

A. B. GREENWALT.

Carriage-Spring.

No. 57,312.

Patented Aug 21, 1866.

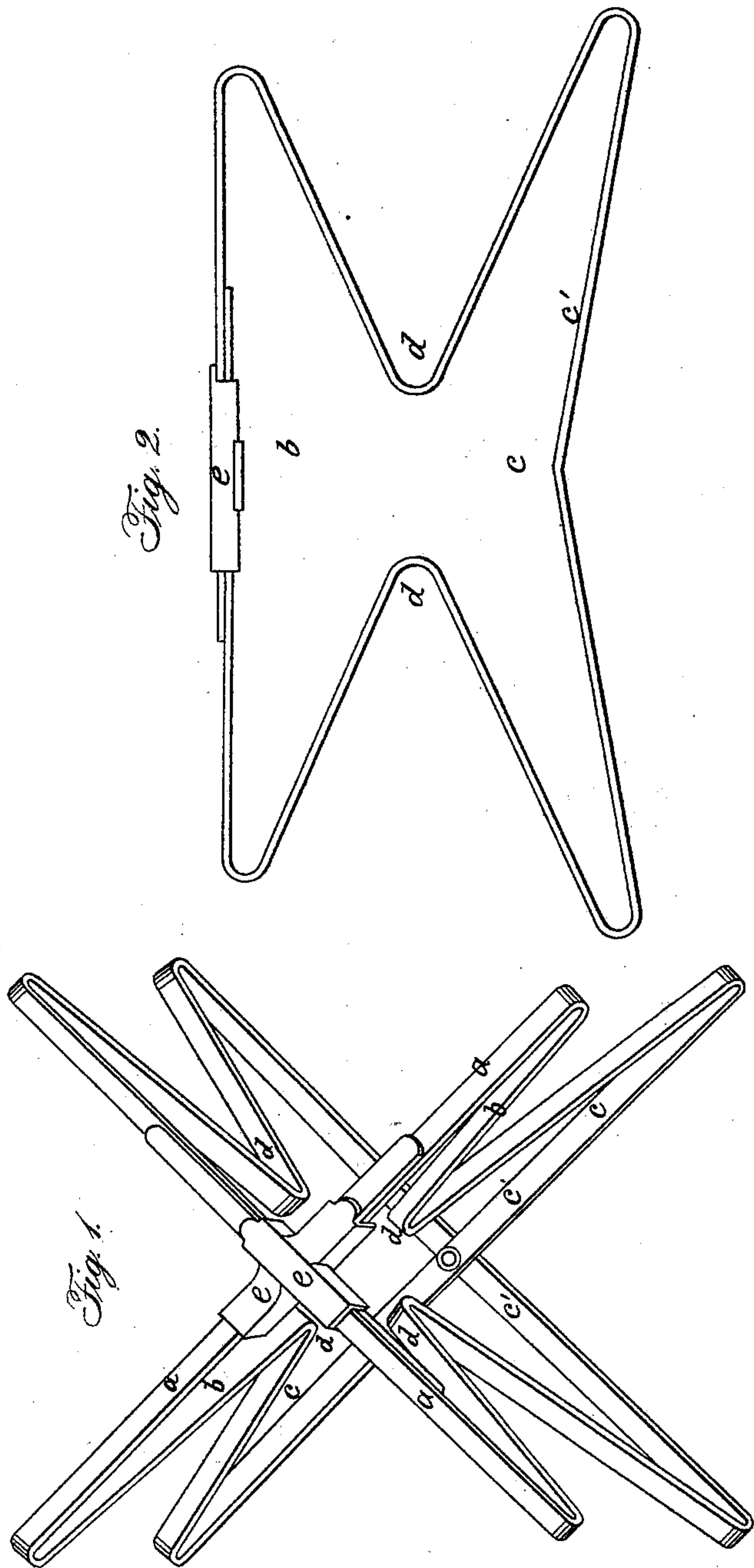


Fig. 1.

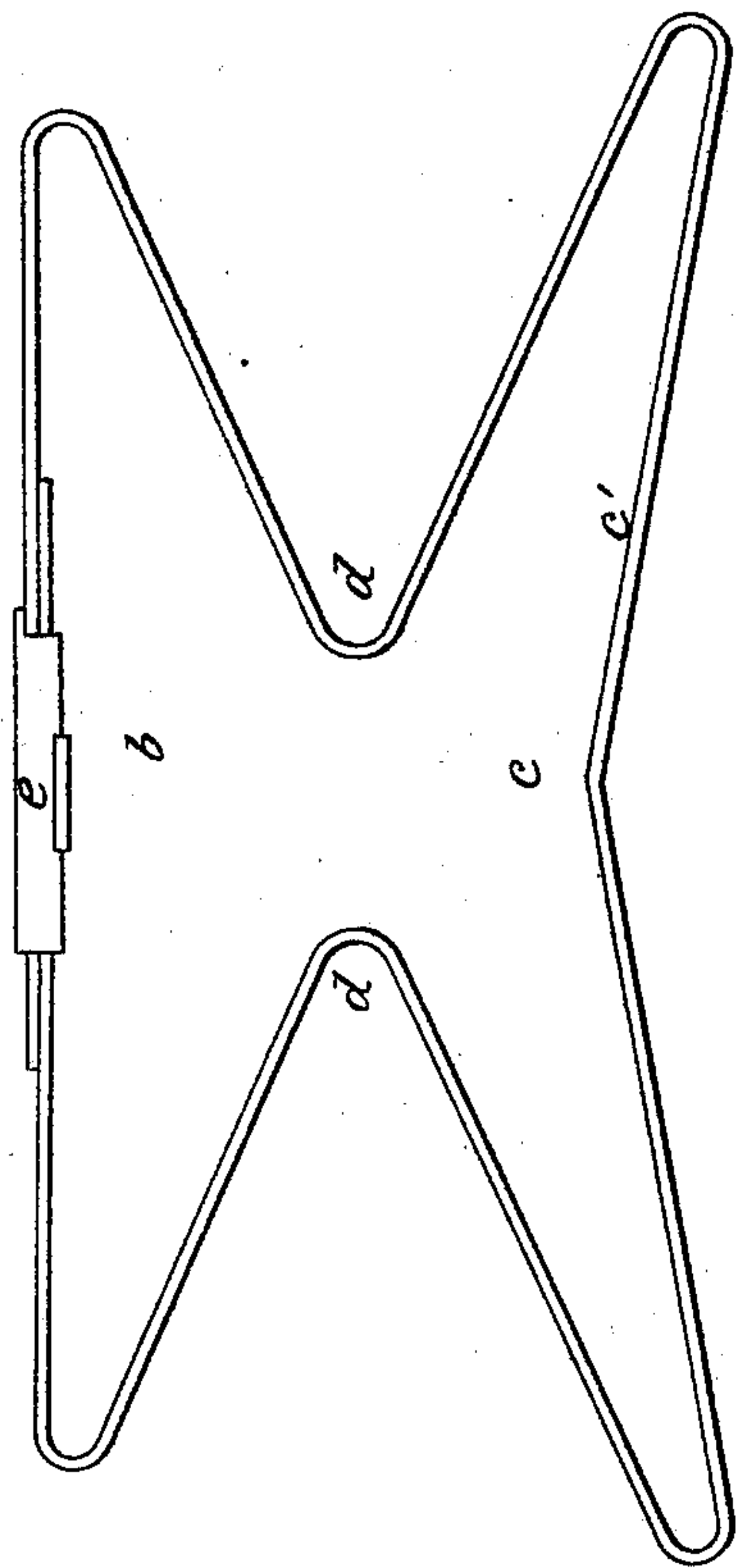


Fig. 2.

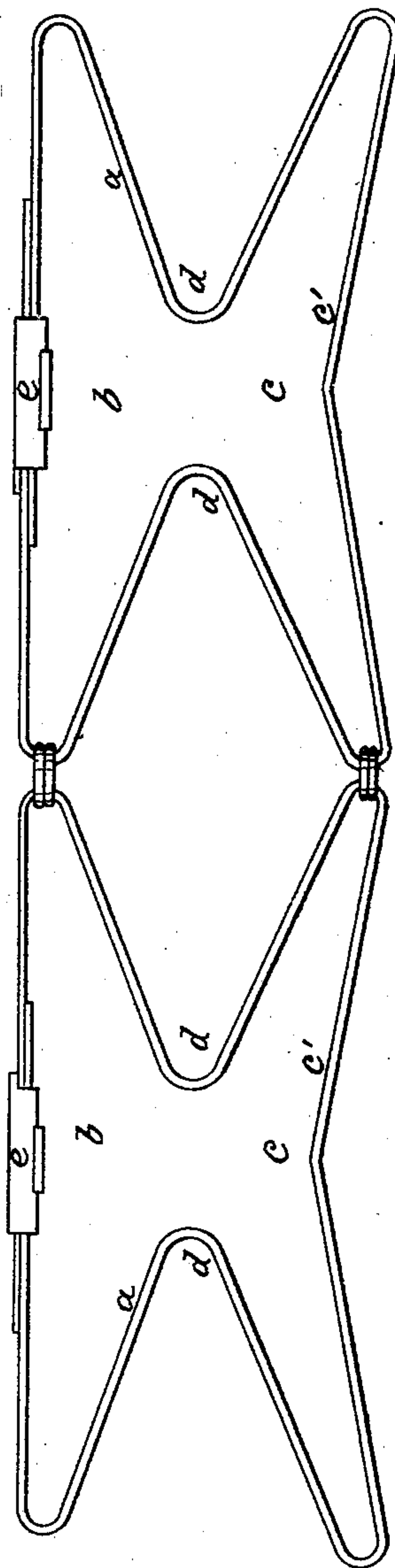


Fig. 3.

Witnesses:

C. D. Smith  
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# UNITED STATES PATENT OFFICE.

A. B. GREENWALT, OF BALTIMORE, MARYLAND.

## IMPROVEMENT IN SPRINGS FOR CARRIAGES, &c.

Specification forming part of Letters Patent No. 57,312, dated August 21, 1866.

*To all whom it may concern:*

Be it known that I, ABRAHAM B. GREENWALT, of the city and county of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Springs for Carriages and other purposes; and I do hereby declare that the following is a full, clear, and exact description of the nature, construction, and operation of the same, reference being had to the accompanying drawings, which are made a part of this specification, and in which—

Figure 1 is a perspective view of a double spring illustrating my invention. Fig. 2 is a side elevation of a single spring also embodying my invention. Fig. 3 is a side elevation of two springs, showing the mode of connecting the same when employed in series.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of a spring composed of a single piece of steel or other suitable elastic material, bent so as to form a figure substantially such as represented in Fig. 2, the object and advantages of which will be presently explained.

This spring may be used for carriages, but is applicable to bed-bottoms, sofas, chairs, and seats generally, its adaptation to any of these uses merely requiring a change of size or the arrangement of a plurality under obvious modifications.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe it with reference to the accompanying drawings.

*a* represents the strip or piece of which the spring is composed. This is bent so as to form the two oblong figures *b c* and the intervening neck *d*. As before stated, the spring is made out of a single strip or piece of metal

or other suitable material, and the ends are connected together by a suitable fastening at *e*. The side *c'* of the portion *c* is curved or bent inward toward the neck *d*, as clearly shown in Fig. 1. This curved part *c'* is an essential feature of my invention, and it adds greatly to the efficiency and capacity of the spring as a whole, for, while it has an independent spring or elasticity within itself, by yielding to the tension of the remaining parts of the spring it allows them a greater capacity for expansion and contraction than they possess when the part *c'* is straight.

Two springs constructed as above described may be connected together in the manner shown in Fig. 1, so as to form a compound or double spring to be used for chairs, bed-bottoms, sofas, or otherwise; or the single spring, Fig. 2, may be used as a carriage-spring; or a series may be connected by rings, as shown in Fig. 3, to be used for making spring bed-bottoms, &c.

When the compound spring, Fig. 1, is to be used as a chair-spring, it is inverted in order to adapt the concavity formed by the curves *c' c'* to receive the cushion or material of which the seat of the chair is composed.

Having thus described my invention, the following is what I claim as new herein and desire to secure by Letters Patent:

I claim—

A spring having the general conformation represented in Fig. 2, and formed with the curved part *c'*, substantially as and for the purpose set forth.

To the above specification of improvement in springs for carriages and other purposes I have signed my hand this 5th day of July, 1866.

A. B. GREENWALT.

Witnesses:

W. F. HALL,  
CHAS. D. SMITH.