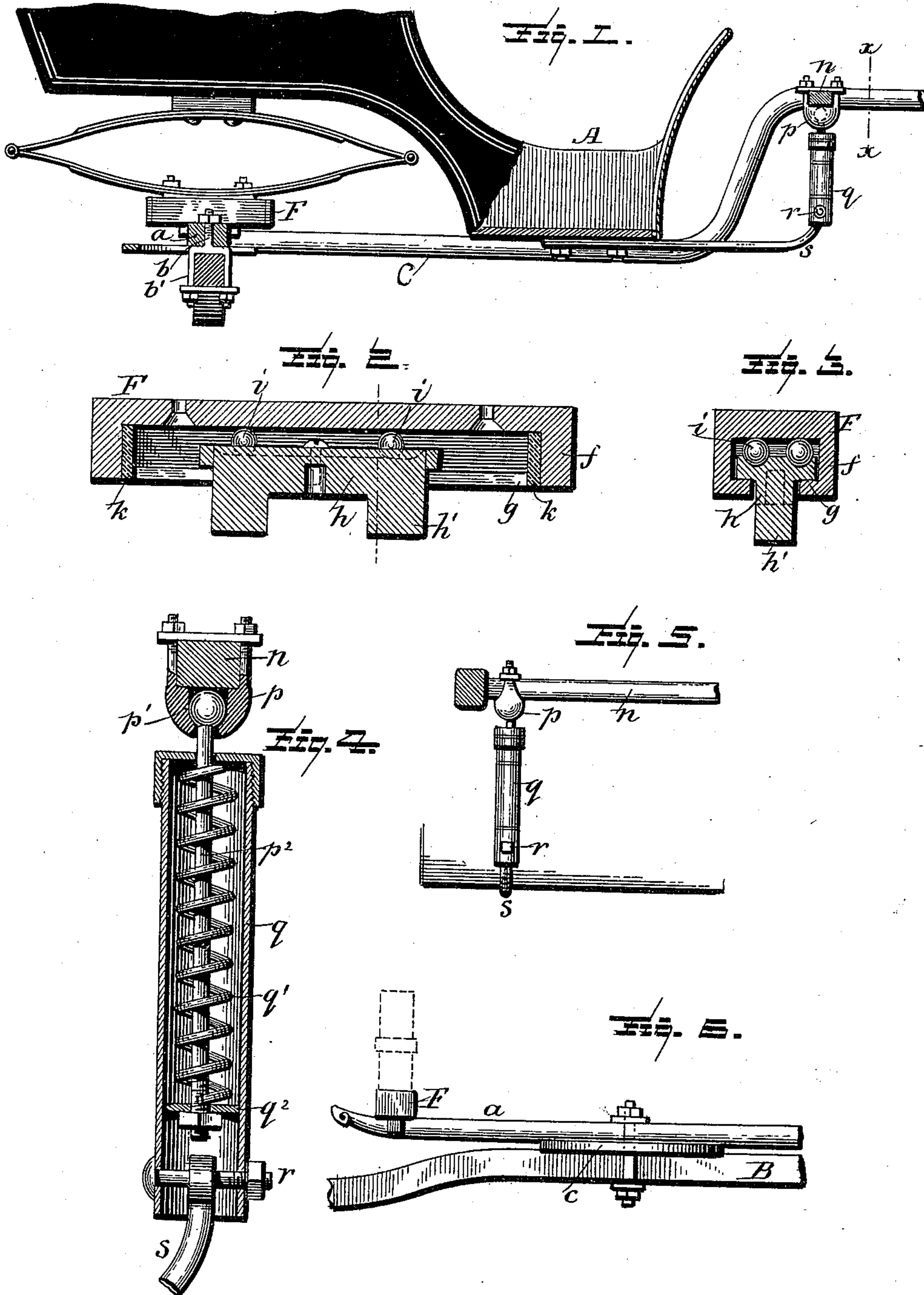


(No Model.)

S. L. & H. H. FULLER.  
SULKY.

No. 441,480.

Patented Nov. 25, 1890.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## SULKY.

SPECIFICATION forming part of Letters Patent No. 441,480, dated November 25, 1890.

Application filed April 5, 1890. Serial No. 346,669. (No model.)

*To all whom it may concern:*

Be it known that we, SAMUEL L. FULLER and HUGH HARRIE FULLER, citizens of the United States, residing, respectively, at Columbus, Franklin county, Ohio, and Delaware, in the county of Delaware and State of Ohio, have invented a certain new and useful Improvement in Carts, Sulkies, and Two-Wheel Vehicles, of which the following is a specification.

Our invention relates to carts or two-wheeled vehicles; and the objects of our invention are to provide vehicles of the above class with superior attachments for preventing the transmission of motion of the horse to the vehicle-body, and thus contribute ease to the rider; to construct said attachments in a simple and inexpensive manner, and to admit of their application to any ordinary form of two-wheeled vehicles. These objects we accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a central longitudinal section of the vehicle-frame. Fig. 2 is a similar section of one of the spring-supports. Fig. 3 is a central transverse section of said support. Fig. 4 is a central vertical section of the shaft-supporting spring. Fig. 5 is a detail section taken on line  $x\ x$  of Fig. 1. Fig. 6 is a rear view of a portion of the vehicle-frame.

Similar letters refer to similar parts throughout the several views.

A represents the body, B the axle, and C the shafts, of an ordinary cart or two-wheeled vehicle.

The shafts C, which we preferably employ, are of the class known as "double-bent shafts," and have their heels connected with the axle in any desirable manner.

$a$  represents a horizontal bar, which is supported immediately above and pivotally connected with the central portion of the axle by a pivot-bolt  $b$ , which, as shown, may project upward from a clip  $b'$ , which embraces the axle.

$c$  represents a fifth-wheel, which is supported upon the axle in the usual manner and partially surrounds the connection of the axle and bar  $a$  and forms a frictional bearing for said bar.

F represents our improved spring-supports, each of which has the general form of an oblong box, as shown. This box is formed by a metallic case  $f$ , which has its under side open. Each case  $f$  has the vertical side walls thereof provided with inwardly-projecting shoulders  $g$ , thus giving the interior of the box when the latter is in cross-section approximately a T shape.

$h$  represents a sliding tongue or block, which, as shown, is shorter than the case  $f$ , and which, being approximately T-shaped in cross-section, is adapted to fit loosely within said case and has its head-flanges resting and sliding upon the case-shoulders  $g$ .

The upper side of the sliding block  $h$  is provided with one or more longitudinal grooves, in which bear two or more bearing-balls  $i$ , said balls also having a bearing against the underside of the case  $f$ , as shown. The lower side of the sliding block is provided at each end with a downwardly-extending lug  $h'$ . Within each end of the case  $f$  is preferably fixed a cushion  $k$  of rubber or other suitable material to receive the force of the blow of the sliding block when the latter is operated, as hereinafter described.

The above-described spring-supports are fixed upon the transverse bar  $a$ —one near each end thereof—by causing the downwardly-projecting lugs  $h'$  of the block to closely embrace the sides of said bar, as shown. The spring-support cases  $f$  have their upper sides bolted or otherwise rigidly secured to the lower halves of the elliptic vehicle-springs  $m$ , upon which the body is supported in the usual manner.

In the class of vehicles to which our invention relates it is well known that the horse in traveling transmits to the vehicle through the shafts and their connection with the axle an alternate backward and forward or shoulder movement.

Owing to the connection of the axle with the sliding block  $h$ , the fact that said block is movable in its case and that said case supports the springs with the body thereon, it will be seen that this shoulder movement of the horse is imparted to the sliding block



only and that the latter will be allowed to travel back and forth in its case without affecting said case or the vehicle-body.

It is obvious that, if desired, we may omit  
5 the bearing-balls *i* and simply allow the two hard surfaces of the block *h* and its case to come into frictional contact without changing the principle of our invention.

In combination with the above mechanism  
10 we employ means for preventing the trotting or vertical movement of the horse from being imparted to the body, which we will now describe.

*n* represents the shaft-connecting cross-  
15 piece, which, as usual, extends between the shafts in front of the body. Secured to said cross-bar *n*, near each end thereof, is a clip *p*, which embraces or partially embraces said cross-bar, and which has formed in its thick-  
20 ened lower side a ball seat or socket *p'*, from which leads outward and downward a rod-hole, as shown. Within this ball seat or socket rests loosely the rounded or ball-shaped head of a downwardly-hanging rod  
25 *p*<sup>2</sup>, which passes loosely through the rod-hole. Surrounding the rod *p*<sup>2</sup>, beneath the clip *p*, is a cylindrical spring-case *q*, within which and surrounding the rod *p*<sup>2</sup> is a coiled spring *q'*, which bears between the upper end of the  
30 case *q* and a washer or disk *q*<sup>2</sup> on the lower end of the rod. Passing transversely through the lower end of each of the cases *q*, beneath the rod *p*<sup>2</sup>, is a pin *r*, upon which is journaled the upper end of a downwardly and rear-  
35 wardly extending arm *s*, which has its remaining end secured to the under side of the vehicle-body. From this construction it will be seen that the vertical movement of the shafts will cause a compression of the spring *q'*  
40 against the upper end of the case and relieve the vehicle-body from shock. It will also be seen that the fifth-wheel, being located as described, will form a bearing on opposite sides

of the center of the cross-bars for said cross-bars, and prevent any tendency of the ve- 45 hicle to rock or move laterally.

By the means herein described it will be observed that the vehicle is greatly relieved from both the shoulder motion and the trot- 50 ting motion of the horse, and that the means for accomplishing these objects are simple and inexpensive.

Having now fully described our invention, what we claim, and desire to secure by Let- 55 ters Patent, is—

1. The combination, with the body, springs, and axle of a two-wheeled vehicle, of the cas- 60 ing *f*, secured to the vehicle-springs, and blocks *h*, rigidly connected with the axle and sliding within said casing, substantially as described.

2. The combination, with the body, springs, and axle of a two-wheeled vehicle, of a cross- 65 bar pivoted upon the axle, sliding blocks *h*, fixed on said cross-bar, and casing *f*, rigidly connected, as described, with the vehicle-springs, said blocks sliding within said casing, substantially as described.

3. The combination, in a two-wheeled ve- 70 hicle, of the body, vehicle-springs, axle, and shafts, spring-rod *p*<sup>2</sup>, depending from the shaft cross-piece, the spring-cushioned case *q*, surrounding said rod, and a brace-arm *s*, connecting case *q*, and the vehicle-body with the cas- 75 ings *f*, rigidly secured to the vehicle-springs, a cross-bar pivoted upon the axle, and supporting blocks *h*, which slide within said casings *f*, substantially as described.

SAMUEL L. FULLER.  
HUGH HARRIE FULLER.

In presence of—

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LAURA V. GOUDY,  
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HENRY H. BEECHER.