W. EVANS & W. H. SPARKS.

Torsion-Spring for Vehicle.

No. 199,810. Patented Jan. 29, 1878.

FIG. 1

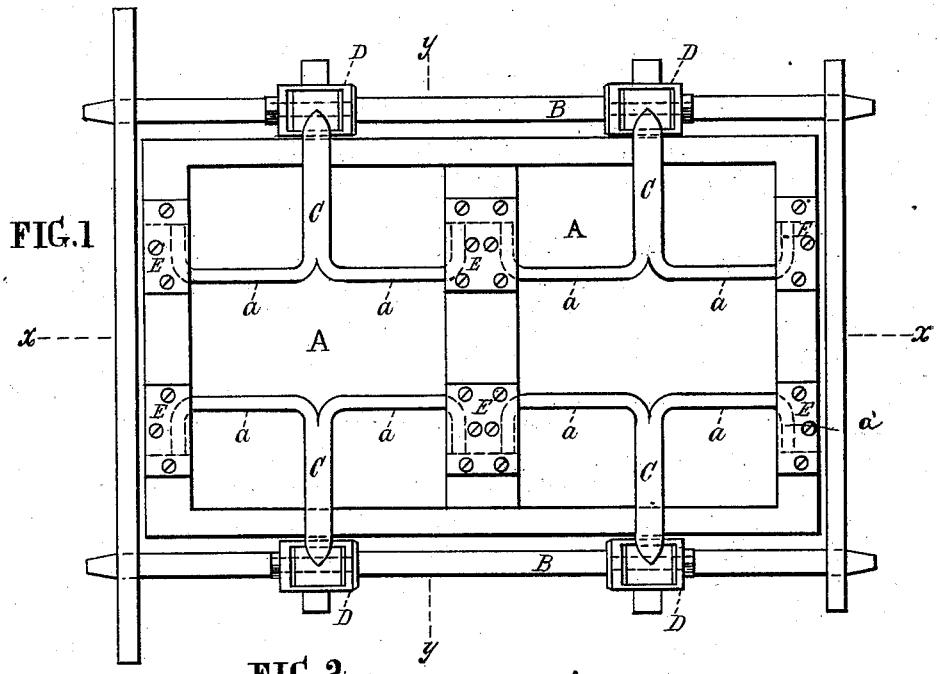


FIG. 2

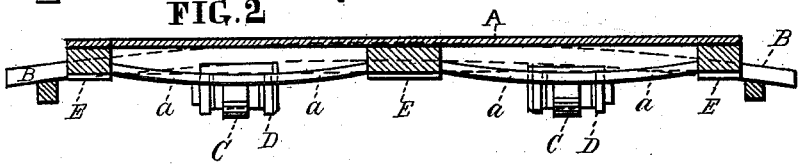


FIG. 3

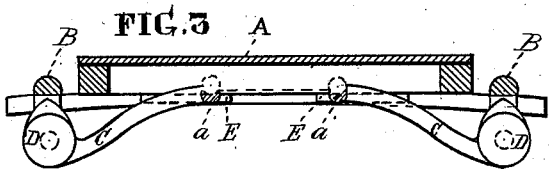


FIG. 4

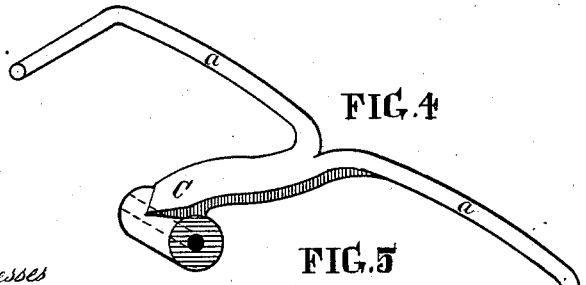
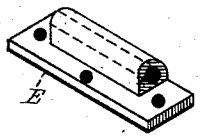


FIG. 5



Witnesses

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN TORSION-SPRINGS FOR VEHICLES.

Specification forming part of Letters Patent No. **199,810**, dated January 29, 1878; application filed October 8, 1877.

To all whom it may concern:

Be it known that we, WILLIAM EVANS, of the city and county of Philadelphia, in the State of Pennsylvania, and WILLIAM H. SPARKS, of the city of Camden, in the county of Camden and State of New Jersey, have invented a Combined Torsion-Spring and Hanger for Vehicles, which invention is fully set forth in the following specification and the accompanying drawings, in which—

Figure 1 is a view of the under side of the bottom of a wagon-body having our improvements attached. Fig. 2 is a longitudinal section at the line *x x* of Fig. 1, the vehicle being in its direct position. Fig. 3 is a cross-section at the line *y y* of Fig. 1. Fig. 4 is an isometrical perspective view of a torsional spring, *a a*, and hanger C, on an enlarged scale. Fig. 5 is a like view of one of the socket-clips E.

Like letters of reference in all the figures indicate the same parts.

Our invention consists of a combined torsional spring and hanger in a continuous piece of steel. One end of a bar, out of which the device is made, is brought into suitable form for the body of the hanger, and the spring part is formed by splitting the remaining part of the bar to form spring-arms, which are so bent as to project from the body in opposite directions, and are reduced to a round or other suitable form of the proper size. We usually connect four of the combined springs and hangers, more particularly described hereinafter, with the side bars and the bottom of a wagon-body, but do not confine ourselves to the use of that number, as in some cases more may be required. By making a combined torsional spring and hanger of a continuous piece of steel, the attachment of the body of a vehicle to its axles is rendered much simpler than it can otherwise be accomplished, and the liability of the connections getting out of order is avoided.

In the drawings, A represents the bottom of a wagon-body, and B B the side bars. The combined spring and hanger, of which four are used in the present instance, consists of a rigid body, C, and arms *a a*, continued therefrom, which constitute the spring part of the hanger. The arms are made by splitting a sufficient portion of the bar out of which the device is made, and reducing the two parts thus made to the proper size and form. (Shown in Fig. 1.)

The outer end of the body C of each combined spring and hanger is connected to a side bar, B, by means of a cap, D, or other suitable device.

The said cap is not new in this application, it being embraced in the patent of the above-named William Evans, dated August 22, 1876, No. 181,423.

The arms *a a* are bent into the form represented in the drawings and confined to the socket-clips E, the sockets being of corresponding size and form to the size and form of the ends of the arms, to hold them firmly. The clips are bolted or otherwise firmly secured to the bottom A.

It will readily be seen that the parts C and *a a* constitute, essentially, a hanger, and that, by splitting one end of a bar of steel, out of which the device is formed, as represented, and reducing the two parts thus made by the splitting to a suitable size and form for the spring parts of the hanger, which parts, in their cross-section, are much smaller than the rigid body C, a torsional spring is readily formed by turning said body C around, so as to give a torsional spring to the arms *a a;* and that, the body C being of much larger area in cross-section than the arms, the form of said body C is not changed by producing torsion in the arms. After giving torsion to the arms the body C is connected with the cap D, as described, to complete the connection of the device with the body A and side bars B B.

We have represented four combined springs and hangers in connection with a vehicle, but do not confine ourselves to the use of that number, as in some cases more may be required.

We claim as our invention—

1. A combined torsional spring and hanger made in a single piece, the body of the hanger

being of suitable size and form, and the spring consisting of two arms, projected therefrom in opposite directions, substantially in the manner and for the purpose set forth.

2. A rigid body, C, of suitable size and form, and round arms *a a*, projected from its inner end in opposite directions, to form a combined torsional spring and hanger, substantially as and for the purpose set forth.

3. The combination of the combined torsional spring and hanger, consisting of the rigid body C and spring-arms *a a*, with the bottom of a vehicle and the side bars B B, substantially as and for the purpose set forth.

4. The clips E, in combination with the spring-arms *a a* of the hanger and body A of a wagon, substantially as and for the purpose set forth.

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