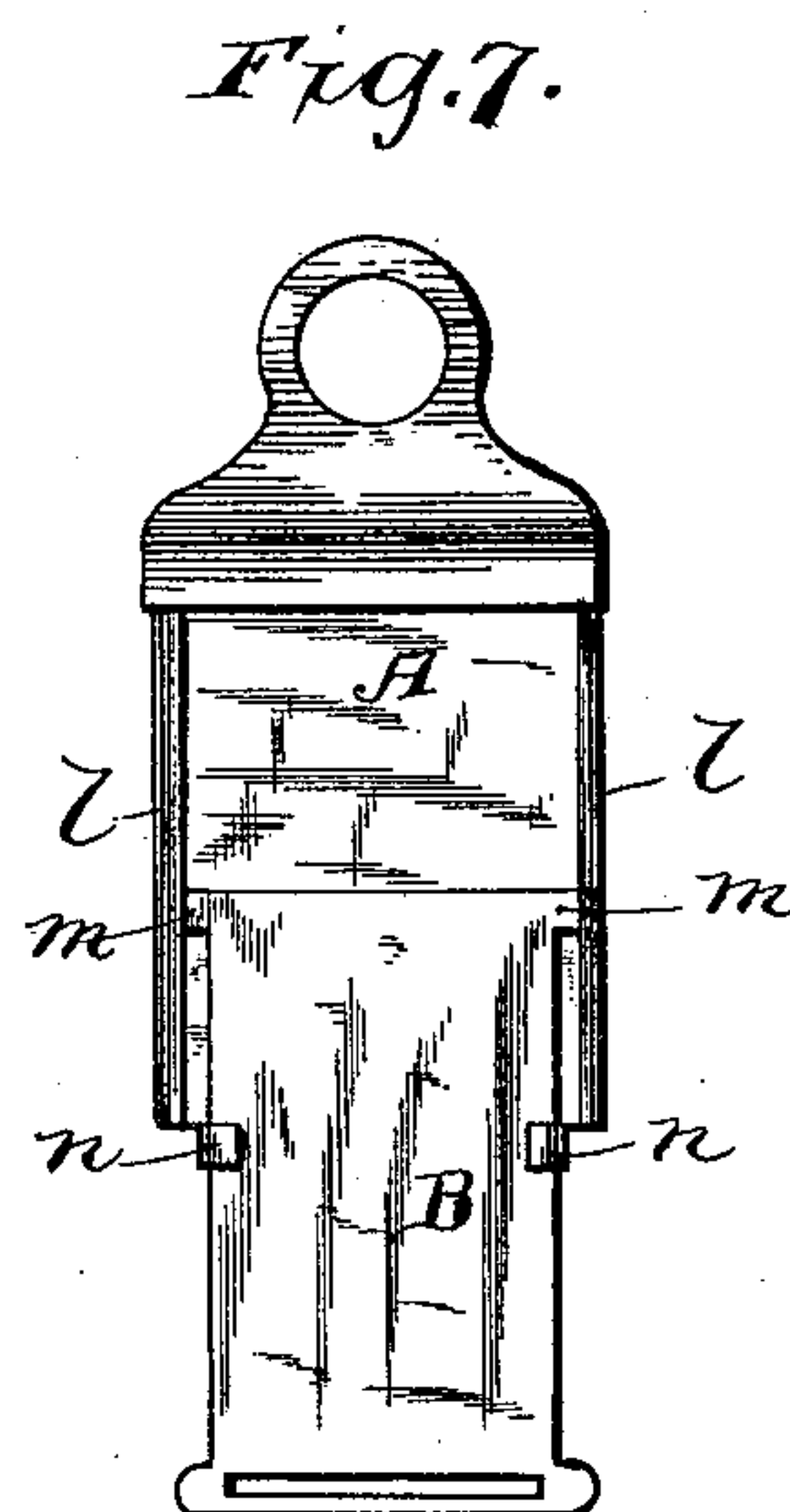
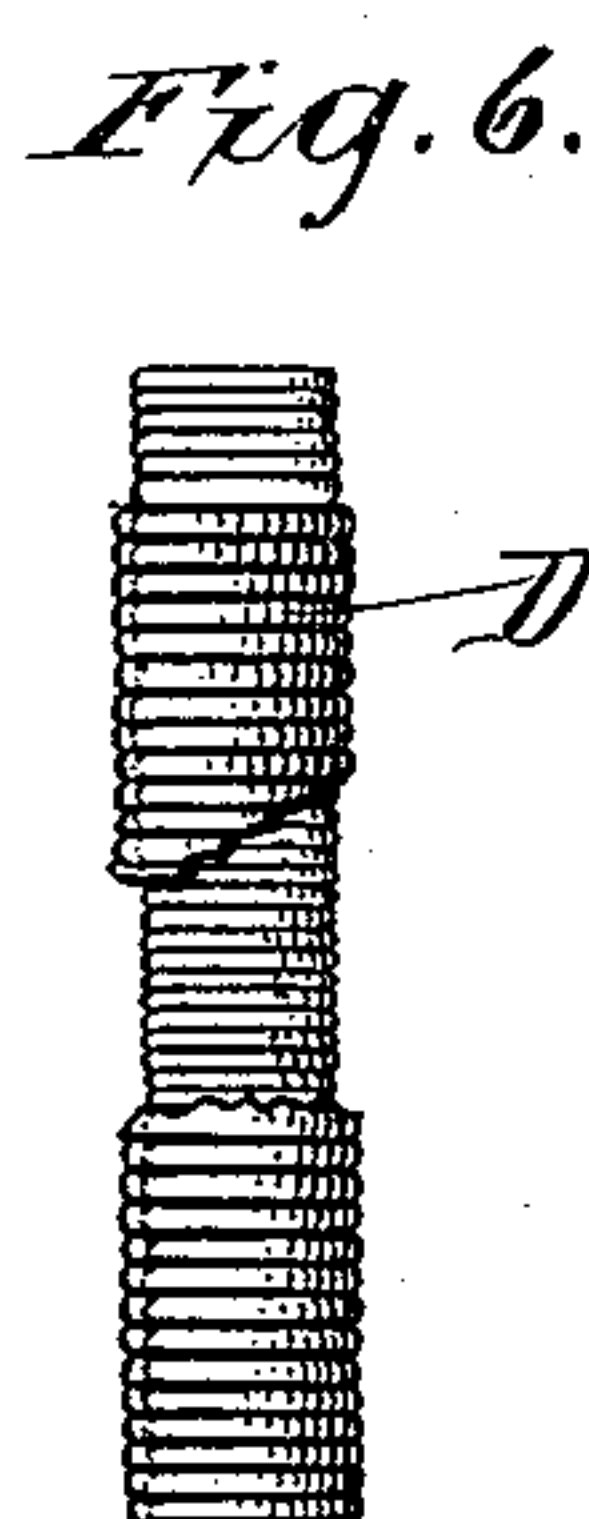
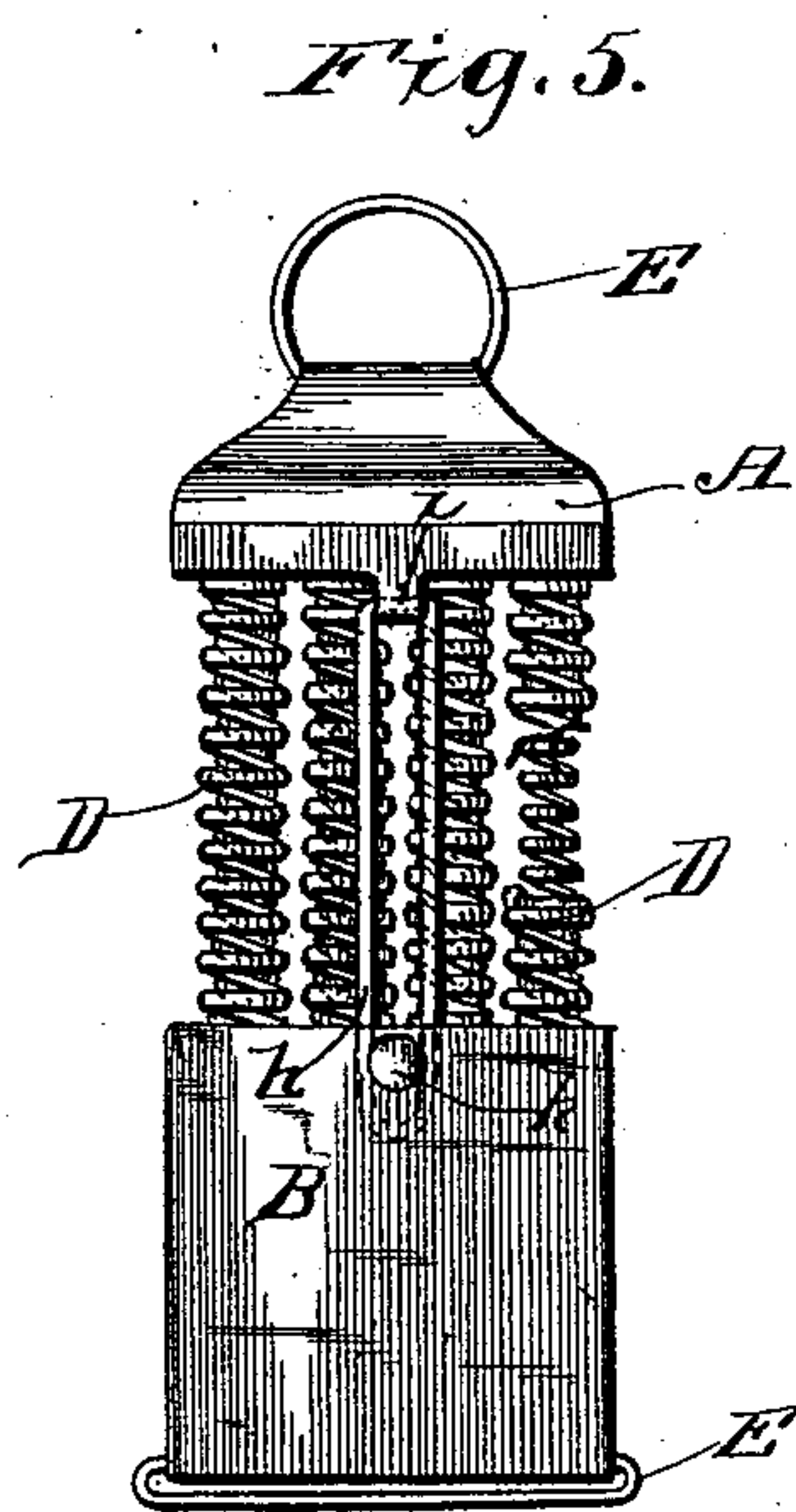
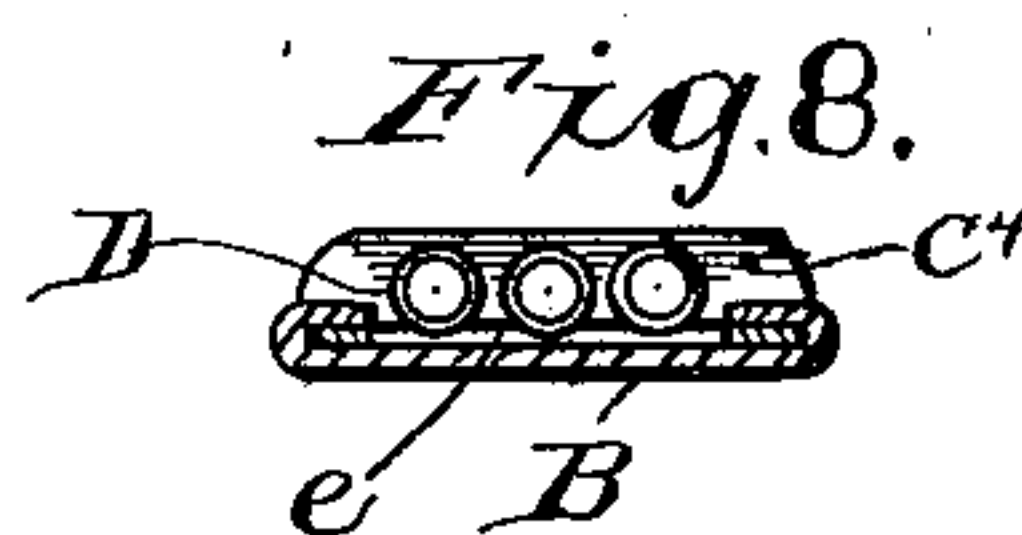
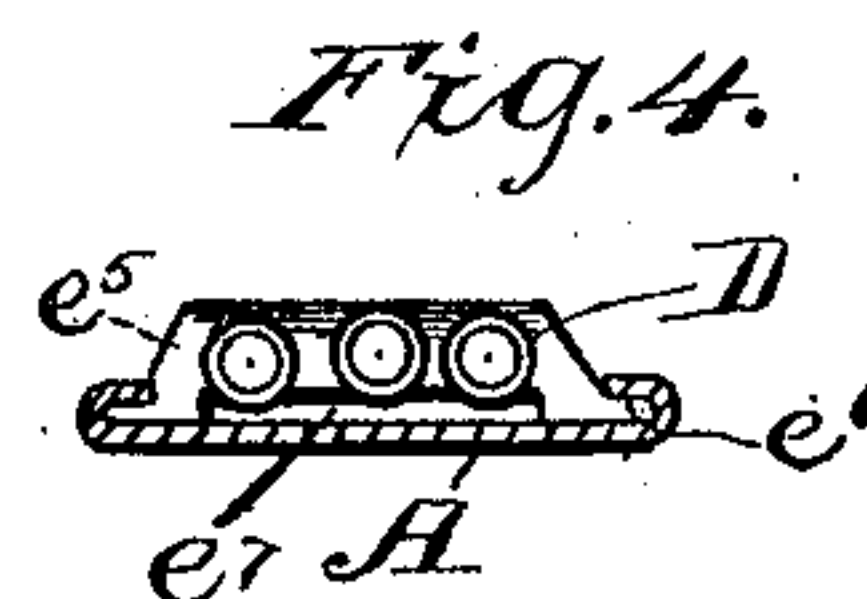
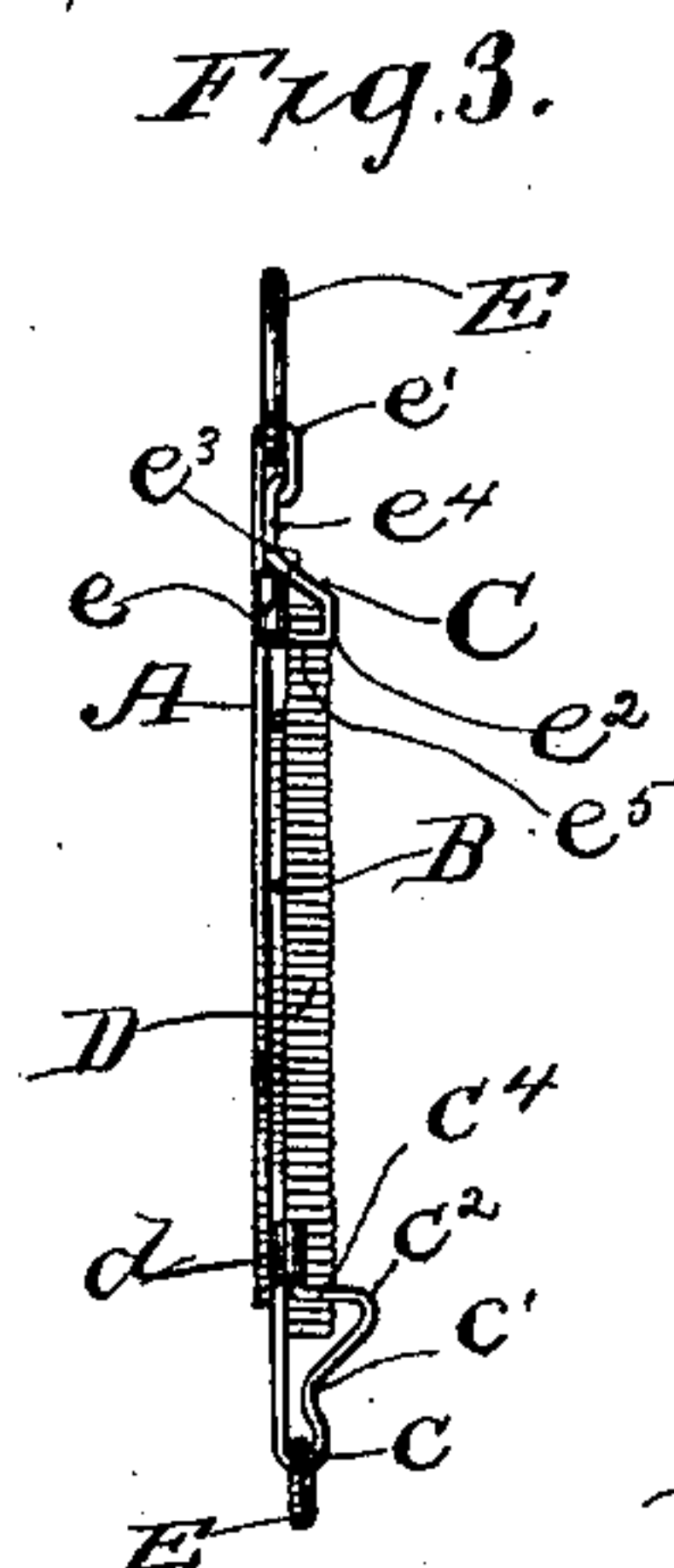
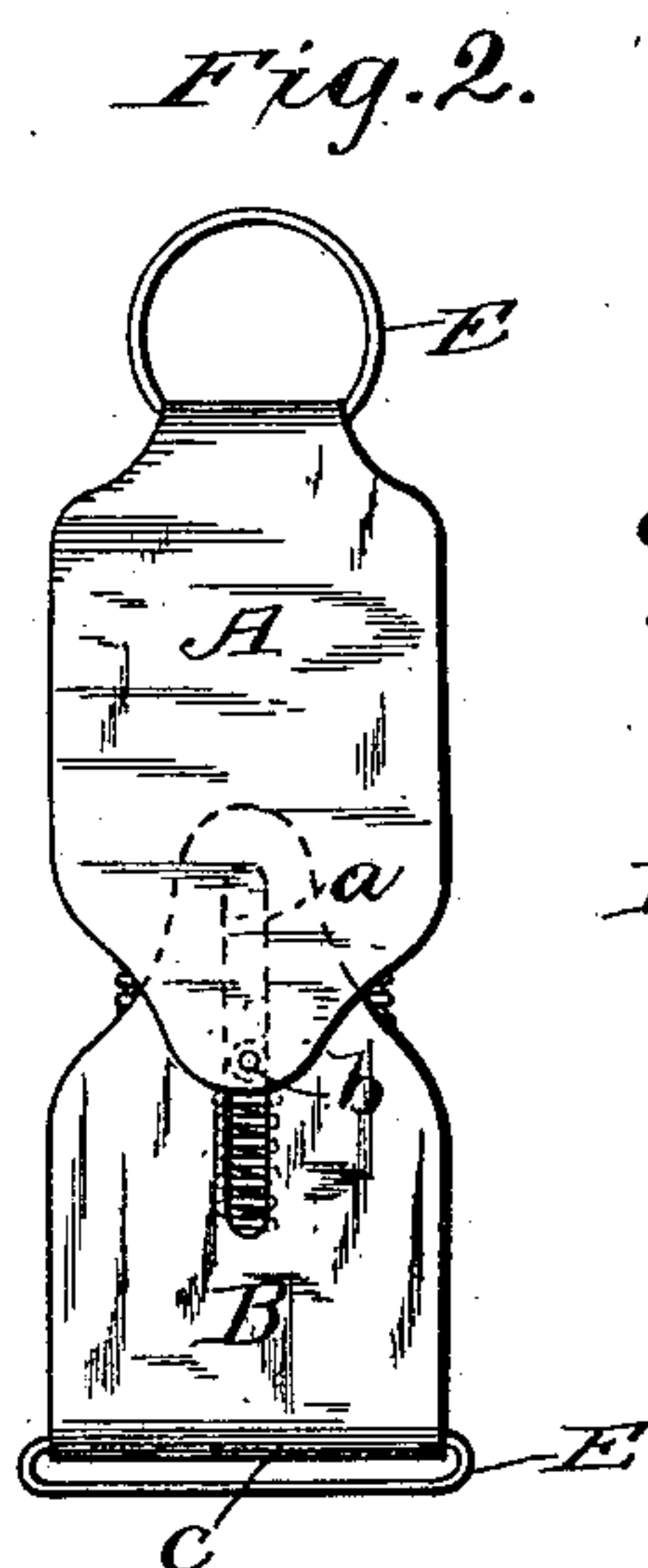
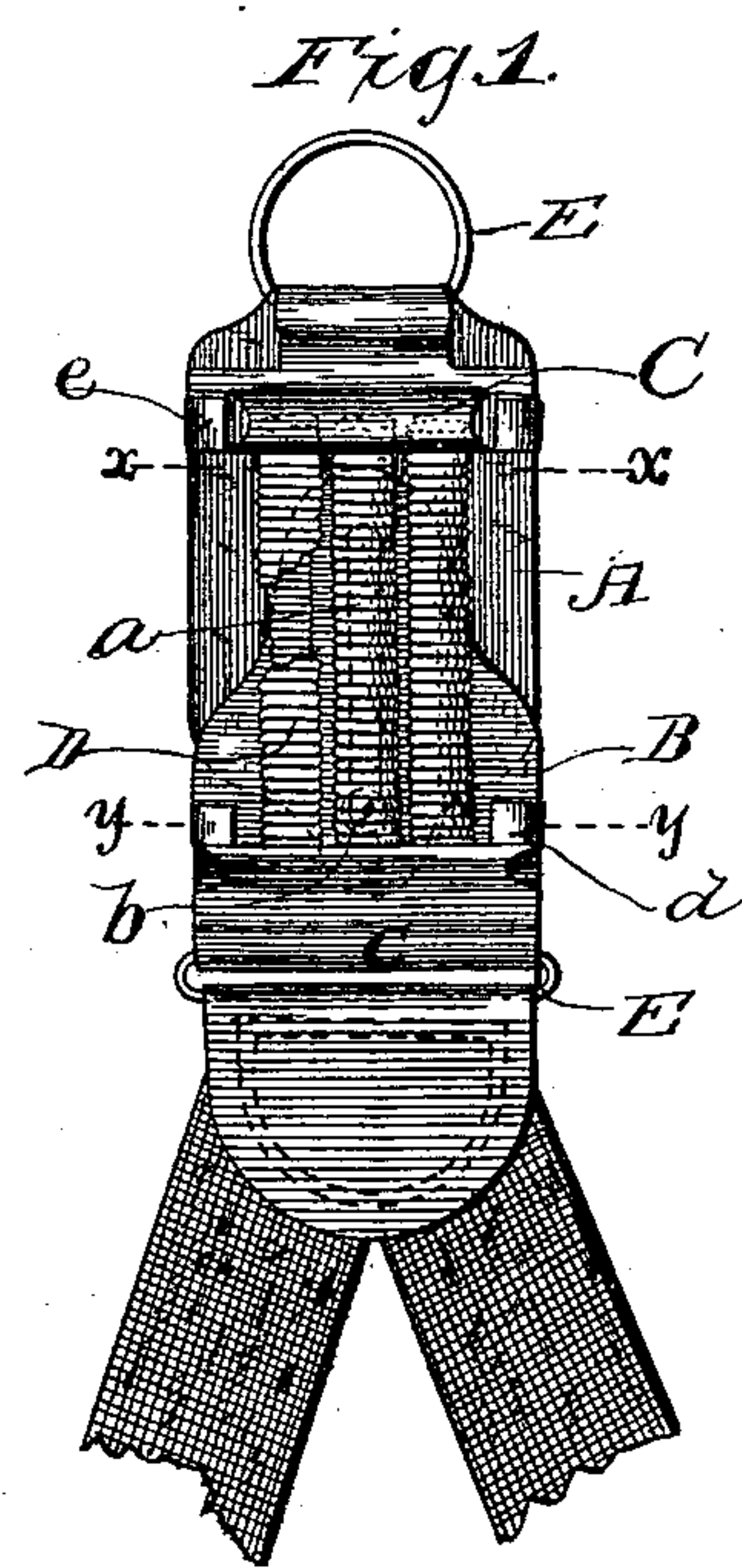


(No Model.)

F. B. SPOONER.
BUCKLE.

No. 335,252.

Patented Feb. 2, 1886.



WITNESSES:

John Boyd
W. E. Borren

INVENTOR

Frederick B. Spooner
BY
J. M. Borren
ATTORNEY.

UNITED STATES PATENT OFFICE.

FREDERICK B. SPOONER, OF BROOKLYN, NEW YORK.

BUCKLE.

SPECIFICATION forming part of Letters Patent No. 335,252, dated February 2, 1886.

Application filed October 13, 1885. Serial No. 179,777. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK B. SPOONER, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Buckles, of which the following is a specification.

My invention relates to the construction of buckles intended for suspenders and for other uses, although my improvements are applicable to bands for any purpose where elasticity is desirable.

The object of my improvements is to construct a coiled-spring buckle or band in such a manner that great strength may be attained by the employment of a limited number of parallel coiled springs, thereby economizing in material, while at the same time effecting in a small structure the same advantages now reached by a much larger and more costly article employing a greater number of springs.

My invention consists in the peculiar construction of the springs, in the manner of securing the springs in position on the buckle or band, and also in the means whereby the buckle-plates or band-straps are connected together, so as to readily permit the springs to expand or contract when in use, and whereby I gain an equality or compensation of tension on the straps without the use of pulleys or other like devices.

The features of novelty for which I desire protection are pointed out in the claims at the end of this description.

In the accompanying drawings, which form a part of this description, and in which like parts are indicated by like letters, Figure 1 is a rear elevation of a buckle embodying my invention. Fig. 2 is a front elevation of the same buckle, showing the plates extended. Fig. 3 is a side elevation of the buckle. Fig. 4 is a cross-section through the lines $x x$ of Fig. 1. Fig. 5 is a front elevation of the buckle, showing a modified construction of the buckle-plates and means for holding them together. Fig. 6 is an elevation, partly broken away, of one of the coiled springs, showing my peculiarity of construction. Fig. 7 is a front elevation of the buckle, showing an-

other method of uniting the plates; and Fig. 8 is a cross-section through the line $y y$ of Fig. 1.

Spiral springs have been heretofore used in the construction of buckles and garters, and like devices, and I do not therefore claim the same, broadly, for such purposes. Neither do I claim the use of spurs for fastening the springs to the metallic plates or bands.

Spiral springs have been attached to plates for use of elastic bands by means of wings or spurs forming an integral part of the metal plates. It will be observed that I use a separate plate, as shown in Fig. 4, whereby I obtain a long flat edge passing through the coils of the springs, thus securing greater strength and simplicity in manufacture and gaining a stronger grip to said coiled springs.

Referring to the drawings, the letter A indicates one of the buckle-plates, and B another. These plates may be of the form shown, or of any other desirable form.

In Figs. 1 and 2 the plate B is slotted at a , which slot receives the flat-headed pin b , secured to the plate A, by which arrangement the two plates are connected together and guided one upon the other in expanding and contracting, and in being deflected from a vertical line. The plate B is turned over upon itself at the point c , and the turned-over end so shaped as to form an exterior surface having a depression, c' , and elevation, c'' , the free end of said turned-over portion being bent at right angles to the body of the plate, as at c' , and then parallel to the body, where it is secured by small wings, d , which are integral with the plate B.

The plate A is provided with the wings e , formed integral therewith, and has its extremity bent over at e' , and made to interlock with the turned-up side piece, e'' , of the small plate C. The plate C is formed with a flat surface, e'' , an inclined extension, e''' , which terminates in the turned-up side piece, e'' , and with a continuous vertical portion, e'' , and end projections, e'' , which co-operate with the wings e to hold said plate C in position. The plate C may be formed similar to the turned-over portion of plate B and secured in place in like manner. The end projections, e'' , are so formed

on the continuous vertical portion e^5 as to leave the edge of e^5 cut away, as at e^7 , between said projections e^6 . The object of this is to prevent frictional contact between the plates A and B and springs D when said plates are distended or contracted. The turned-over portion of plate B is also provided with a cut-away portion for like reasons.

The springs D are composed of two sizes of coils, one within the other, as shown in the broken-away portions of Figs. 1, 5, and 6. This character of spring is one of the peculiarities of my present invention. By constructing the spring in this manner I am enabled to obtain by the use of two or three springs the same strength, elasticity, and amount of resistance as can be obtained by the employment of four or more springs of ordinary construction. I thus economize in the use of material, and am also able to produce an article of less weight and size than usually constructed without sacrificing anything in the way of convenience or utility.

The springs D, constructed as described, are applied and held in position against displacement, as shown particularly in the side elevation, Figs. 3 and 4—that is to say, the portion c^4 of the plate B and portion e^5 of plate C, which are at right angles to the bodies of said plates, are pressed through the coils of the springs near their ends, thereby locking the springs in place and furnishing ample purchase or grip to enable the springs to be distended without liability of their becoming separated from their bearings.

This method of securing the springs is very simple and much more reliable than if spurs or any similar form of fastening means were employed.

The loops formed by bending the plates A and B over upon themselves are supplied with rings E, or other forms of attaching devices for receiving the webbing of suspenders, garters, or other like articles.

The modification of the buckle shown in Fig. 5, which is a view with the plates extended, is intended to be similar in construction to the buckle already described, except as to the method of connecting the two plates A and B together. In this view, Fig. 1, the plates A and B are not made to slide upon each other, and consequently are made somewhat shorter than in the construction of Figs. 1 and 2.

The sliding connection between the plates of Fig. 5 is formed by securing a narrow plate of metal, h , provided with an elongated slot, as shown, to a projection, i , at the lower edge of plate A. The plate h is about as long as the length of plate B, and is connected to the latter by a pivot, k , riveted to plate B, which, when the pivot is passed through the slot, prevents the separation of the two plates.

The modification of Fig. 7 differs from the other constructions described only in the

method of effecting the sliding connection between the plates A and B. In this view, Fig. 7, which shows the plates partly extended, the edges of plate L are turned over at l , so as to form grooves opening at their sides, into which the ears m at the front edges of the plate B slide. At both sides of the bottom of plate A the metal is cut away and turned back so as to form the guide-pieces n .

The operation of this modified construction is clear without further explanation. The top of plate A is integral with its body and is provided with an opening which takes the place of the ordinary ring or attaching device, and the plate B is provided at its bottom with a perforation which is a modified construction, and may be employed instead of the ring E.

I do not confine myself to using this buckle on the lower part of suspenders, as it may prove advantageous to employ the usual devices to hold it to the upper part of the suspenders proper.

I do not claim a zigzag or serpentine spring in the construction of a buckle, as my invention contemplates the employment of two or more coiled springs which operate by expanding instead of by compression.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A buckle or band comprising two or more springs, each consisting of two coils of unequal sizes, one within the other, and plates connected together by a rivet and slot, substantially as set forth.

2. In a buckle or band, two or more coiled springs held in position by two overlapping sliding plates having continuous vertical front edges which engage with said coils, substantially as set forth.

3. A buckle comprising two or more coiled springs and plates A, B, and C, constructed and operating substantially as set forth.

4. The plates A and B, connected by a rivet and slot, in combination with the plate C, and two or more coiled springs, as D, substantially as set forth.

5. The plate A, provided with ears e , and plate C, having ears co-operating with the ears e , in combination with two or more coiled springs, as D, substantially as set forth.

6. The plates A and B, and two or more coiled springs, as D, combined with the plate C, having a cut-away portion at e^7 , substantially as set forth.

7. The plates A and B, the latter provided with ears d , and having its front end bent over upon itself in such manner as to form an unbroken upright edge, as at c^4 , combined with two or more coiled springs, as D, substantially as set forth.

8. The plates A and B, in combination with the plate C, and two or more coiled springs, as D, the turned-over end of plate B and the

plate C each having a cut-away portion at the edge of its unbroken vertical portion, substantially as set forth.

9. In a buckle or band, two or more coiled
5 springs, as D, combined with the sliding plates A and B, said plates being connected together by a rivet and slot joint, so that they may be readily distended or contracted, and deflected from a vertical line, substantially as
10 set forth.

Signed at New York, in the county of New York and State of New York, this 10th day of October, A. D. 1885.

FREDERICK B. SPOONER.

Witnesses:

W. E. BOWEN,
J. E. M. BOWEN.