No. 634,976.

Patented Oct. 17, 1899.

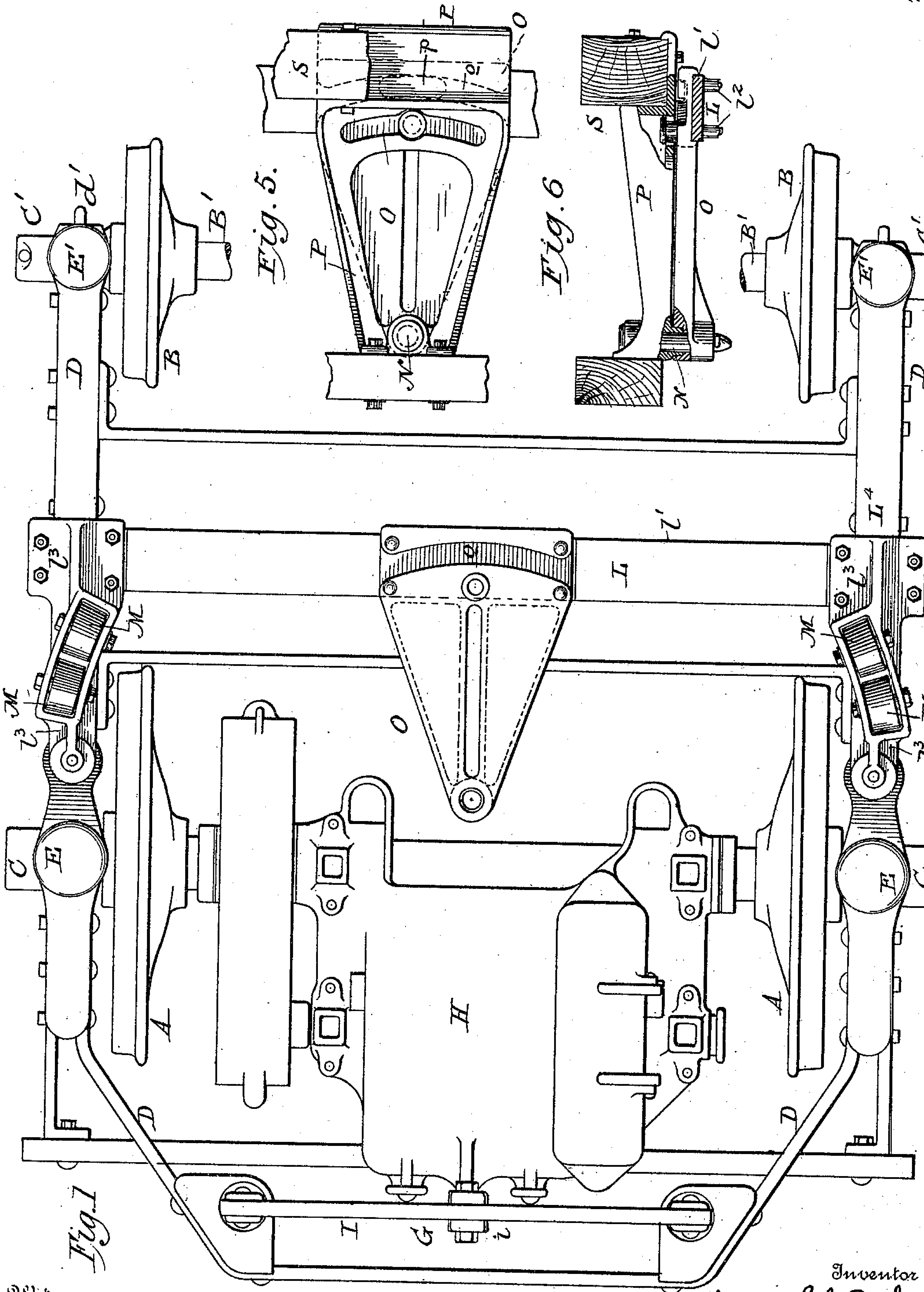
W. S. G. BAKER.

CAR TRUCK.

(Application filed July 14, 1899.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses

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3 Sheets—Sheet 2.

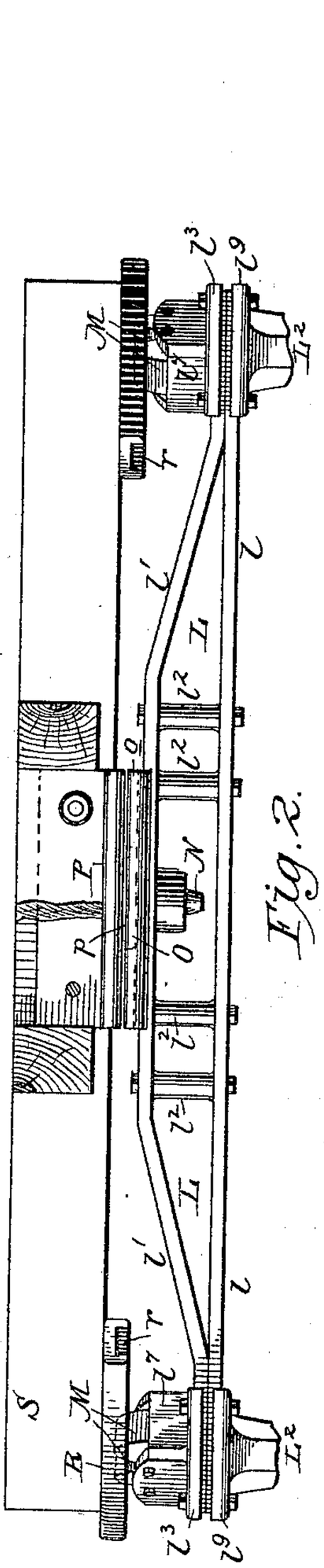

Fig. 3.

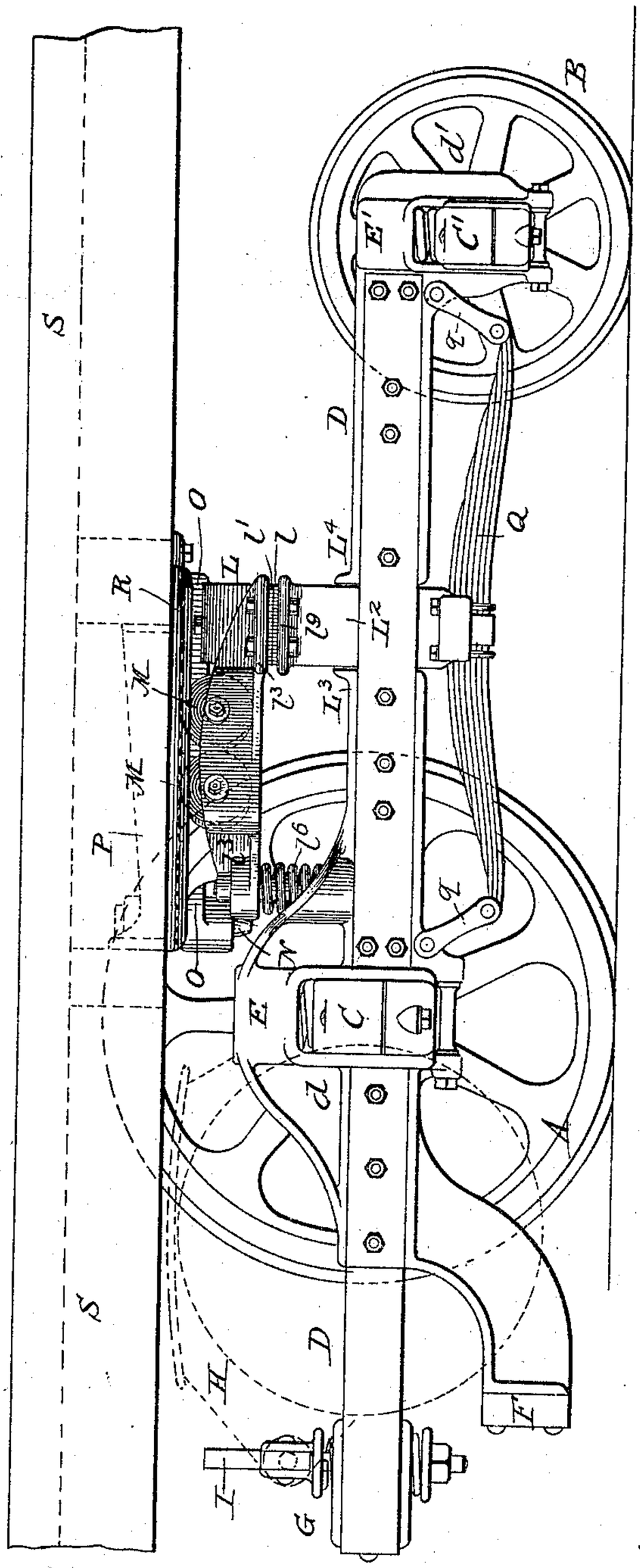

Fig. 2.

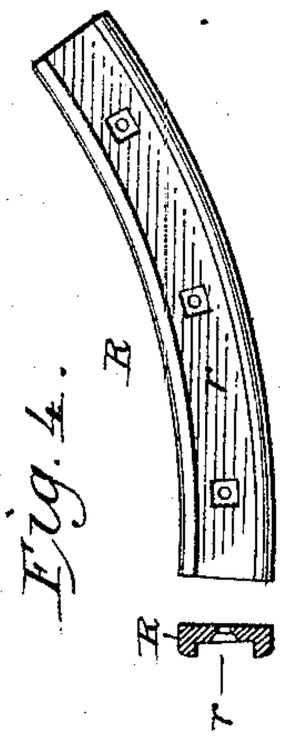

Fig. 4.

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Fig. 7.

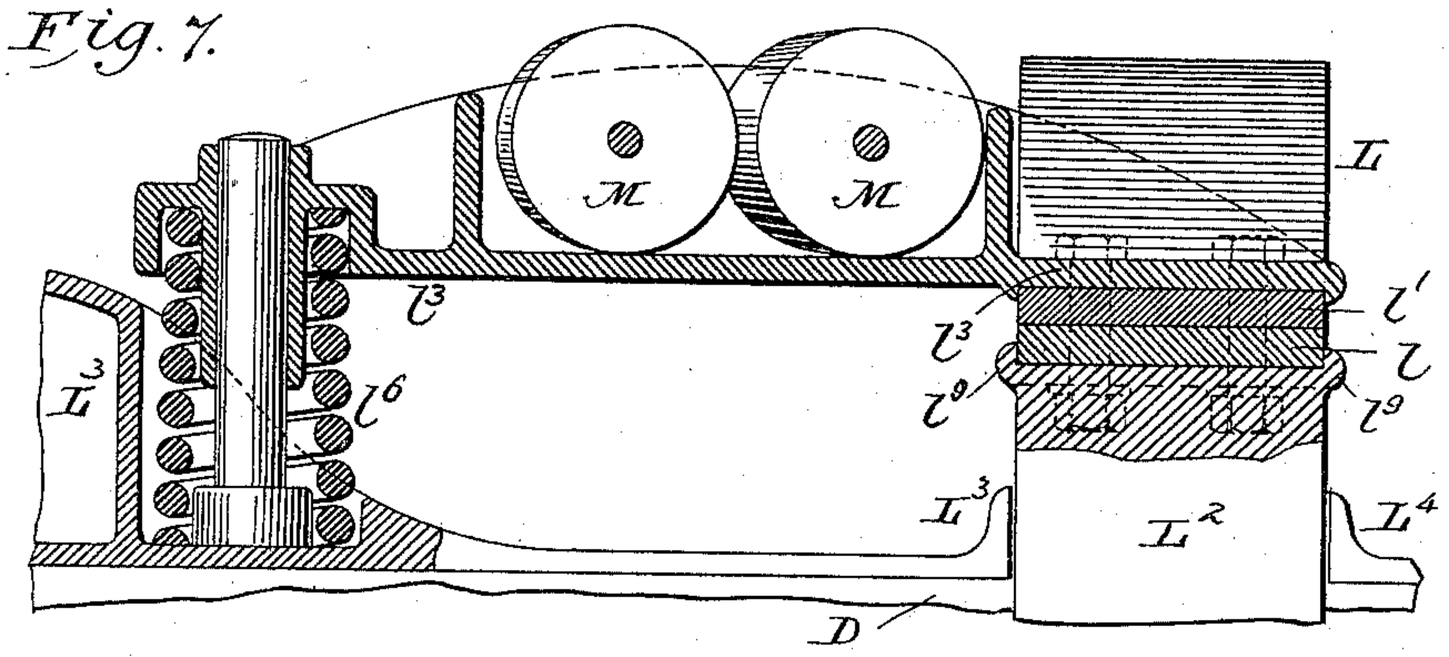


Fig. 8.

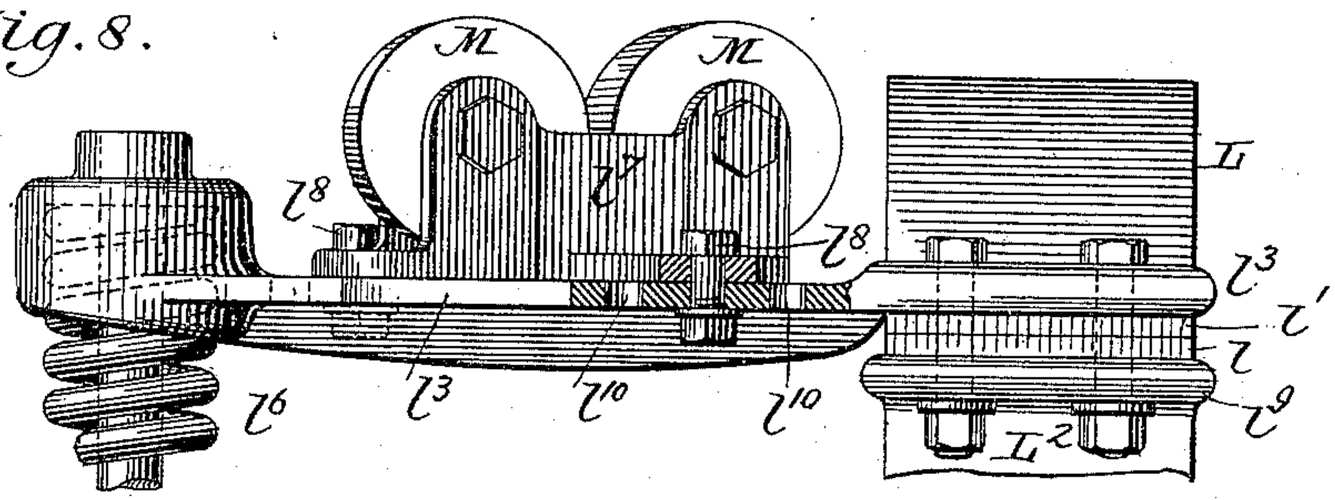


Fig. 9.

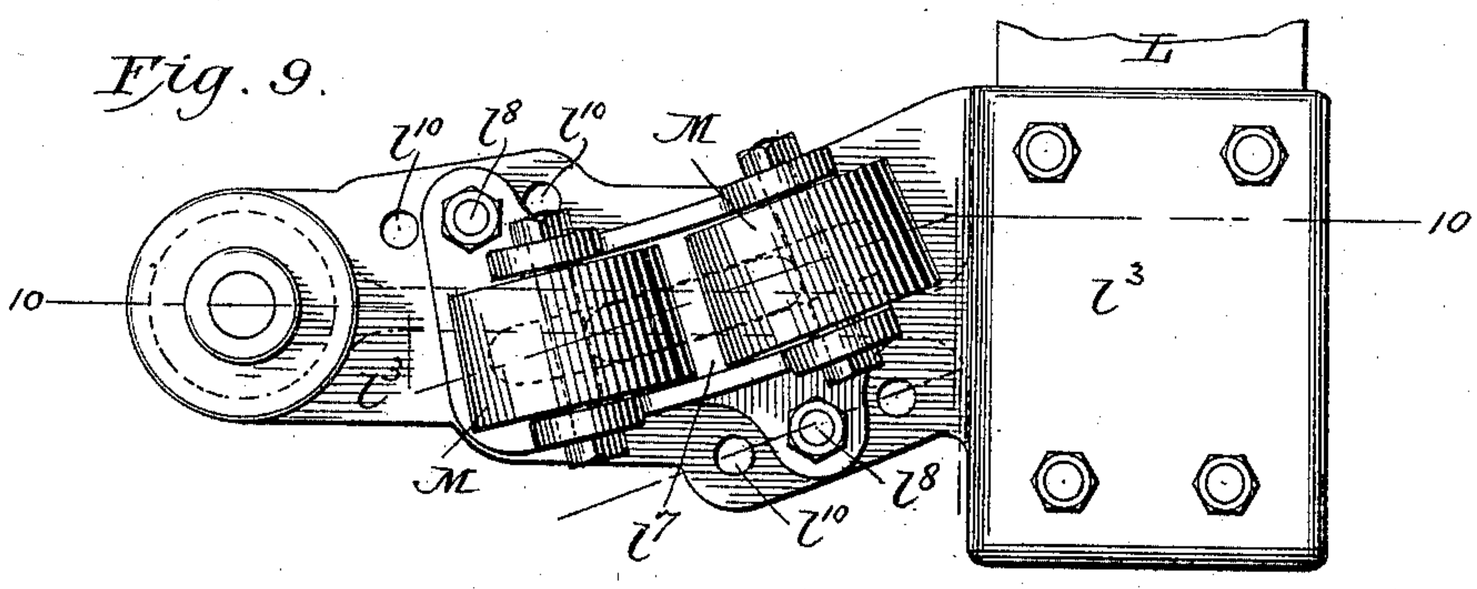
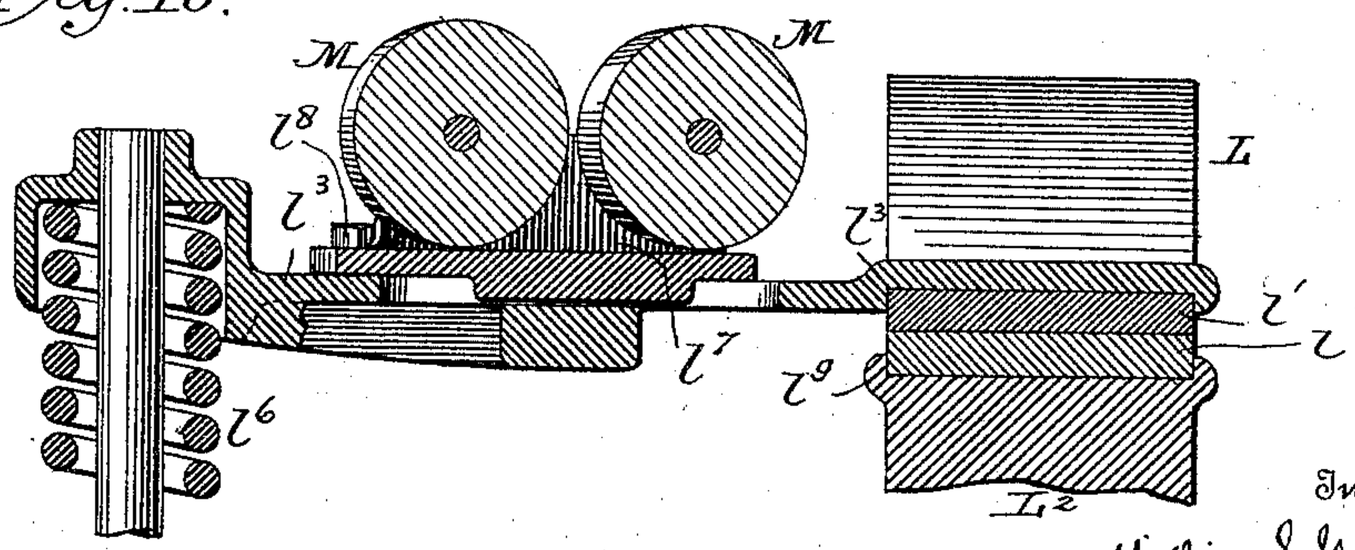


Fig. 10.



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UNITED STATES PATENT OFFICE.

WILLIAM S. G. BAKER, OF BALTIMORE, MARYLAND.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 634,976, dated October 17, 1899.

Application filed July 14, 1899. Serial No. 723,871. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. G. BAKER, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Car-Trucks, of which the following is a specification.

My invention relates to that class of car-trucks in which a motor is supported on the truck-frame and is applied to one of the axles, and in which a bolster is employed located midway between the axles, and which has a center bearing for the car-body.

The object of my present invention is to so divide that part of the weight of the car-body under which the truck is placed as to cause the driving-wheels to bear a greater proportion of the weight than the idle-wheels.

In carrying out my invention I locate the bolster approximately midway between the axle of the drivers and the axle of the idle-wheels. I support a portion of the weight of the car-body under which the truck is placed directly on the bolster, and the remaining portion of the weight is carried at points located between the bolster and the motor end of the truck. Preferably the bolster is spring-supported on the truck-frame, and it is preferably provided with arms which project toward the motor end of the truck, and these arms are provided with devices which in part support the car-body at opposite sides. I preferably employ rollers, on which the car-body rests, and the outer ends of the arms are preferably spring-supported on the truck-frame.

The details of the construction of the car-truck shown in the drawings, which embodies my invention in the best way now known to me, will be hereinafter fully set forth.

Figure 1 is a plan view of a car-truck embodying my improvements, the axle of the idle-wheels being broken away. Fig. 2 is a side elevation of the same, and this figure shows also how the car-body is suspended on the truck. Fig. 3 is a rear elevation of the bolster. It shows also the manner of connecting the bolster with the car-body and the manner of supporting the car-body on the anti-friction-rollers, which are preferably employed. Fig. 4 is a detail bottom plan view of one of the chafe-plates. This figure also shows a transverse section of the same. Fig. 5 is a detail view, partly in side elevation and partly in section, showing the manner of pivotally connecting the two segmental plates together. Fig. 6 is a detail view showing the manner of connecting the upper segmental plate to the car-body and shows also the manner of connecting the two segmental plates together. Fig. 7 is a view, on an enlarged scale and in section, showing particularly the devices employed for supporting the car-body. Fig. 8 is a detail view in section showing a modified form of the devices for supporting the car-body. Fig. 9 is a plan view of the devices shown in Fig. 8, and Fig. 10 is a sectional view on the line 10 10 of Fig. 9.

The driving-wheels A are shown as of larger diameter than the idle-wheels B, and each pair of wheels has its axles mounted in suitable axle-boxes C C′, which are arranged to move vertically in pedestals *d d′* of the side frames D. The axle B′ of the wheels B being somewhat lower than that of the wheels A, the pedestals *d′* of this axle depend from the side frames, while the pedestals *d* of the axle A′ of the wheels A extend upwardly from the side frames.

I wish it understood, however, that my invention is not confined to the details of construction above mentioned, but I am now describing the details of construction of the particular truck shown in the drawings. The subject-matter deemed novel and as within the scope of my invention will be set forth in the claims.

In the truck shown in the drawings the side frames have housings E E′ for springs which rest on the axle-boxes, the entire load being supported by these springs. The life-guard F is secured to the end of the side frames below the motor-supporting frame G. A motor H is hung on the axle A′ of the drivers, and it is also supported by a yoke I, the middle portion of which is attached to a motor by securing devices *i*, while the ends of the yoke are attached to a motor-supporting frame G, the details of which form no part of the present invention.

A bolster L is located approximately midway between the driving-axle and the axle of the idle-wheels. It is important that the bolster should be thus located, because where the bolster is located nearer to the driving-

wheels than to the idle-wheels a leverage is exerted which tends to raise the idle-wheels, which is objectionable. I have said that the bolster is located midway between the two axles; but of course the exact position of the bolster may be varied so long as one point of support is located approximately midway between the axles and the other points of support are out of line with the first-mentioned support and so that a greater part of the load is made to rest on one pair of wheels than on the others. The bolster is preferably constructed of two plates *l l'*, bolted together. The lower plate *l* is straight, while the upper one inclines at its opposite ends, the middle portion being held elevated away from the plate *l* by bolts and thimbles l^2. The opposite ends of the plates lie close together and are secured between clamp-castings l^3 l^9. The lower castings l^9 are each formed with a post L^2, which projects downwardly between the plates, forming the side frame immediately below it. The posts are arranged to move freely vertically between the plates, being guided thereby and also guided by the castings L^3 L^4, which fit in between the plates of the side frames. The castings L^3 extend over the axle-boxes C and also downwardly therefrom to support the life-guard F. The posts L^2 are secured at their lower ends below the side frames of the truck to leaf-springs Q. These springs are connected by links *q* to the side frames of the truck near the axles and they extend an equal distance from each side of the posts.

A portion of the weight of that end of the car-body under which the truck is placed is borne directly by the bolster, while the other portion is borne by supports located between the bolster and the motor end of the truck. In the present instance these last-mentioned supports are located between the bolster and the driving-axle. The upper castings l^3 are in the truck shown in the drawings prolonged from the bolster toward the driving-wheels and they support the antifriction-rollers M, being suitably shaped to form housings and bearings for these rollers. At their ends next the driving-wheels the castings l^3 are supported by springs l^6, resting in sockets in the castings L^3. The rollers, as shown in Fig. 1, have their axes in line with radii of the pivot-bolt N, which connects the segmental plates O and P, secured, respectively, to the bolster and to the car-body. These rollers extend into grooves *r* in chafe-plates R, secured to the car-body S.

It will be observed by reference to Fig. 2 that the weight of the car-body is distributed so that a larger proportion of the weight is carried by the driving-wheels than by the idle-wheels. In the organization shown about sixty-six per cent. or two-thirds of the weight is carried by the driving-wheels, while the remainder is carried by the idle-wheels. This result is effected by supporting a part of the weight of that end of the car-body under which the truck is placed directly on the bolster, while the remaining part of the weight is supported at points between the bolster and the motor end of the car.

In order to pivotally connect the car-body with the bolster, I employ two segmental plates. The upper one P is secured to the car-body, while the lower one O is secured to the bolster in the manner indicated in Figs. 5 and 6. The pivot-bolt N connects the two segmental plates together at one end, while at the opposite end the plate P is formed with a curved guide-groove *o*, into which extends a stud *p* on the plate P. The details of these segmental plates are fully shown and described in my application for patent, Serial No. 706,852, filed February 25, 1899.

The organization is such that the truck can freely turn beneath the car-body, while the weight is distributed in the manner before described. The points of support for the car-body, which are located between the bolster and the motor end of the truck, may be adjusted in order to vary the relative proportions of weight carried by the drivers and idle-wheels. An organization for this purpose is shown in Figs. 8, 9, and 10. As there shown, the castings l^3 do not have the housings for the rollers and the bearings therefor cast in one piece with them; but the housings l^7 are made separate and may be adjusted on the castings l^3 by means of bolts l^8, which may be fitted into different holes l^{10}, formed in the castings l^3.

While I have described in detail a car-truck embodying all my present improvements in the way now best known to me, I wish it understood that I do not limit myself to the details of construction set forth. While I prefer to use wheels of different diameters, my invention is not limited to the use of such wheels. I do not necessarily employ antifriction-rollers, and, as before stated, the details of construction of the car-truck may be varied, the essential feature of the invention, broadly stated, being the use of a bolster located approximately midway between the axles and on which a portion of the weight is carried and the use of devices placed between the bolster and the motor end of the truck for supporting the remaining part of the weight of that end of the car-body under which the truck is placed.

In the drawings I have shown supporting-arms as extending from the bolster toward the driving-axle and terminating between the driving-axle and the bolster; but the arms might be prolonged and the motor might be differently hung, if desired. In the particular organization shown in the drawings one-third of the weight of that end of the car-body under which the truck is placed is borne by the center of the bolster and the other two-thirds is borne by the rollers M. Half of the one-third of the weight carried at the cen-

ter of the bolster with one-half of that upon the rollers M rests upon the centers of the springs Q, and through these springs one-half of the combined weight carried by them is transmitted to each axle of the truck. It will now be observed that this half of the weight transmitted to the driving-axle through the springs Q is augmented by the half of the one-third of the weight sustained by each set of rollers M. The proportion of weight carried by the driving-wheels may be varied by changing the positions of the supporting-rollers M.

I claim as my invention—

1. The combination of two pairs of wheels and axles, a car-body, a truck-frame, a bolster placed midway between the axles and having a center bearing for the car-body for supporting a portion of the weight of that end of the car-body under which the truck is placed, and supports for the car-body located between the bolster and the motor end of the truck for supporting the remaining part of the weight of that end of the car-body under which the truck is placed.

2. The combination of two pairs of wheels and axles, a car-body, a truck-frame, a bolster placed midway between the axles and having a center bearing for the car-body for supporting a portion of the weight of that end of the car-body under which the truck is placed, arms projecting from the bolster toward the motor end of the truck, and devices carried by said arms for supporting the remaining portion of the weight of that end of the car-body under which the truck is placed.

3. The combination of two pairs of wheels and axles, a car-body, a truck-frame, a bolster between the axles, a center bearing for the car-body for supporting a portion of the weight of that end of the car-body under which the truck is placed, arms projecting from the bolster toward the motor end of the truck, devices carried by the arms for in part supporting the car-body, and springs carried by the truck-frame and supporting the outer ends of the arms.

4. The combination of two pairs of wheels and axles, a car-body, a truck-frame, a bolster located between the axles with a center bearing for the car-body, arms projecting from the bolster toward the motor end of the truck, and rollers carried by the arms on which the car-body rests.

5. The combination of two pairs of wheels and axles, a car-body, a truck-frame, a bolster located between the axles with a center bearing for the car-body, and adjustable supports for the car-body located between the bolster and the motor end of the truck.

6. The combination of two pairs of wheels and axles, a car-body, a truck-frame, a bolster located between the axles and having a center bearing for the car-body, arms projecting from the bolster toward the motor end of the truck, and adjustable rollers carried by the arms and located between the bolster and the motor end of the truck.

7. The combination of two pairs of wheels and axles, a car-body, a truck-frame, a bolster located midway between the axles, springs interposed between the truck-frame and the opposite ends of the bolsters, arms projecting from the bolster toward the motor end of the truck, and devices carried by the arms located between the bolster and the motor end of the truck for in part supporting the car-body.

8. The combination of two pairs of wheels and axles, a car-body, a truck-frame, a bolster located between the axles, springs interposed between the truck-frame and the bolster, arms projecting from the bolster toward the motor end of the truck, springs interposed between the outer ends of the arms and the truck-frame, and devices carried by the arms located between the bolster and the motor end of the truck for in part supporting the car-body.

9. The combination of two pairs of wheels and axles, a car-body, a truck-frame, a bolster located between the axles, a pivotal connection between the car-body and the bolster located closer to the driving-axle than to the bolster, a bearing centrally located on the bolster for in part supporting the car-body, and supports for the car-body located between the bolster and the motor end of the truck.

10. The combination of two pairs of wheels and axles, a car-body, a truck-frame, a bolster located midway between the axles, a pivotal connection between the bolster and the car-body located closer to the driving-axle than to the bolster, arms projecting from the bolster toward the motor end of the truck, springs for supporting the outer ends of the arms, and devices located between the bolster and the motor end of the truck for in part supporting the car-body.

In testimony whereof I have hereunto subscribed my name.

WILLIAM S. G. BAKER.

Witnesses:

DANL. W. POWELL,

A. E. BAKER.