(No Model.) 2 Sheets—Sheet 1.

W. T. SAMPLE.

VEHICLE SPRING.

No. 458,597. Patented Sept. 1, 1891.

Fig. 1.

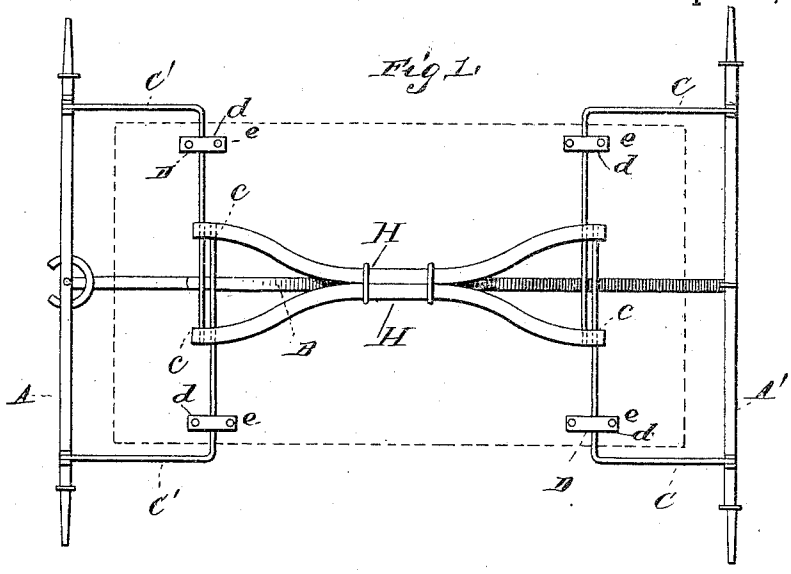


Fig. 2.

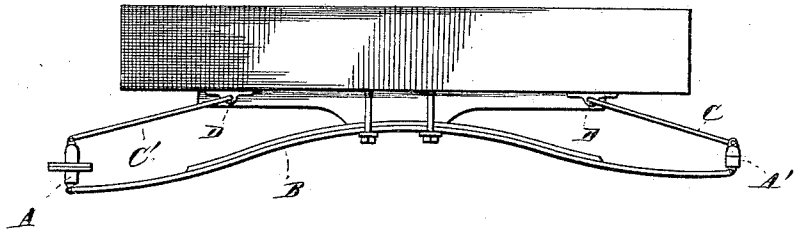
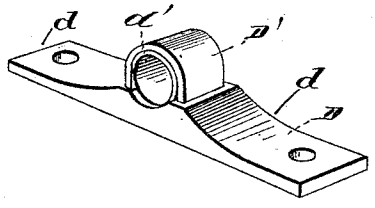


Fig. 6.



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(No Model.) 2 Sheets—Sheet 2.

W. T. SAMPLE.

VEHICLE SPRING.

No. 458,597. Patented Sept. 1, 1891.

Fig. 3.

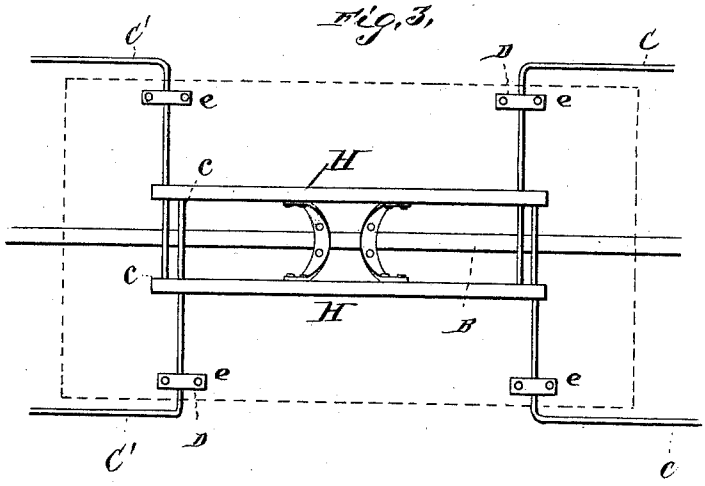


Fig. 4.

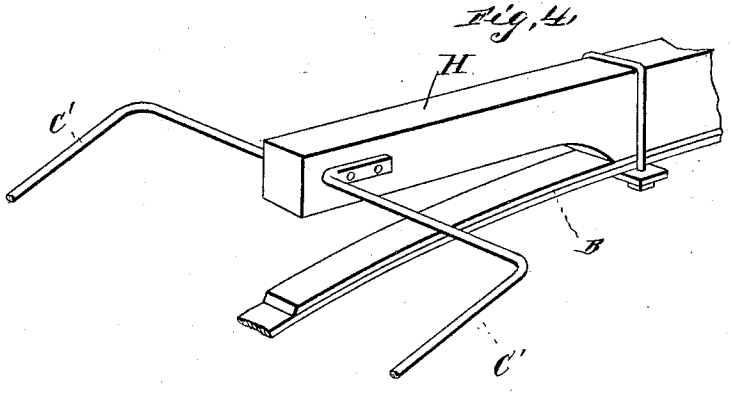
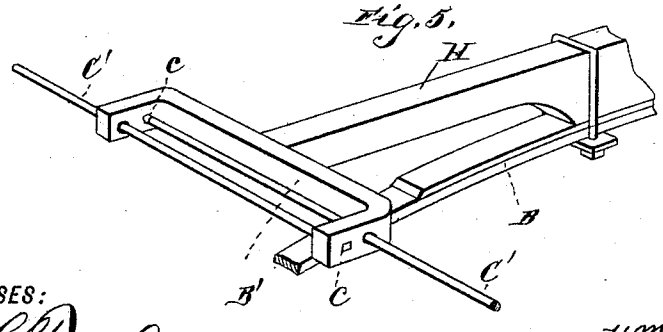


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM T. SAMPLE, OF GREENVILLE, PENNSYLVANIA.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 458,597, dated September 1, 1891.

Application filed December 11, 1890. Serial No. 374,283. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. SAMPLE, a citizen of the United States, and a resident of Greenville, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Vehicle-Springs; and I do 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a modification and is a bottom plan view. Fig. 2 is a side view. Fig. 3 is a bottom plan view; and Figs. 4, 5, and 6 are perspective detail views.

The invention relates to certain new and useful improvements in combining torsion and longitudinal springs for vehicles; and it consists in the construction and combination of parts hereinafter described.

The object of the invention is to so construct and arrange the parts as to get the greatest benefit from the action of the torsions, and whereby this action will be regulated to the desired degree of elasticity or stiffness.

In the accompanying drawings, illustrating the invention, A A′ represent, respectively, the front and rear axles of a vehicle, having secured to their under sides at the central portion by suitable clips the opposite ends of a longitudinal leaf-spring B.

Attached at one end to the rear axle or to a cross-spring connected to said axle are the torsion-springs C C, one on each side, similar springs C′ C′ being attached to the front cross-spring or to the bolster thereof.

Longitudinal arms or bars H, which may be either of wood or metal, are secured to the upper side of the central portion of the spring B by means of suitable clips, said bars being connected together at their central portion, but diverging at the ends, as shown. At their ends these bars receive the opposite ends of the arms *c c* of the torsions C C C′ C′, respectively, the ends of the respective pairs of arms passing each other and each made rigidly fast to its opposite bar. That portion of the arm passing through the bar on its respective side has a loose bearing therein, so as to get the benefit of the full action of the springs. At the point *e e* the torsions are attached to the body by means of the clip D, having the perforated plate *d* for securing to the body and at its central portion the approximately semicircular or U-shaped metal piece D′, united thereby and provided with the lubricating-packing *d′*. It will thus be seen that the fastening or bearing consists of three parts—the malleable base-piece *d*, the lubricating-packing *d′*, and the iron band D′—the structure serving to secure the springs and serve as a journal or bearing. This arrangement will permit the arms of the torsions passing therethrough to have a free and easy movement.

In Fig. 3 I have shown a modification wherein the longitudinal bars H are equally distant their entire length. In Fig. 4 I have shown another modification, where only a single bar H is shown, having the ends of the torsion rigidly secured to it. Fig. 5 shows another form in which one bar only is used, having the arms B′ at its end, to which are secured the torsions in the manner described in connection with Fig. 1. In all these modifications the principle employed is the same—that of rigidly securing the ends of the torsion to the bar or bars connected to the longitudinal springs.

I am aware that patents have been issued which show vehicle-gear where the action of a torsional and a longitudinal spring is combined; but these patents show the spring loosely secured to the bar connected to the longitudinal spring.

By making a rigid connection, as above described, the full benefit of the combined action of the spring is obtained and the tension thereof will be more automatically regular.

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

1. The vehicle-gear having the torsional springs rigidly secured at their ends to a bar or arm connected to a longitudinal spring, substantially as specified.

2. In a vehicle-gear, the combination, with

a longitudinal spring secured to the front and rear axles and serving as a reach, of the torsional springs connected at one end to the running-gear and at their opposite ends rigidly secured to a bar or arm connected to said longitudinal spring, substantially as specified.

3. In a vehicle-gear, the combination, with a longitudinal spring, of torsional springs secured at one end to the running-gear and at the opposite ends rigidly secured to a bar or arms connected to said longitudinal spring, and clips for connecting said torsional springs to the vehicle-body, said clips having a bearing provided with a lubricating-packing, substantially as specified.

4. The vehicle-gear having the torsional springs secured at one end to the running-gear and at their opposite ends rigidly secured to a longitudinal bar or reach, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM T. SAMPLE.

Witnesses:
W. D. KECK,
G. B. HENLEIN.