

No. 796,216.

PATENTED AUG. 1, 1905.

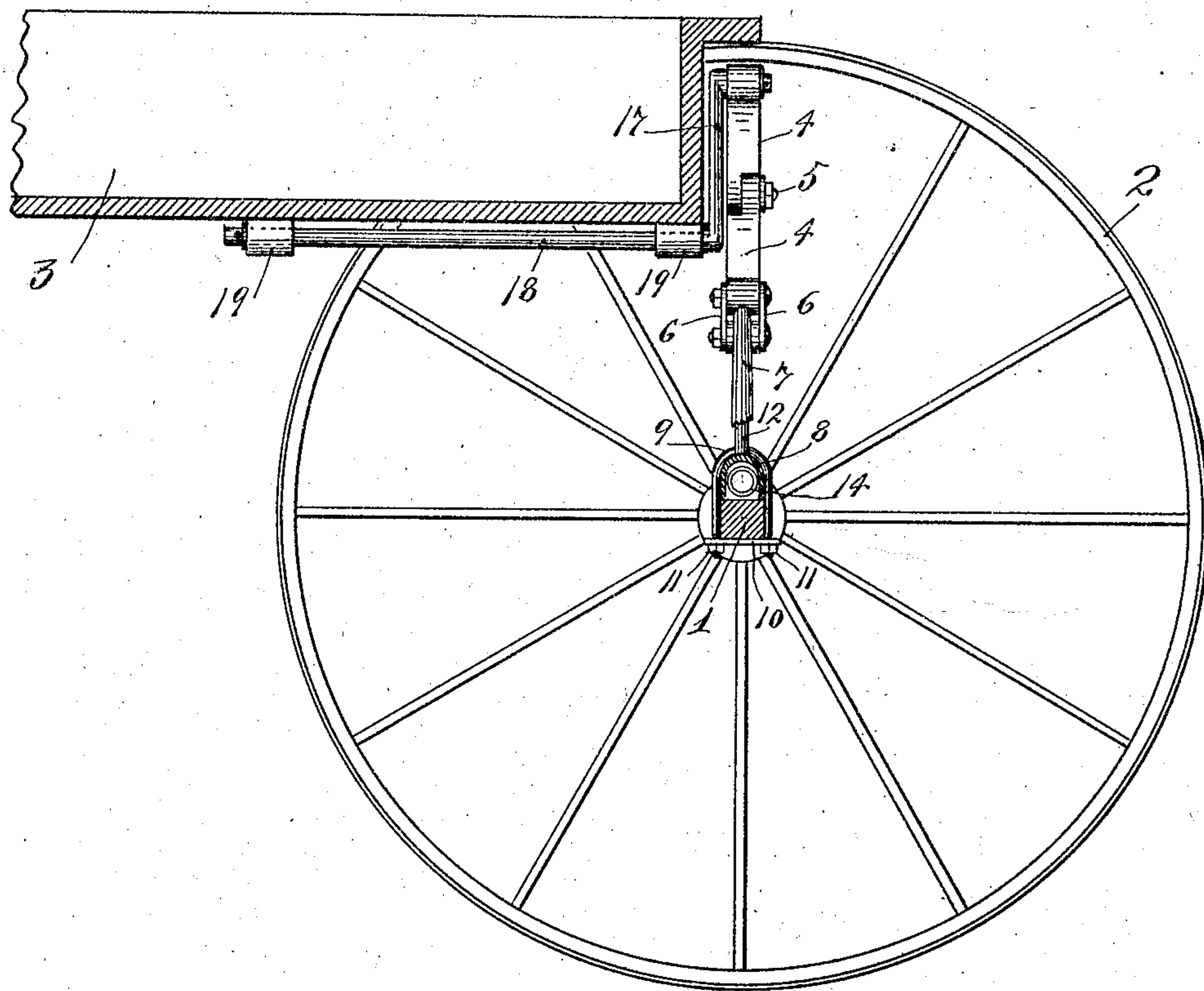
J. A. JACKSON & S. C. PAULSON.

VEHICLE SPRING.

APPLICATION FILED OCT. 22, 1904.

2 SHEETS—SHEET 1.

*Fig. 1.*



*Witnesses.*

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*Inventors*  
*Jacob A. Jackson.*  
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*By their Attorneys*  
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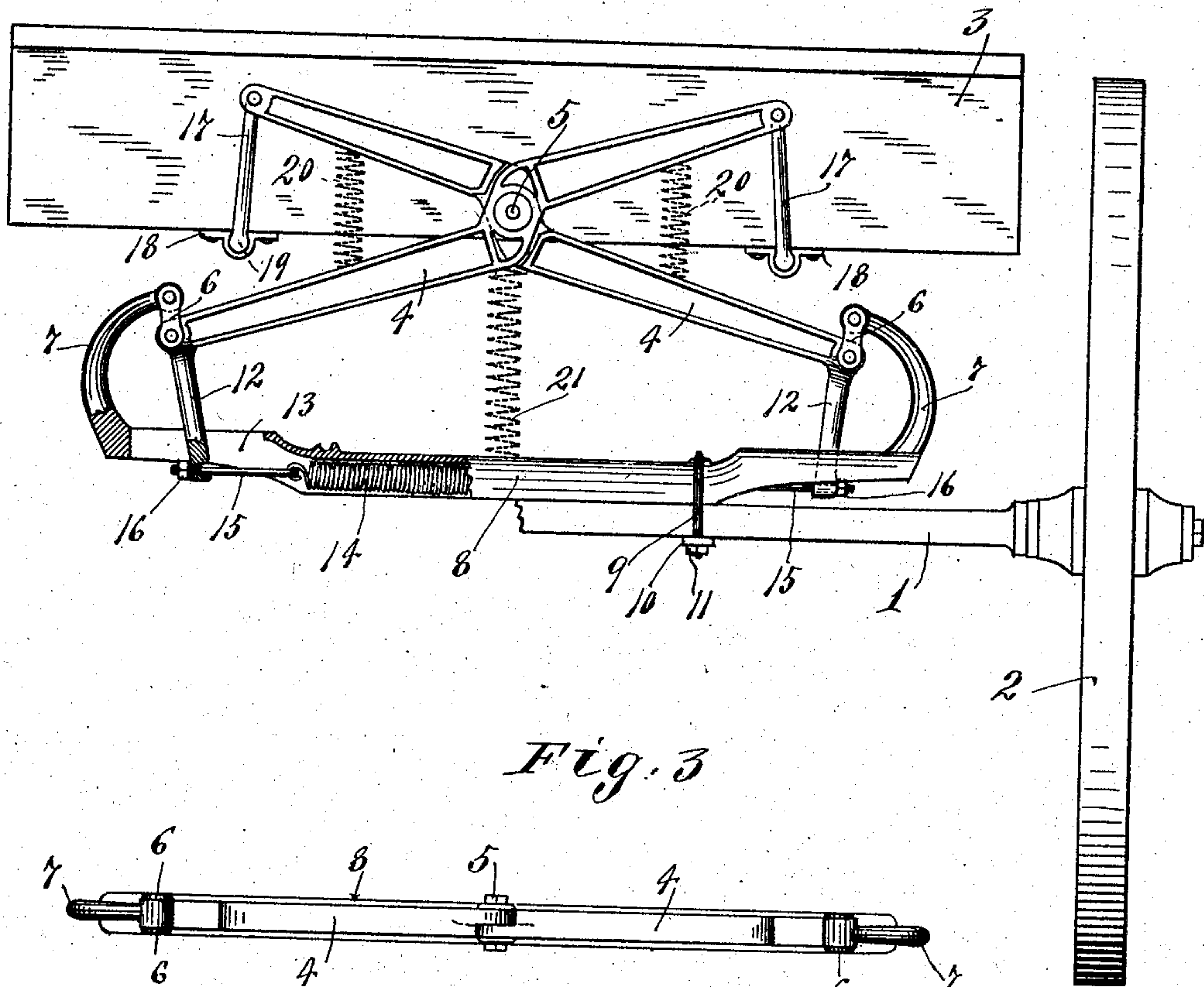
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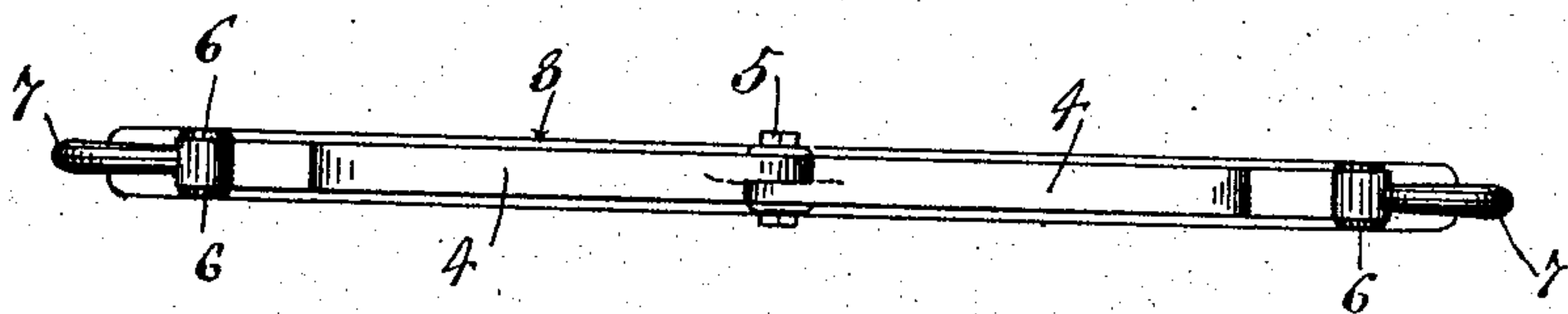
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2 SHEETS-SHEET 2.

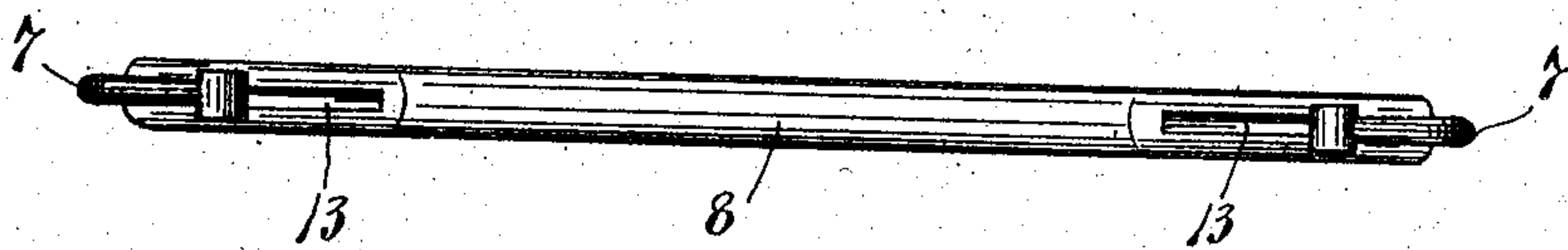
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



*Witnesses.*

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# UNITED STATES PATENT OFFICE.

JACOB A. JACKSON, OF MINNEAPOLIS, AND SOREN C. PAULSON, OF BRECKENRIDGE, MINNESOTA.

## VEHICLE-SPRING.

No. 796,216.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed October 22, 1904. Serial No. 229,531.

*To all whom it may concern:*

Be it known that we, JACOB A. JACKSON, residing at Minneapolis, in the county of Hennepin, and SOREN C. PAULSON, residing at Breckenridge, in the county of Wilkin, State of Minnesota, citizens of the United States, have invented certain new and useful Improvements in Vehicle-Springs; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention has for its object to provide an improved vehicle-spring which will hold the body of the vehicle level or always parallel to its original position regardless of the point of application of the load on said body.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

In the accompanying drawings the improved spring is illustrated as applied to support the body of the carriage or wagon from the running-gear; but it will of course be understood that springs of this character may be employed for many other purposes—such, for instance, as for supporting car-bodies from the car-trucks.

In the drawings like characters indicate like parts throughout the several views.

Figure 1 is a view in vertical section, showing the rear portion of a road-vehicle and illustrating one of the improved springs applied thereto. Fig. 2 is a rear elevation of the parts shown in Fig. 1, some parts being sectioned and some being removed. Fig. 3 is a plan view of the spring removed from working position, and Fig. 4 is a plan view showing in detail the yoke-like base member of the compound spring.

The numeral 1 indicates the rear axle, the numeral 2 one of the rear wheels, and the numeral 3 the body or box of a vehicle. The complete spring is made up of a plurality of levers and one or more spring-coils or yielding elements and, as illustrated in the drawings, comprises a pair of crossed levers 4, that are pivotally connected at 5. These levers at their lower ends are suspended by links 6 from the upturned horns or prongs 7 of a channel-like body 8, which is rigidly secured to the axle 1, as shown, by U-bolts 9, clamping-plates 10, and nuts 11. This body

8, together with its horns or upturned portions 7, constitutes what may be termed the "base-yoke" of the spring.

The lower ends of the levers 4 have rigidly-secured depending arms 12, that vibrate in slots or openings 13 of the base member 8 and are connected by a spring-coil 14. This spring-coil works loosely within the hollow member 8 and is provided at its ends with threaded tension-bolts 15, that work through perforations in the depending ends of the arms 12 and are provided outward thereof with nuts 16. By adjustments of the nuts 16 the tension of the spring and the normal positions of the levers 4 may be varied. The upper ends of the levers 4 are pivotally connected to the free upper ends of crank-arms 17, the rods 18 of which are loosely journaled in bearings 19 on the vehicle-body 3.

As is evident, the tension-coil 14 tends to draw the lever-arms 12 toward each other, and thereby raise the lever-pivot 5, and hence the body 3 of the vehicle. It is also evident that the load on the vehicle-body will overcome the tension-coil 14, more or less, and will thereby lower the vehicle-body and the said lever-pivot. Since the vehicle-body cannot move downward without imparting like movements to both levers 4, it is evident that the said body will always be maintained in its horizontal position or parallel with the axle 1 and that this relation of the parts must be maintained even when all the weight of the load is applied at one side of the vehicle-body.

Where an extremely stiff spring is required, compression-coils 20 may be interposed between the levers 4, and, if desired, a compression-coil 21 may be interposed between the base member 8 and the intermediate portions of the two levers. These coils 20 and 21 are indicated by dotted lines in Fig. 2.

From what has been said it will be understood that the device described is capable of modification within the scope of our invention as herein set forth and claimed.

What we claim, and desire to secure by Letters Patent of the United States, is as follows:

1. The combination with a base-support, of a pair of levers pivotally supported therefrom at their lower ends, and provided with depending arms, said levers being crossed and pivotally connected at their intermediate portions, a spring-coil connecting the depending arms of said levers, and a body supported from

the upper ends of said levers, substantially as described.

2. The combination with the base member 8, having upturned portions 7, of a pair of crossed levers 4, pivotally connected at 5, and having the depending arms 12, links 6 connecting the lower ends of said levers to said portions 7, a spring-coil 14 adjustably connected to said arms 12, the cranks 17 pivotally connected to the upper ends of said levers 4, and a body hung on said cranks, substantially as described.

3. The combination with a pair of levers 4, crossed at their intermediate portions, and pivotally connected at 5, said levers having depending arms 12, of a spring-coil connect-

ing said arms 12, and spring-coils interposed between said levers, substantially as described.

In testimony whereof we affix our signatures each in the presence of two witnesses.

JACOB A. JACKSON.  
SOREN C. PAULSON.

Witnesses as to the signature of Jacob A. Jackson:

ROBERT C. MABEY,  
F. D. MERCHANT.

Witnesses as to the signature of Soren C Paulson:

WM. F. ECKES,  
T. E. KNUDSON.