

10. In a car-truck, the combination with a top chord, the bar 29, of the brackets 37, having inwardly-stepped recesses 47, 48, receiving the top chord and bar, substantially as described.

11. The combination with the top chord, the bar 29 of less lateral dimension than the top chord, and the brackets 37 having stepped recesses 47, 48, and ledges 49, 50, and a vertical longitudinally-disposed web 39 in which said ledges and recesses are formed and which receives the edge of the top chord and face of the bar 29, and bolts passing through the bar and vertical web of the bracket, and the top chord, substantially as described.

12. As an article of manufacture, the axle-box pedestal having upright jaws, a top cross-

bar having a longitudinal groove such as 30, a lug, and a recess formed in said lug in line with the said cross-bar groove, as and for the purposes described.

13. As an article of manufacture, the axle-box pedestals comprising the upright jaws, the top cross-bar having ends extending beyond the jaws, lugs formed at the angle of the top cross-bar and jaws and extending outwardly from the jaws in the same plane as the top cross-bar, and recesses formed in said lugs opening outwardly at the ends thereof, as and for the purposes described.

14. As an article of manufacture, the transoms brackets comprising the transverse and longitudinal vertical webs connected at their upper edges, and stepped recesses and ledges formed on the outer face of the longitudinal vertical web, as and for the purposes described.

15. In a car-truck, the combination with the side members of the truck-frame, the transom-bars, and brackets adapted to reinforce said side members and transoms, said brackets having flanged portions adapted to embrace the side members of said truck, and said transoms.

16. In a car-truck, the combination with the side members of the truck-frame, the transom-bars, and brackets having transverse and longitudinal vertical webs, the longitudinal web having stepped recesses receiving the said side members, the transverse web receiving the transoms.

17. In a car-truck, the combination with the side members of the truck-frame, of the transom-bars, and brackets having transverse and longitudinal vertical webs, the longitudinal web having vertical recesses and receiving the said side members, bolts extending from the said side members through the vertical recesses of the bracket, the said transverse webs and transoms being connected.

18. In a car-truck, the combination with the side frame, and transom-bars comprising a flat bar with its narrower edge disposed vertically, the side bar being deepened to substantially correspond with the height of the transom-bar, and the bracket having a longitudinal and transverse vertically-disposed web secured to the transom-bar and to the deepened section of the side frame.

19. In a car-truck having side bars, the combination with the transoms, the interposed angular brackets having transverse vertical webs to which the transoms are secured and a longitudinal vertical web having a recess in which the side bars are secured.

20. As an article of manufacture, the bracket having a pair of angularly-disposed webs, one of said webs having stepped recesses in its side, flanges extending laterally from said webs, and horizontally-disposed webs connecting said vertical webs.

21. As an article of manufacture, the bracket having angularly-disposed vertical

webs, upper and lower laterally-disposed
flanges carried by said vertical webs, form-
ing longitudinally-disposed recesses upon the
sides of the bracket, and vertically-disposed
5 recesses formed in one side of the bracket,
said recesses running through said vertical
web and the upper and lower flanges thereof.

Signed in the city and county of Philadel-
phia, State of Pennsylvania, this 7th day of
January, 1902.

JOHN A. BRILL.

Witnesses:

WM. J. FERDINAND,
FRANK ASHWORTH.