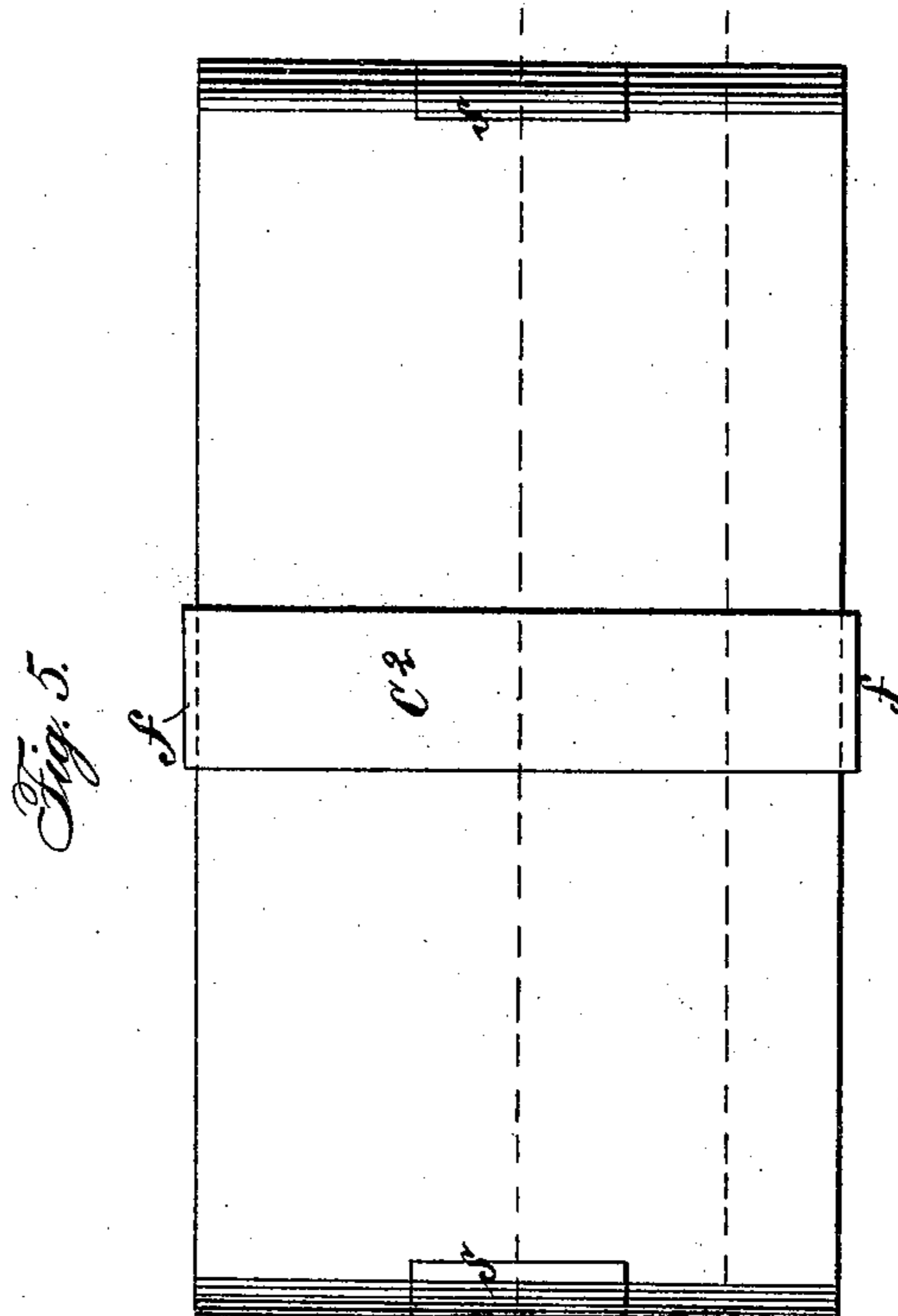
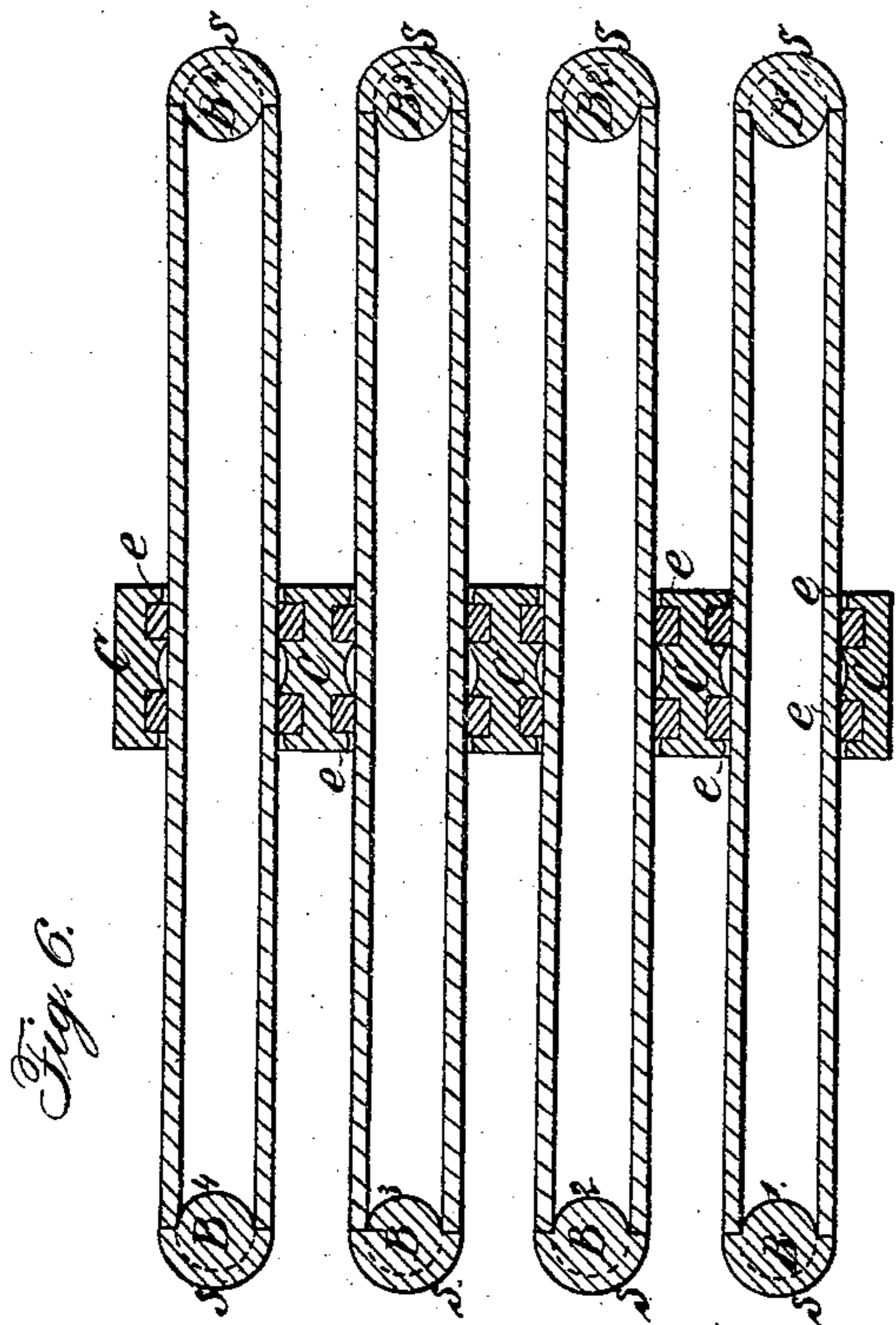
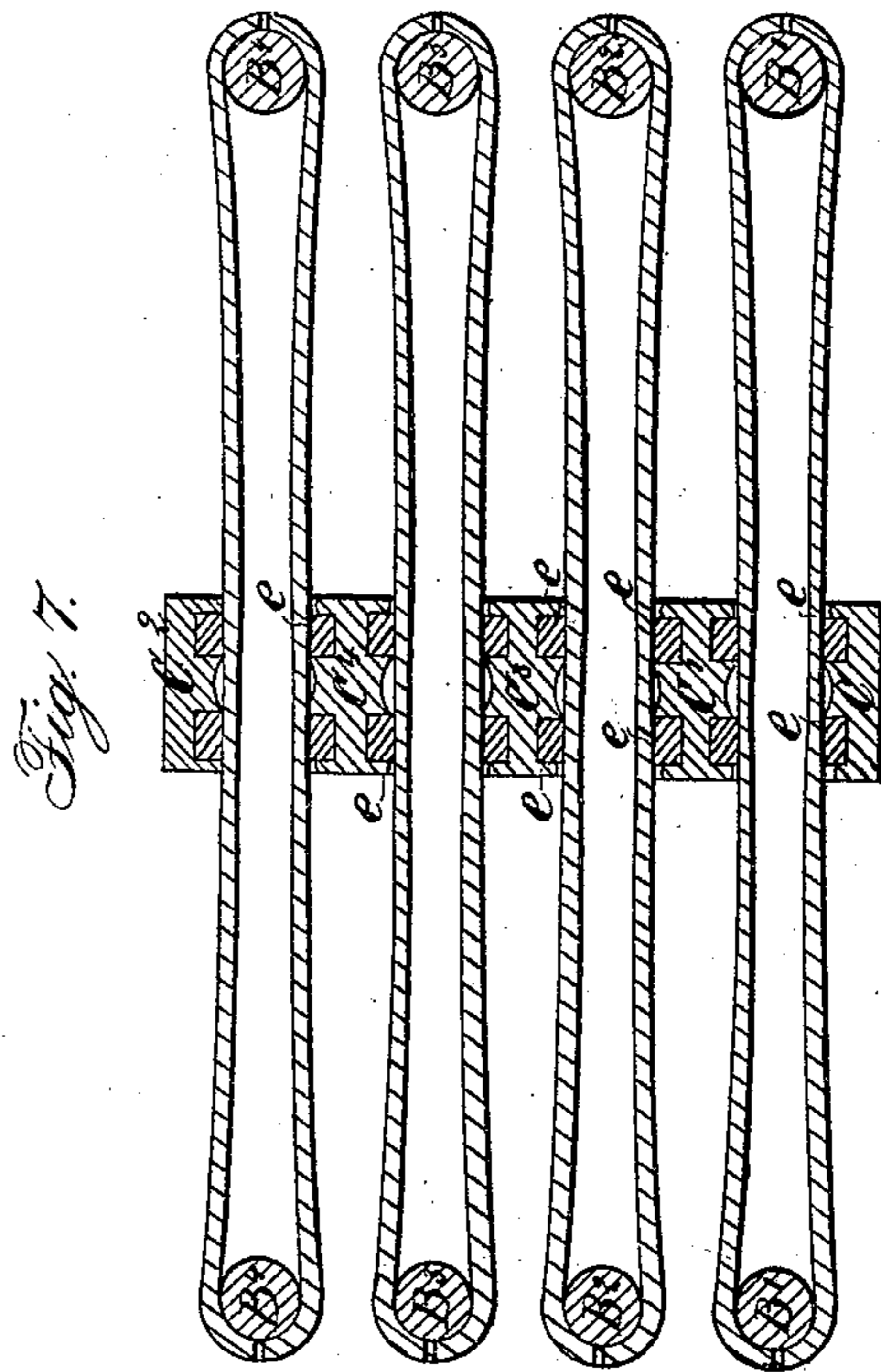
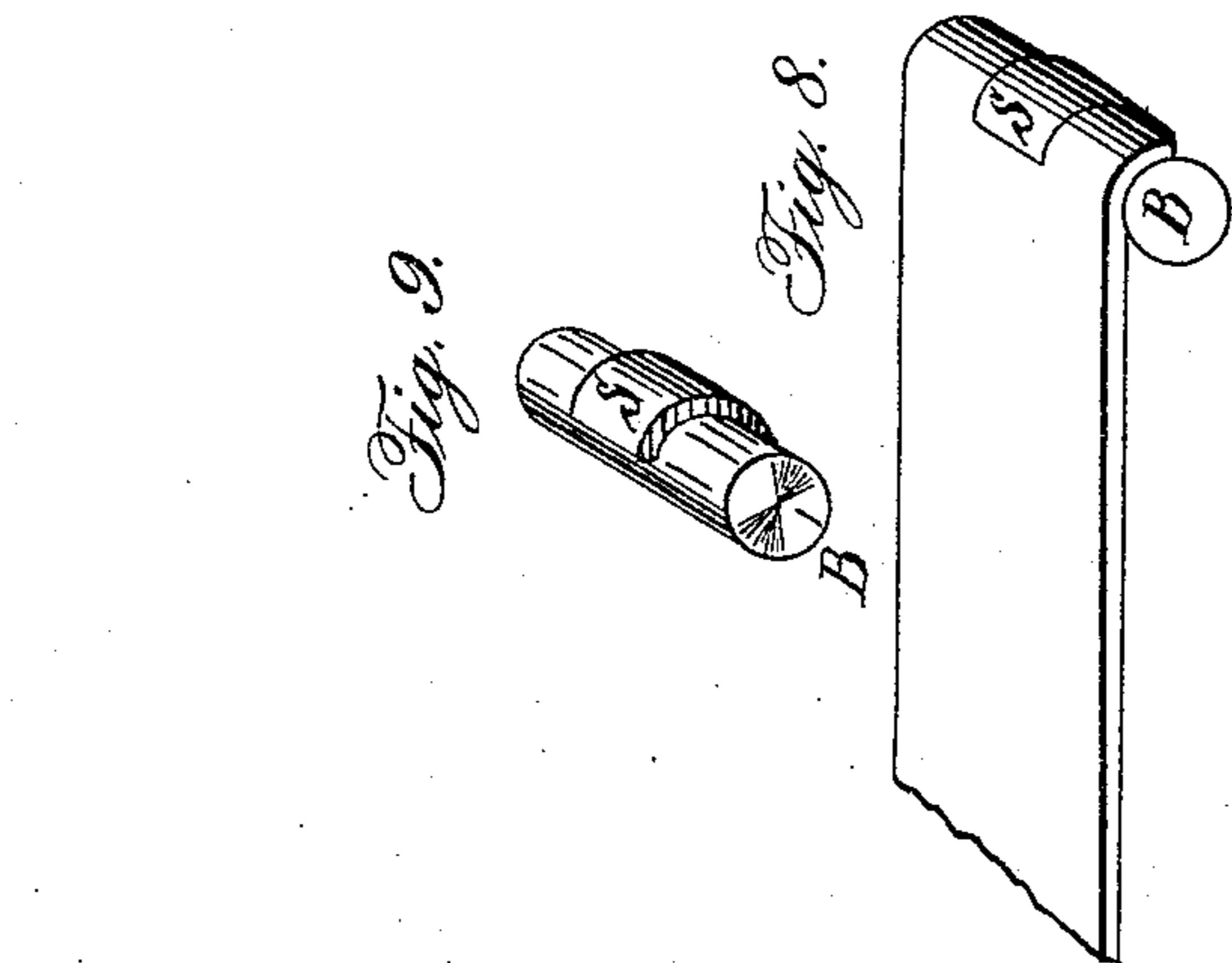


T. F. ALLEN.

Car Spring.

No. } 98, {
31,102. }

Patented Jan. 15, 1861.



Witnesses:

Robt W. Humeck
G. H. L. Deaneck

Inventor:

T. F. Allen

UNITED STATES PATENT OFFICE.

T. F. ALLEN, OF DYERSVILLE, IOWA.

SPRING FOR RAILROAD-CARS.

Specification forming part of Letters Patent No. 31,102, dated January 15, 1861; Reissued July 2, 1872, No. 4,959.

To all whom it may concern:

Be it known that I, T. F. ALLEN, of Dyersville, in the county of Dubuque and State of Iowa, have invented a new and useful Improvement in Railway-Car Springs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1, (Sheet 1,) represents a plan or top view of my improved railway car spring. Fig. 2, is a vertical transverse section of the same in line x, x , of Fig. 1. Fig. 3, is a similar section in the line y, y , of Fig. 1. Fig. 4, shows a different method of holding the plates together. Figs. 5, 6, 7, 8 and 9, (Sheet 2) represent a modification of my improved spring.

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

The nature of my invention consists in the mode of arranging and holding together metallic plates and cross bars or fulcras, so as to form a car spring which works without producing sliding friction between its parts, or abrasion by coming in contact with any part of the truck frame or car body, as herein described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, by first referring to Sheet 1, of the drawings, and afterward to Sheet 2, of the same.

A, A^1 , A^2 , A^3 , represents the metallic plates, B, B^1 , the end connecting cross bars or fulcras, and C, C^1 , C^2 , the central connecting cross bars or fulcras, and c , the hooks that help to hold the spring together.

The elastic plates may be flat or bent at their ends in a rectangular or any desired form so as to fit and connect with the end cross bars or fulcras.

Sheet 1, represents the end cross bars or fulcras of T-form, they have a jog or shoulder A, at each end both at the top and bottom. The central connecting cross bars or fulcras are of rectangular form in their transverse section, and also have a jog or shoulder b , at their ends to hold the plates transversely. The hooks c , by clasping the end cross bars or fulcras and hooking into the central cross bars or fulcras, hold the spring together longitudinally.

To arrange the plates A, A^1 , A^2 , A^3 , the lower plates A, are placed upon the lower central cross bar or fulcras C, the end cross bars or fulcras B, B, are placed upon the ends of the plates A. On the cross bars B, B, the second plates A^1 , rest, their ends fitting into the upper shouldered recesses of the same. On the plates A^1 , the cross bar C^1 , is placed, and upon this bar plates A^2 , rest, their ends fitting into the shouldered recesses of the end bars B^2 , B^2 . The hooks c , must be placed alternately in their proper position as before described. The plates A^3 , and cross bars B^2 , B^2 , are added. On top of plates A^3 , the central cross bar C^2 , is placed, and upon this bar the weight attaches which works the spring.

By continuing to add plates and cross bars, as described, a spring of almost any desired volume may be produced.

I have described the plates made in two pieces or double, but they may be made in one plate or single, and confined together by the hooks c , connecting at the ends of the cross bars, instead of connecting at their centers.

In Figs. 5, 6, 7, 8, and 9, a modification of the spring just described is shown. The difference in the construction here adopted is the formation of a teat or lug f , on each side of the plates, and recesses for the same to fit into, in the central cross bars A, and also of a semi-circular projection S, on the end cross bars or fulcras B, B^1 , B^2 , B^3 , which are in this case round, and corresponding open slots in the ends of the plates which—in this case—have their ends bent in the form of a quadrant, so as to fit the cross bars and hold them together.

2nd, the introduction of india rubber, or other packing e , e , between the plates and cross bars, the packing being let into recesses in the cross bars as represented. By this modification the hooks and angular shouldered recesses, represented in Sheet 1, of the drawings are dispensed with, yet the plates and cross bars are held firmly together.

By arranging together metallic spring plates and cross bars or fulcras, in the manner and for the purpose described, it will be seen that short plates are used, say from ten to sixteen inches in length, without being weakened by passing bolts through the

plates or cross bars, or bringing any part of the spring in contact with a surface whereby sliding friction is produced.

5 The bearings points of the plates and cross bars, being placed at right angles relatively to each other, the plates work freely over and under the cross bars or fulcras, while the said cross bars or fulcras do not oscillate, but act as pivots or rests, over and under which the plates deflect when the spring
10 is in motion.

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

15 So arranging the plates and cross bars above each other, and holding the same to-

gether, that the plates are sprung, when the spring is in action, from the base to the top of the pile over and under the central cross bars, and while being thus sprung, the end cross bars, and the ends of the plates 20 approximate each other both vertically and laterally, without touching any object, or coming in contact with bolts passing through the pile, or a frame confining them, substantially as and for the purpose 25 herein set forth.

T. F. ALLEN.

Witnesses:

GOODWIN Y. AT LEE,
ROBT. W. FENWICK.