Nov. 7, 1933. M. S. HIGGINS 1,933,806

GARMENT STAY

Filed June 15, 1932

Fig. 1.

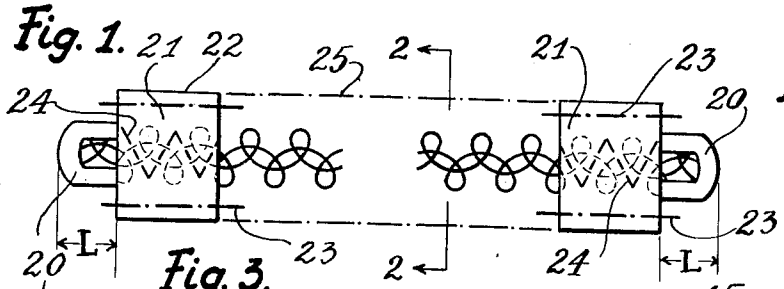


Fig. 2.

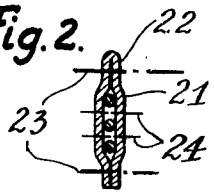


Fig. 3.

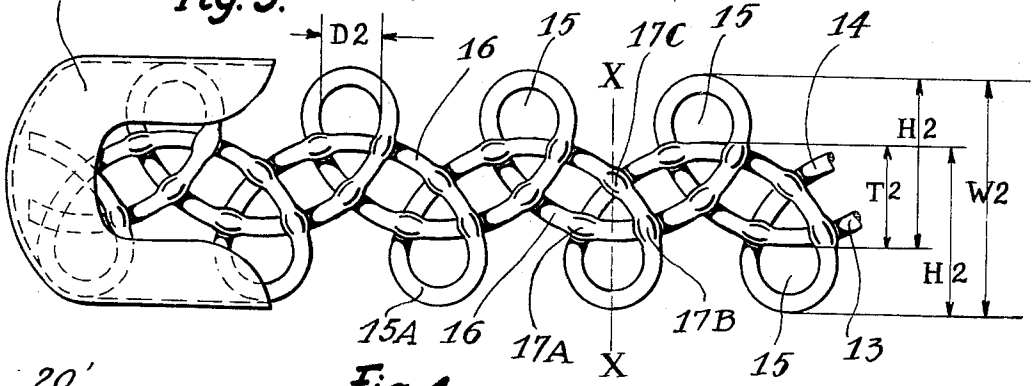


Fig. 4.

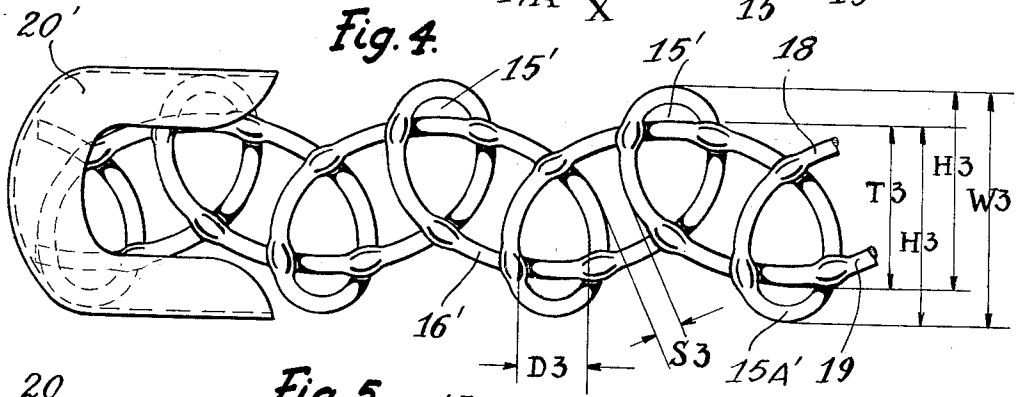
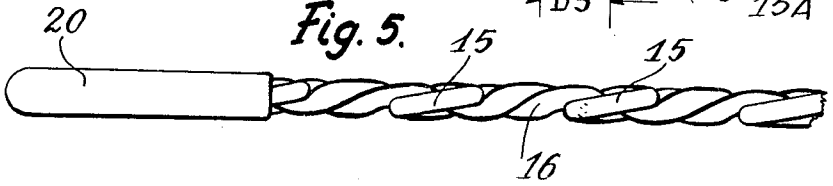


Fig. 5.



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1,933,806

GARMENT STAY

Max S. Higgins, Cortland, N. Y.; Cora E. Higgins and R. Paul Higgins, administrators of said Max S. Higgins, deceased, assignors to Cora E. Higgins, Cortland, N. Y.

Application June 15, 1932. Serial No. 617,382

9 Claims. (Cl. 2—264)

My invention pertains to an improved corset or other garment stay of the extensible and universally flexible, multi-wire type. The blade structure herein disclosed is inherently light in weight and may be built up by the use of a pair of piano wires or the like resilient metallic strands, which are each spacedly looped in staggered formation and interlocked in a novel manner. Said dual strands are each given a trochoidal configuration that is to say a curved shape of the kind generated by any radial point lying within a rolling circle and forms a series of strand interconnected loops. The closed loops respectively comprised in each series are reversely disposed and turned outwardly away from each other to define opposite marginal edges of my stay blade. Each such wire loop or eye is preferably kept spaced apart from its contiguous mate as measured lengthwise of its blade edge. The respective loop groups are cooperatively interlaced and partially flattened to constitute a unitary stay blade in which the component strands are securely associated. My striplike stay structure may readily be fabricated in virtually endless fashion so as to be reeled and subsequently cut to any desired sectional lengths.

I am aware that the prior stay art discloses plural wire strands of trochoidal configuration. In certain of these exemplifications, the respective loops are pivotally interlaced in such fashion that when flattened, the component strands are still allowed to assume an inclined biplanar relationship with respect to each other, this defect being particularly pronounced when employing a restricted number of nonoverlapping loops per unit of stay length. The present improved strand pattern is designed to correct the cited deficiency; also to allow of economically fabricating long sectional lengths of finished stay material in a single operation without tendency to warp laterally or otherwise become twisted out of the desired flat striplike shape. This attribute is in part attained by a novel bridged interlacing of alternate strand loops so as to positively fix the same in a common planar relation without resort to supplemental retaining means.

The primary object of my improvements is to devise a simple and effective stay blade of the character indicated that shall be capable of fully meeting garment reenforcing needs at the minimum of wire requirements, the weight saving aspect being a salient feature in view of the relatively expensive material that should be resorted to in the making of a high grade wire stay product.

Reference is had to the accompanying one sheet of drawing which is illustrative of certain alternative embodiments of my invention, and in which drawing:

Fig. 1 schematically illustrates a plan view of an extensible stay blade assembly as partially sheathed within spaced fabric pads of the sewing fin type; and Fig. 2 represents a cross-sectional view thereof as taken along line 2—2 of Fig. 1.

Fig. 3 shows a plan view in exaggerated scale of one arrangement of my dual wire blades such as may be provided with the Fig. 1 sheath pads, while Fig. 4 exemplifies an alternative blade pattern in which the loop interconnecting wires are somewhat differently disposed.

Fig. 5 is a longitudinal edge view of my Fig. 3 style of flattened blade.

An important feature underlying my improved stay structure resides in obviating the need for an inordinately large number of overlapping wire coils per unit of length since such compact loop disposition generally results in a relatively heavy stay blade that requires a correspondingly large expenditure of wire material. In addition, such overlapping coil formation usually introduces a frictional drag between adjoining coils which in turn tends to restrain and makes for sluggish recovery, particularly when the blade is flexed laterally around one of the marginal stay edges.

I have found that a far more efficient and economical dual-wire stay can be produced by the use of a lesser number of interlocked loops when these are set outwardly and reversely disposed lengthwise of the respective stay edges in the staggered, scalloped manner represented in Figs. 3 and 4. As will be understood, it is customary to galvanize or otherwise apply a coating of rustproofing compound to the multiple wires comprised in my blade.

Referring more specifically to the Fig. 3 pattern, this comprises two continuous wire strands of the interlaced type, designated as 13 and 14, which are respectively crimped into a symmetrical trochoidal or similar type of configuration, each such strand comprising a series of longitudinally spaced, egg-shaped loop or eye elements such as 15 and corresponding interconnecting elements such as 16, which latter may conform to a cycloidal or other arcuate shape. The overhanging or jutting outermost bight portions 15A of the respective loop series are reversely disposed about the longitudinal blade axis and define opposite marginal edges of my striplike stay blade. The overall height H2 of each such trochoidal configuration is preferably kept narrower than the full

blade width W2 and the major axis X—X of each loop thereof is shown placed in a rectangular relation to the length of the blade.

In certain blade patterns such as Fig. 3, the innermost loop dimension D2 as measured across the minor axis thereof, may be kept at less than one-half of the over-all blade width dimension W2. A distinctive feature of my blade design resides in the laterally interlaced relationship of the complementary crimped wire strands 13 and 14 in which the bight portion of their respective closed loops are turned outwardly away from each other in staggered relation as shown. It will be observed that the arcuate tie piece or loop interconnecting element 16 of one such strand is in its medial region threaded through a contiguous loop of the other strand and that all the loops contained in my built up blade may be given one and the same overall eye size. In the preferred pattern, more than one of such interconnecting elements extend between successive loops. These intermeshed strands may be flattened under moderate pressure to clench the respective overlapping wire regions such as 17A, 17B and 17C, without however impairing the tensile strength of the wire. The finished stay product may thereby be brought into a substantially common face level as represented in Fig. 5 of which the blade thickness is somewhat less than two wires deep.

The indentation 17C located at the loop closure together with the associated chordwise indentations 17A and 17B, may be triangularly arranged with the component wire pairs respectively disposed to intersect in crosswise relationship. Such latticelike disposition imparts to my wire stay, a cooperative truss effect that serves to counteract edgewise flexure without undue frictional slip on part of the wire crossover regions. The resulting free rebound enables me to attain an adequate resilient flexure characteristic for my blade, also to provide for a dual wire corset stay that is substantially free from obnoxious crunch or coil wear when subjected to prolonged hard usage.

The described Fig. 3 pattern is more particularly applicable to relatively narrow stays. In such instances, the loop interconnecting elements 16 of the respective strands may be carried well inwardly into symmetrical adjacency but still separated by the comparatively small lateral dimension T2, while the respective loops 15 project outwardly therefrom in staggered relation, as shown. It is however, generally preferred to work with the modified pattern disclosed in Fig. 4. Here the dual wire strands 18 and 19 are similarly crimped to shape up a series of loops 15′ which are again respectively spaced apart by elements 16′ to a lesser distance S3; if desired, the adjacent loops may also be made to overlap each other. The dimension T3 has now been augmented with respect to the blade width W3 which effects a different mesh distribution. After being rolled flatwise, the overlapping strands are partially indented and because of their interlaced relationship, will not become parted when applied to stay purposes. It will be observed that in both of my illustrative patterns each outturned loop series is symmetrically but oppositely disposed in relation to the longitudinal centerline of the respective blades.

In further definition of the aforesaid stay structure, the overlapping end regions of the successive tie or interconnecting elements (such as 16 or 16′) comprised in each of my strands, are adjoined endwise at the loop closure point 17C to constitute a pair of parallelly spaced and substantially continuous girder-like members or complementary strings of such elements that run lengthwise of and in an inset relation to the marginal edges of said stay. It is emphasized that these members are respectively threaded through every alternate loop and which plural loops are in turn disposed crosswise of said members in a latticed-like manner, the interlacing being such that both series of loops are securely retained in the plane of said laterally spaced girder members. By virtue of the undulated shape given to the tandem interconnected elements and an anticipated slight slip on part of the crossover wires at 17C, my universally yieldable blade may be extended lengthwise to a marked degree when subjected to longitudinal pull.

As intimated, my processed wire may be fabricated in relatively long lengths prior to cutting such stay forming stock into the desired blade lengths. After cutting, each severed blade end may be protectively trimmed by means of a clenched metallic tip such as 20 which is made to span the oppositely disposed end loops. If preferred, such fabricated strands may also be sheathed prior to severing said virtually endless stock.

The cited extensible attribute afforded by my multi-wire blade, makes it impracticable to resort to ordinary adhesive in applying a continuous cover therealong in the conventional manner. Instead, I prefer to attach a pair of spaced apart, fabric pads 21 or the like sheath sections to the respective blade tip regions, said pads being non-elastic and set inwardly behind the tips by the distance L as shown in Fig. 1. Each such pad may be folded to provide for one or more laterally overhanging sewing fins 22 adapted to be stitched within a corset pocket along the seam 23 in a manner more fully explained in my copending application Serial No. 604,369, filed April 11, 1932.

For present purposes, the medial region of each such transverse stay pad may be sewn through the interstices of the embraced wire stay blade in zig-zag fashion as at 24. The stipulated irregular thread formation readily accommodates itself to any minor endwise stay stretch and at the same time affords an adequate holding power, more particularly when my blade is used in conjunction with an elastic garment, corset or the like of which latter certain regions may demand a considerable longitudinal stretch on part of its reenforcing stay in order to feel comfortable to the wearer. Should it be desired to wholly cover the described stay blade, this may be accomplished by means of a single rubber or the like continuous elastic sheathing medium having a marginal contour represented in dotted outline as at 25. The use of either type of fin attachment does not interfere with the inherent lateral resiliency of my stay blade nor appreciably obstruct the longitudinal stretching thereof.

The foregoing description taken in connection with the accompanying drawing, makes apparent the intended construction and advantages inherent in my improvements, it being understood that I reserve the right to vary the more novel structural features of my stay blade and its mode of attachment to a garment, all without departing from the spirit and scope of my invention as defined by the appended claims.

I claim:

1. A relatively flat elongated structure comprising a pair of continuous strands each given

a trochoidal shape and respectively including a series of loops together with associated interconnecting elements, the loops contained in one such strand being turned outwardly away from the loops of the other strand and which other strand has a medial region of an interconnecting element interlaced through a loop of the aforesaid one strand.

2. A stay blade structure comprising a pair of continuous strands each given a trochoidal configuration and respectively including a series of loops together with associated interconnecting elements, the respective interconnecting elements contained in one such strand each being interlacingly threaded through a next adjacent loop of the other strand to constitute an open latticelike pattern in which all the loops are fixedly retained in a common plane.

3. A stay blade comprising a pair of continuous strands each given a trochoidal configuration and respectively including a series of loops together with associated interconnecting elements of which the respective interconnecting elements contained in each such strand are disposed endwise into complementary strings of elements that respectively extend along opposite marginal edges of the blade in a laterally inset relation thereto, the interconnecting elements of one such strand being respectively threaded through the next adjacent loop of the other strand to constitute an interwoven pattern of which all the loops span and wholly reach across the aforesaid complementary element strings.

4. A striplike blade structure comprising a pair of continuous wire strands that are disposed lengthwise of said structure and respectively crimped into a similar shape of the trochoidal type, each such shape including a series of closed and longitudinally spaced loops together with associated interconnecting elements and which loops of one such series are faced outwardly away from the loops of the other series in staggered symmetrical relation about the longitudinal centerline of the blade, the respective elements of each such strand being interlaced through its next adjacent loop of the other strand.

5. A striplike blade structure comprising a pair of cooperating strands disposed lengthwise of said structure of which one such strand is given a trochoidal configuration to constitute a series of loops and associated interconnecting elements and which loops have their respective bight portions arranged outwardly away from the mid-region of the striplike structure to define a scalloped marginal edge of said structure and which loops respectively have the other strand threaded therethrough.

6. A built up blade structure comprising a pair of continuous wire strands each given a trochoidal shape and respectively including a series of loops and associated interconnecting elements, the loops contained in one such strand being turned outwardly away from the loops of the other strand and which other strand has the medial region of an interconnecting element threaded through a loop of the aforesaid one strand to constitute two strand crossover points that are triangularly disposed with respect to the closure point of the threaded loop.

7. A built up blade structure comprising a pair of continuous wire strands each given a trochoidal shape and respectively including a series of loops and associated interconnecting elements, the loops contained in one such strand being turned outwardly away from the loops of the other strand and which other strand has the medial region of an interconnecting element threaded through a loop of the aforesaid one strand, said strands being indented at their respective crossover regions.

8. A relatively flat stay blade comprising a pair of continuous strands each given a trochoidal shape including a series of strand interconnected loops and which strands are interlaced to constitute a latticelike pattern in which the loops of the respective strands are reversely disposed in staggered relation lengthwise of the blade and between each adjacent pair of such staggered loops there extend two complementary strand lengths which retain each such pair of loops in relatively fixed planar alignment.

9. A universally flexible stay blade comprising a pair of crimpable strands each given a similar configuration, each such configuration consisting of a series of strand interconnected loops that are kept spaced apart lengthwise of the blade in nonoverlapping relation and the successive loops contained in one such series respectively having a laterally outermost bow portion disposed upon one side of the longitudinal blade axis and the other series of loops having all of their corresponding bow portions oppositely arranged with respect to said axis, the respective loops contained in one such series having the other strand threaded therethrough to constitute complementary strand lengths that extend between each next adjacent pair of loops and retain each such pair of loops in relatively fixed planar alignment.

MAX S. HIGGINS.