

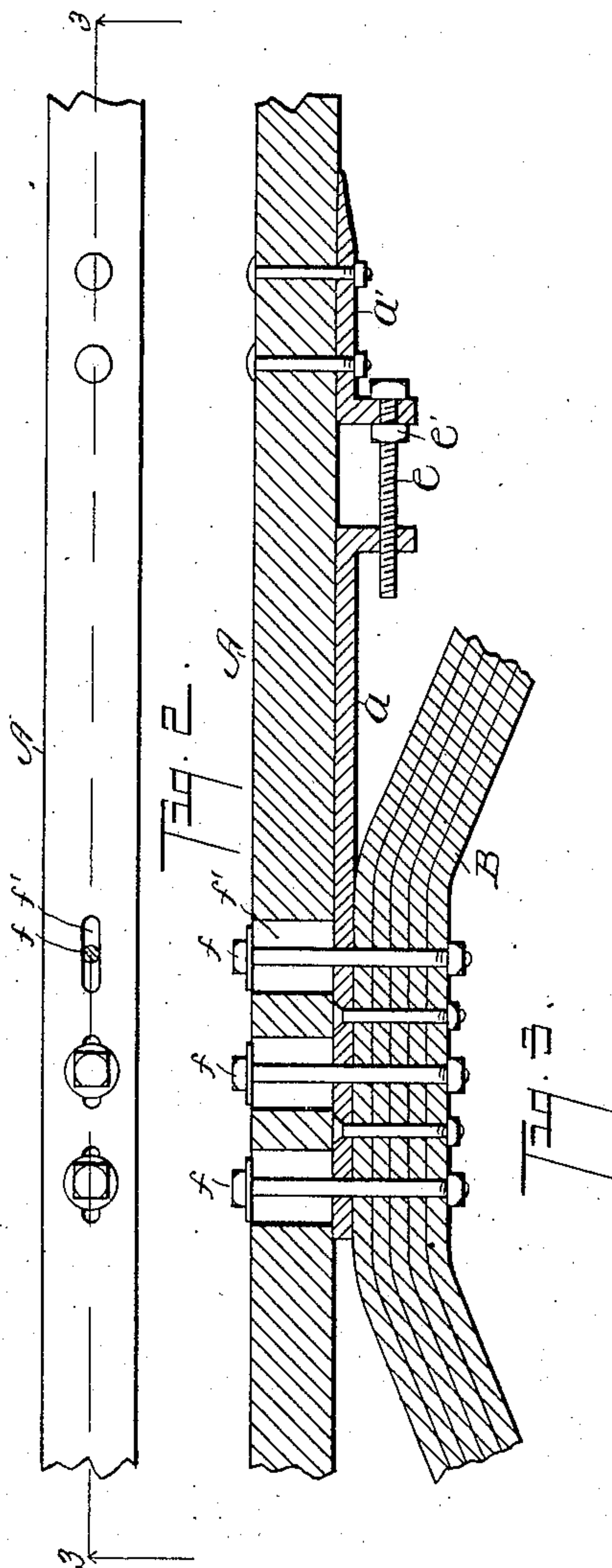
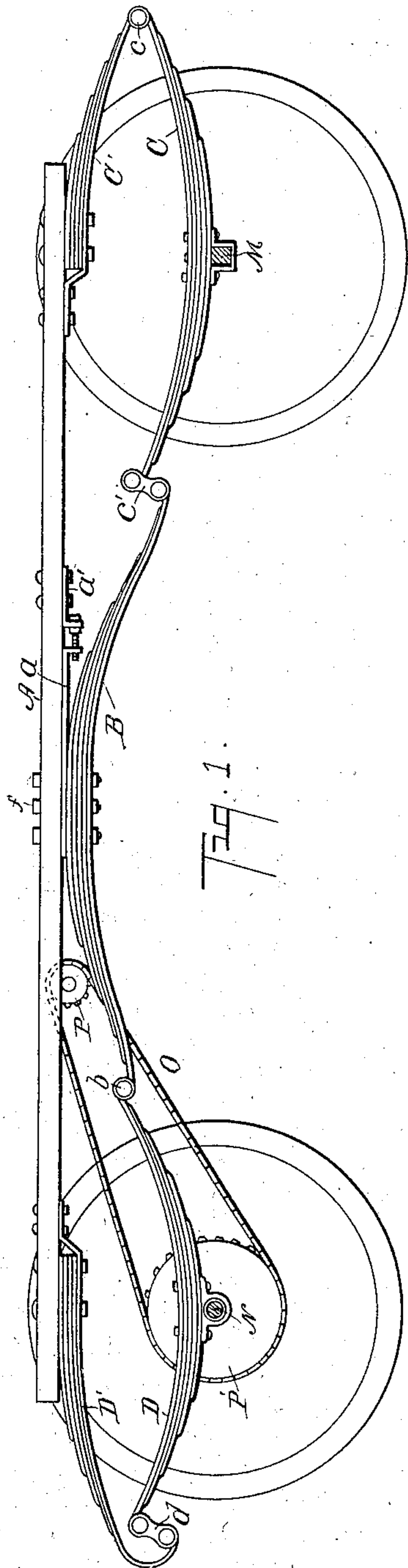
No. 768,162.

PATENTED AUG. 23, 1904.

C. H. WAY.
VEHICLE SPRING.

APPLICATION FILED DEC. 28, 1903.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

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VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 768,162, dated August 23, 1904.

Application filed December 28, 1903. Serial No. 186,867. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. WAY, a citizen of the United States, residing at the city of Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Vehicle-Springs, of which the following is a specification.

This invention relates to improvements in vehicle-springs.

My improved vehicle-spring is particularly adapted for use in connection with motor-vehicles, although it is desirable for use in other relations.

The objects of this invention are, first, to provide in a motor-vehicle an improved spring by which the vehicle-body is supported so that a comparatively even tension is maintained on the driving-chain; second, to provide in a motor-vehicle an improved spring capable of adjustment in relation to the vehicle-body, thereby regulating the tension of the driving-chain; third, to provide an improved vehicle-spring which is comparatively elastic and at the same time carries the vehicle-body in a steady and even manner; fourth, to provide an improved vehicle-spring which is capable of sustaining heavy loads and sudden shocks without the liability of injury thereto.

Further objects and objects relating to structural details will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a detail sectional elevation view of a structure embodying the features of my invention, one only of the side rails A of the vehicle-body with one set of springs attached thereto being represented, the whole being illustrated in conventional form. Fig. 2 is a detail plan view of the side rail A. Fig. 3 is a detail sectional view taken on a line corre-

sponding to line 3 3 of Fig. 2 looking in the direction of the little arrows at the ends of the section-line.

In the drawings similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, A represents one of the side rails of the body of a locomotive-vehicle, the body not being shown. A semi-elliptic spring B is secured to the side rail A at a central point. A semi-elliptic spring C is suitably secured to the forward axle M, and a similar spring D is suitably secured to the rear axle N. The spring B is secured to the spring C by a link *c'* and to the spring D by a suitable pivot-pin, as *b*.

Secured to the forward end of the body-rail A is a one-quarter-elliptic spring *C'*, which is also secured to the semi-elliptic spring C by a suitable pivot-pin *c*. Secured to the rear end of the body-rail A is a one-quarter-elliptic spring *D'*, which is secured to the rear end of the semi-elliptic spring D by a link *d*.

The central spring B is adjustably secured to the rail A by means of bolts *f* therethrough, which are arranged through suitable slots *f'* in the rail. Thus arranged, the body may be adjusted forward or backward in relation to the springs, the links *c'* and *d* permitting considerable movement. The adjustment is accomplished by means of the threaded bolt *e*, which is carried by a suitable bracket *a'* on the body-rail A. This bolt is arranged through a suitable threaded opening in the plate *a*, which is secured to the spring B, as clearly appears in Fig. 3.

When it is desired to adjust the springs, the nuts on the bolts *f* are loosened and the lock-nuts *e'* on the adjusting-bolts *e* released. By turning the bolt *e* the adjustment is secured. When secured, the nuts are tightened, and the parts are securely held in the adjusted position. This adjustment regulates the tension of the driving-chain O, the driving-sprocket P of which is carried on the vehicle-body and the driven sprocket P' on the axle N. With the parts thus arranged the collapsing of the springs does not materially

affect the tension of the driving-chain, as the driving-sprocket P, carried by the body, maintains the same relation to the driven sprocket P' on the axle.

5 I have illustrated and described my improved spring structure applied only to one side of a vehicle. It is evident that in use it is duplicated on the other side.

My improved vehicle-spring is comparatively simple in structure and is economical to produce and durable in use. The adjustment thereof to regulate the tension of the driving-chain is very quickly accomplished and forms a very desirable and effective means to this end. The body of the vehicle is supported in an even manner, so that the rocking or tilting thereof is reduced to a minimum.

My improved vehicle-spring is also of great advantage in that it is capable of sustaining comparatively heavy loads and sudden shocks without liability of injury and without the throwing action sometimes occurring from the recoil of springs in vehicles of this class.

I have illustrated and described my improved vehicle-spring in the form preferred by me on account of its structural simplicity and the economy of manufacturing. I am, however, aware that it is capable of considerable variation in structural details without departing from my invention.

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

1. The combination of a body; forward and rear axles; a semi-elliptic spring B adjustably secured to said body; a semi-elliptic spring C suitably secured to the forward axle; a link connection for said springs B and C; a semi-elliptic spring D suitably secured to the rear axle; a pivot connection for said springs B and D; a quarter-elliptic spring C' pivoted to said spring C and secured to said body; a quarter-elliptic spring D' secured to the rear end of said body and having a link connection to said spring D; a driving-chain; a driving-sprocket therefor carried by said body; and a driven sprocket on said rear axle, all coacting for the purpose specified.

2. The combination of a body; forward and rear axles; a semi-elliptic spring B; a semi-elliptic spring C suitably secured to the forward axle; a link connection for said springs B and C; a semi-elliptic spring D suitably secured to the rear axle; a pivot connection for said springs B and D; a quarter-elliptic spring C' pivoted to said spring C and secured to said body; a quarter-elliptic spring D' secured at the rear end of said body and having a link connection to said spring D; a driving-chain; a driving-sprocket therefor carried by said body; and a driven sprocket on said rear axle; all coacting for the purpose specified.

3. The combination of a body; forward and rear axles; a semi-elliptic spring B adjustably secured to said body; a semi-elliptic spring C

suitably secured to the forward axle; a link connection for said springs B and C; a semi-elliptic spring D suitably secured to the rear axle; a pivot connection for said springs D and B; a quarter-elliptic spring C' pivoted to said spring C and secured to said body; a quarter-elliptic spring D' secured to the rear end of said body and having a link connection to said spring D; all coacting for the purpose specified.

4. The combination of a body; forward and rear axles; a semi-elliptic spring B; a semi-elliptic spring C suitably secured to the forward axle; a link connection for said springs B and C; a semi-elliptic spring D suitably secured to the rear axle; a pivot connection for said springs B and D; a quarter-elliptic spring C' pivoted to said spring C and secured to said body; a quarter-elliptic spring D' secured at the rear end of said body and having a link connection to said spring D; all coacting for the purpose specified.

5. The combination of a body; a driving-axle; a spring adjustably secured to said body; a semi-elliptic spring suitably secured to said driving-axle; a pivot connection for said springs; a quarter-elliptic spring D' secured at the rear of said body and having a link connection to said spring D; a driving-chain; a driving-sprocket therefor carried by said body; and a driven sprocket on said rear axle, all coacting for the purpose specified.

6. The combination of a body; a driving-axle; a spring secured to said body; a semi-elliptic spring D suitably secured to said driving-axle; a pivot connection for said springs; a quarter-elliptic spring D' secured at the rear of said body and having a link connection to said spring D; a driving-chain; a driving-sprocket therefor carried by said body; and a driven sprocket on said rear axle, all coacting for the purpose specified.

7. The combination of a body; a driving-axle; a spring adjustably secured to said body; a semi-elliptic spring suitably secured to said driving-axle; a pivot connection for said springs; a quarter-elliptic spring D' secured to the rear of said body and having a link connection to said spring D; all coacting for the purpose specified.

8. The combination of a body; a driving-axle; a spring secured to said body; a semi-elliptic spring D suitably secured to said driving-axle; a pivot connection for said springs; a quarter-elliptic spring D' secured at the rear end of said body and having a link connection to said spring D; and suitable driving connections; all coacting for the purpose specified.

9. The combination of a body; forward and rear axles; a central spring member adjustably secured to said body; a suitable spring suitably secured to the forward axle and to said body; a link connection for said forward and central spring members; a rear spring member consisting of two elements secured

together by a link connection, and suitably secured to the rear axle and to said body; a suitable connection for said central spring member to said rear spring member; a driving-chain; a driving-sprocket therefor carried by said body; and a driven sprocket on said rear axle, for the purpose specified.

10. The combination of a body; forward and rear axles; a central spring member; a suitable spring suitably secured to the forward axle and to said body; a link connection for said central and forward spring members; a rear spring member consisting of two elements secured together by a link connection, and suitably secured to the rear axle and to said body; a suitable connection for said central spring member to said rear spring member; a driving-chain; a driving-sprocket therefor carried by said body; and a driven sprocket on said rear axle, for the purpose specified.

11. The combination of a body; forward and rear axles; a central spring member adjustably secured to said body; a suitable spring suitably secured to the forward axle and to said body; a link connection for said forward and central spring members; a rear spring member consisting of two elements secured together by a link connection, and suitably secured to the rear axle and to said body; a suitable connection for said central spring member to said rear spring member; for the purpose specified.

12. The combination of a body; forward and rear axles; a central spring member; a suitable spring suitably secured to the forward axle and to said body; a link connection for said forward and central spring members; a rear spring member consisting of two elements secured together by a link connection, and suitably secured to the rear axle and to said body; and a suitable connection for said

central spring member to said rear spring member, for the purpose specified.

13. The combination of a body; a driving-axle; a spring member adjustably secured to said body; a spring member consisting of two elements secured together by a link connection, suitably secured to said driving-axle and to said body; a suitable connection for said spring members; a driving-chain; a driving-sprocket therefor carried by said body; and a driven sprocket on said rear axle, for the purpose specified.

14. The combination of a body; a driving-axle; a spring member; a spring consisting of two elements secured together by a link connection, suitably secured to said driving-axle and to said body; a suitable connection for said spring members; a driving-chain; a driving-sprocket therefor carried by said body; and a driven sprocket on said rear axle, for the purpose specified.

15. The combination of a body; a driving-axle; a spring member adjustably secured to said body; a spring member consisting of two elements secured together by a link connection, suitably secured to said driving-axle and to said body; and suitable connections for said spring members, for the purpose specified.

16. The combination of a body; a driving-axle; a spring member; a spring member consisting of two elements secured together by a link connection, suitably secured to said driving-axle and to said body; and a suitable connection for said spring members, for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

CHARLES H. WAY. [L. s.]

Witnesses:

HARRIS E. THOMAS,
WM. H. NEWBURGH.