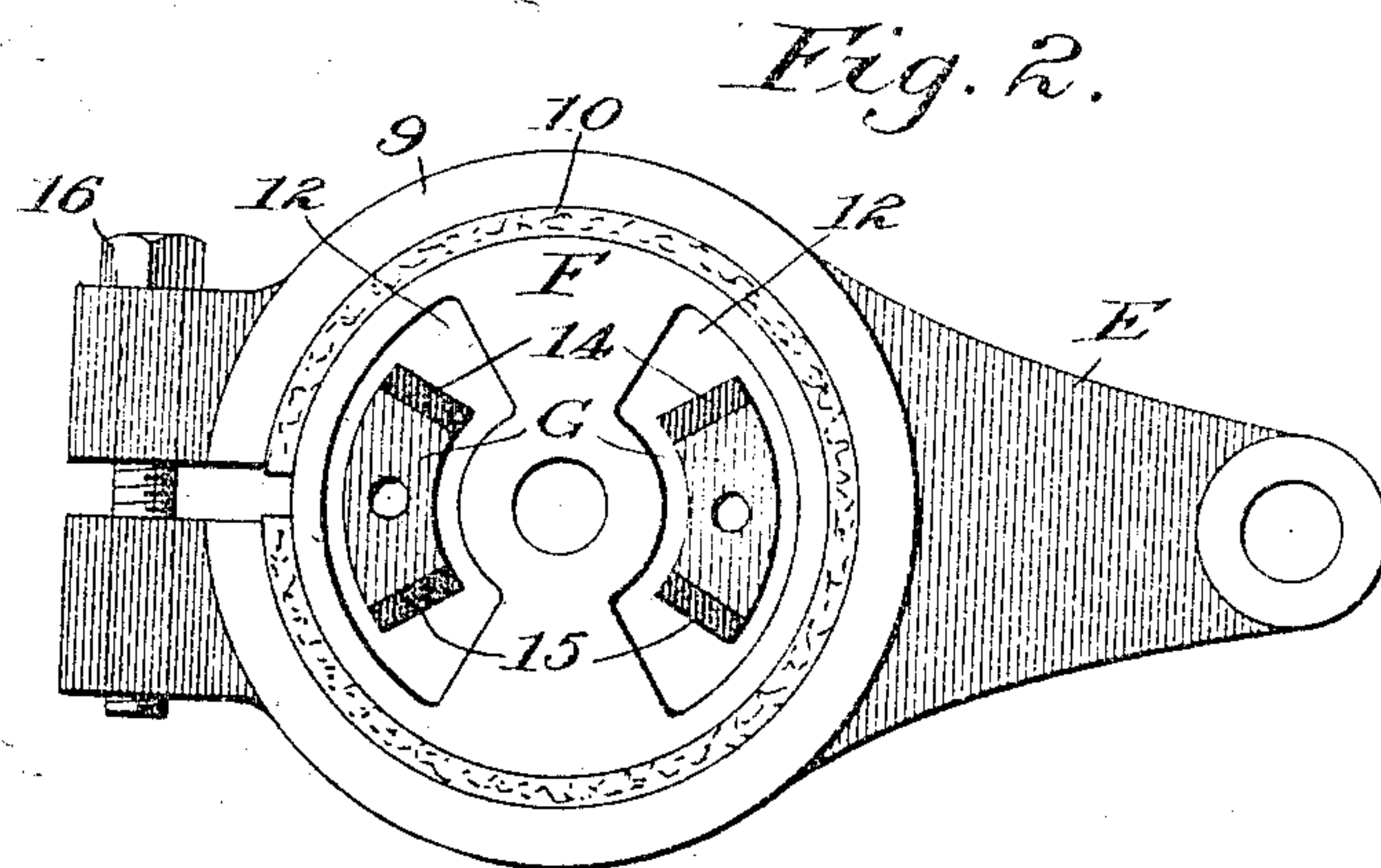
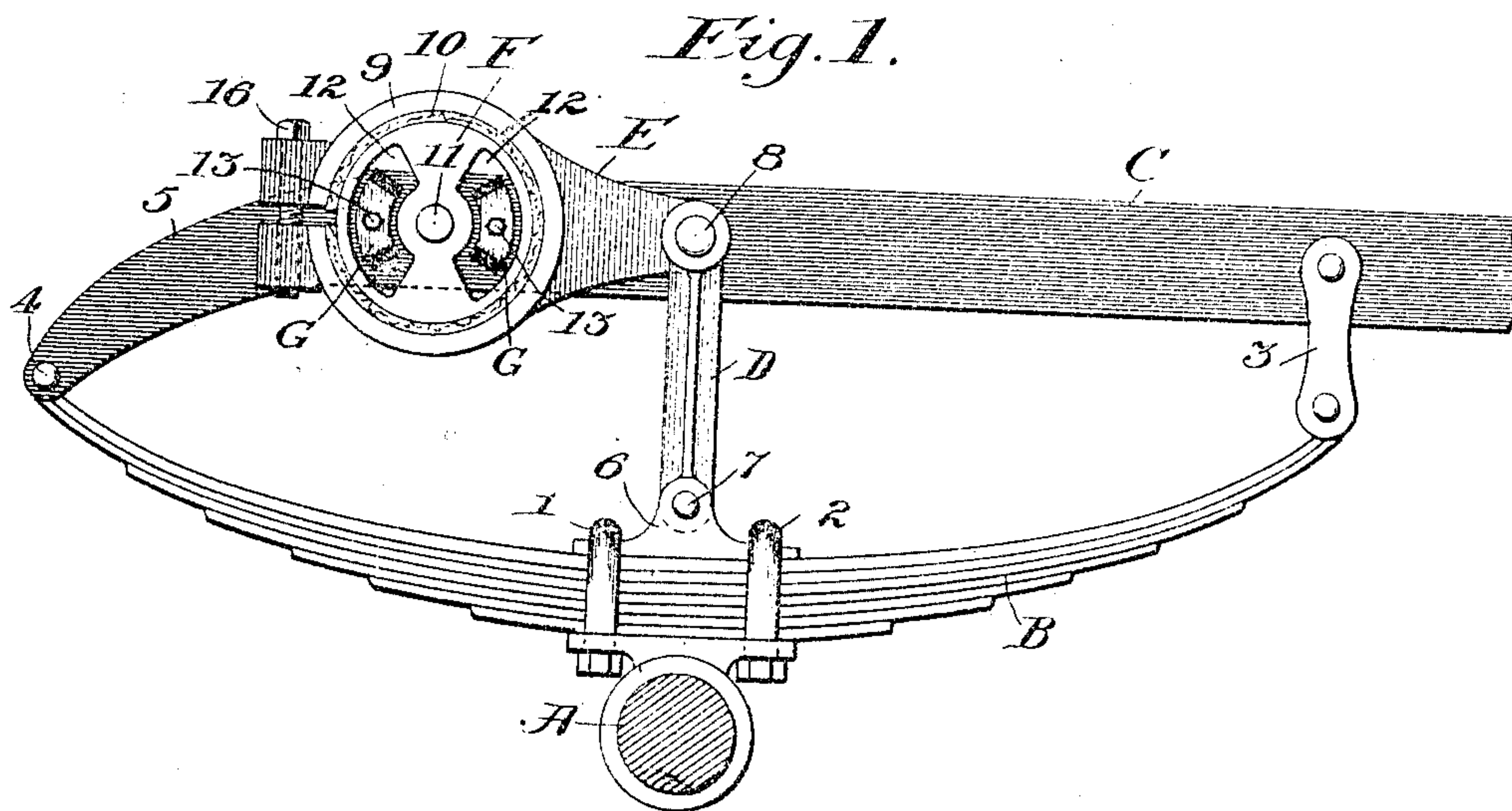


No. 818,647.

PATENTED APR. 24, 1906.

R. P. WINSOR.  
SHOCK ABSORBER FOR SPRING VEHICLES.  
APPLICATION FILED SEPT. 5, 1905.



Witnesses:  
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by his attorney  
*Wm. L. Edwin*



# UNITED STATES PATENT OFFICE.

ROBERT P. WINSOR, OF PROVIDENCE, RHODE ISLAND.

## SHOCK-ABSORBER FOR SPRING-VEHICLES.

No. 818,647.

Specification of Letters Patent.

Patented April 24, 1906.

Application filed September 5, 1905. Serial No. 277,086.

*To all whom it may concern:*

Be it known that I, ROBERT P. WINSOR, a citizen of the United States of America, and a resident of Providence, in the State of Rhode Island, have invented a new and useful Improvement in Shock-Absorbers for Spring-Vehicles, of which the following is a specification.

This invention relates to "shock-absorbers" for automobiles and other road-vehicles in which the body of the vehicle is supported by springs.

The present invention consists in certain novel combinations of parts hereinafter described and claimed, and its leading object is to prevent or reduce violent motion of the spring-supported body in both directions on rough roads, so as to prevent the breakage of the springs, the straining of the vehicle, and the shaking up of the passengers by sudden shocks, and at the same time to avoid continuously intensifying or stiffening the springs, so as to render the vehicle easy riding on smooth roads.

The distinguishing object of the present invention is to adapt the frictional device of the shock-absorber to cooperate with a "solid connection" in the form of a link, and at the same time to have an effective lost-motion device whereby the springs are automatically freed from resistance on smooth roads.

A sheet of drawings accompanies this specification as part thereof.

Figure 1 is a side view of one of the improved shock-absorbers attached to a spring-vehicle; and Fig. 2 is a like view of its frictional device, detached, on a larger scale.

Like reference characters refer to like parts in both figures.

It will be understood that each vehicle is provided with one or more of the shock-absorbers, usually one at each body-supporting spring.

In Fig. 1 the axle A is crossed by a semi-elliptic body-supporting spring B, which is attached to the axle by a pair of clips 1 and 2, and is connected with the body-frame C by a link 3 at the front end of the spring and a hinge-joint 4 at the extremity of a rigid extension 5 of the frame C. The cap 6 of the clips 1 and 2 is adapted for the pivotal attachment thereto directly above the axle by a horizontal bolt 7 of the lower end of a solid connection D in the form of a short link, the upper end of which is pivotally coupled to a stud 8, which projects rigidly from the side of

a lever-piece E near its inner end. A frictional strap 9, forming part of said lever-piece E and provided with a lining 10 of leather or the like, embraces the periphery of a circular drum F, which is pivotally attached to the body-frame C by a central stud 11, and is constructed with one or more segmental slots 12, preferably two, concentric with said stud 11. Within said slots 12 stops G are fixedly attached to the body-frame C by bolts 13 or by any approved means and are preferably provided with attached cushions 14 and 15 to contact with the respective ends of the slots 12 at the limits of the lost motion allowed for by said slots. When the parts are at rest, said stops G occupy a central position within said slots 12, and on smooth roads the play of the springs B, acting through the axle A, solid connection D, lever-piece E, and drum F, and through the body-frame C and stops G, causes the lever-piece E and drum F to move freely as one part on the pivotal stud 11, and the ends of the slots 12 to approach and recede from said stops G without contact. When such smooth-road motion is exceeded, the ends of said slots 12 contact alternately with the cushions 14 and 15, and at each contact said drum F is rendered stationary with reference to the lever-piece E, and the movement of the lever-piece E is continued under the frictional resistance due to the contact of its leather-lined strap 9 with the periphery of the drum F, and thus such excessive motion is reduced and controlled, or, in other words, the shock is resisted and "absorbed," and the return movement of the body and springs is retarded and freed from damage.

Means for varying the frictional resistance may preferably consist of a vertical screw-bolt 16, connecting the free ends of the strap 9 with each other and easily accessible behind the vehicle or at its respective ends.

Other forms of lost-motion device may take the place of the stop or stops G and slot or slots 12 with their appurtenances.

The cushions 14 and 15 may be of rubber, as indicated, or of any preferred form, and may obviously be attached within the ends of the slots 12 instead of to the stops G, and other like modifications will suggest themselves to those skilled in the art.

The principle, parts, and combinations that are common to the specific shock-absorber above described and that described and claimed in a companion specification of



even date herewith are hereby disclaimed in favor of that specification.

Having thus described said improvement, I claim as my invention and desire to patent under this specification—

1. The combination, with an axle and the spring-supported body-frame, of a road-vehicle, of a shock-absorber comprising a connecting-link pivotally coupled to the axle, a lever-piece pivotally connected to said link and having a leather-lined strap as part thereof, a circular drum embraced peripherally by said strap, a central stud on which said drum turns and by which it is attached to said body-frame, and a lost-motion device whereby said friction device is permitted to oscillate freely within smooth road limits of motion and to automatically resist and absorb shocks and to retard return movements of the spring-supported body.

2. The combination, with an axle and the spring-supported body-frame, of a road-vehicle, of a shock-absorber comprising a connecting-link pivotally coupled to the axle, a lever-piece pivotally connected to said link and having a leather-lined strap as part thereof, a circular drum embraced peripherally by said strap, a central stud on which said drum turns and by which it is attached to said body-frame, and a lost-motion device comprising a segmental slot in said drum concentric with said stud and a stop fixedly attached to said body-frame within said slot, whereby said friction device is permitted to oscillate freely within smooth road limits of motion and to automatically resist and absorb shocks and to retard return movements of the spring-supported body.

3. The combination, with an axle and the spring-supported body-frame, of a road-vehicle, of a shock-absorber comprising a connecting-link pivotally coupled to the axle, a lever-piece pivotally connected to said link and having a leather-lined strap as part thereof, a circular drum embraced peripherally by said strap, a central stud on which said drum turns and by which it is attached to said body-frame, and a lost-motion device consisting of a pair of segmental slots in said drum

concentric with said stud, and a pair of stops fixedly attached to said body-frame within said slots, whereby said friction device is permitted to oscillate freely within smooth road limits of motion and to automatically resist and absorb shocks and to retard return movements of the spring-supported body.

4. The combination, with an axle and the spring-supported body-frame, of a road-vehicle, of a shock-absorber comprising a connecting-link pivotally coupled to the axle, a lever-piece pivotally connected to said link and having a leather-lined strap as part thereof, a circular drum embraced peripherally by said strap, a central stud on which said drum turns and by which it is attached to said body-frame, and a lost-motion device consisting of a pair of segmental slots in said drum concentric with said stud, and a pair of stops fixedly attached to said body-frame within said slots, and provided with cushions to contact with the respective ends of said slots, whereby said friction device is permitted to oscillate freely within smooth road limits of motion and to automatically resist and absorb shocks and to retard return movements of the spring-supported body.

5. The combination, with an axle and the spring-supported body-frame, of a road-vehicle, of a shock-absorber comprising a connecting-link pivotally coupled to the axle, a lever-piece pivotally connected to said link and having a leather-lined strap as part thereof, a circular drum embraced peripherally by said strap, a central stud on which said drum turns and by which it is attached to said body-frame, a lost-motion device whereby said friction device is permitted to oscillate freely within smooth road limits of motion and to automatically resist and absorb shocks and to retard return movements of the spring-supported body and means for adjusting said strap to vary the resistance of said friction device, substantially as hereinbefore specified.

Dated the 2d day of September, 1905.

ROBERT P. WINSOR.

Witnesses:

FRANCIS J. HUGHES,  
STEPHEN A. COOKE.