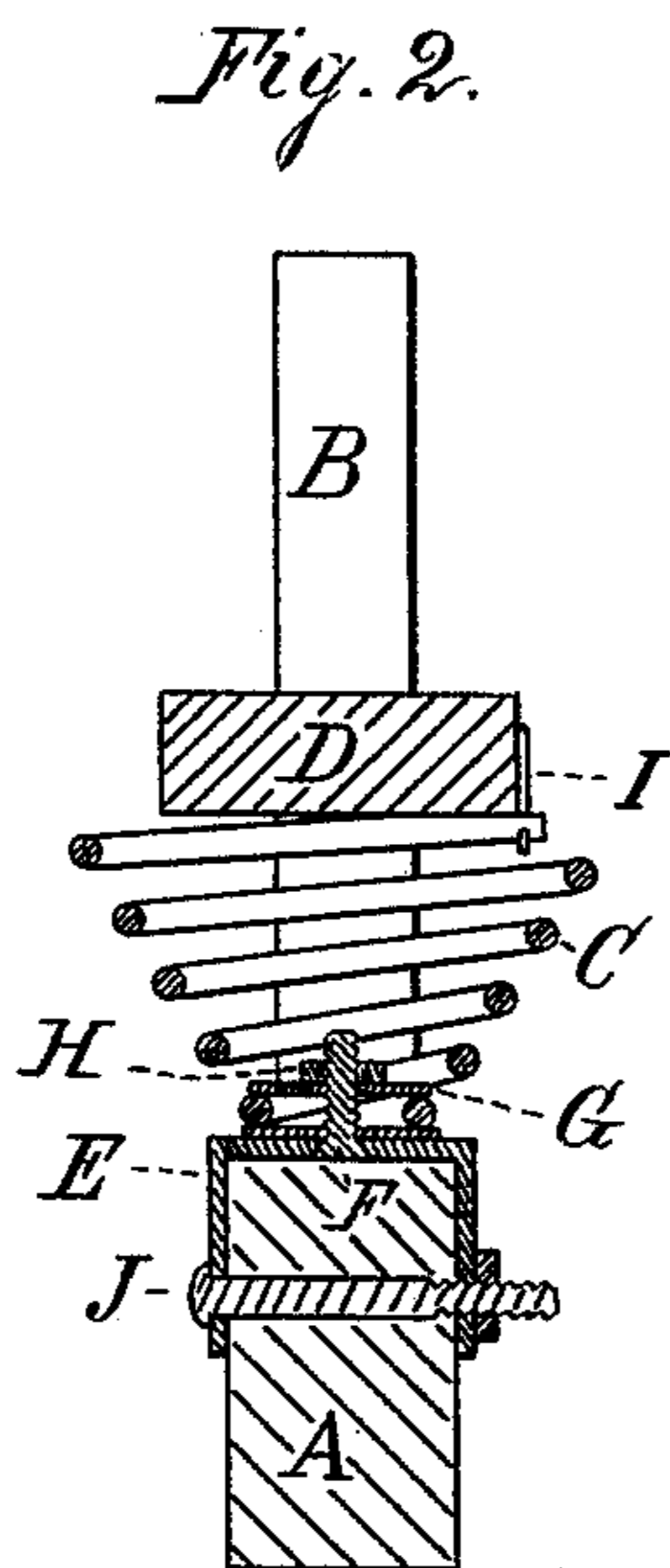
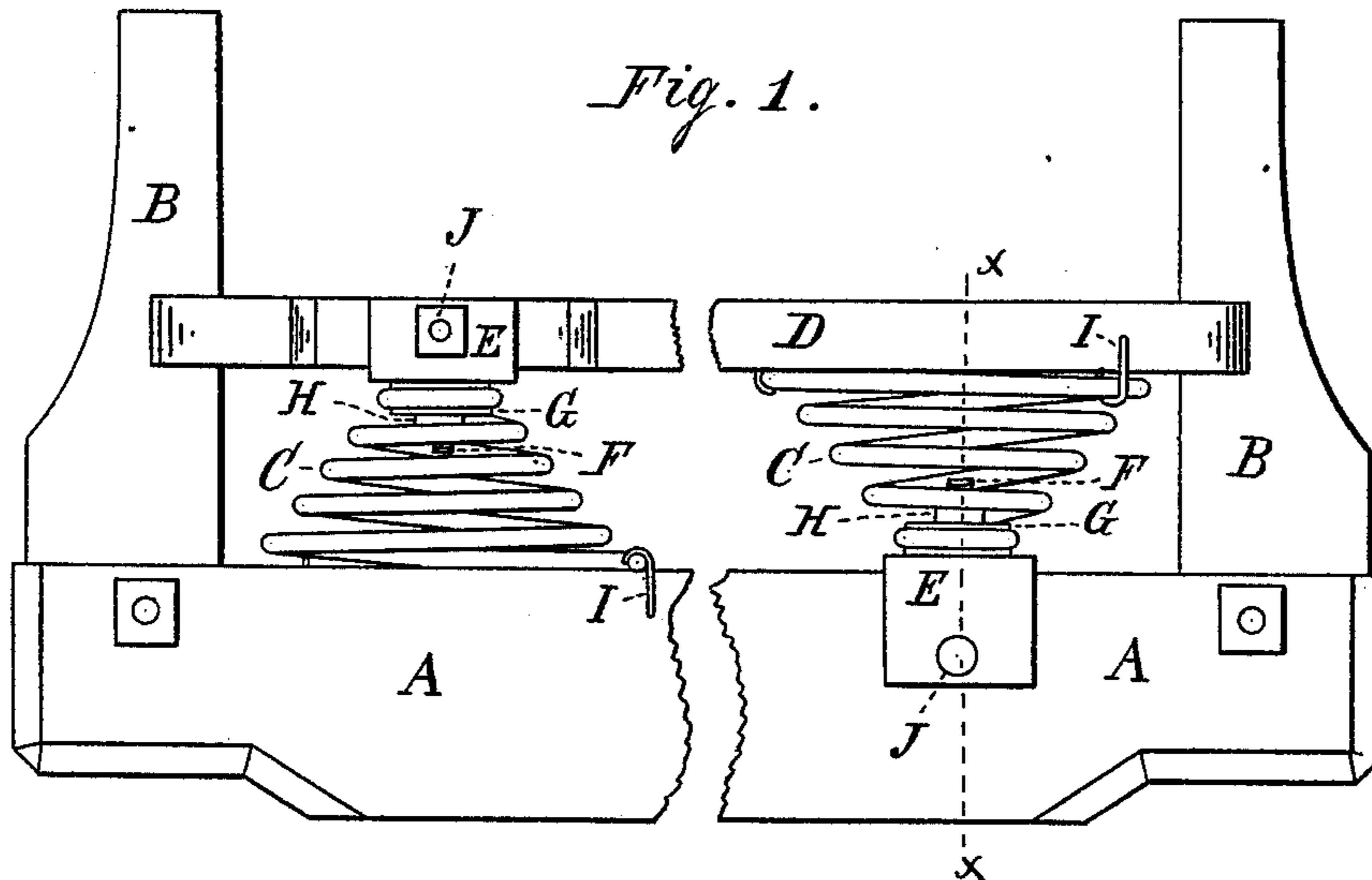


W. S. HAGGARD.
Vehicle-Spring.

No. 213,818.

Patented April 1, 1879.



WITNESSES.

James B. Lizius,
B. J. Kilman

INVENTOR.

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UNITED STATES PATENT OFFICE.

WILLIAM S. HAGGARD, OF LA FAYETTE, INDIANA.

IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **213,818**, dated April 1, 1879; application filed January 6, 1879.

To all whom it may concern:

Be it known that I, WILLIAM S. HAGGARD, of the city of La Fayette, county of Tippecanoe and State of Indiana, have invented certain new and useful Improvements in Wagon-Springs, of which the following is a specification, reference being had to the accompanying drawings, which are made part hereof, and on which similar letters of reference indicate similar parts.

Figure 1 is a side elevation of a wagon-bolster, in connection with which my invention is employed. Fig. 2 is a transverse vertical section thereof looking to the right from the dotted line *x x*.

In said drawings, the portions marked A represent the bolster; B B, the standards thereto; C C, springs thereon, and D a board or bar above said springs, all being relatively arranged in the manner usual to this class of inventions.

The springs are of the conical spiral form, and may be employed in such numbers as may be thought advisable, the limits being commonly two as a minimum and eight as a maximum.

For the attachment of the springs to the bolster A and bar D, I have devised an exceedingly simple and cheap method, which constitutes the subject-matter of my invention. To the small end of the spring I attach a clip, E, by means of a bolt, F, a plate or washer, G, and a nut, H. If the nut is of sufficient size, the washer may, of course, be dispensed with, though I prefer to use it.

The larger end of the spring I usually attach to the appropriate part by means of wires

or staples I I, although such fastening may be entirely dispensed with, as the bar D usually is provided with notches which connect it to the standards, rendering further fastening unnecessary.

These springs are made complete, ready for use, and in applying them to a wagon it is only necessary to pass a single bolt, J, through the clip and the bar or bolster, and attach the larger end of the spring to the other part with one or more of the devices I, or, in case of proper construction of the bar D, the fastening of this end may be dispensed with, as before specified.

These springs are used with either their larger or smaller ends up, as shown.

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

1. The combination of the spring C with the clip E, bolster A, and bar D, said spring being connected to said clip by the bolt F, and said clip being connected to said bolster or bar by the bolt J, all substantially as herein shown and specified.

2. The combination of the bolster A, standards B B, springs C C, bar D, clip E, bolt F, nut H, and bolt J, all arranged and operating substantially as herein shown and described, and for the purposes specified.

In witness whereof I have hereunto set my hand and seal at La Fayette, Indiana, this 2d day of January, A. D. 1879.

WILLIAM S. HAGGARD. [L. S.]

In presence of—

EDWIN B. NEWTON,
FRANK SHAW.