

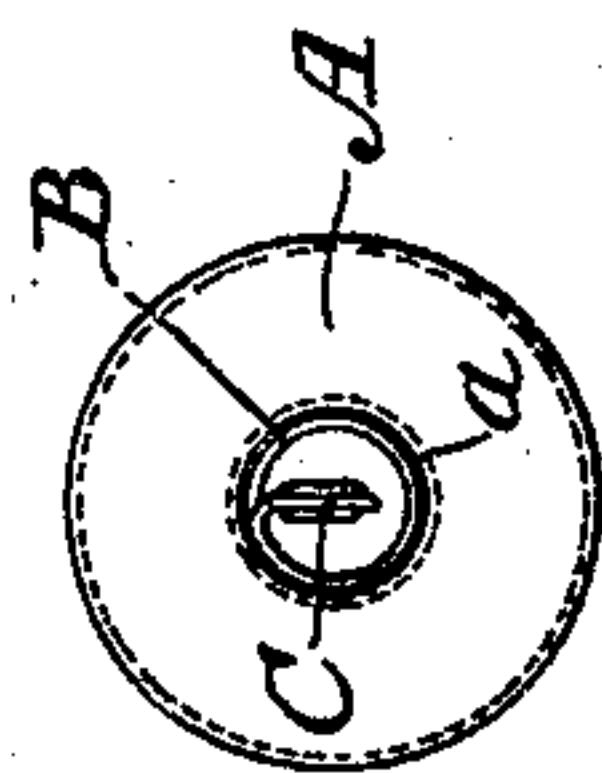
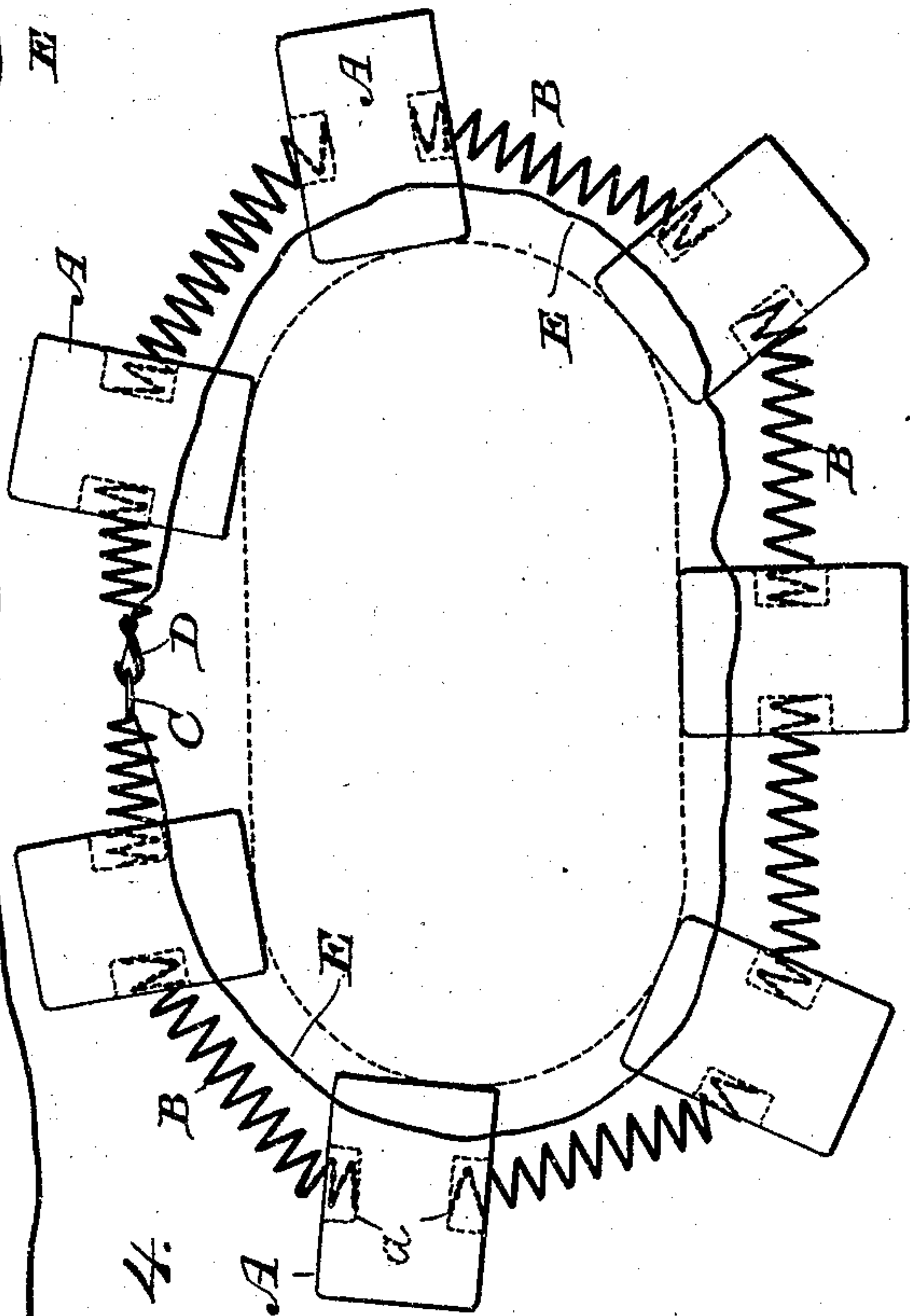
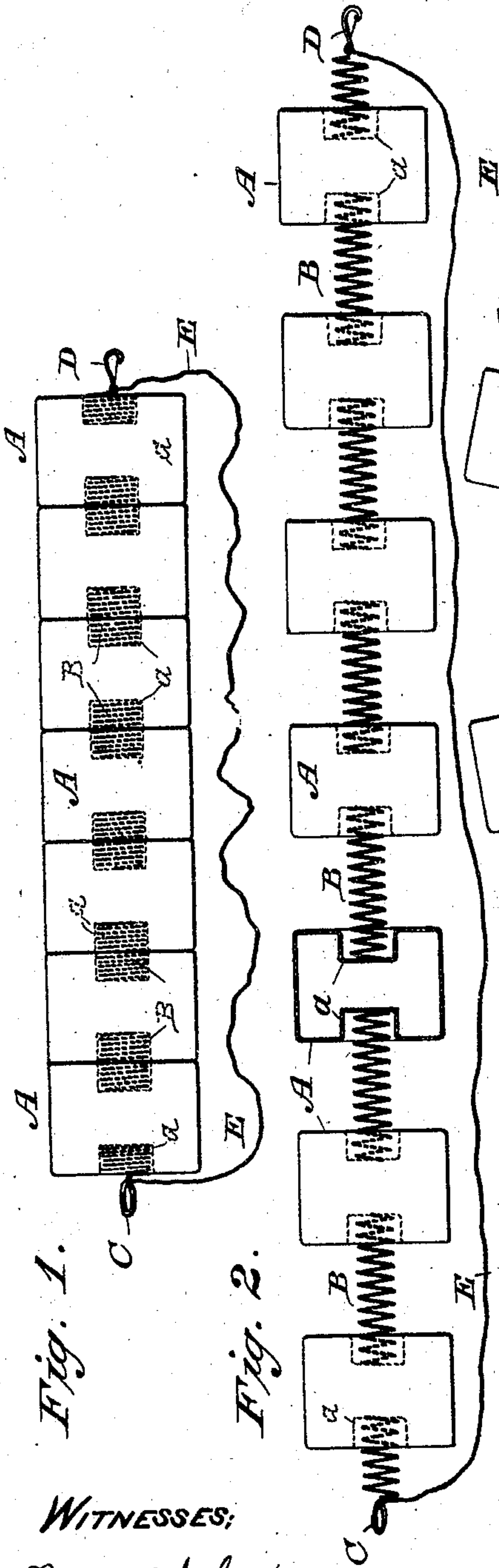
No. 815,394.

PATENTED MAR. 20, 1906.

M. WIKSTROM.
LIFE PRESERVER.

APPLICATION FILED JUNE 21, 1905.

2 SHEETS—SHEET 1.



WITNESSES:

E. C. Weber
George P. Newman

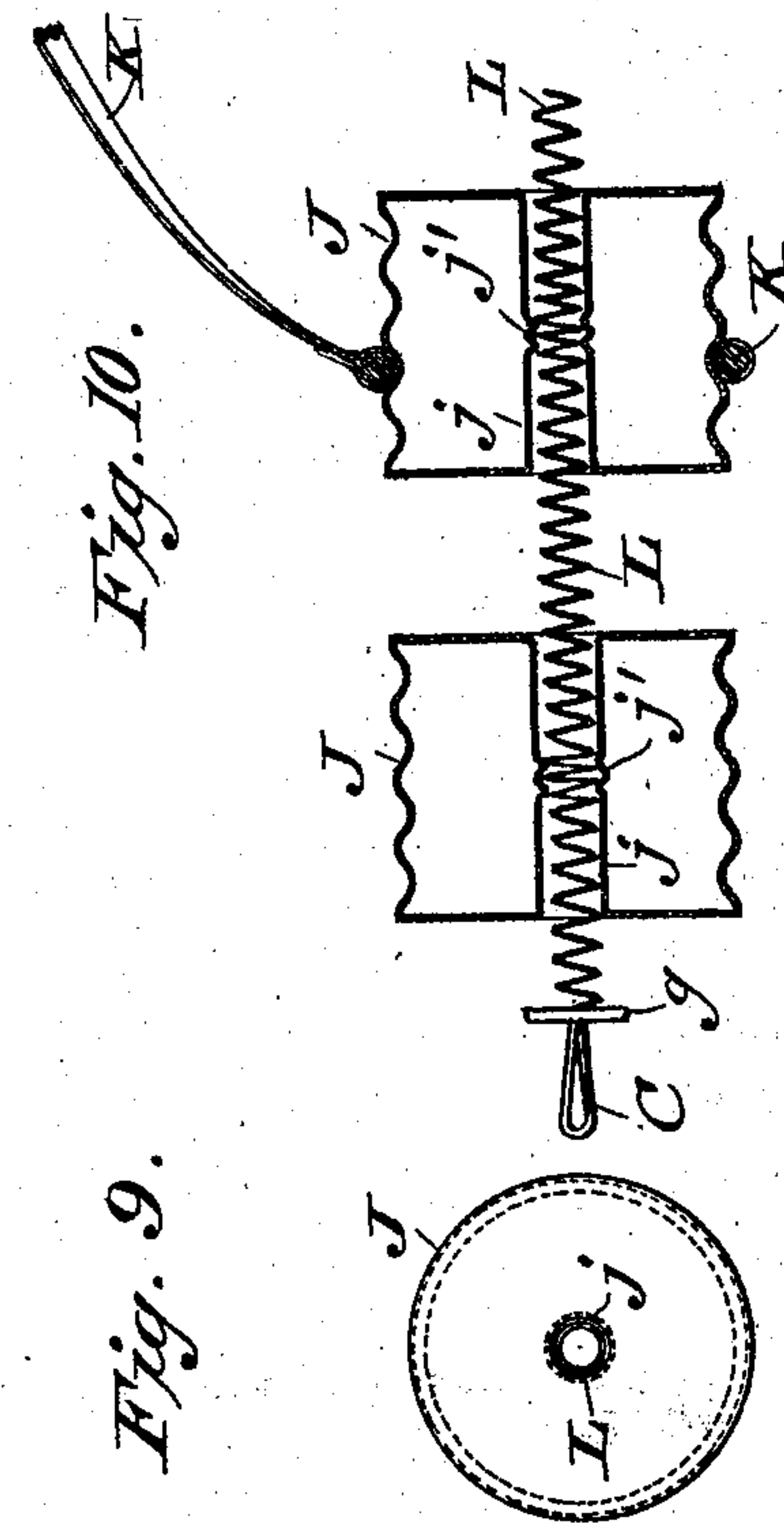
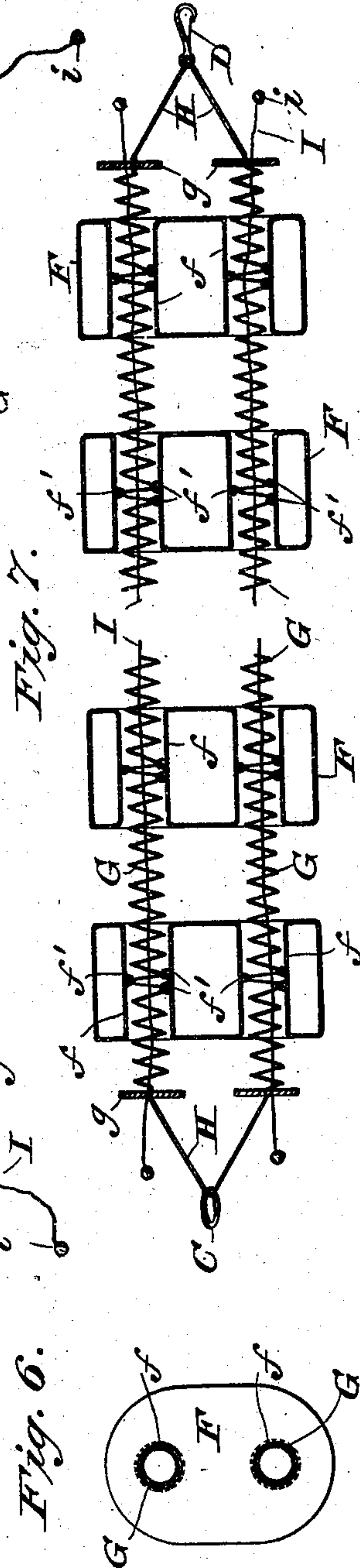
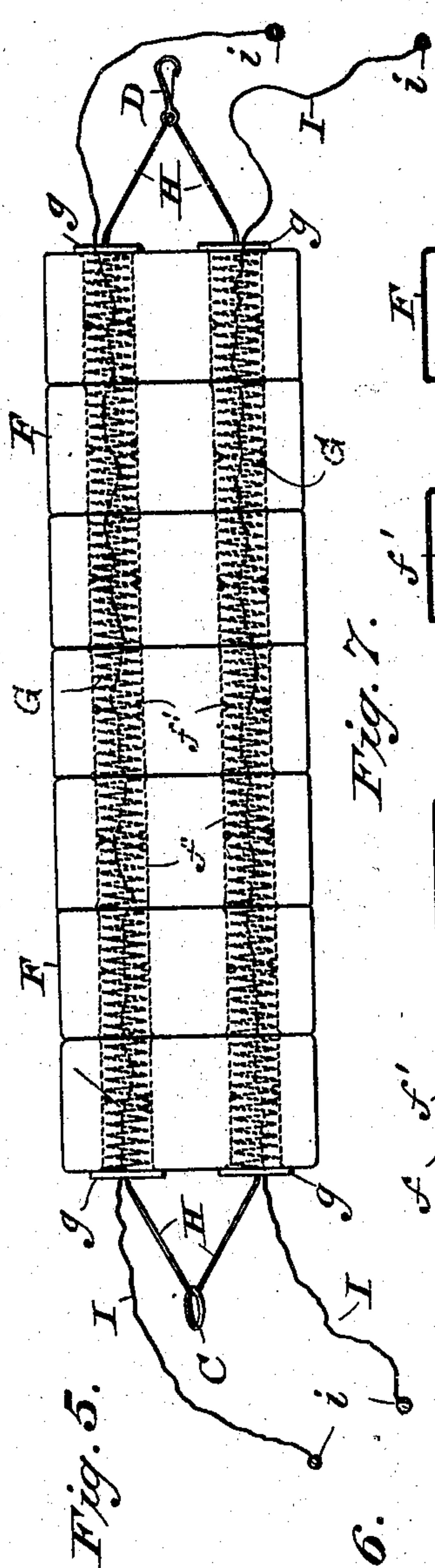
INVENTOR:

Malcolm Wikstrom
by his attorney
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2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

MALCOLM WIKSTROM, OF SHELBY, OHIO.

LIFE-PRESERVER.

No. 815,394.

Specification of Letters Patent.

Patented March 0, 1906.

Application filed June 21, 1905. Serial No. 266,284.

To all whom it may concern:

Be it known that I, MALCOLM WIKSTROM, a citizen of the United States, residing at Shelby, in the county of Richland, State of Ohio, have
5 invented certain new and useful Improvements in Life-Preservers, of which the following is a specification that will enable those skilled in the art to which my invention pertains to make and use the same, reference
10 being had to the accompanying drawings, which form a part thereof.

My invention relates to life-preservers composed of a series of air-tight vessels. Its object is to produce life-preservers that may be
15 easily and cheaply made, compact when not in use, and storable in small space, and possessing a high degree of buoyancy relatively to weight and storage-space occupied, easily and quickly applied to a user, and of strong
20 and lasting material not subject to deterioration, decay, or corrosion.

It consists mainly of a series of air-tight metallic vessels which are spring-connected, so as to be yieldingly drawn together by the
25 springs, which are preferably secured to the vessels in tubular chambers or passages located between or within the side walls of the vessels, so that normally when the device is not distended the springs are entirely housed
30 within the vessels and the device practically takes up no more space than that required for the actual bulk of the vessels.

It also consists of suitable means for connecting the end vessels when applied around
35 the person of a user and of means for limiting the amount of distension of the springs and in such other features as will hereinafter be specifically set forth.

The accompanying drawings show my invention in some of the many general forms and details of construction in which it might be embodied that are now deemed most desirable by me, but changes not requiring the exercise of invention and within the skill of a
45 good mechanic might be made therein without departing from the spirit of my invention as set forth in the claims at the end of this specification.

Figure 1 is a side view of one form of my
50 life-preserver in collapsed or closed position. Fig. 2 is a similar view of the same in its extended position and with one of the vessels shown in section. Fig. 3 is an end view of one of the vessels. Fig. 4 is a diagrammatic
55 view showing the application of my life-preserver to the person of a user, the sectional

outline of the person being shown by the dotted line within the ring of vessels. Figs. 5 to 10, inclusive, represent modifications of the device which will hereinafter be fully de- 60 scribed.

My invention in the form illustrated in Figs. 1 to 4, inclusive, consists of a series of air-tight metallic vessels A, made, preferably, from thin sheet metal of a character adapted
65 to withstand corrosion, &c., in the field of its use, such as copper, brass, tin, aluminium, &c. For service on salt water they will preferably be made of copper or brass, while on fresh water tin or some of the cheaper metals
70 will sufficiently answer the requirements of durability. In this form of my device the vessels are united by a series of spiral springs B, one located between each of two vessels
75 which are formed with chambers or recesses *a* in their heads of sufficient depth to contain the springs, the ends of which are secured by soldering or other suitable means to the bottoms of the recesses.

When the device is closed, the heads of adjacent vessels come together and the springs are entirely housed within these chambers. The outer heads of the end vessels are also provided with recesses and springs within them, one spring having a ring C secured to
80 its free end and the other a snap-hook or similar device D. 85

In order to prevent any one from carelessly extending the preserver beyond the elastic limit of the springs, various devices may be
90 employed. In this case I have shown a simple line or flexible cord E, attached at one end to the ring and at the other to the snap-hook and having sufficient length or slack
95 between these points to permit of any proper extension of the springs.

In Figs. 5, 6, and 7 I show some modification of the details of my invention. The vessels F are preferably made oval instead of cylindrical in cross-section. I do not mean,
100 however, to confine myself to either of these forms, as the cross-sectional shape of the vessels may be varied widely to suit differing tastes or conditions and yet be within the limits of my invention. In this form of de-
105 vice I have shown instead of the recesses *a* for the springs before described tubular chambers *f*, which extend through the vessels from head to head. In these tubes are located the connecting-springs G, which are
110 preferably continuous from one end to the other of the life-preserver, as shown. At

points about mid-length of the tubes in each vessel the springs are attached to the inner walls of the tubes, as at f' , either by staples, soldering, or other suitable means. This insures the vessels being separated about equidistant when the springs are extended. The ends of the springs at the outer faces of the end vessels are preferably attached to disks or washers g , which when the device is collapsed close the ends of the tubes, as shown. In this construction I have also shown two springs and two series of tubular chambers through the vessels, the pairs of disks or washers at the ends of the springs being united by loops H , in one of which is a ring C and in the other a snap-hook D . In this case in order to prevent undue extension of the springs I employ flexible cords I , which lie within the tubes f and inside of the springs. These cords pass through apertures in the disks g and have buttons or stops i at their ends too large to pass through such apertures. These cords are of sufficient length between the stops to permit of the normal extension of the springs and no more.

In Figs. 8, 9, and 10, inclusive, I have shown another of the many modifications or changes that may be made in my device. In this case the sides of the vessels J are corrugated annularly to give them greater rigidity and to afford secure means for fastening to them the life-belts, straps or handles K , or other devices of like nature. In this case, too, the springs L are continuous and pass through the end-to-end tubes j in the vessels and are preferably connected thereto by deep annular corrugations j' , which are formed in the tubes about mid-length and engage several spirals of the spring with sufficient force to insure the retention of the vessels in their proper positions on the spring.

The belt K may be fastened to the end vessels, and thereby serve to limit the undue extension of the springs, or other means for this purpose may be employed.

In all these illustrations I have shown the vessel-connecting springs as made of spiral wire; but I do not mean to confine myself particularly to this form of spring, as any suitable elastic connection will answer the

purpose. Brass-wire springs, however, I consider to be the best for the purpose, as they will not corrode nor deteriorate with age like rubber and other similar substances.

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

1. In a life-preserver, the combination of closed metallic vessels, springs flexibly connecting said vessels in series and adapted to draw them together with chambers in said vessels in which the springs are secured and housed, substantially as set forth.

2. In a life-preserver the combination of closed metallic vessels, springs flexibly connecting said vessels in series and adapted to draw them together with means for limiting the extensibility of the springs.

3. In a life-preserver the combination of closed metallic vessels, springs flexibly connecting said vessels in series and adapted to draw them together with means whereby the vessels will separate equidistantly when the springs are extended.

4. In a life-preserver the combination of closed metallic vessels, springs flexibly connecting the vessels in series and adapted to draw them together while admitting of their separation when the springs are extended with means for connecting the end vessels together when the series is bent to circular form, substantially as described.

5. In a life-preserver the combination of closed metallic vessels having tubular chambers formed therein, spiral springs lying in said chambers and flexibly uniting the vessels in series with a tendency to draw them together, means for connecting said springs to each of the vessels with means for limiting the extension of the springs and means for connecting the ends of the device when the series of vessels is bent to circular form, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MALCOLM WIKSTROM.

Witnesses:

EDWIN MANSFIELD,
SADIE BUCK.