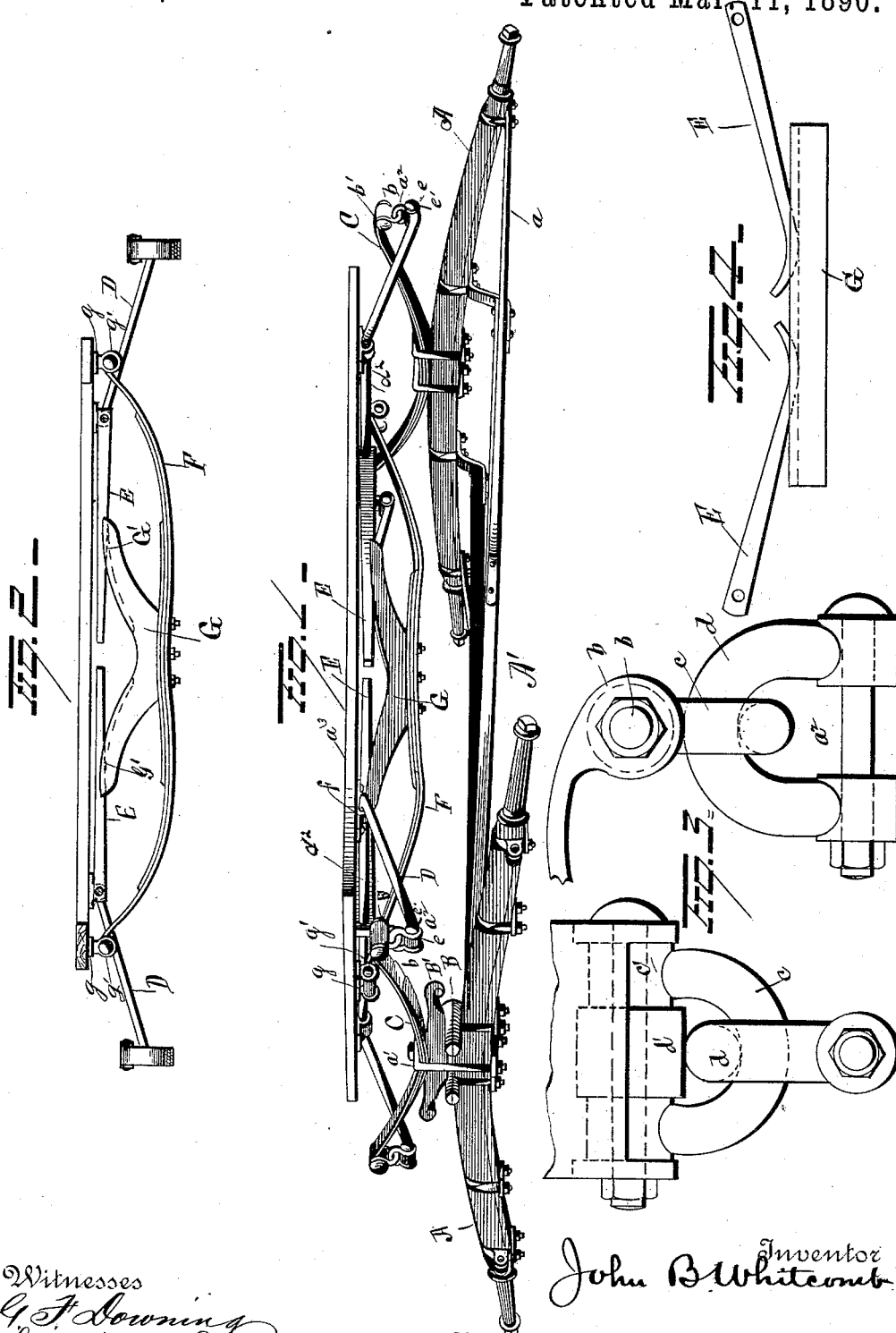


(No Model.)

J. B. WHITCOMB.
VEHICLE SPRING.

No. 423,099.

Patented Mar. 11, 1890.



Witnesses
G. F. Downing
S. G. Nottingham

John B. Whitcomb Inventor
By *his* Attorney
H. A. Symmons

UNITED STATES PATENT OFFICE.

JOHN B. WHITCOMB, OF BELOIT, WISCONSIN.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 423,099, dated March 11, 1890.

Application filed January 17, 1890. Serial No. 337,232. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. WHITCOMB, of Beloit, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Vehicle-Springs; and I 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.

My invention relates to an improvement in vehicle-springs.

The object of my present invention is to provide vehicle-springs which shall be simple in construction and effective in operation.

A further object is to so construct and arrange the parts that the operation of the springs shall be easy and compensate for jars when the wheels of the vehicle come into contact with impediments.

With these objects in view my invention consists in certain novel features of construction and peculiar combinations and arrangement of parts, as will be hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of my invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detached view of one of the shackles which connect the crank-levers with the end springs. Fig. 4 is a view of a modification.

A A indicate vehicle-axles of any preferred construction, preferably connected by a suitable reach A' and braced by means of rods a. A fifth-wheel B is mounted upon the front axle and carries a head-block B', a semi-elliptical spring C being placed upon said head-block, and all of said parts connected together by means of a shackle a'. A semi-elliptical spring C is clipped to the rear axle A in any suitable manner. The free ends of the springs C are provided with downwardly-extending ears b, perforated for the reception of a pin b', by which a shackle a² is pivoted between said ears. Each of these shackles a² is composed of a U-shaped loop c, having perforated bosses c' fixed to its free ends for the reception of the pin b, and a similarly-shaped loop d, having perforated bosses at its free ends, this loop being interlocked within the first-mentioned loop, as shown in Fig. 3. Mounted

upon the bolt or pin b', between the bosses c', is a ring d', of rubber or other elastic material, which bears against the top of the loop d and prevents rattling of the parts.

The free ends of a pair of crank-levers D are furnished with perforated bosses e, adapted to be inserted between the bosses of the loop d, and pivotally attached thereto by means of a pin e'. By attaching the springs C with crank-levers D through the medium of the shackles a², said levers are permitted to have a slight general movement. The crank-levers D, being pivotally connected to the front and rear semi-elliptical springs C, are projected inwardly and slightly upwardly therefrom, and pivotally supported in boxes f, secured to the under side of the vehicle-body, or a frame a³ of said body.

The crank-levers are preferably made of round spring-steel and provided at the centers of their horizontal arms d² with inwardly-projecting arms E, of steel or other suitable material, said arms being secured to or made integral with the levers D and extended inwardly nearly to a point of meeting centrally beneath the vehicle-body.

A bracket g, having downwardly-extending ears g', is secured to the vehicle-body near each end thereof, for the reception and support of the ends of a spring F, pivoted between the ears of said bracket and extending from end to end of the vehicle-body beneath the same.

Secured to the spring F, preferably at its center, is a bar G, curved to form a cam G' at each end and placed over or on each side of said spring F, and has its upper surface near its ends channeled for the reception and proper support of the free end of the arms E. This cam-bar G will preferably be made of wood; or, if desired, said cam-bar may be made of metal or other suitable material.

Instead of providing the bar G with cams G' at each end for the reception of the arms E, said arms may be curved upwardly, as shown in Fig. 4, to rest directly on the bar G, which in such case will be grooved on its top surface throughout the greater part of its length.

To more fully understand the action of the above-described parts, let it be noticed that as the distance from the shackles a², the point

where the levers D are attached to the springs C, and the point *f*, where the crank-levers are attached to the body, always remains the same any weight placed in the body will depress the levers D E and the spring F just in proportion as the free ends of said levers may be lengthened or shortened, and as the cams G' are so made that a slight depression of the levers will increase the distance from the point *f* to where they rest on the cams, thus throwing more weight on springs C, and thereby compensating for and lessening the strain on the center spring F, and as the point of contact of the levers on the cam is variable according to the movements of said lever, it will be seen that any sudden shock or additional weight will gradually be applied to the spring F, which will be as gradually relieved, thereby bringing said spring to a normal condition with ease and comfort to the occupants. By this construction and arrangement it will be seen that when a wheel of the vehicle strikes an obstacle the shock caused thereby will be compensated for not only by the springs C and F, but by the movement of the levers D upon their pivots and the arms E upon the cams G', thus taking up effects of the shock before the body is reached by the same. It will also be observed that when an obstruction is met with and the vehicle raised from the ground the body will be held down by the action of the arms or levers E on the center spring F. Consequently the jarring motion of the body will be materially lessened. It is evident that many slight changes might be made in the constructive details of my invention without departing from the spirit thereof or limiting its scope. Hence I do not wish to limit myself to the precise details of construction herein set forth; but,

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

1. The combination, with a vehicle, of two pivoted crank-levers having inwardly-extending arms, a body mounted on the crank-levers, a spring attached to the ends of the body, and a bar secured to said spring and supporting the free ends of the inwardly-extending arms of the levers, substantially as set forth.

2. In a vehicle, the combination, with front and rear axles, of a semi-elliptical spring mounted on each axle, crank-levers pivoted

to said springs, a body mounted upon the crank-levers, and a spring attached to the body and bearing against arms of the crank-levers, substantially as set forth.

3. In a vehicle, the combination, with the axles, of springs secured thereto, shackles at opposite ends of each spring, crank-levers also attached to said shackles, arms extending inwardly from said crank-levers, a vehicle-body mounted upon the crank-levers and pivotally connected thereto, a spring attached to the body at opposite ends, and a cam-bar secured to said spring and having grooves for the reception of the free ends of the inwardly-extending arms of the crank-levers, substantially as set forth.

4. In a vehicle, the combination, with the body, of bars with cams thereon, as described, a central spring located under the body, and independent levers to bear on the cam-bar, whereby pressure or weight brought to bear on said spring is automatically increased or diminished.

5. In a vehicle, the combination, with a body and two pivoted crank-levers having inwardly-extending arms, of a central spring attached at its ends to the body, and a bar having a cam-surface upon which said inwardly-extending arms bear and have an automatic movement when weight is brought to bear upon the spring, substantially as set forth.

6. In a vehicle, the combination, with the axles thereof, of semi-elliptical springs secured thereto, ears at the extremities of said springs, double shackles adapted to be pivoted between said ears, elastic rings upon the pivot-pin which connects the shackles with the springs, crank-levers also pivoted to said shackles, arms extending inwardly from said crank-levers, a vehicle-body mounted upon the crank-levers, a spring secured to the body at opposite ends, and a cam-bar secured to said spring and adapted to support the free ends of the arms of the crank-levers, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN B. WHITCOMB.

Witnesses:

JOHN W. WEBSTER,
GEORGE H. WEBSTER.