(No Model.)

J. WALSH.

CARRIAGE SPRING.

No. 268,156. Patented Nov. 28, 1882.

Fig. 1.

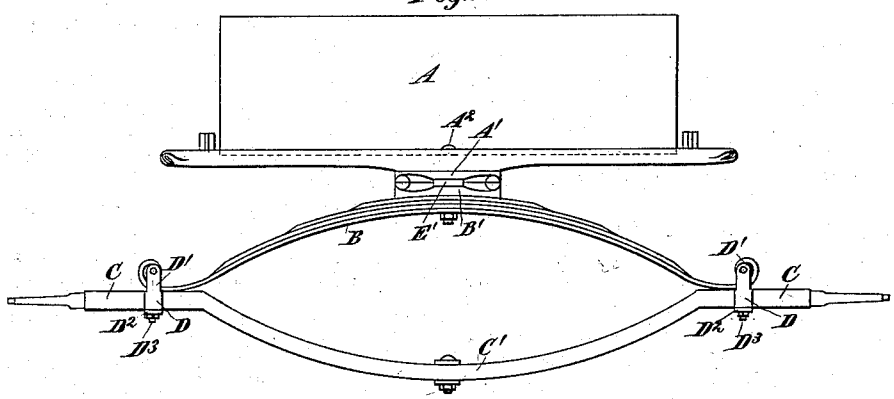


Fig. 2.

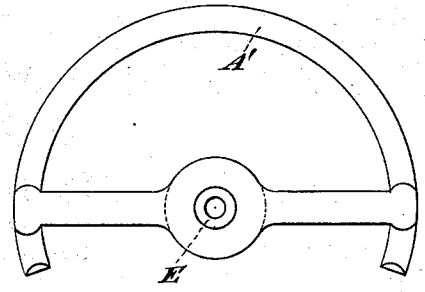


Fig. 3.

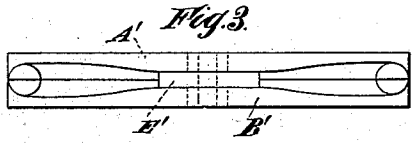
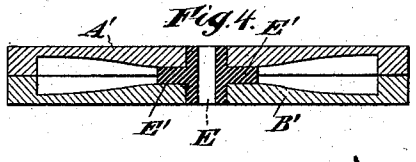


Fig. 4.



WITNESSES

Charles R. Searle.

Thomas Davis

INVENTOR

James Walsh

by his attorney

Thomas D. Stetson

UNITED STATES PATENT OFFICE.

JAMES WALSH, OF NEW YORK, N. Y.

CARRIAGE-SPRING.

SPECIFICATION forming part of Letters Patent No. 268,156, dated November 28, 1882.

Application filed July 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES WALSH, a citizen of the United States, residing in the city and county of New York, in the State of New York, carriage-smith, have invented certain new and useful Improvements relating to Carriage-Springs, of which the following is a specification.

The improvement is intended more particularly for buggies and analogous light carriages; but it may be useful on carriages of various styles. I employ a single half-elliptic spring directly over the axle, and connected thereto by a clip, which allows a restrained motion of the spring endwise as it is caused to yield. The axle is preferably iron or steel. It is depressed in the center of its length and will allow the spring to bend downward beyond a straight line. The fifth-wheel is supported directly upon the spring. The king-pin is inserted in the spring, or in a light casting fixed thereon.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is a front elevation of my improved spring and adjacent parts. The remaining figures are on a larger scale. Fig. 2 is a plan view of the fifth-wheel. Fig. 3 is a front elevation, and Fig. 4 a vertical section, of the same.

Similar letters of reference indicate corresponding parts in all the figures.

A is the body of the carriage, connected by a bolster or cross-piece over the axle to the upper half, A′, of the fifth-wheel, which is rigidly attached thereto.

B is a single half-elliptic spring, made of a little more than ordinary width. Each end is turned up and bent around, as shown, so as by taking hold of the clip to provide a reliable resistance against being moved too far endwise through the clips.

B′ is the lower half of the fifth-wheel, firmly bolted or otherwise connected to the spring B.

C is a light axle of iron or steel. The central portion, C′, is depressed.

D D are what I term "slide-clips." Each is formed with a part, D′, which loosely embraces the spring B, near each end, and forms a firm hold engaged with the extreme end of the terminal coil of the spring. These clips D D′ are fixed strongly and rigidly on the axle by cross-bars D^2 confined by nuts D^3.

The king-pin A^2 may be of any ordinary construction. It connects the carriage-body with the spring B by extending from one into the other, with any ordinary or suitable provisions for tilting.

The same rig, excepting the king-pin and fifth-wheel, may be applied to the rear spring of the carriage, which transmits the weight of the hind part of the carriage to the rear axle. In turning, the spring B and the lower half, B′, of the fifth-wheel turn with the axle. Under all conditions the spring is a reliable and tastily-appearing portion of the carriage-work.

The number of leaves in the spring B and their relative lengths may be varied considerably. The several leaves may be locked together by the ordinary grooves in the lower face and spurs or projections in the upper face of the several leaves, near their outer ends. When, from passing a rough portion of the road or receiving and discharging weight, the spring B is made available to soften the concussions, the weight being applied and removed, or, what is the same thing, the axle being raised and depressed under the carriage, causes the spring B to bend the portion embraced in the clip D, sliding endwise therein at each end. When the carriage is to be turned and the front axle is swiveled around, the fifth-wheel transmits the weight from the body A to the axle C through the single half-elliptic spring, as will be understood. When the carriage is tilted from one side to the other, or when one end of the axle C is suddenly raised, the spring B accommodates the motion by flexing to the required conditions. The only connection between the body and the axle is through the spring B. The lower half of the fifth-wheel is supported thereon, and the upper half of the fifth-wheel is connected rigidly to the carriage-body. The width of the plates of the spring B is sufficient to give all the necessary torsional force. The spring will twist to a considerable extent and ease the action forward and backward. The breadth and thickness of the lower plate of the spring should be sufficient to give the required torsional force in all exigencies which the carriage is likely to meet.

I provide for receiving the lateral forces to

which the fifth-wheel is subjected on a bushing which surrounds the king-pin. It is adapted to be easily applied and removed, and does not interfere with the separation of the parts when necessary for repairs or other purposes. This device is clearly shown in Figs. 4 and 5, where E E′ is the bushing, the main body being marked E and a broad flange at the midlength E′. The flange is nicely finished on its upper and lower faces, and, applying between corresponding nicely-finished faces of the parts A′ B′, receives the main portion of the weight of the wagon and its contents. The periphery of the fifth-wheel is only subjected to a light load.

It will be understood that in manufacturing the fifth-wheel the middle portions thereof are finished to turn at a considerable distance apart when the peripheries are in contact, and that the hole is produced in the center of each considerably larger than the king-pin. Then, the flanged bushing E E′ being inserted in place and the parts A′ B′ applied together, the king-pin is inserted through the fifth-wheel without touching the same by reason of its passing centrally through the bushing E E′. The king-pin extends downward beyond the bushing through the spring B, and should be provided with a loose washer and one or more nuts or other suitable means for confining the parts reliably, but not so as to offer serious friction to resist the required turning of the front axle and spring, with its attached part of the fifth-wheel.

Modifications may be made in the details. The bending downward or depression of the axle under the central part of the spring may be varied in form and in extent. It is important that the axle be depressed sufficiently to allow the spring a clear range for the fullest extent of motion of the body, and that the spring at each end be bent around and engaged with the top of the clip D D′, so that as the spring slides through the clip near the axle the motion shall be allowed and yet restrained by the elastic yielding of the bend or coil of the spring. For very light carriages springs of only ordinary width may serve.

I claim as my invention—

1. The half-elliptic spring B, having each end bent around and engaged with the top of the clip D D′, in combination with the axle C and body A, whereby the spring is aided and restrained in yielding by the bent ends, as set forth.

2. The fifth-wheel A′ B′, provided with the interposed yielding bushing E E′, lining the king-pin opening and held in place by the two portions of the fifth-wheel, in combination with the king-pin A^2, spring B, axle C, and body A, substantially as set forth.

In testimony whereof I have hereunto set my hand, at New York city, this 10th day of July, 1882, in the presence of two subscribing witnesses.

JAMES WALSH.

Witnesses:
W. C. DEY,
A. E. FIRMIN.