

A. F. ROCKWELL.

SUPPORT FOR VEHICLE BODIES.

APPLICATION FILED FEB. 23, 1906. RENEWED FEB. 8, 1909.

962,259.

Patented June 21, 1910.

2 SHEETS—SHEET 1.

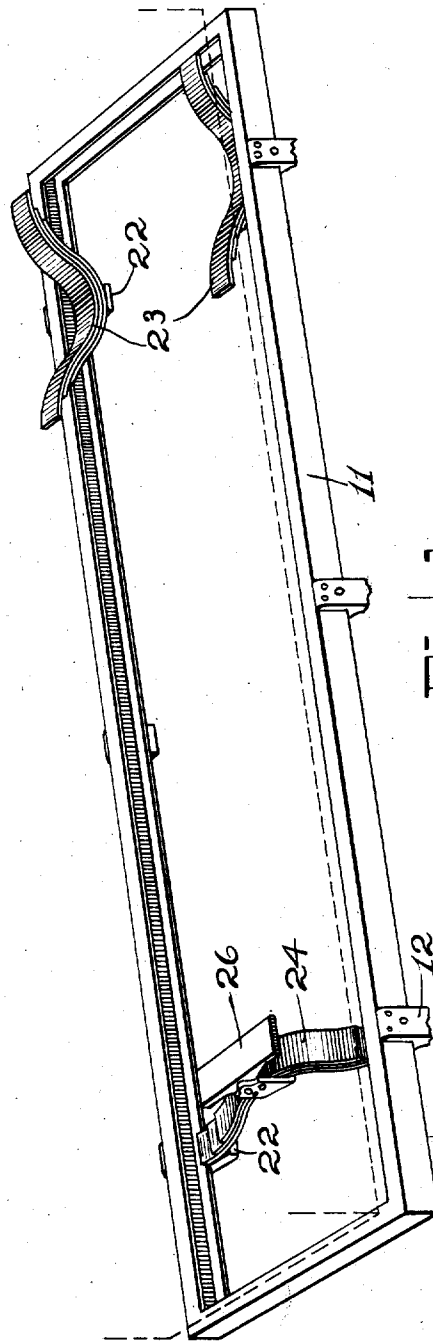


Fig. 1.

WITNESSES:

Chas. B. Crocker.

B. F. Funk

INVENTOR.

Albert F. Rockwell.

BY

Edwin M. Funk
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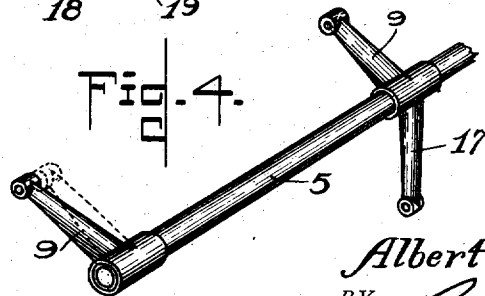
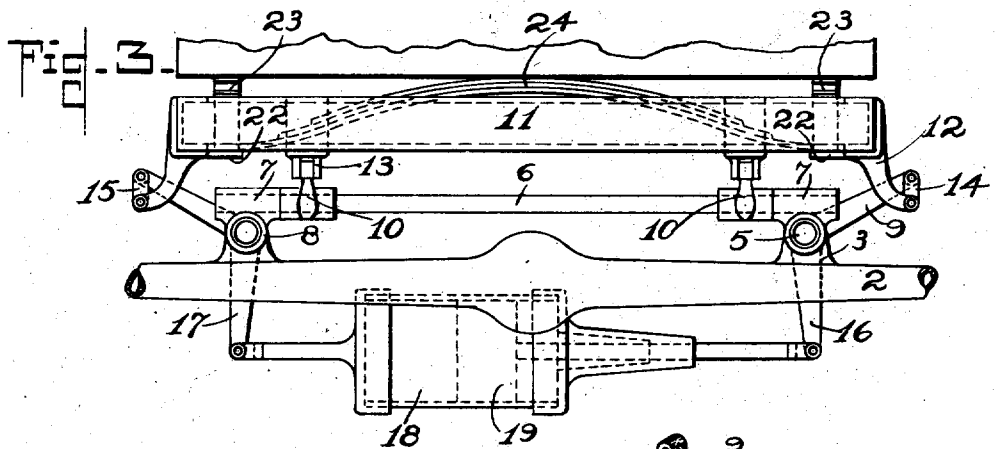
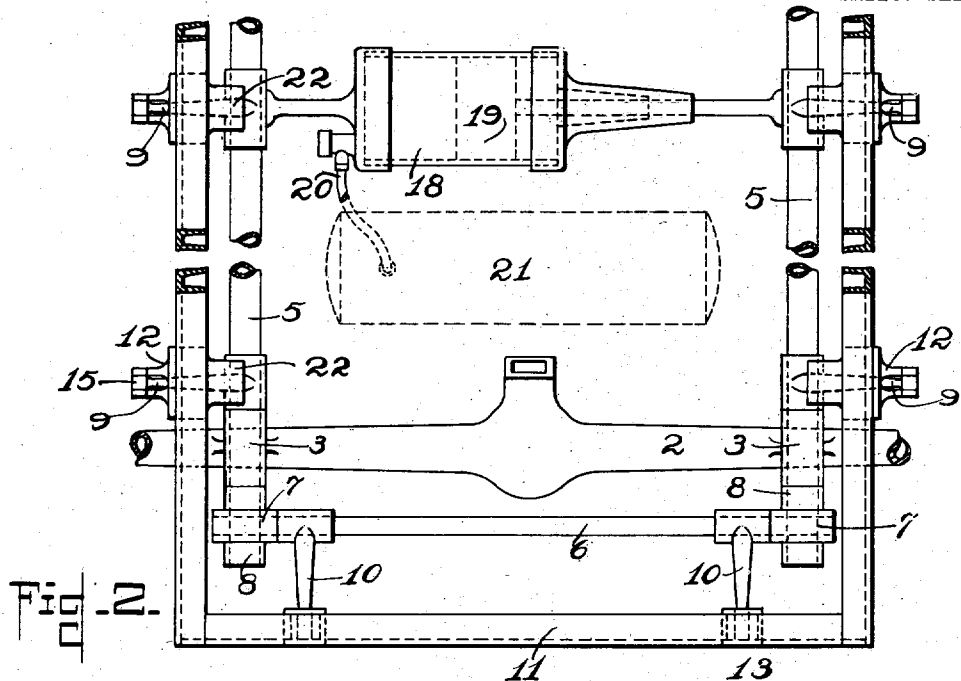
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Chas. B. Crocker.
B. F. Funk

INVENTOR.

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UNITED STATES PATENT OFFICE.

ALBERT F. ROCKWELL, OF BRISTOL, CONNECTICUT, ASSIGNOR TO THE NEW DEPARTURE MANUFACTURING COMPANY, OF BRISTOL, CONNECTICUT. A CORPORATION OF CONNECTICUT.

SUPPORT FOR VEHICLE-BODIES.

962,259.

Specification of Letters Patent. Patented June 21, 1910.

Application filed February 23, 1906, Serial No. 302,526. Renewed February 8, 1909. Serial No. 476,820.

To all whom it may concern:

Be it known that I, ALBERT F. ROCKWELL, a citizen of the United States, residing at Bristol, county of Hartford, State of Connecticut, have invented a certain new and useful Support for Vehicle-Bodies, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to improvements in vehicles, and more particularly to means for supporting the vehicle body.

One of the objects of the invention is to provide means for permitting vertical play of the vehicle body, and to provide a cushioning means between the body and the running-gear of the vehicle.

A further object is to provide means which will permit vertical play between the body and its support as well as provide against uneven movement between said body and its support. In other words it is contemplated to provide a structure which will maintain parallelism between the body-frame and its support.

It is also the purpose of my invention to provide a cushioning means for cushioning the body-frame on its support, and furthermore to provide a cushioning means for cushioning the body on the body-frame.

Another object of the invention is to provide means to relieve the torsional strain of an equalizing device forming a part of my invention, and to relieve the body from twisting strains.

Another object of the invention is to provide means for preventing twisting strains of the running-gear frame from being communicated to the body.

Another object of the invention is to provide means whereby the body-frame may have a certain freedom of movement independent of the running-gear frame.

Other objects and advantages as well as the novel details of construction of this invention will be specifically set forth hereinafter, it being understood that changes in form, proportion and minor details of con-

struction may be resorted to without departing from the spirit of this invention or sacrificing any of the advantages thereof.

In the drawings: Figure 1 is a detail perspective view of a body-frame constructed in accordance with my invention, and showing the preferred arrangement of springs; Fig 2 is a fragmentary top plan view of a body-frame and its support including the equalizing device and the cushioning means therefor; Fig. 3 is an end elevational view of the invention; and Fig. 4 is a fragmentary detail perspective view of the body-frame support.

Referring now to the drawings illustrating one embodiment of my invention, 2 indicates the journals of any convenient form of running-gear for a vehicle. These journals are adapted to receive the shafts or axles of the wheels. Suitably supported upon the running-gear, as by means of the upwardly extending journal posts 3 (which are shown as rising from the journals 2), are longitudinally extending rock-shafts 5, said shafts being here shown as located upon the opposite sides of the longitudinal center of the vehicle and within, but near the vertical planes of the sides of the hereinafter mentioned body-frame. Transverse rock-shafts 6 are also provided, said latter mentioned shafts being here shown as journaled in the boxes 7, which boxes are provided with sleeves 8, through which the longitudinal rock-shafts 5 pass. Suitably secured to the rock-shafts 5, so as to rock therewith, are arms 9, while corresponding arms 10 are secured to the rock-shafts 6, said arms 10 extending at right angles to the arms 9. The vehicle body-frame 11 is supported by these arms 9 and 10 in such a manner that rocking of said arms and their shafts is permitted, this construction being here shown as effected through the hanger arms 12 and 13, and the links 14 and 15. The hanger arms 12 are at the sides of the body-frame, and the hanger arms 13 at one or both ends thereof. The links are pivoted to the hanger arms and rock-arms, so that proper connections will be made between the hanger arms and the rock-shaft arms. Depending from the rock-shafts 5, are arms 16 and 17. These

arms are connected to a spring device here illustrated as comprising a cylinder 18, having therein a piston 19, the cylinder 18 being connected to the arm 17, while the piston 5 is connected to the arm 16.

An efficient form of spring device is illustrated in detail in an application filed by Charles F. Schmelz and myself, October 30, 1905, in which when air is admitted into the cylinder 18 through an inlet port in communication with the tube 20 from the tank 21, the tendency will be to force the piston and cylinder apart, unless sufficient weight is applied to move them toward each other. In the above entitled application, given Serial No. 285220, we have illustrated means whereby the pressure may be regulated to compensate for the applied load on the body-frame, and it is thought to be unnecessary to give a detail description in this particular application.

It will be apparent that the vehicle body-frame offers play with respect to the running-gear or supporting means of the vehicle body-frame, and that a cushion is provided for relieving the shock or jar due to movement between the body frame and its supporting base. However, uneven movement between the vehicle body-frame and its supporting base is prevented. For example, should the lower right hand corner of the vehicle body-frame, as shown in Fig. 2, be depressed, the rock-arms 9 and 10 adjacent said corner will be rocked downwardly, thus rocking the right hand shaft 5, and the forward transverse shaft 6 and the arm 10 at the left of the vehicle upon the said forward transverse shaft 6, whereby the upper right hand corner and the lower left hand corner of the vehicle body-frame must also move downwardly; such movement necessarily, through the rock-arms 9 and 10 respectively adjacent said lower left hand corner and said upper right hand corner, rocks the left hand rock-shaft 5 and the rear transverse rock-shaft 6 (if two transverse rock-shafts are used) and the rocking of these two shafts results in the depression of the upper left hand corner of the vehicle body-frame, all as will be readily understood. Therefore, any vertical movement given to one portion of the vehicle body-frame is transmitted to every other portion of said body-frame, so that said body-frame moves as a whole, and the tendency of any particular portion thereof to sag will be reduced if not wholly eliminated. The rockshafts 5 and 6 are preferably stiff enough to assist in causing all parts of the vehicle body-frame to move in unison. However, under certain conditions if sufficient weight is applied to the body-frame at or adjacent to a corner, the torsional strain on the shaft may be sufficient to

permit a slight spring of the arm 9. The difference in position from normal to abnormal is shown in Fig. 4.

While I have provided for an efficient cushioning means for the vehicle body-frame, I desire, for certain purposes to utilize an auxiliary cushioning means for the body, and a convenient way of providing this means is shown in Fig. 1, in which the hanger arms 12 are provided with inwardly disposed projecting portions or lips 22, constituting spring seats for the longitudinally arranged springs 23 or the transverse spring 24. In the form shown in Fig. 1, the semi-elliptical springs 23 are arranged near one end of the body-frame and are carried near each side bar of said body-frame, while the transverse spring 24 extends across the frame near its other end.

In the form shown in Fig. 1, which is preferably employed with the equalizing mechanism for maintaining parallelism between the body-frame and the running-gear base, the liability of the twisting strains of the running-gear being communicated to the body-frame will be avoided. This is particularly true where a three point suspension or support is employed, resulting from the arrangement of the two adjacent springs at one end of the frame cooperating with the transverse single spring at the opposite end of the frame. In view of the fact that the body is mounted for a certain freedom of movement independent of the running-gear, the springs will tend to relieve the torsional strain of the rock-arms, and to relieve the body from twisting strains to which the running-gear may be subjected. The arrangement above described is such that the independently arranged cushions or springs tend to resist, in a measure, the free movement of each other, owing to the fact that they will not act in unison. Therefore it is obvious that one spring will in effect become a shock absorber for the other.

It will be apparent from the foregoing that by providing the equalizing mechanism for supporting the body-frame, and then providing an auxiliary cushioning means between the body-frame and the body, the ordinary strains of the running-gear, which may be communicated thereto through the inequalities in the road, will not be communicated to the body.

What I claim is:

1. In a vehicle, the combination with a running gear, a body frame, and a body, of rock shafts upon said running gear and provided with rock arms, brackets upon said body frame and connected to said rock arms, and springs supported upon said brackets and supporting said body; substantially as described.

2. In a vehicle, the combination with a running gear, a body frame, and a body, of rock shafts upon said running gear and provided with rock arms, brackets upon said
5 body frame and connected to said rock arms, said brackets having projecting portions at the edges of said body frame, and springs supported upon said projecting portions and

supporting said body; substantially as described.

In testimony whereof, I hereunto affix my signature, in the presence of two witnesses.

ALBERT F. ROCKWELL.

Witnesses:

CHAS. F. SCHMELZ,
B. F. FUNK.

Corrections in Letters Patent No. 962,259.

It is hereby certified that in Letters Patent No. 962,259, granted June 21, 1910, upon the application of Albert F. Rockwell, of Bristol, Connecticut, for an improvement in "Supports for Vehicle-Bodies," errors appear in the printed specification requiring correction as follows: Page 2, line 88, after the compound word "running-gear," the word *frame* should be inserted, and same page, line 89, the hyphen and the word "frame" should be stricken out; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 26th day of July, A. D., 1910.

[SEAL.]

F. A. TENNANT,

Acting Commissioner of Patents.

2. In a vehicle, the combination with a running gear, a body frame, and a body, of rock shafts upon said running gear and provided with rock arms, brackets upon said
5 body frame and connected to said rock arms, said brackets having projecting portions at the edges of said body frame, and springs supported upon said projecting portions and

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