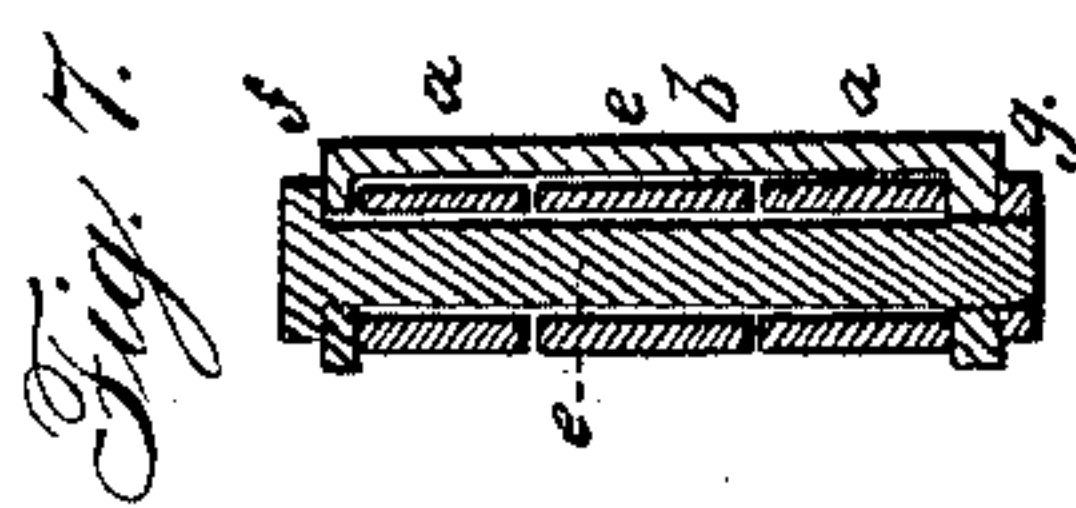
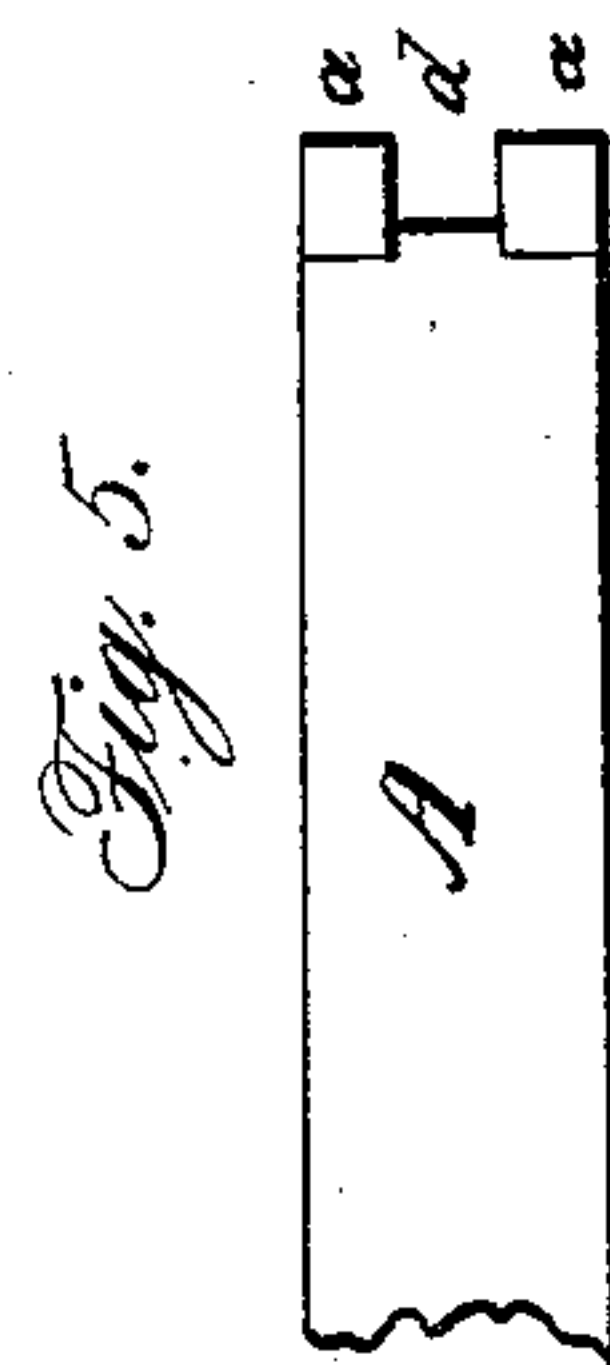
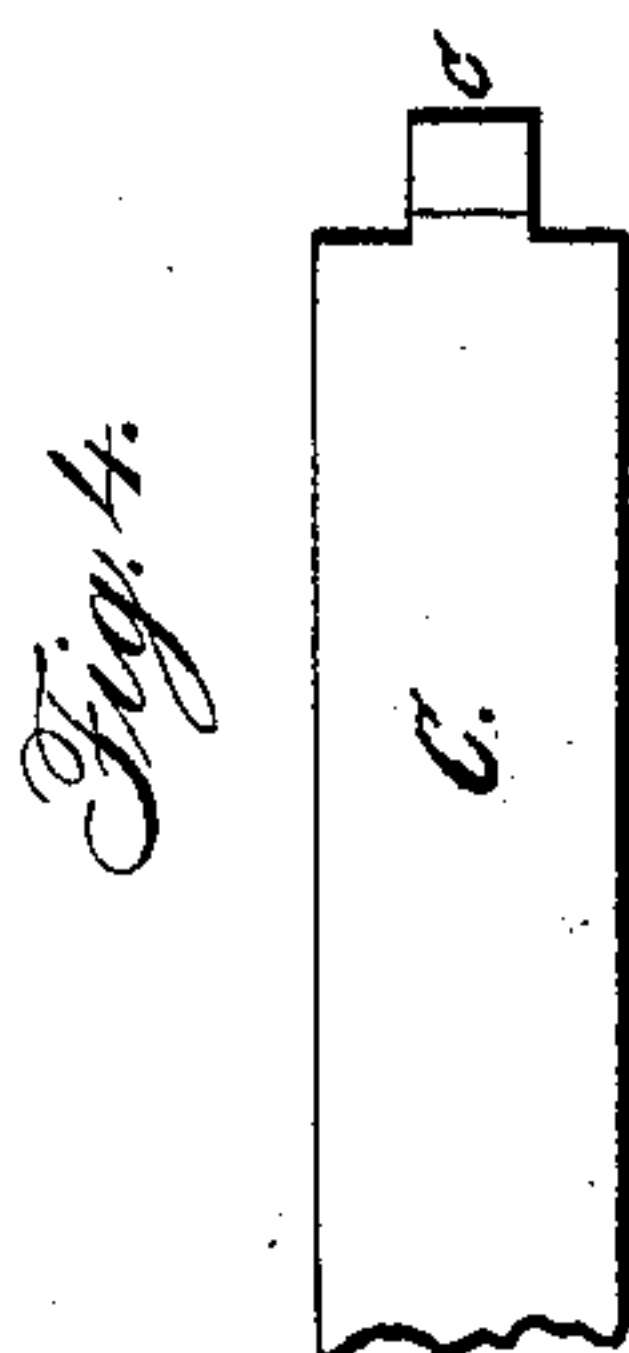
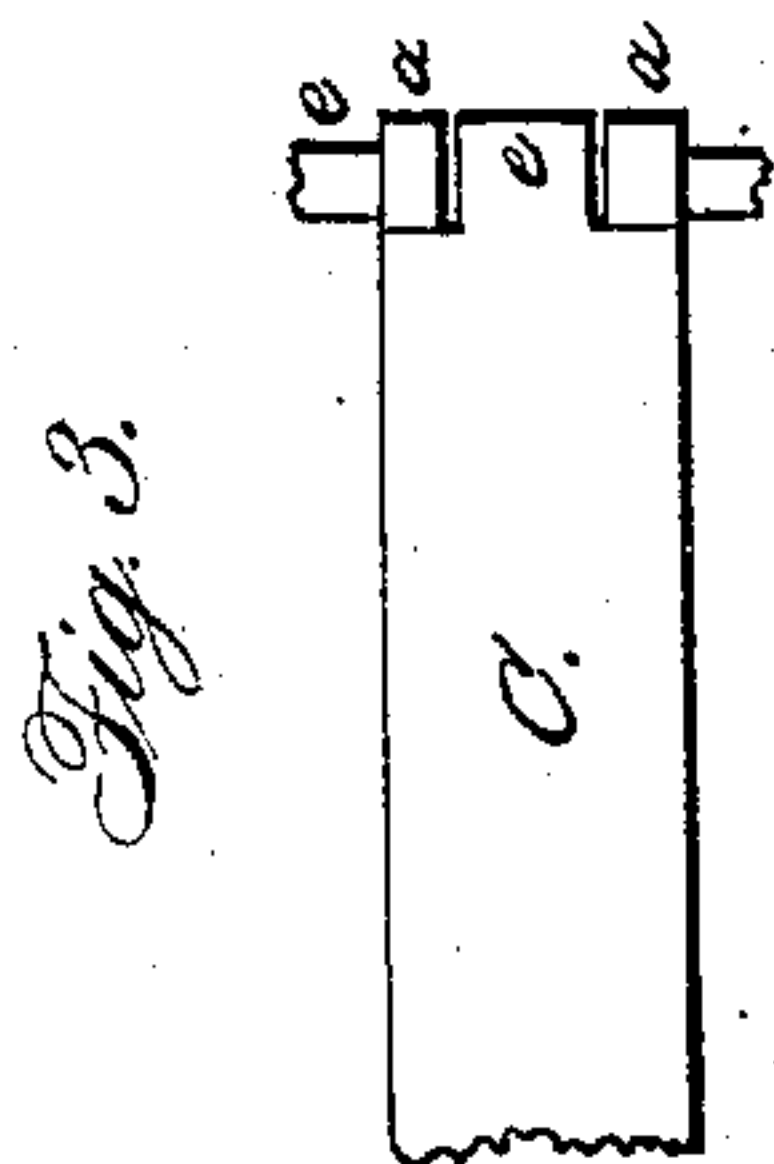
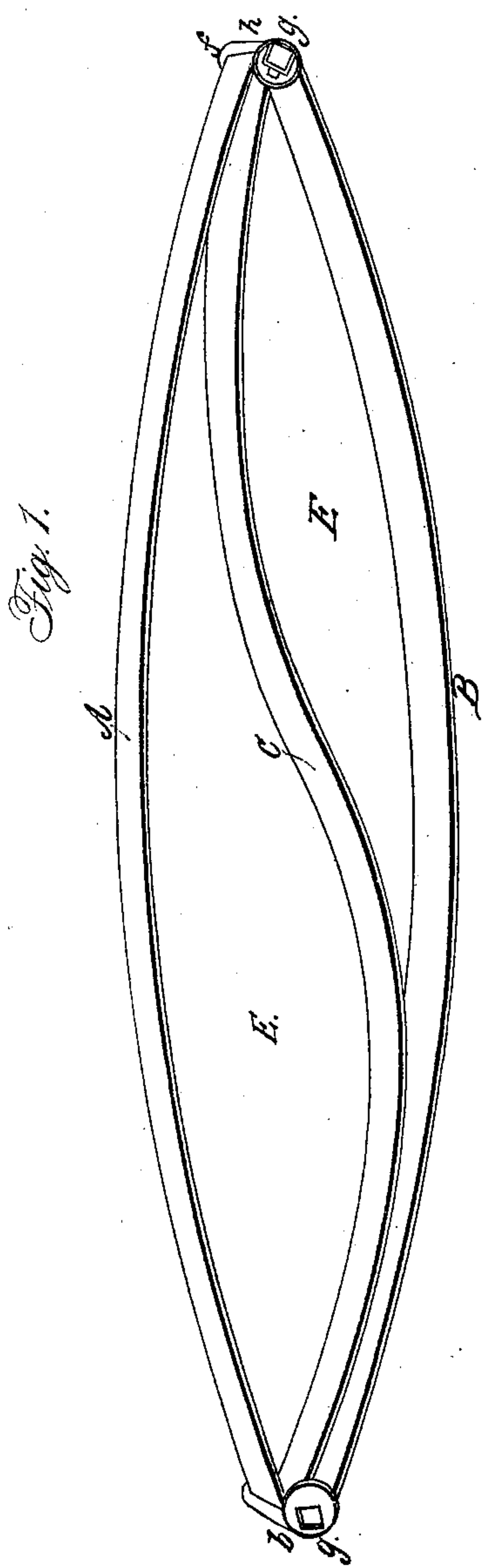


D. A. EDWARDS.

Carriage-Spring.

No. 2,360.

Patented Nov. 16, 1841.



UNITED STATES PATENT OFFICE.

DAVID A. EDWARDS, OF BOSTON, MASSACHUSETTS.

ELLIPTICAL SPRING.

Specification of Letters Patent No. 2,360, dated November 16, 1841.

To all whom it may concern:

Be it known that I, DAVID A. EDWARDS, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and
5 useful Improvement in Elliptic Springs, and that the following is a full and exact description of the same, reference being had to the accompanying drawings, which will be hereinafter described and which, taken in
10 connection herewith, forms my specification, wherein I have set forth the principles of my said invention, by which it may be distinguished from others of a similar nature, together with such parts or combinations as
15 I claim and for which I solicit an exclusive property for fourteen years to be secured to me by Letters Patent.

The object of my improvement is to supersede the use of the extra plates, commonly
20 used on the exterior of an ordinary elliptic spring, thereby making a great saving in the expenditure of material, and at the same time by the insertion of an internal bent spring, which will be hereinafter described,
25 to insure the requisite degree of elasticity and strength.

Figure 1, of the accompanying plate of drawings is a perspective view of my improved spring. Fig. 2 is an elevation of
30 the center spring detached, Figs. 3, 4, 5, 6, 7 being detailed views, which will be explained and referred to.

A, B, represent respectively the upper and lower inner plates of a common elliptic
35 spring, being connected together by means of the hollow cylindrical ends *a, a*, of the upper plate A, (arranged like the end of a common hinge as seen in Fig. 5), inserted in the cylindrical or barrel shaped sockets
40 *b, b*, Fig. 6, of the lower plate.

The center spring C, is forged into the shape represented in Fig. 2, (approaching to that of the letter (S) and denominated in
45 architecture an "ogee" or "cima reversed"), having its ends *c, c*, turned so as to form a hollow cylinder, whose bore is of the same diameter, as that in the ends *a, a*, of the plate A, its width being equal to the space *d* Fig. 5, in which it is inserted.

Pins or screw bolts *e*, having heads *f*, at
50 one end, are passed through holes in the sides of the sockets *b, b*, and the holes before described in the ends *a, a*,—*c c* of the plates A, C, being confined by nuts *g, g*, screwed
55 on the end as shown in Fig. 7.

By the above arrangement it will be seen that a common hinge joint is made of the ends of the center and upper plates C, A, as
60 seen in Fig. 3, while the socket ends of the lower plate B play loosely over the whole, thus avoiding all rattling or jarring of the ends in contact.

It will be seen that the use of the middle plate C makes the spring quite rigid, forming in fact a double spring by dividing the
65 elliptic space, made by the upper and lower plates, into two similar smaller ones as shown at E, F, the advantageous operation of which will be understood by inspection of
70 Fig. 1.

Should it be desirable, where great rigidity is required one or more back plates may be used, but this will rarely be found
75 necessary.

In the above I shall not confine myself to
the method described of confining the ends of the plates, but I claim as novel and as
my invention—

Inserting between the main lower and upper plates of an elliptic spring, a double
80 curved spring, (or one forged into the shape of an ogee curve or approaching to that of the letter S), so as to divide it into two springs and increase its rigidity, at the same
85 time superseding the use of most, if not all, the ordinary back plates, the whole being substantially as above described.

In testimony that the foregoing is a true description of my said invention and improvement I have hereto set my signature
80 this twenty fifth day of September in the year eighteen hundred and forty one.

DAVID A. EDWARDS.

Witnesses:

R. H. EDDY,
CALEB EDDY.