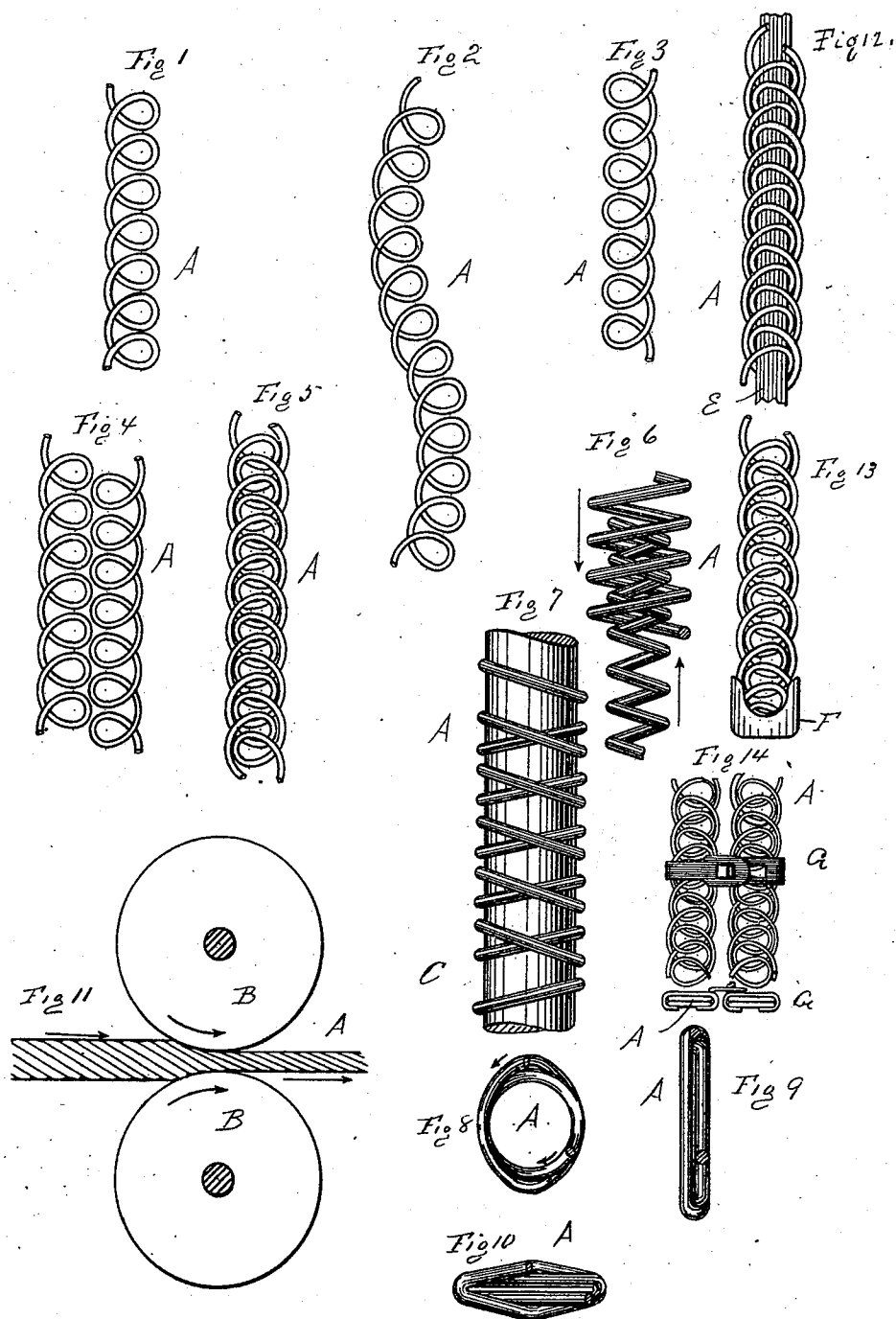


(No Model.)

H. H. WAGENER.
CORSET STIFFENER.

No. 501,221.

Patented July 11, 1893.



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HERMANN HEINRICH WAGENER, OF CASSEL, GERMANY.

CORSET-STIFFENER.

SPECIFICATION forming part of Letters Patent No. 501,221, dated July 11, 1893.

Application filed September 10, 1892. Serial No. 445,581. (No model.) Patented in Germany March 18, 1891, No. 60,478, and in England September 15, 1891, No. 15,663.

To all whom it may concern:

Be it known that I, HERMANN HEINRICH WAGENER, a subject of the Emperor of Germany, and a resident of the city of Cassel, Germany, have invented certain new and useful Improvements in Corset-Stiffeners, (for which I have obtained a patent in Germany, No. 60,478, dated March 18, 1891, and in England No. 15,663, dated September 15, 1891,) of which the following is a specification.

This invention relates to improvements in corset stiffeners.

In the accompanying drawings, Figure 1 shows a flattened helical spring which forms part of my improved corset-stiffener, the curves connecting the loops being to the left hand edge of the flattened spring. Fig. 2 is a spring of this kind curved on its longitudinal axis. Fig. 3 is a similar flattened spring, showing the curves uniting the loops at the right hand edge. Fig. 4 shows two such flattened springs before they are engaged. Fig. 5 shows them engaged. Fig. 6 shows two helical springs of different diameters, one inserted into the other before they are flattened. Fig. 7 shows a mandrel on which two helical springs are wound and formed at the same time. Fig. 8 is a cross-sectional view of the double helical spring shown in Fig. 7, the mandrel being removed. Figs. 9 and 10 show the same flattened. Fig. 11 shows the rollers and the spring partly flattened and partly unflattened. Fig. 12 shows a corset-stiffener with an additional flat wire inserted for stiffening it. Fig. 13 shows the end-pieces attached to the corset-stiffener; and Fig. 14 shows two corset-stiffeners provided with locking devices.

Similar letters of reference indicate corresponding parts.

If a steel wire is wound on a spiral-lined mandrel and then is drawn off the same a helical spring is formed. If by means of some mechanical construction, for instance, rollers, or by means of a hammer this helix is flattened, a flat wire spring A is formed, such as shown in Fig. 1, composed of a series of connected loops, which loops are connected along one edge of said flat spring. The spring can readily be bent laterally, as shown in Fig. 2. As shown in Fig. 3, the spring can be so ar-

anged that the connected parts of the loops are at the right-hand edge as well as the left-hand edge. Such springs have been made heretofore and two springs have been so united that the sides of the two springs at which the loops were connected have been placed adjacent to each other and fastened, and such springs have been used for corset-stays, but better results are obtained if two springs are placed side by side and united in such a manner that the free ends of the loops are united with each other. To obtain this result the helical springs are first compressed but not entirely flattened until their transverse sections are elliptical and then one spring is pushed into the other so that the central longitudinal axes of the two helical springs almost coincide, as it is impossible to push the one helical spring entirely into another of the same size on account of the thickness of the wire. Such two flattened helical springs when passed into each other are then flattened together as much as possible without mashing the wire. This pressing together is accomplished in the most advantageous manner by means of a pair of rollers B, as shown in Fig. 11. It is not absolutely necessary to partially flatten the springs before pushing them into each other, but this method of manufacturing the article is much more advantageous. The flat spring obtained by compressing two helical springs into each other and flattening them together is especially adapted as a stiffener for corsets and dresses in place of a whalebone. The outer edge of each such corset stiffener is formed of a wire section that unites the several loops and the undue flexibility of one spring is counteracted by the other and yet sufficient elasticity is obtained to cause the corset stiffener to fit snugly against the parts of the body.

The advantages of the improved corset stiffener just described over the flat sheet-metal springs used in corsets heretofore are that the flat sheet-metal corset stiffener can only be bent transversely to the direction of their length, but not laterally. The two helices of which the stiffener is formed must be wound in opposite directions, but as shown in Fig. 6, the helices can have different diameters.

In case the stiffener is formed of two helices

of the same diameter, one pushed into the other, the pitch of both must be the same; but if one helix has less diameter the pitch can be different in the two helices. Instead of placing two helices of different diameters into each other, the two helices may be formed of the same core C, as shown in Fig. 7, which double helix is shown in cross-section in Fig. 8, Fig. 9 showing the same when flattened. As shown in Fig. 10, the two helices can be placed together in such a manner that the united parts of the ribs are not at the outer edges, but at the inner edges, and this would form a flat spring with a strong central rib, a spring of this kind being shown in horizontal section in Fig. 10. Before flattening the springs, a strip E of sheet metal can be introduced in the same, as shown in Fig. 12. The ends of the stiffener can be provided with metal clips F, as shown in Fig. 13, and the

fastening-devices G for corsets, &c., can be applied as shown in Fig. 14.

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

A corset stiffener, comprising two interlocking flattened helical spring wires, the loops of the spring wires interlocking with each other and the curved part of the spring wires uniting the loops forming the side edges of the corset stiffener, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

HERMANN HEINRICH WAGENER.

Witnesses:

HUBERT SCHECK,
PAUL PRINZEL.