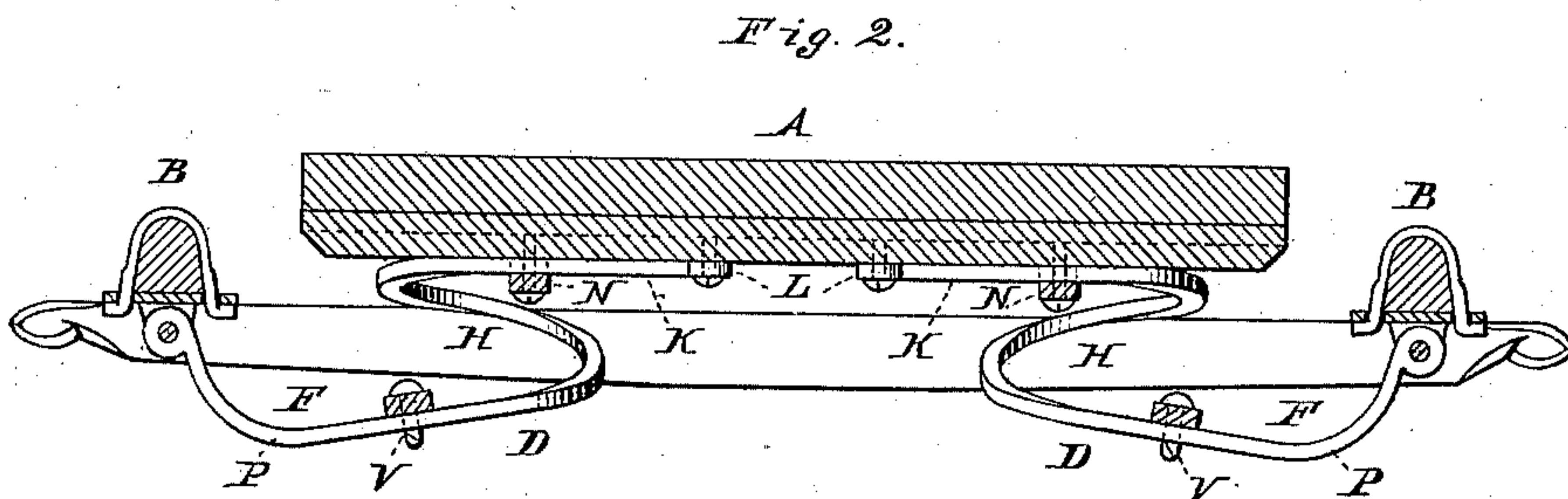
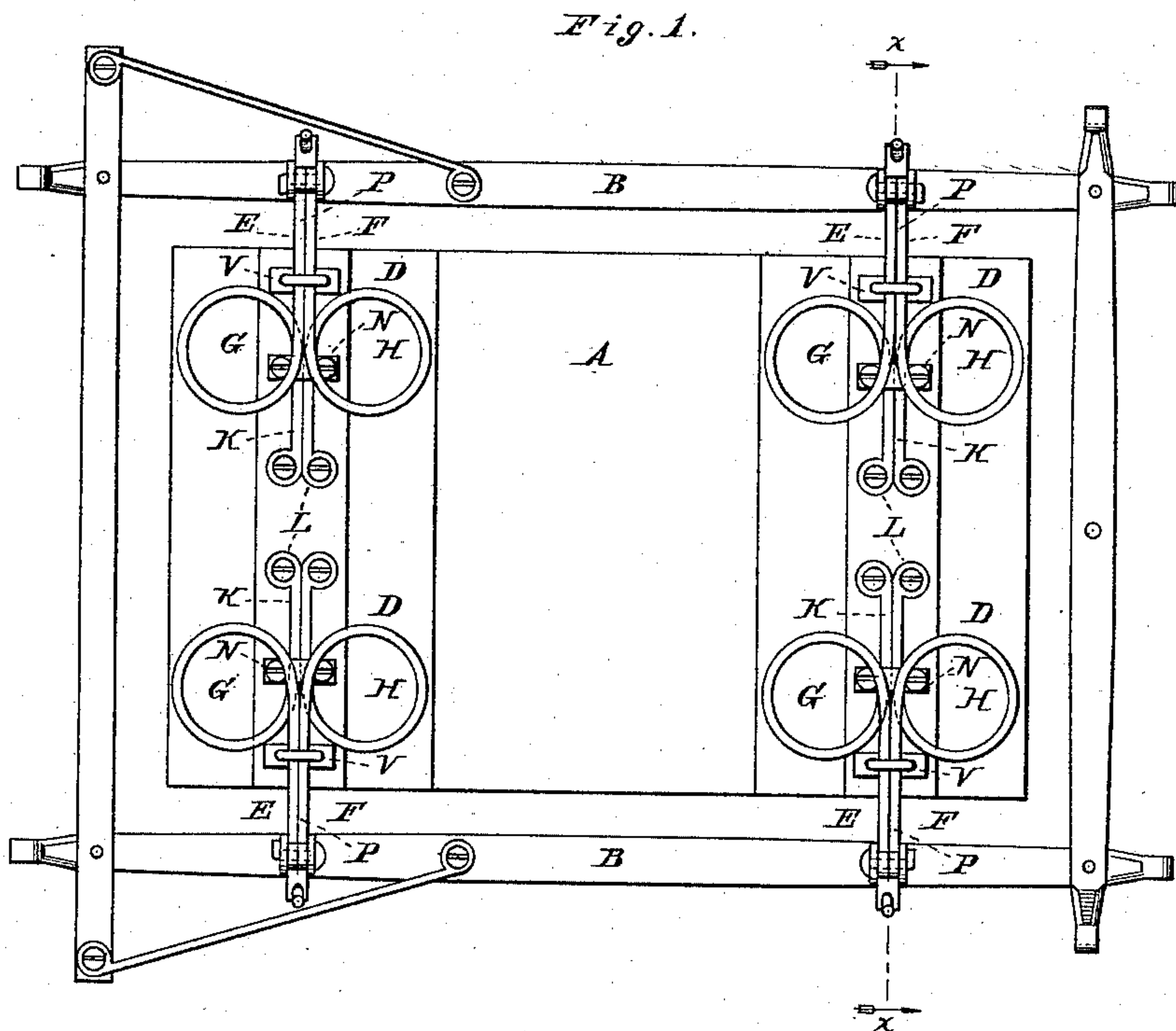


(No Model.)

T. J. MAGNER.
VEHICLE SPRING.

No. 335,942.

Patented Feb. 9, 1886.



WITNESSES

Villette Anderson.
Phillemasi.

INVENTOR

T. J. Magner.
by Anderson Smith
his ATTORNEYS

UNITED STATES PATENT OFFICE.

THOMAS J. MAGNER, OF HORNELLSVILLE, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF A PART OF HIS RIGHT TO JOB KING AND G. W. ROCKWELL, BOTH OF BUFFALO, NEW YORK.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 335,942, dated February 9, 1886.

Application filed November 5, 1885. Serial No. 181,887. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. MAGNER, a citizen of the United States, residing at Hornellsville, in the county of Steuben and State of New York, 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 or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of this invention, and is a bottom view. Fig. 2 is a vertical section taken where the broken line *xx* is marked on Fig. 1.

This invention has relation to vehicle-springs; and it consists in the construction and novel arrangement of devices, all as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, the letter A designates the body of a vehicle, and D the side bars.

D indicates the springs, whereby the body is supported from the side bars or from goose-necks or other bearings. Each spring is made in two parts or branches, E and F, which are formed, respectively, with coils G and H upon vertical axes, said coils extending in opposite directions, as shown. The upper ends of the coil terminate in arms K, which extend inward parallel with each other, and are secured at their ends L to the body. Usually these ends are formed with eyes, through which securing bolts or screws are passed.

N is a shank-clip, which extends over the arms K, binding them to the body above the coils and bracing the spring-branches firmly when they are in connection with the body of the vehicle.

The lower portions of the coils are extended outward parallel with each other, to form the arms P, which are provided at their ends with a shackle-connection, to be clipped to the side

bar or bearings of the running-gear. Usually the arms P are turned upward at their outer portions until nearly level with the upper arms, K, of the spring. The arms P are in the same vertical plane with the arms K, respectively, so that the double spring is isometrical in form, each branch having a bearing in the body and operating to brace the opposite branch. The arms P are usually strengthened by means of a clip-link, V, which is located about midway of said arms, and connects them firmly together.

It will be observed that this spring is not only a double torsion and coil spring, but also that it possesses somewhat the action of an elliptical spring, its branches extending, however, side by side, bent outward in their middle portions, to form the entire coils, and then extending side by side again in the same vertical plane.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. The double coil and torsion spring consisting of isometric branches having opposite coils formed upon vertical axes, and having their inner and outer arms parallel and extending in the same vertical plane in opposite directions, substantially as specified.

2. The double torsion and coil spring consisting of two single-coil branches, having their upper and lower portions extended to form parallel arms, which are firmly clipped together to brace each other, substantially as specified.

3. An isometric double torsion and coil spring, consisting of the coil-branches having their upper arms extending inward and parallel, for attachment to the body, and their lower arms extending outward and parallel and turned upward in their outer portions, for shackle-connection to the running-gear, substantially as specified.

4. An isometric double torsion-spring, consisting of two vertically-coiled branches having their upper ends securely braced together for connection to the body, and their lower ends firmly braced together and extended out-

ward for the shackle-connection, substantially as specified.

5 5. A vehicle-spring consisting of single laterally-opposite coils having parallel attachment-arms extending in opposite directions from the higher and lower portions of said single coils, substantially as specified.

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

THOMAS J. MAGNER.

Witnesses:

WILLIAM F. MACKEY,
JOB KING.