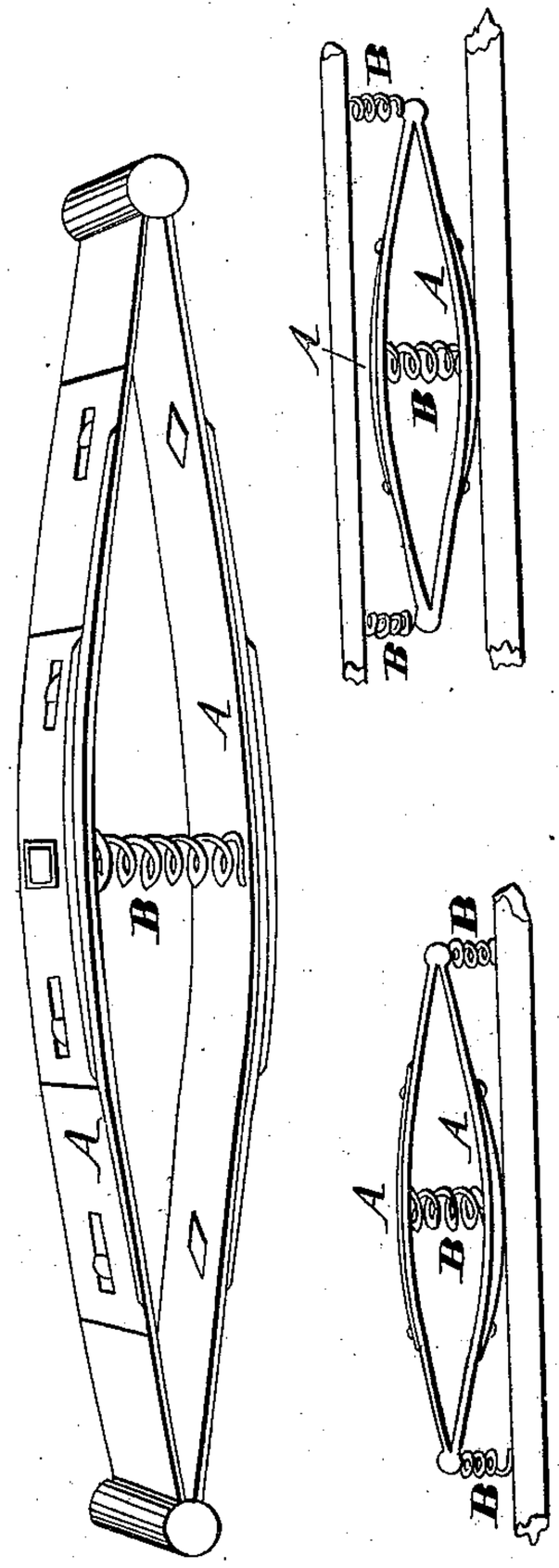
W. CROASDALE.

Carriage-Spring.

No. 116. Patented Feb. 3, 1837.



Witnesses.

M. F. Cavanb

Felix Keller

Inventor.

William Croasdale

by his Attorney

Arthur L. McIntire

UNITED STATES PATENT OFFICE.

WILLIAM CROASDALE, OF HARTSVILLE, PENNSYLVANIA.

APPLICATION OF SPIRAL SPRINGS TO ELLIPTICAL OR BOW SPRINGS FOR CARRIAGES OF VARIOUS KINDS.

Specification of Letters Patent No. 116, dated February 3, 1837.

To all whom it may concern:

Be it known that I, WILLIAM CROASDALE, of Hartsville, Bucks county, Pennsylvania, have invented an Improvement in the Construction of Elliptical or Double-Bow Springs for Carriages of Various Kinds; and I do hereby declare that the following is a full and exact description thereof.

The springs are made and put together in the usual manner, my improvement consisting of a spiral spring, or spiral springs, which I interpose between the two bows of the elliptical spring, and sometimes, between the ends of the elliptical springs and the axle, and also the under side of the carriage.

In most cases I consider a single spiral spring sufficient; such springs I make of steel wire, of from eighth, to three eighths, of an inch in diameter, twisted with the coils open, and placed in the middle between the two bows, so as to extend from one to the other; the ends of the wire entering into holes prepared to receive them. I generally wind these springs with the coils each of the same size, when the outline will be cylindrical; but sometimes I wind them so that their outline may be that of a double cone joined at the smaller ends, and the coils then pass, more or less, one within the other, when pressed closely together. The outline may also be conical, or the spring may be bent in a zigzag form, or otherwise; but I deem the spiral best. If preferred, there may also be spiral springs placed under the ends of the elliptical springs, their lower ends bearing on the axletree, and sometimes, also, above the ends of the elliptical springs, extending up to, and bearing against, any suitable piece of timber attached to the under side of the carriage, or vehicle. Thus there may be four such springs without, while there may be two, or more, such springs, placed at suitable distances apart within the elliptical springs, so graduated as to adapt them to the double bow. The spiral springs thus placed, give greater elasticity and liveliness to the elliptical spring, and also tend to prevent its breaking.

What I claim as my invention, and wish to secure by Letters Patent, is—

The adding to, and combining with, the elliptical, or double bow, springs, one, or more spiral springs, in the manner, and for the purpose, herein set forth.

WILLIAM CROASDALE.

Witnesses:

THOS. P. JONES,

A. L. MCINTIRE.