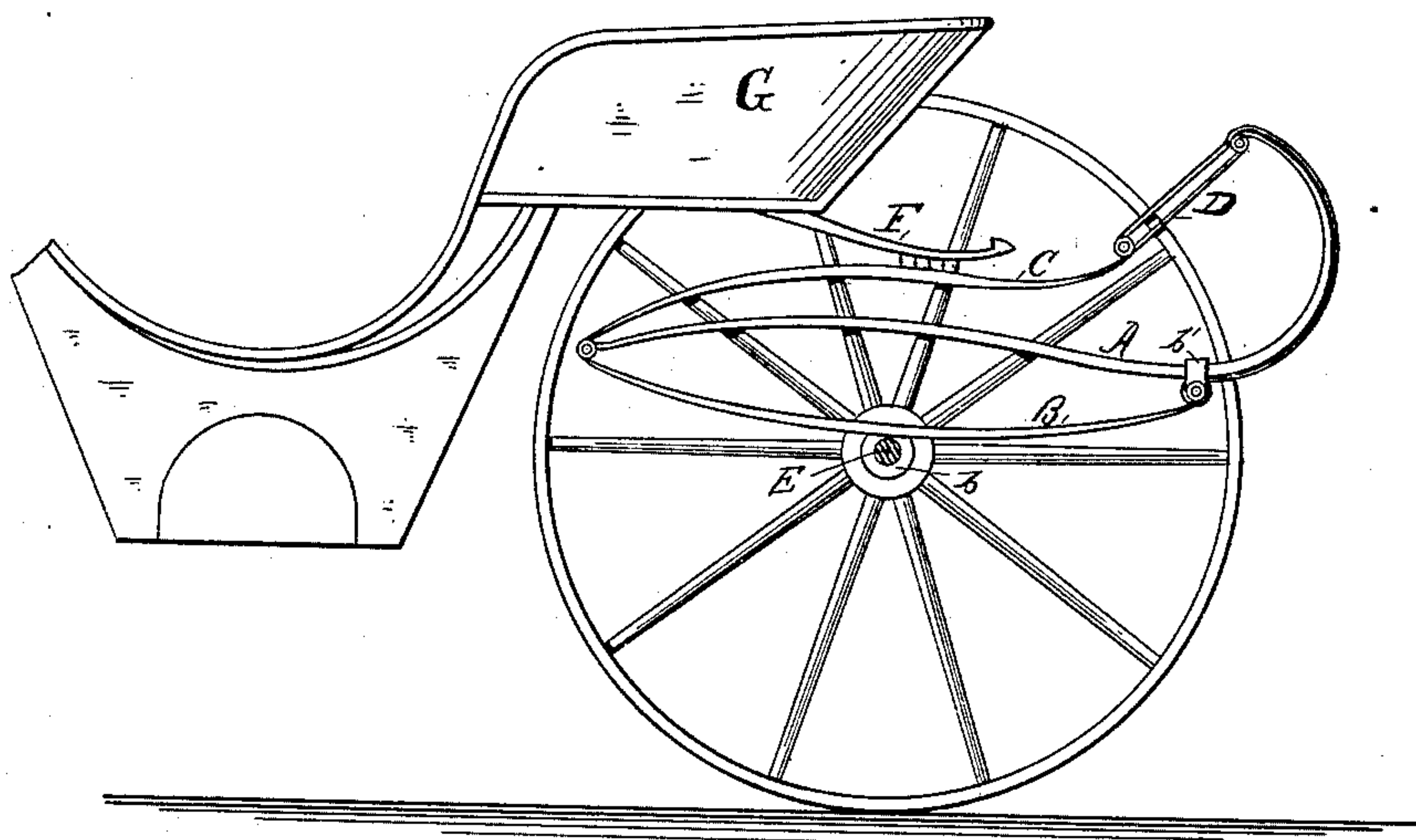


(No Model.)

J. ALLEN.
CARRIAGE SPRING.

No. 336,464.

Patented Feb. 16, 1886.



Witnesses:
Henry Eichling
W. W. Vermilye

Inventor
John Allen
by J. P. Pitch,
his atty.

UNITED STATES PATENT OFFICE.

JOHN ALLEN, OF LONDON, COUNTY OF MIDDLESEX, ENGLAND.

CARRIAGE-SPRING.

SPECIFICATION forming part of Letters Patent No. 336,464, dated February 16, 1886.

Application filed November 10, 1885. Serial No. 182,361. (No model.) Patented in England July 19, 1884, No. 10,327.

To all whom it may concern:

Be it known that I, JOHN ALLEN, of the city of London, in the county of Middlesex, England, and a subject of the Queen of Great Britain and Ireland, have made certain new and useful Improvements in Carriage-Springs, (for which I have obtained English Letters Patent No. 10,327, dated July 19, 1884,) of which the following is a specification, reference being had to the accompanying drawing, forming part of the same, in which the single figure represents a spring embodying my invention, used to support the rear part of a carriage; but it is equally well adapted for use to support the forward part of the same or for supporting a vehicle having but two wheels.

My invention relates to the manner of supporting the main spring employed, by which I am enabled to obtain greater flexibility of spring than has been possible by the use of any form of spring now in use in carriages which do not employ a perch.

The usual method of supporting springs in such cases has been to secure them directly to the axle, which greatly detracts from the flexibility of the same, while by supporting them upon an intermediate device I am enabled to attain the desired result—that is, a yielding action throughout the whole length of the spring—and still dispense with the perch.

In the drawing, A is the main spring, B is the supporting device, C is the upper supporting device, and D a connecting-link. The supporting-piece B is preferably another spring curved, as shown, secured to the axle E by a clip, *b*, hinged to the spring A at the forward end and connected to it by a shackle, *b'*, or other suitable device, which, while pro-

viding a rest for such spring, permits its free lateral movement. The support C is secured at its forward end, preferably to the same hinge which connects A and B, is curved, preferably, as shown, and is supported at the opposite end by a loop extending therefrom to the upper end of spring A. Upon it is supported, either directly or by an intermediate support, F, as shown, the carriage-body G. It will of course be readily perceived that the spring is greatly improved by having the pieces B and C also of spring metal; but the advantage of supporting A as described is secured even when they are not of such material, as by their employment the action of A throughout its entire length is secured whatever may be the material used in the fabrication of B and C.

What I claim, and desire to secure by Letters Patent, is—

1. A carriage-spring supported between and connected with two supporting-pieces, B and C, one of which is adapted to be secured to a carriage-axle, and is hinged to the spring at one end and shackled thereto, as described, at the opposite end, and the other of which is also hinged to the spring at one end and connected thereto by a loop extending from the opposite end, and adapted to support the carriage upon its upper face, all substantially as and for the purpose specified.

2. A carriage-spring composed of the spring A, springs B and C, and loop D, all constructed, arranged, and combined as and for the purpose specified.

JOHN ALLEN.

Witnesses:

WM. THOS. MARSHALL,
L. AUG. EUSTACE.