

No. 894,209.

PATENTED JULY 28, 1908.

W. W. JOHNSON.  
STIFFENING DEVICE.

APPLICATION FILED JAN. 3, 1907. RENEWED FEB. 17, 1908.

Fig. 1

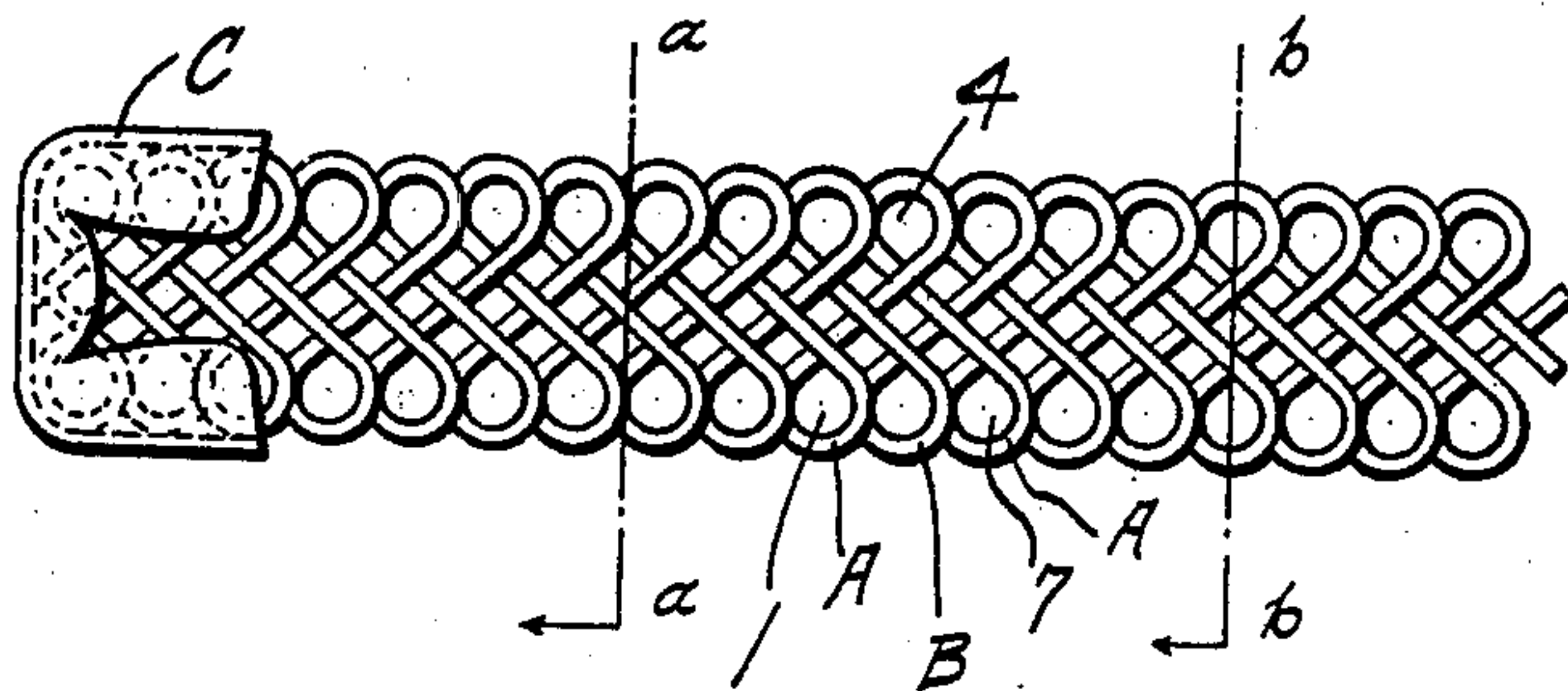


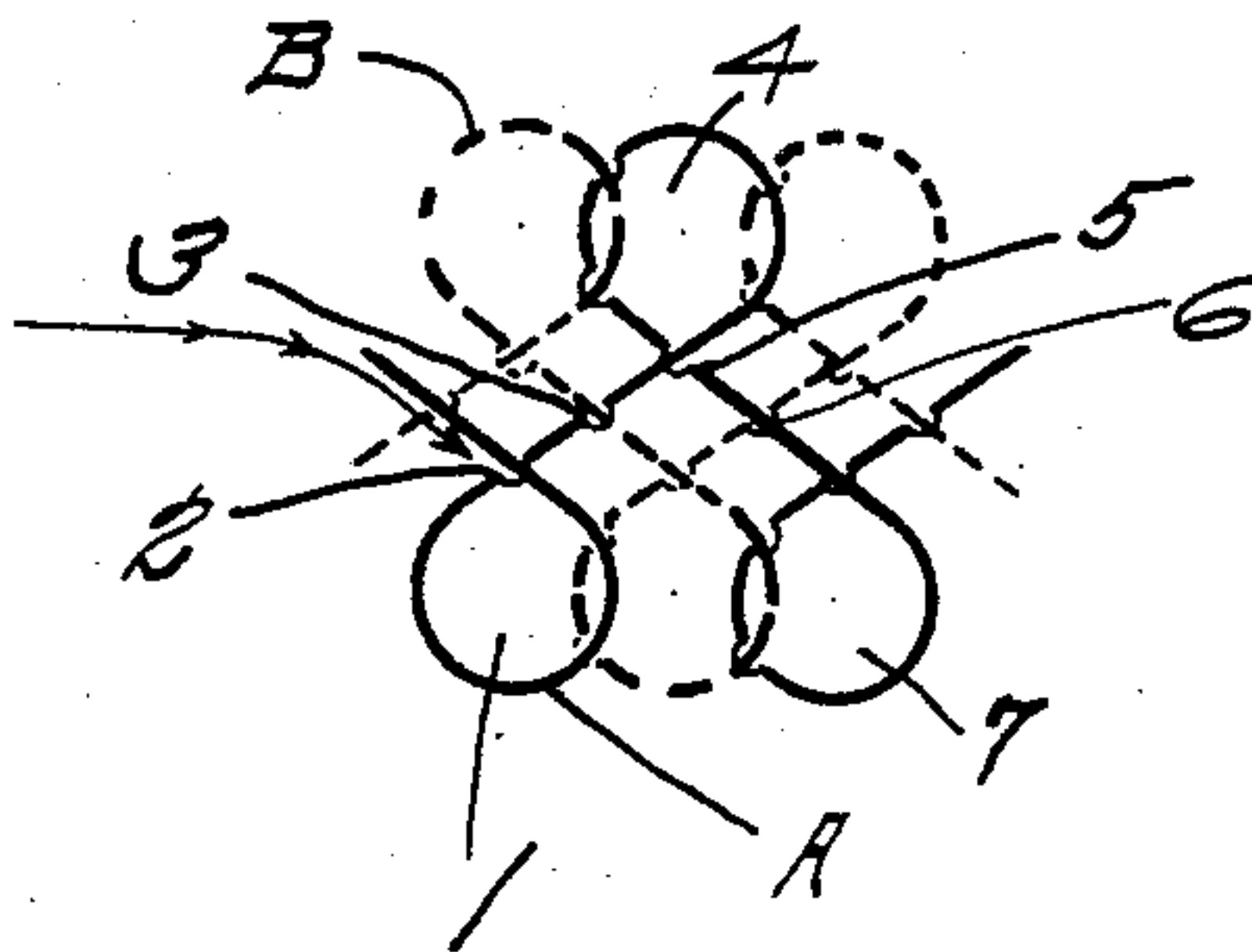
Fig. 2



Fig. 3



Fig. 4



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# UNITED STATES PATENT OFFICE.

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## STIFFENING DEVICE.

No. 894,209.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed January 3, 1907, Serial No. 350,621. Renewed February 17, 1908. Serial No. 416,388.

*To all whom it may concern:*

Be it known that I, WILLIAM W. JOHNSON, a citizen of the United States, residing in Meadville, in the county of Crawford and State of Pennsylvania, have invented a new and useful Improvement in Stiffening Devices, of which the following is a specification.

This invention relates to improvements in stiffening devices for personal wearing apparel, and has for its object,

To provide an effective stiffener, readily securable to a garment and possessing sufficient rigidity to cause the said garment to properly fit, yet fully resilient and capable of flexure by the movement of the body.

The invention consists in the novel construction hereinafter fully described and shown in the accompanying drawings forming a part of this specification, and in which,

Figure 1, is an enlarged plan view of a portion of my stiffener. Fig. 2, is a transverse sectional view taken on line *a-a* of Fig. 1. Fig. 3, is a transverse sectional view taken on line *b-b* of Fig. 1. Fig. 4, is a diagrammatic view illustrating the method of construction.

Similar characters refer to similar parts throughout the several views.

This stiffener is constructed from two continuous strands of wire, each formed into oppositely disposed, substantial, circular loops or eyes on either side of the center of the device and so arranged that the loops of one wire are disposed between the loops of the other wire, but in such manner that the edges of each loop contact with the edges of the next loop preceding and following, and the whole taking the form of a flattened strip, presenting, substantially, a rectangular section.

In the diagrammatic view, the wire A, is indicated by a full line, and the wire B, by a broken line. This view shows the wire A, passing outwardly, forming the loop 1, from which it passes under itself at 2, under the wire B, at 3, to the loop 4, which overlaps a portion of the loop beyond formed in the wire B, and underlies a portion of the previously formed loop in the wire B, then passing under itself at 5, over the wire B, at 6, forming loop 7, and so continuing. Thus each of the loops formed by either wire have laterally between them a loop formed by the other wire, and each loop is partially supported by the loop immediately adjacent to

it on each side with which it is in direct intimate tensional side contact. This interweaving of the wires and their loop formation, provide for a far greater amount of rigidity in the article than could be obtained by a single wire of the combined area of those used in its construction. The disposition of the loops is such that it may be as readily flexed or bent in the direction of its width as in the direction of its thickness. The loops also offer a ready opportunity for connection, by sewing, or other similar means, to the garment to which they may be applied.

In order to provide a means of securing the ends, and, at the same time, present a smooth and regular surface, I provide the clip C, as indicated in Fig. 1.

This form of stiffener provides an efficient and durable substitute for whalebone, possessing all of its advantages, besides that of far greater economy. It is also preferable to thin steel members, as used for like purposes, as it allows an equal amount of freedom edgewise as it does sidewise.

I do not care to confine myself to the use of any particular material in its construction, and although, evidently, the said material must possess the characteristic of resilience, strength and non-oxidation, and it may be that I shall prefer to make use of other than the round form of wire indicated and may make minor modifications, without departing from the general spirit of the invention.

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

1. A stiffening device consisting of a flat strip having two series of complete eyes one along each edge, said strip being formed of two wire strands each directed back and forth from edge to edge of the strip and coiled and crossed at the marginal regions thereof to constitute said eyes, with the crossing portions of the eyes directed toward the center of the strip, each longitudinal series of eyes being composed of eyes formed from both strands.

2. A stiffening device consisting of a flat strip having two series of complete eyes one along each edge, said strip being formed of two wire strands each directed back and forth from edge to edge of the strip and coiled and crossed at the marginal regions thereof to constitute said eyes, with the crossing portions of the eyes directed toward the center of the strip, in each series of eyes



the eyes of one strand being alternated with the eyes of the other strand.

3. A stiffening device consisting of a flat strip having two series of complete eyes one  
5 along each edge, said strip being formed of two wire strands extended diagonally in zig-zag fashion from side to side of the strip and coiled and crossed to form said eyes, on each side of the strip the eyes of one strand being  
10 alternated with the eyes of the other strand, and the two longitudinal series of eyes being spaced from each other by the central portion of the strip composed of the diagonal portions of the strands, the diagonal portions  
15 of one strand crossing the diagonal portions of the other strand.

4. A stiffening device consisting of a flat strip having two series of complete eyes one along each edge, said strip being formed of  
20 two wire strands each directed back and forth from edge to edge of the strip and coiled and crossed at the marginal regions thereof to constitute said eyes, with the crossing portions of the eyes directed toward  
25 the center of the strip, in each series of eyes the eyes of one strand being alternated with and overlapping the eyes of the other strand.

5. A stiffening device consisting of a flat strip made of a plurality of wire strands and  
30 having each of its marginal regions formed of

a series of complete eyes, the two series being spaced from each other, and its central region formed by diagonal interwoven sections, said eyes and diagonal sections being all portions of said strands.

6. A stiffening device consisting of a flat strip formed of two bent wire strands, each strand being directed diagonally across to one side of the strip, there coiled reversely to form a complete eye, thence directed diagonally onward across to the other side of the strip, there reversely coiled to form another complete eye, thence directed diagonally onward across to the first-named side, where it is again reversely coiled, and so continuing,  
45 the two bent strands being so associated that on each side of the strip the eyes of one strand alternate with those of the other strand and that the successive diagonal portions of each strand cross alternately over  
50 and under the diagonal portions of the other strand.

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

WM. W. JOHNSON.

Witnesses.

LUTHER A. LEBERMAN,  
KATHERINE M. SHUSTER.