

No. 639,273.

E. G. NICEWANER.
CAR TRUCK.

Patented Dec. 19, 1899.

(Application filed June 19, 1899.)

(No Model.)

2 Sheets—Sheet 1.

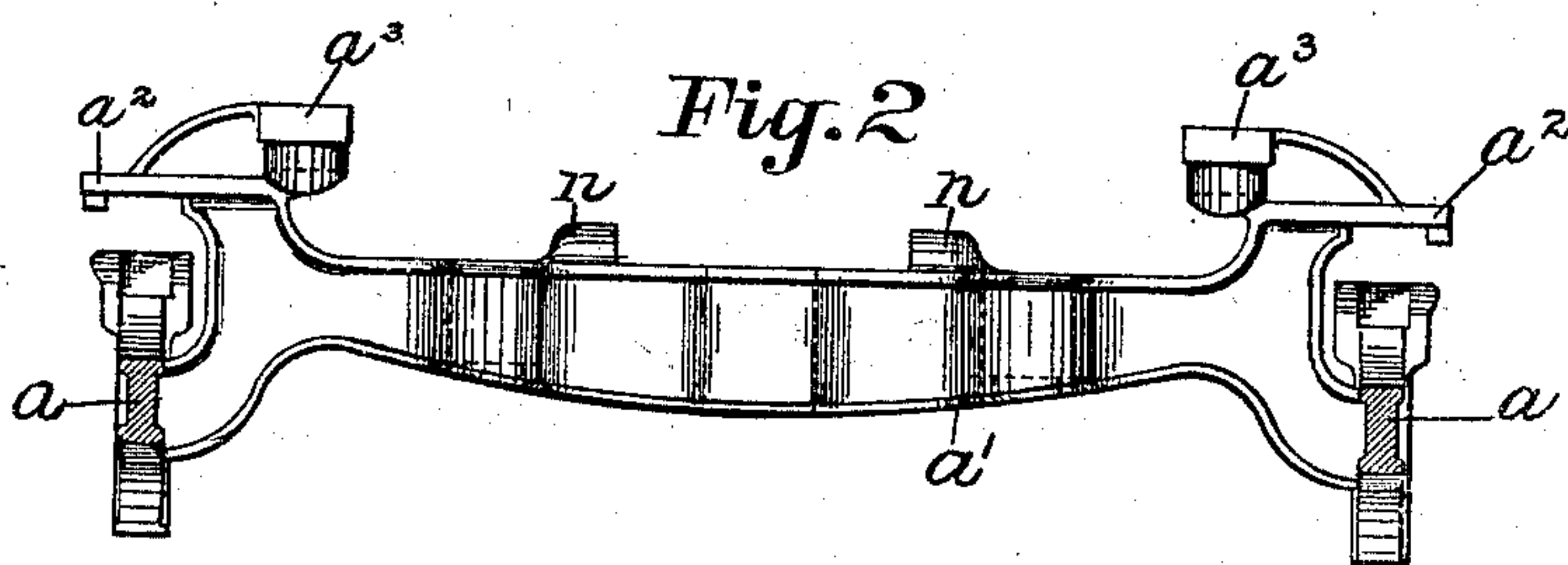
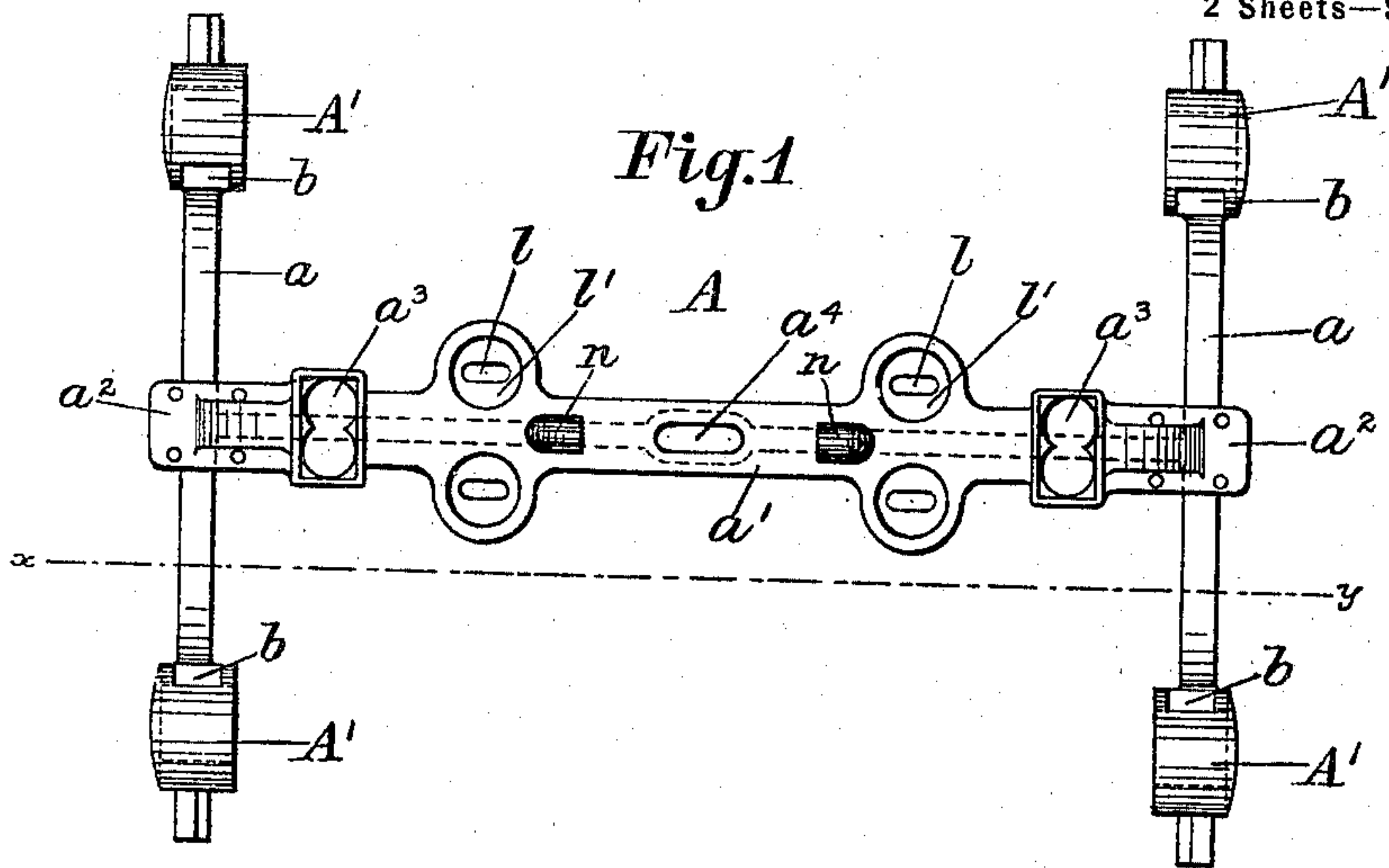


Fig. 3

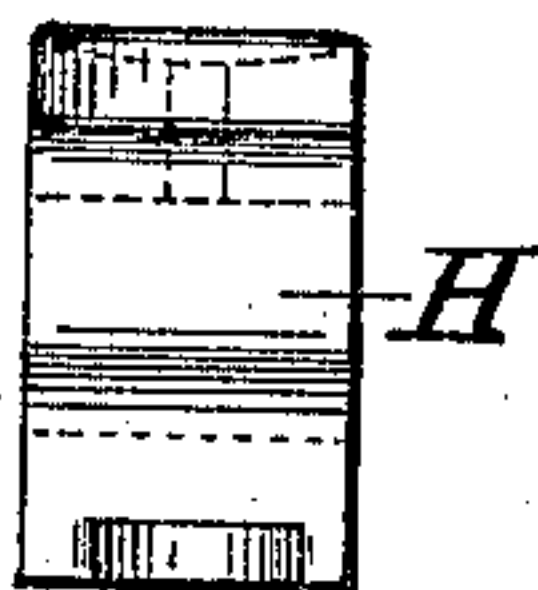


Fig. 4

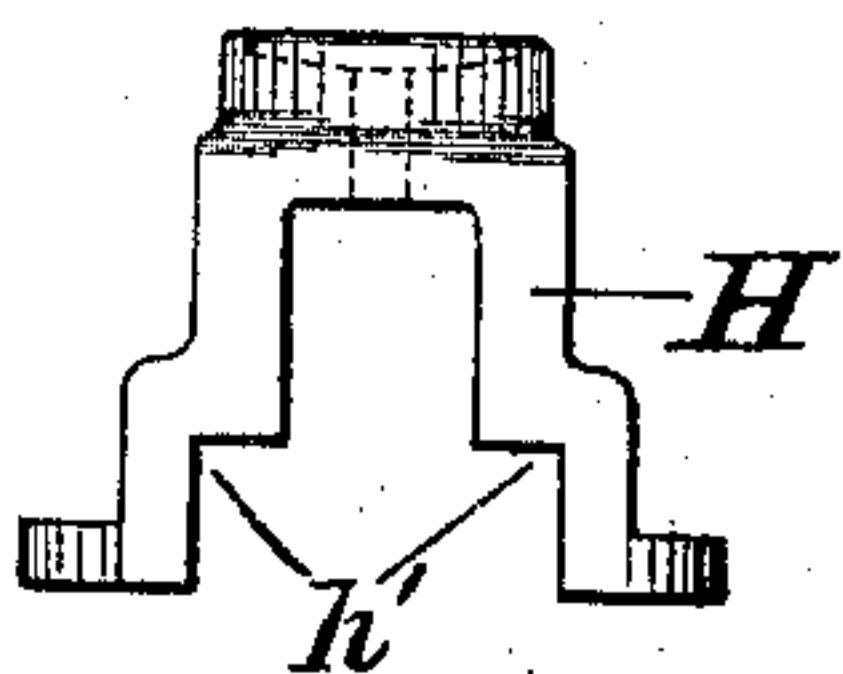
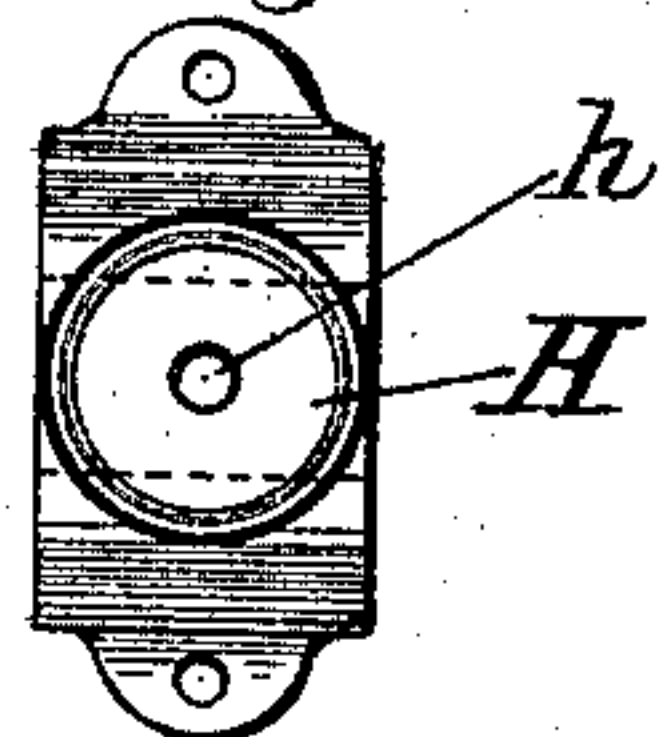


Fig. 5



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INVENTOR

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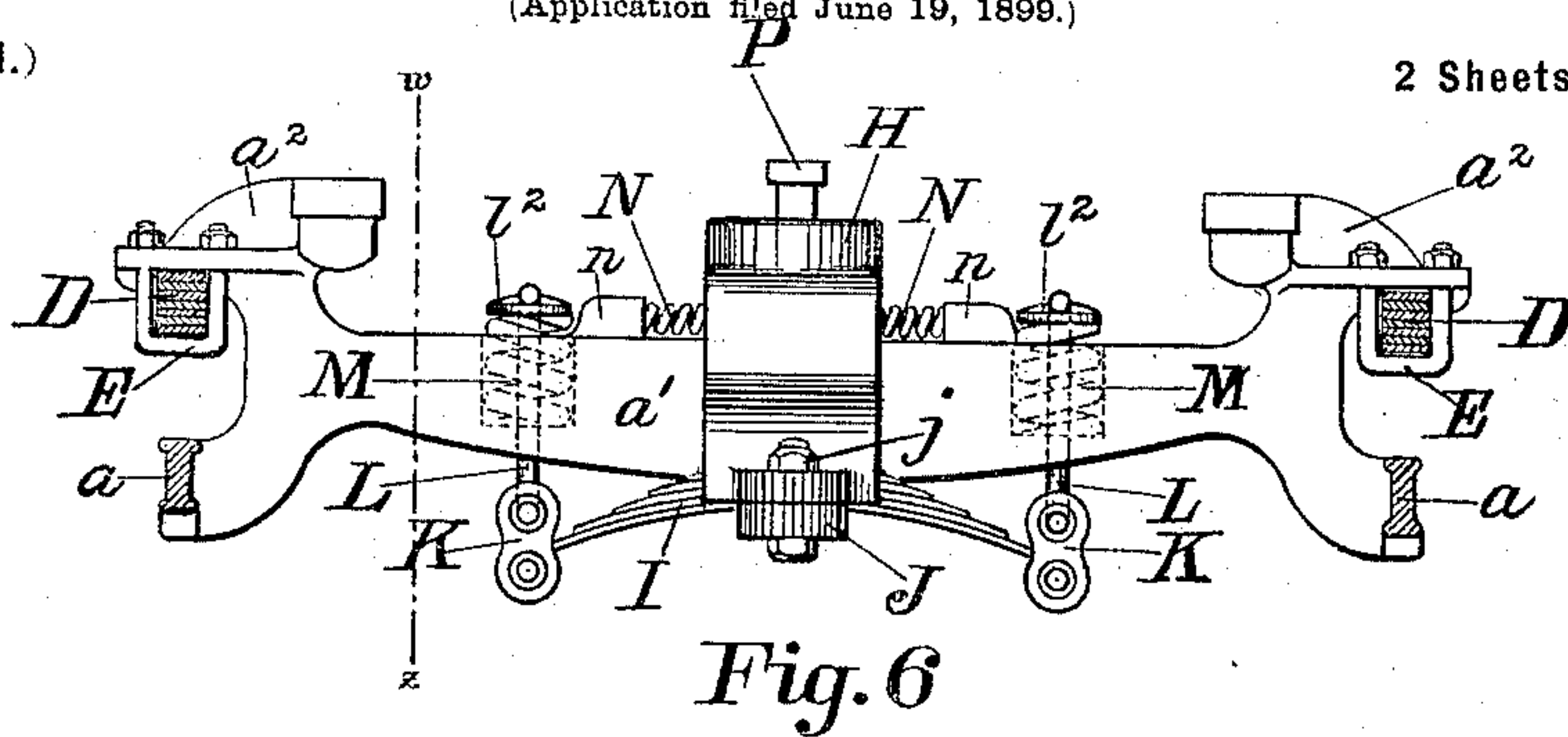


Fig. 6

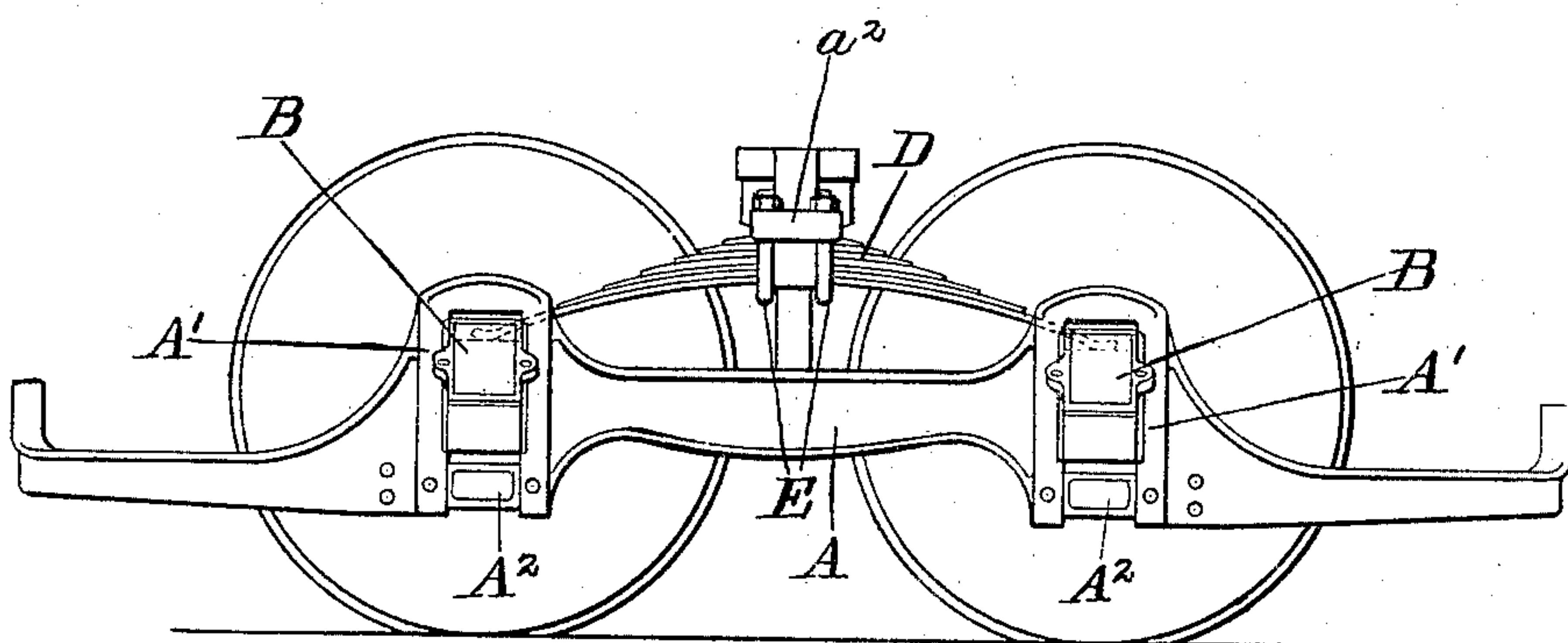


Fig. 7

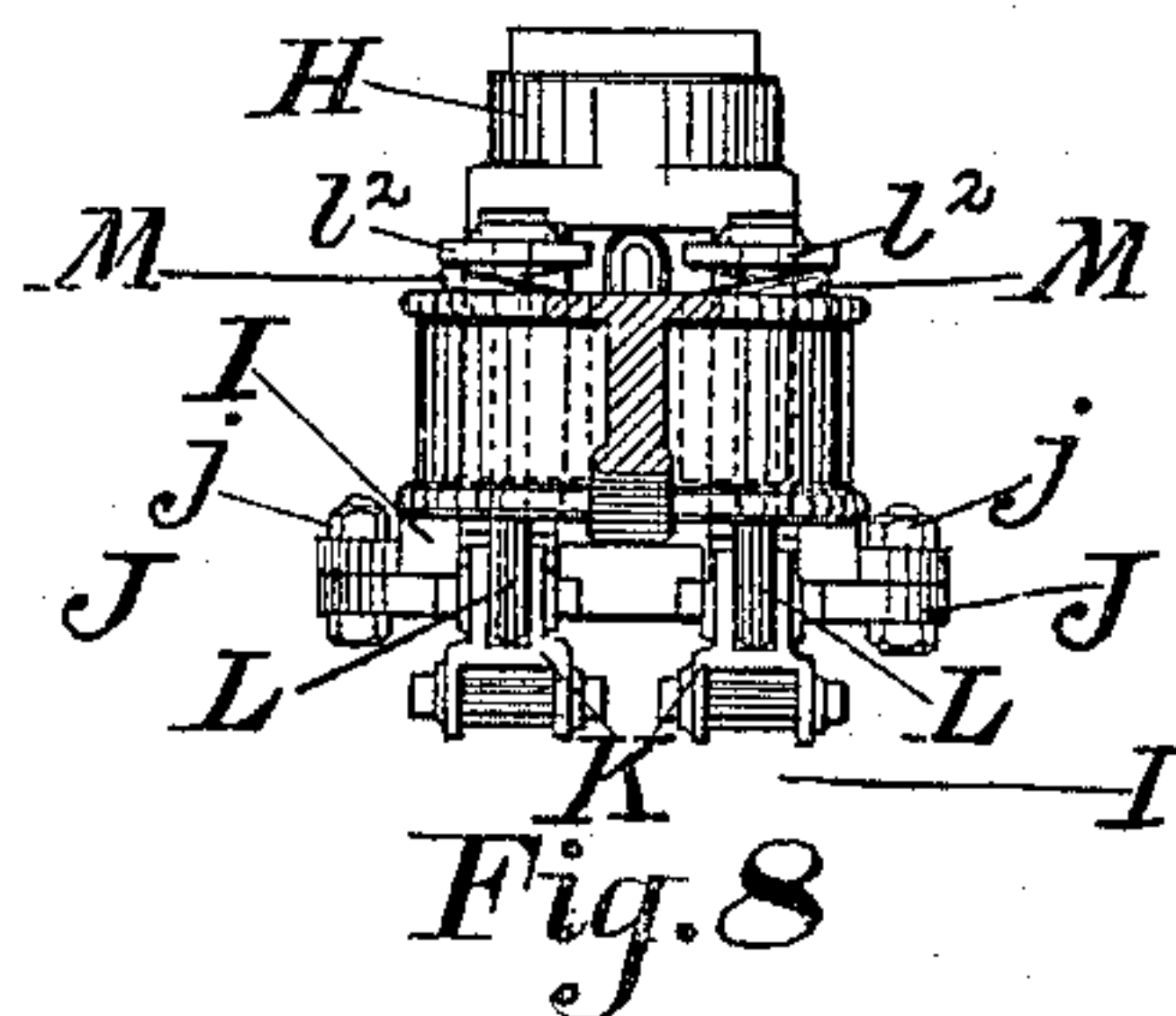


Fig. 8

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UNITED STATES PATENT OFFICE.

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CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 639,273, dated December 19, 1899.

Application filed June 19, 1899. Serial No. 721,161. (No model.)

To all whom it may concern:

Be it known that I, EDWIN G. NICEWANER, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Car-Trucks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

10 This invention relates to car-trucks, and more particularly to pivotal trucks for cars which are carried by two trucks, one underneath each end portion.

One object of my invention is to provide an improved steel truck-frame cast solid in a single piece, with provision, integrally formed, for seating and attaching the springs and other adjuncts of the truck.

20 A further object is to provide an improved arrangement of the journal-box springs wherein a semi-elliptic spring extends between the two boxes at each side of the truck, the truck-pedestals being apertured to receive the end or box-bearing portions of said springs.

25 Still another and highly important object of my invention is to provide a truck wherein the usual swinging bolster is obviated, together with the lower swivel-plate, and there is employed in lieu thereof a combined swing-stirrup and truck-center bearing which provides the requisite lateral motion, guarded against excess, and which is also spring-connected to provide, in conjunction with the side or journal-box springs, a triple-cushion support for the vehicle-body.

35 A further and general object is to provide a strong durable truck in which the number of parts and fittings is reduced to a minimum, which is compact in its structure and arrangement, and which is neat in its general design.

40 These several objects I attain by the means now to be described, and more particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a plan view of the truck-frame detached. Fig. 2 is a section of the same on the line xy of Fig. 1. Figs. 3, 4, and 5 are respectively end, side, and plan views of the swing-stirrup. Fig. 6 is a view, partly in section and partly in end elevation, showing the manner of mounting the swing-stirrup. Fig. 7 is a side

elevation of a truck, showing the novel arrangement of the side or journal-box springs; and Fig. 8 is a section on the line wz of Fig. 6.

55 In the drawings, A designates the steel truck-frame, which is cast solid in a unitary structure and is composed of parallel side portions or members $a a$ and a transverse or connecting portion or member a' , the whole being similar in form to the letter H. In cross-section the members $a a'$ are preferably of the flanged or rail form shown in Figs. 2, 6, and 8. Formed integrally in the side portions a are the pedestals or journal-box housings A' , open at the bottom to receive the boxes B. At their upper inner corner portions the pedestals or housings A' are cut away, as indicated at b , to permit the entrance of the end portions of semi-elliptic springs D, which extend between the two journal-boxes at the same side of the truck and take their bearing on the said boxes by their said end portions, as clearly shown. To provide for receiving the central portion of these springs D, the transverse member a' of the frame is made of branched or yoke form at its end portions, the upper branches or arms a^2 thereof extending laterally over the central portions of the sides $a a$ and perforated to receive U-bolts E, which embrace and receive the said springs. (See Figs. 6 and 7.) The arms or branches a^2 are also shown as provided with chafe-plate bearings a^3 .

85 In order to prevent any tendency of the pedestals or housings A' to spring or close, and thereby bind the journal-boxes, a spreading-plate or repair-piece A^2 is inserted between the arms thereof at or near their lower ends and is removably secured by bolts a^3 .

90 H is the combined swing-stirrup and lower swivel-piece, slotted to embrace or straddle the central portion of the cross member a' of the frame A, with a king-bolt opening h registering with the slotted king-bolt opening a^4 , cored in said member a' . This stirrup is provided with the interior seats or shoulders h' , which rest, respectively, upon the central portions of two parallel semi-elliptic springs I, and is further secured to said springs by means of the clip J, bolted to its end portions, as at j . The springs I are connected at their

ends by links or toggles K to the lower ends of rods or bolts L, which pass upwardly through slots *l* and spring-pockets *l'*, cored in the portion *a'* upon each side of the swing-stirrup.

5 The upper ends of said rods or bolts are provided with caps *l*², which bear on the upper ends of coil-springs M, which in turn are seated in the pockets *l'*.

To provide against excessive lateral motion
10 of the stirrup, side buffer-springs N N are employed. These springs bear against opposite sides of the stirrup at their inner ends and at their outer ends seat in the pockets *n*, cast on the frame portion *a'*.

15 The semi-elliptic springs I, link-connected at their ends, as described, permit side motion or play of the stirrup, guarded as to excess by the laterally-arranged opposed buffer-springs N N, while the said springs I, together
20 with the coil-springs M and journal-box springs D, provide a triple cushion for the vehicle-body resting on the stirrups and kingbolted thereto.

The member H not only performs the office
25 of the usual long swing-supported bolster in a more economic and satisfactory manner; but it also, as before indicated, obviates the use of the lower swivel-plate carried by the bolster.

30 The simplicity and security of the construction, which avoids multiplicity and complication of parts, as well as the use of auxiliary parts and fittings to a large extent, will be readily appreciated, as will also the compact
35 construction and arrangement of the swing-stirrup and its adjuncts. This last-named feature is more strikingly apparent in Fig. 8. I do not, however, limit myself to the particular construction and arrangement of parts
40 which I have shown and described, as this may be considerably varied without departing from the essential features pointed out in the appended claims. Nor do I confine myself to the use, necessarily, of the several features of the invention all in conjunction, although they are particularly designed and adapted for such use, it being obvious, for
45 instance, that while the solid integral frame is particularly adapted to the swing-stirrup and its adjuncts the latter may nevertheless
50 be employed to great advantage on trucks having built-up frames of different constructions. The feature of the journal-box springs and their mountings may also be applied to
55 the other forms of trucks.

Having thus described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In a car-truck, the H-shaped integral
60 cast-steel frame, having its transverse member formed with arms overhanging its lateral members.

2. In a car-truck, the H-shaped integral cast-steel frame having its transverse member formed with spring-pockets and with arms
65 overhanging its lateral members.

3. In a car-truck, the H-shaped integral

cast-steel frame, whose transverse member is formed at its end portions with raised perforated arms overhanging its side members
70 as with chafe-iron seats on said arms, and at its intermediate portion with a plurality of spring-pockets cored therein.

4. In a car-truck, the combination with the frame having inverted pedestals or journal-
75 box housings formed with openings, of journal-box springs extending between the boxes on the same side of the truck and having their end portions entering said openings for bearing on the journal-boxes, and their cen-
80 tral portions rigidly secured to the truck-frame.

5. In a car-truck, the combination with a frame having laterally-apertured pedestals or journal-box housings, of semi-elliptic
85 springs supported longitudinally of the said frame and having their end portions entering the apertures of the said pedestals or housings and bearing on the boxes thereof, and their central portions bearing upon and rig-
90 idly secured to the truck-frame.

6. In a car-truck, the combination with a frame having laterally-apertured pedestals or axle-box housings, of a semi-elliptic spring
95 having its end portions entering said apertures, and a rigid central connection between said spring and the frame.

7. In a car-truck, the combination with the H-frame having apertured pedestals in the side members, and its transverse member
100 formed with arms overhanging said side members and having spring-seats on their under sides, of elliptic springs having their end portions engaging said seats and secured to said
105 arms.

8. In a car-truck, the H-frame having the laterally-apertured pedestals or journal-box housings at its side members, and its transverse member formed with arms which overhang the side member, of the journal-box
110 springs whose end portions enter the apertures of said pedestals or housings, and whose central portions are seated by said arms, and U-bolts securing the springs to said arms.

9. In a car-truck, the combination with a
115 truck-frame having a cross member, of a body-supporting stirrup, springs forming a seat for said stirrup, other springs seated on said cross member, and flexible connections between these springs and the first-named springs.
120

10. In a car-truck, the combination with a truck-frame spring-supported from the axle-boxes, of a body-supporting swing-stirrup seated on a cross member of said frame for lateral and vertical movement.
125

11. In a car-truck, the combination with a truck-frame, of a stirrup straddling the cross member of the said frame, springs supporting said stirrup, loose connections between the said springs and the frame, and a king-
130 pin passing through said stirrup and through a slot of said member.

12. In a car-truck, the combination with a truck-frame, of a slotted stirrup embracing

a cross member of said frame for lateral movement, springs upon which the said stirrup rests, rods or bolts depending from said cross member, and loose connections between said springs and the said rods or bolts.

13. In a car-truck, the combination of a truck-frame, a stirrup loosely embracing the central portion of the cross member of said frame, a pair of semi-elliptic springs below the said cross member and upon the central portions of which the arms of said stirrup bear, the spring-supported rods or bolts extending through said cross member, and loose connections between said springs and the lower ends of the said rods or bolts.

14. In a car-truck, the combination of a truck-frame, a slotted stirrup loosely seated on a cross member thereof, springs supporting said stirrup on the said member, loose connections between the said member and the springs, and means for limiting the lateral movement of said stirrup.

15. In a car-truck, the combination of a truck-frame, a stirrup loosely seated on the central portion of the cross member of said frame, springs supporting said stirrup at their central portions, and elastic or spring buffers for limiting or checking excessive lateral movement of the said stirrup.

16. In a car-truck, a frame, a stirrup spring-seated on the cross member of said frame for lateral as well as vertical movement, and elastic spring-buffers for preventing excessive lateral movement of said stirrup.

17. In a car-truck, the combination with the frame having a cross member apertured for a king-bolt, a stirrup seated astride said cross member at its apertured portion and having a registering aperture, parallel semi-elliptic springs below the cross member and supporting the arms of the stirrup at their central portions, coil-springs seated on said cross member upon each side of the stirrup, rods or bolts having a compressing engagement with the upper ends of the said coil-springs, and links connecting the ends of the semi-elliptic springs to the said rods or bolts.

18. In a car-truck, the combination with the H-frame having its cross member provided with a king-bolt aperture and with a plurality of spring-pockets upon opposite sides of said aperture, of the stirrup embracing the apertured portion of said member, the parallel semi-elliptic springs below the said member and engaged at their central portions by the arms of said stirrup, the coil-springs seated in said pockets, the rods or bolts having caps engaging said coil-springs and extending through the cross member, and link connections

between the lower ends of said rods or bolts and the semi-elliptic springs, together with means for limiting the movement of said stirrup.

19. In a car-truck, a body-supporting stirrup, springs supporting said stirrup from the truck-frame and loosely connected to said frame, and laterally-yielding buffers for limiting the lateral movement of said stirrup.

20. In a car-truck, the combination with the frame and the axle-boxes housed in pedestals of said frame, of the side springs centrally connected to said frame and having end bearings on the respective pairs of boxes, and a swing-stirrup spring-supported for lateral as well as vertical motion, and seated on a cross member of the said frame.

21. In a car-truck, the combination with the H-frame spring-supported from the axle-boxes, of the stirrup seated on the cross member of said frame for both lateral and vertical movement, springs upon which said stirrup rests, laterally and vertically movable connections between the end portions of said springs and the frame, and means for preventing excessive lateral movement of said stirrup.

22. In a car-truck, the combination with the truck-frame whose cross member is slotted for a king-bolt, of a stirrup seated astride the slotted portion of the said member and having an aperture in its upper portion registering with said slot, bearing-shoulders on the inner portions of the lateral arms of said stirrup, semi-elliptic springs seated in said shoulders, and vertically and laterally yieldable connections between the end portions of said springs and the said cross members.

23. In a car-truck, the combination with a truck-frame, of a combined body-supporting stirrup and truck-center bearing, springs between the side members of said frame supporting said combined stirrup and center bearing, and other springs supporting the first-named springs from said frame.

24. In a car-truck, the combination with a truck-frame, of a short body-supporting stirrup and truck-center bearing, swing-links, springs connecting said links to said center bearing intermediate the side members of the frame, and other springs connecting the links to said frame.

In testimony whereof I have affixed my signature in presence of two witnesses.

EDWIN G. NICEWANER.

Witnesses:

M. E. SHARPE,
H. W. SMITH.