

F. KARR.
BED SPRING.

APPLICATION FILED JAN. 29, 1909.

997,298.

Patented July 11, 1911.

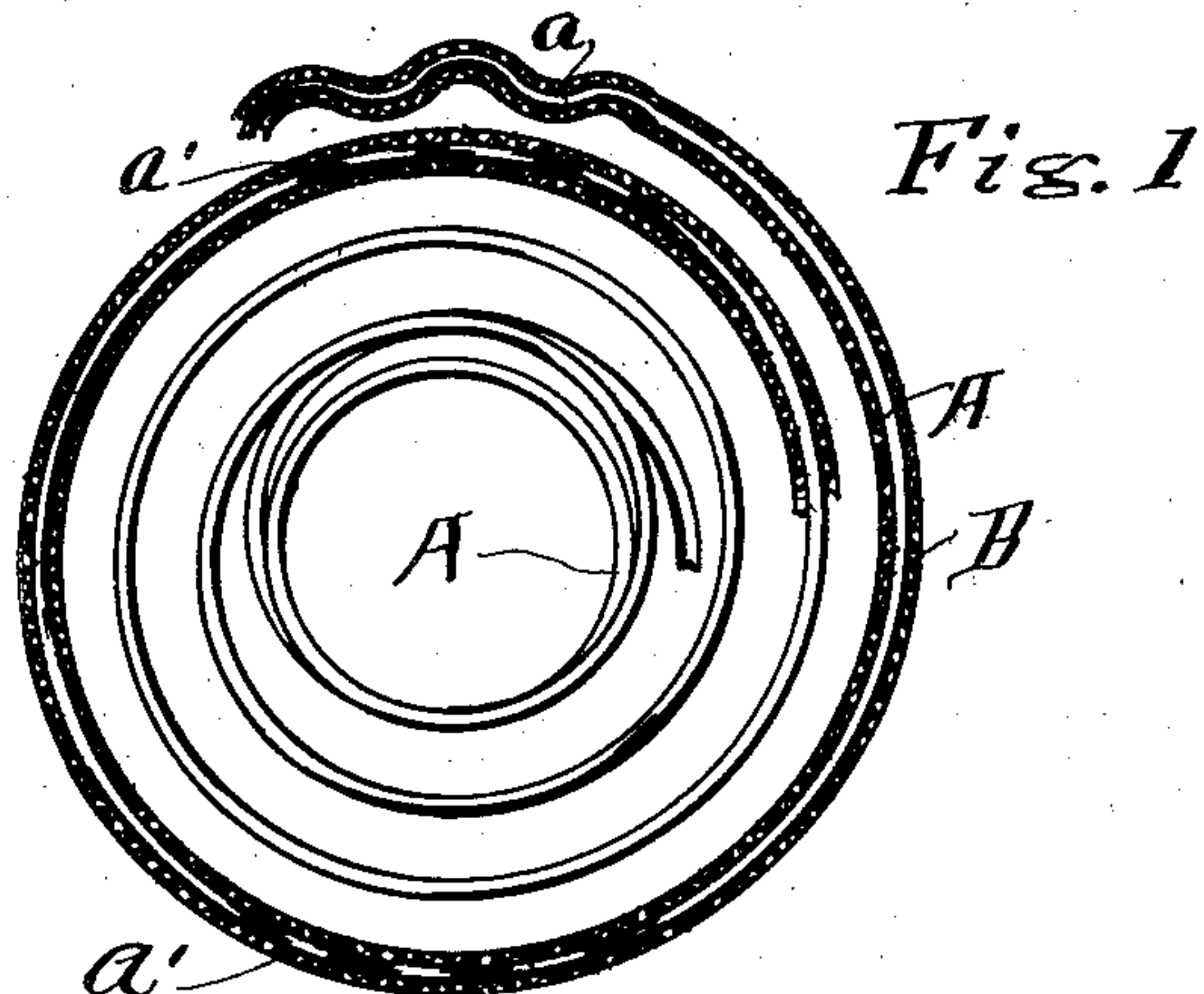


Fig. 1



Fig. 2.

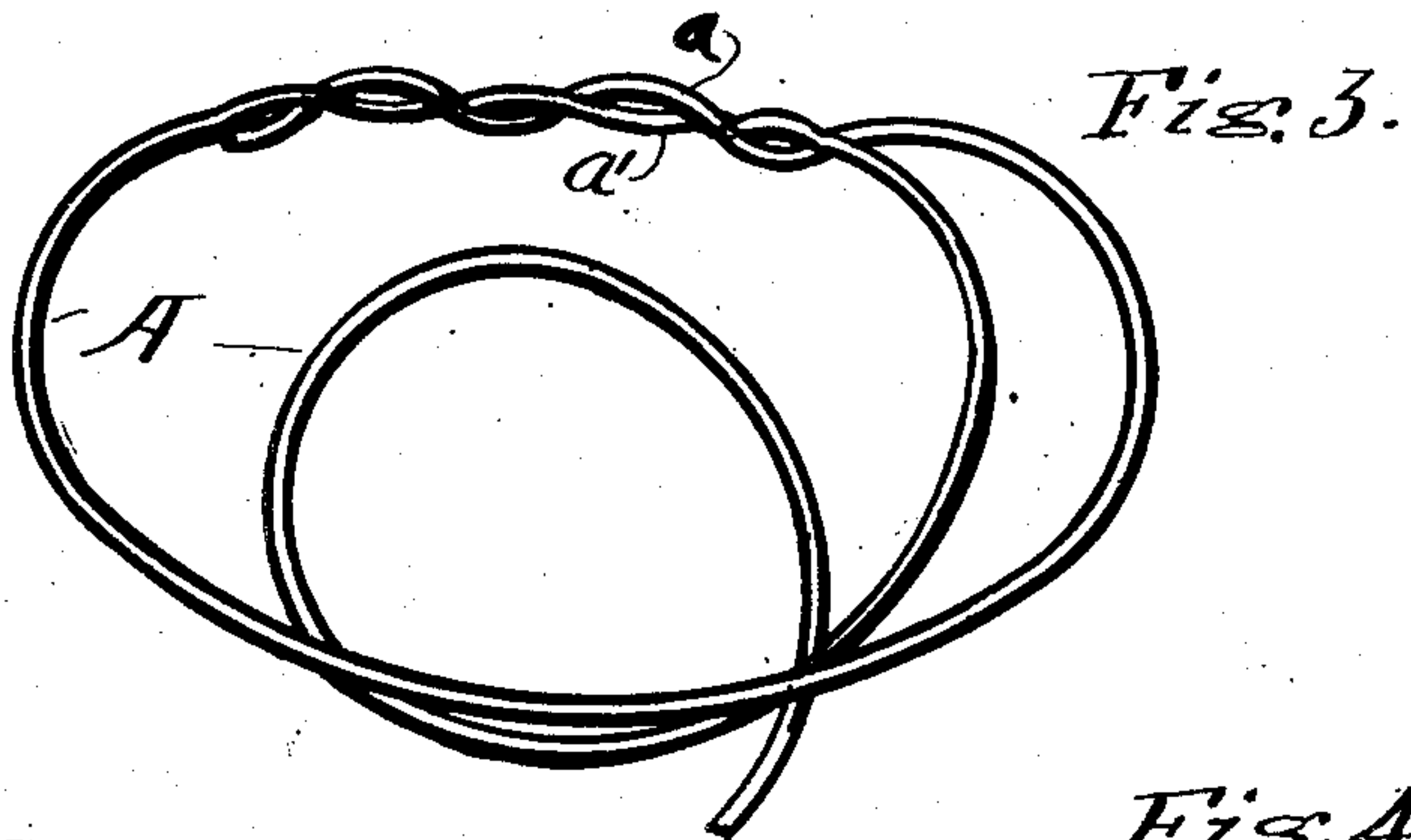


Fig. 3.

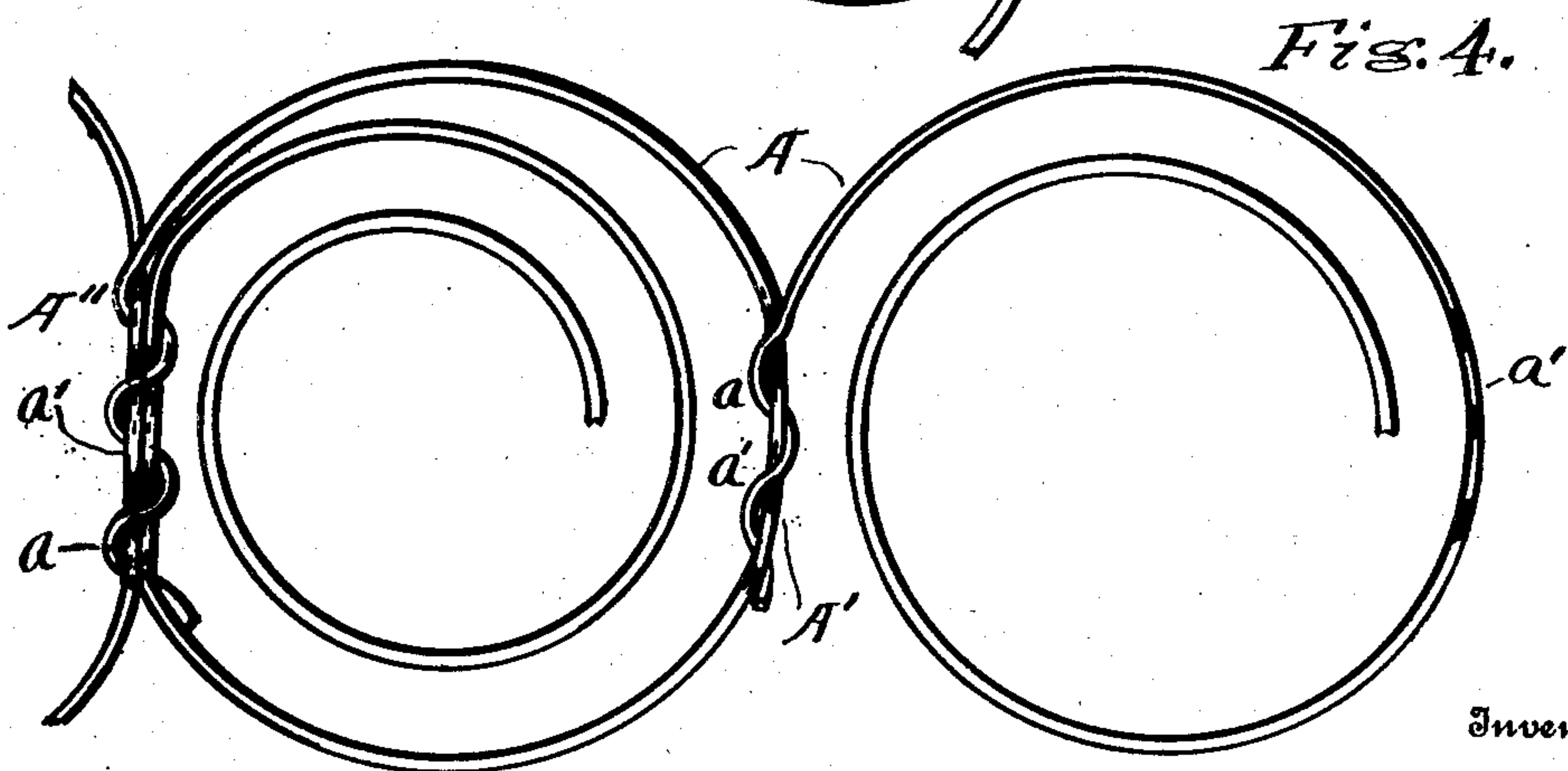


Fig. 4.

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FRANCIS KARR, OF HOLLAND, MICHIGAN.

BED-SPRING.

997,298.

Specification of Letters Patent.

Patented July 11, 1911.

Application filed January 29, 1909. Serial No. 475,060.

To all whom it may concern:

Be it known that I, FRANCIS KARR, a citizen of the United States, residing at Holland, in the county of Ottawa and State of Michigan, have invented certain new and useful Improvements in Bed-Springs, of which the following is a specification.

My invention relates to improvements in means for securing the end coils and surface construction of spiral springs in spring bed bottom construction, and its objects are: first, to provide a means whereby the elements of the securing knot or fastening may be formed in the spring before it has been re-tempered, or covered with fabric. Second, to provide a means whereby the uniting and securing elements may be made in highly tempered spring wire without danger of breaking the wire when interweaving or interlocking the several springs or parts of springs together, and, third, to provide a means whereby a cloth, or other fabric tube or covering, may be drawn over the wire that forms the spring after the spring has been made and re-tempered, thus averting the danger of burning the covering during the process of re-tempering. I attain these objects by the construction shown in the accompanying drawing in which—

Figure 1 is a plan of the top coil of a spring showing a horizontal crimped or serpentine formation at one end, and indicating a corresponding vertical crimp in the body of the spring, the two being covered, to be interwoven or interlocked to fasten them together. Fig. 2 is an elevation of the same showing the vertical crimp or serpentine portion in the body of the spring. Fig. 3 is a perspective of the same showing the crimped portions of the spring assembled, and, Fig. 4 is a plan of the upper coils of adjacent springs showing the manner in which they are secured together.

Similar letters refer to similar parts throughout the several views.

My main object in the construction of these springs, is to enable me to place a fabric covering over high tempered springs, and as it is necessary to heat the completed springs to a high degree, after they are formed, for the purpose of increasing their elasticity, I have found it impossible to use covered wire for such springs as the heat necessary for re-tempering is sufficient to burn and destroy the covering. Hence, I have found it necessary to provide some

means whereby the covering may be placed over the wire after the spring has been completed and retempered, and, then, the parts may be interwoven or interlocked to form a connection that will hold the parts firmly together. To attain this object I place the portions of the spring, A, that are to be united, under a proper die and form a crimped or serpentine portion, a , at the end of the spring, projecting in one direction, and a corresponding crimped or serpentine portion, a' , at the desired position in the body of the spring, with the serpentine crimps oppositely located or at right angles with those at the end so that the two may be readily interwoven, as shown at A' in Fig. 4, where the end of one spring is interwoven with the body of an adjacent spring, or at A'', in the same figure, where the end of a spring is represented as being interwoven with an inner coil of its integral wire, and with the upper coil of an adjacent spring, instead of being twisted or knotted.

I have found it very difficult to form the ordinary securing knot or loop in spiral spring wire that is covered without cutting or tearing the covering B, while with this construction the spring may be wholly formed and ready for interweaving or securing together before the cover is put on, and the cover may, then, be put on and the crimped portions interlocked or woven without any possible danger of injuring the cover. I find this construction very advantageous, for several reasons. First, the crimping may be done with a press, with a punch and dies, at one operation, while a twist must be made with special tools, and it is exceedingly difficult to twist spring wire together firmly. Second, as the crimps in the wire at a and a' are slight as compared with the bending of the wire necessary for forming the ordinary knot or twisted fastening for wires, a much more highly tempered wire may be used than would be possible with the ordinary knotted spring construction. Third, this construction permits of interweaving the end coils of adjacent springs together firmly, reliably and more readily than ordinary knots or other connections may be formed, thus producing a firm union of parts where it would be impossible to form a closely locked and non-rotating twisted connection. Fourth, if desired, the fabric cover may be utilized to stitch through to secure the coils firmly but plially together where adjacent

spring coils meet; and, fifth, with this construction the end, *a*, of the spring A may be interwoven with a single wire of the adjacent spring, as at A', or it may be made to include a portion of a coil of an adjacent spring, as at A'', in Fig. 4, to firmly secure the two surface coils of adjacent springs together, thus forming a reliable surface construction and securing the terminal coils of the springs at the same time and at one operation.

What I claim as new, and desire to secure by Letters Patent of the United States, is:

1. In spiral spring bed construction, the ends of the spring wire crimped to form several directly oppositely disposed bends in one direction, and the adjacent portion of the body of the wire crimped to form several directly oppositely disposed bends at right angles with those in the end of the wire and the two interwoven to securely unite them for surface construction.

2. In spiral spring bed bottom construction, the ends of the outer coils of springs crimped to form several directly oppositely disposed bends in one direction, and the connecting portions of the bodies of adjacent springs crimped to form several correspond-

ing bends at right angles therewith, and all interwoven to securely unite the parts for surface construction.

3. In spiral spring bed bottom construction, a portion of the ends and bodies of adjacent coils crimped to form several serpentine direct bends in each at right angles with those in the other, and the oppositely disposed serpentine portions interwoven to form substantial surface construction.

4. In spiral spring bed construction, the ends of the outer coils of the spring wires crimped to form several directly oppositely disposed bends in one direction, the adjacent portion of the body of the wire crimped to form several directly oppositely disposed bends at right angles with the bends in the end, and a fabric covering drawn over the coils after they have been crimped and retempered, and the crimped portions interwoven to form surface construction, as and for the purpose set forth.

Signed at Grand Rapids Michigan January 25 1909.

FRANCIS KARR.

In presence of—

I. J. CILLEY,
GEORGE TOOGOOD.