J. M. WELSH.

GARMENT STAY AND CLASP.

APPLICATION FILED MAR. 19, 1913.

1,108,534. Patented Aug. 25, 1914.

FIG. 3

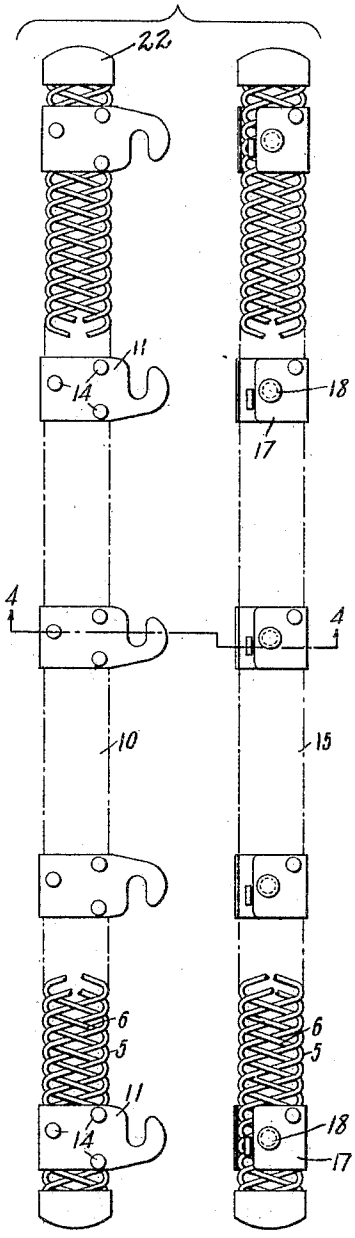


FIG. 1

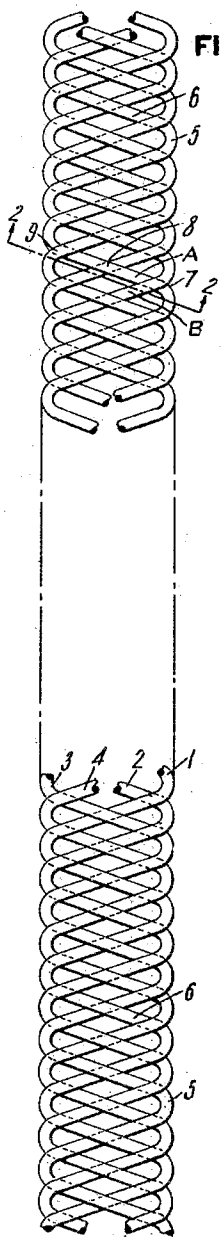
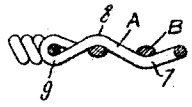


FIG. 2



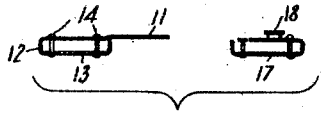


FIG. 4

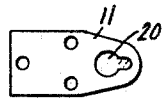


FIG. 5

WITNESSES

W. T. Hohnan

Elbert L. Hyde

INVENTOR

James M. Welsh.

By Frank A. Hinton.

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES M. WELSH, OF NIAGARA FALLS, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE SPIRELLA COMPANY, OF MEADVILLE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

GARMENT STAY AND CLASP.

1,108,534. Specification of Letters Patent. **Patented Aug. 25, 1914.**

Application filed March 19, 1913. Serial No. 755,378.

To all whom it may concern:

Be it known that I, JAMES M. WELSH, a resident of Niagara Falls, in the county of Niagara and State of New York, have invented a new and useful Improvement in Garment Stays and Clasps, of which the following is a specification.

This invention relates to stays or stiffeners for corsets and the like.

The object of the invention is to produce an improved stay or stiffener formed of a plurality of wires coiled together, intertwined or interbraided in such manner as to be flexible and resilient in a flatwise direction, but stiff and resistant to edgewise flexure or bending or to twisting, thereby adapting it for use not only as a corset stay, but also for the front clasps or lacing strips of corsets and the like.

The invention comprises the construction and arrangement of parts hereinafter described and claimed.

In the drawings Figure 1 represents a plan view of a portion of a stay or stiffener constructed according to my invention; Fig. 2 is a cross section of the same on the line 2—2, Fig. 1, looking in the direction of the arrows; Fig. 3 is a plan view of two clasp members embodying the invention, said members being shown separated from each other; Fig. 4 is a cross section taken on the line 4—4, Fig. 3, looking in the direction of the arrows; and Fig. 5 is a detail view showing a modification.

The stay shown in the drawings is formed of four wires, numbered respectively 1, 2, 3, and 4, although any number of wires may be used and the invention is not limited to the exact number shown. Each of the wires 1, 2, 3, and 4 is of fairly large diameter with relation to the width of the stay as a whole, and is bent back and forth to form alternately arranged V-shaped corrugations or loops 5 and connecting crossings 6. The bottoms of the V-shaped corrugations or loops are rounded on a small radius and disposed consecutively along the opposite side edges of the stay, interlocking with each other to form the edges thereof. Successive crossings in each wire are inclined transversely or diagonally of the stay in opposite directions, so that half of the crossings run in one direction and half in the other, and all of the crossings inclined in the same direction are parallel to each other when the stay is viewed flatwise, as in Fig. 1.

The several wires forming the stay are interlaced or interbraided and are spaced in such manner that the wide or open end of each corrugation or loop 5 is spanned by the closed or small ends of single corrugations or loops of all of the remaining wires of the stay. This arrangement produces a mutual bracing effect of the different wires upon each other, which tends to confine the wires to fixed positions and prevent them from moving relatively to each other in the plane of the stay. Each crossing, viewing the stay in cross section, as in Fig. 2, is sinuous or serpentine. In other words, it is bent or kinked alternately first toward one flat side of the stay and then toward the other, and so on, depending upon the number of wires in the stay. Thus, the crossing marked "A" in Figs. 1 and 2 is first bent or kinked toward one side of the stay, as at 7, where it crosses and interlocks with the wire of the next adjacent crossing. It is then bent or kinked in the opposite direction, as at 8, around the wire of the second adjacent crossing to interlock with the same, and then back again, as at 9, around the wire of the third adjacent crossing. All of the crossings of the stay are bent or kinked into sinuous or serpentine form in like manner, so that the crossing wire B, crossed by or interlocked with wire A at the point 7, is bent around wire A, just as wire A is bent around wire B. This causes each wire, where it crosses another wire, to lie in a hollow or kink thereof and produces a flat stay which is not too thick. The kinks in the wire, referred to, form springs which tend to resist distortion or change in shape of the stay.

The structure just described has the effect of resisting edgewise flexure to an unusual degree, due largely to the fact that during such flexure any two wires which cross each other must, in effect, rotate with reference to each other in the plane of the stay and around an axis normal to said plane through the point of crossing. This requires bodily displacement of the wires away from each other and toward the opposite flat side of the stay. Such movement is resisted by the wedging effect of the

wires on each other at the point of crossing or interlocking, while bodily displacement is prevented by the fact that each crossing portion of the wire is bent alternately, first over and then under and then over the next three adjacent wires. The stay is therefore unusually stiff and resistant to edgewise flexure or bending. At the same time, its qualities as a simple corset stay are not decreased, because the structure described does not prevent nor affect the flatwise flexibility and resiliency of the stay, which depends, as before, upon the quality of the wire, its dimensions, the number of wires used, and the spacing thereof. Another feature of the invention which contributes to edgewise stiffness is the fact that the interlocks at the crossing points between adjacent wires are quite close to the edges of the stay and therefore very near to the sharp bends or angles forming the closed ends of the corrugations or loops 5. This brings consecutive corrugations or loops very close to each other longitudinally of the stay, so close in fact that there is very little room for crowding them closer without at the same time forcing or bending the wire bodily out toward the flat side of the stay and thus permanently deforming the same and giving the wire a permanent set.

The structure and qualities of the wire fabric described adapt the same particularly well for use as a front clasp for corsets, where the stiffener is located at a meeting edge of the garment and is subjected to strains in the plane of the stiffener wherever there is a clasp or stud secured thereto. The usual forms of wire garment stay are so flexible edgewise or in the plane thereof that the strains referred to bend them edgewise into sinuous or serpentine form with consequent gaps between the meeting edges of the garment.

Fig. 3 illustrates a pair of my improved stays or stiffeners arranged for use as the front clasp members of a corset. For convenience, said members are shown separated from each other. Each of the wire structures used for the clasp members is of the same construction and arrangement as that heretofore described. The clasp member 10 is provided at intervals with eyelet or hook members 11, of which any number may be used. When in the form of hooks, as shown in Fig. 3, the open sides of successive hooks face in opposite directions, as shown, so that when the two clasp members are hooked together they are held tightly in engagement by the stiffness of the stays and prevent accidental opening or unfastening thereof. Said members 11 comprise plates bent upon themselves, as at 12, to form a leaf 13 between which and the main body of the member the wire stay structure is clamped. The eyelet member is secured rigidly to the wire fabric by one or more rivets 14 passed through the leaf 13, the wire stay and the body of the eyelet member. The other member 15 of the clasp is provided at intervals corresponding to those between the eyelet members 11, with stud members, comprising plates 17 secured by riveting to the wire fabric and having studs 18 projecting therefrom.

The projecting wings or end portions of the eyelet members 11 may, if desired, be provided with openings or apertures 20 to receive the studs 18, as in Fig. 5, instead of the hooks shown in Fig. 3.

The wire fabric described is particularly effective when used as a front clasp in the manner just described. The interlaced or interbraided wires of the fabric are of such size in cross section in relation to the width of the fabric that they form a fairly close network and provide considerable support for the securement of the plates 11 and 17 of the clasp members, which can therefore be secured very firmly and permanently to the wire fabric. Moreover, the stay itself resists edgewise bending or flexure to such an extent that when used as a front clasp there is no liability of the bending of the stay structure between adjacent eyelet or stud members, such as might open gaps between the meeting edges of the garment.

The wire fabric described, either when used as a corset stay, as in Fig. 1, or as a front clasp, as in Fig. 3, may be provided with any suitable form of tip 22 at the ends thereof for protecting the garment and preventing wear thereof.

What I claim is:—

1. A garment stay or stiffener, comprising wires each bent back and forth into sinuous or serpentine form to form alternate oppositely disposed corrugations or loops and transverse portions or crossings, the closed ends of the corrugations or loops being formed by bending the wire at the edges of the stay at less than a right angle, and the crossings being substantially straight from edge to edge of the stay when the same is viewed flatwise, each wire where it crosses another wire being bent or kinked and lying in a hollow of the other wire, thereby stiffening the stay against edgewise flexure.

2. A garment stay or stiffener, comprising wires each bent back and forth into sinuous or serpentine form to form alternate oppositely disposed corrugations or loops and transverse portions or crossings, the closed ends of the corrugations or loops being formed by bending the wire at the edges of the stay at less than a right angle, and the crossings being substantially straight from edge to edge of the stay when the same is viewed flatwise, the wire being of large diameter with relation to the distance between successive cross-

ings so that where two wires cross each other said wires are bent or kinked around each other and thus stiffen the stay against edgewise flexure.

3. A garment stay or stiffener, comprising wires each bent back and forth into sinuous or serpentine form to form alternate oppositely disposed corrugations or loops and transverse portions or crossings, the closed ends of the corrugations or loops being formed by acutely bending the wire at the edges of the stay, and the crossings being substantially straight from edge to edge of the stay when the same is viewed flatwise, each crossing portion being bent out of the plane of the stay first in one direction and then in the other to form a plurality of hollows or kinks open or concave on opposite sides of the stay, each said hollow or kink in each crossing portion of the wire having the crossing portion of another wire lying therein.

4. A clasp or eyelet strip for corsets and the like, comprising a wire fabric formed of a plurality of wires each bent back and forth into sinuous or serpentine form to form alternate oppositely disposed corrugations or loops and transverse portions or crossings, the eyes or loops being formed by sharp bends in the wire at the edges of the stay, and the crossings being inclined transversely of the stay and substantially straight from edge to edge thereof when the same is viewed flatwise, and clasp members rigidly secured at intervals to said wire fabric and each comprising a flat plate bent on itself to embrace said fabric and provided with a hook opening toward one end of the stay, part of the hooks opening in one direction and part in the other.

5. A clasp or eyelet strip for corsets or the like, comprising wire bent to form a series of loops or convolutions, and clasp members rigidly secured at intervals along the length of said strip, each member comprising a flat plate secured to the wire fabric and provided with a hook opening toward one end of the stay, part of the hooks opening in one direction and part in the other.

In testimony whereof, I have hereunto set my hand.

JAMES M. WELSH.

Witnesses:
W. W. KINCAID,
C. E. LEFFEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."