No. 607,189. Patented July 12, 1898.

B. F. OREWILER.

HOOK FOR HOOK AND EYE FASTENING.

(Application filed May 9, 1896.)

(No Model.)

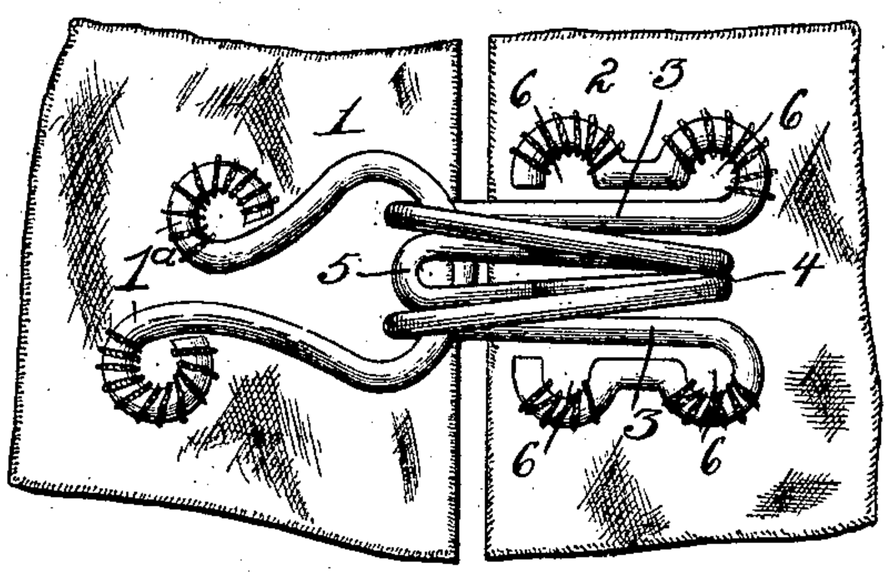

FIG. 1.

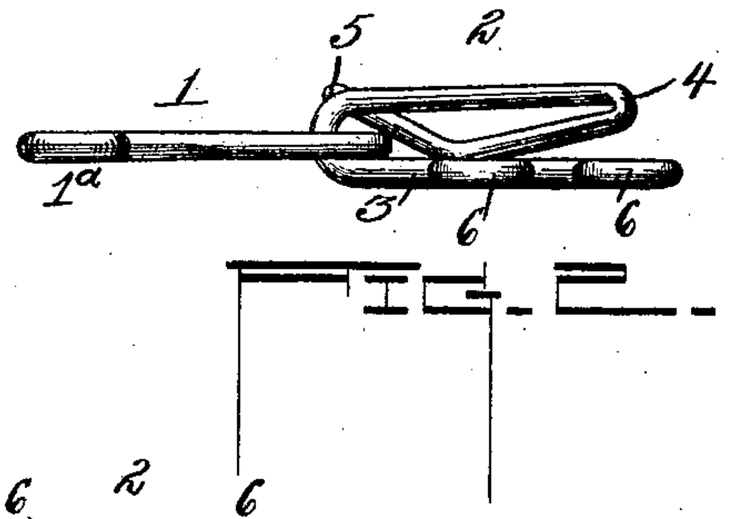

FIG. 2.

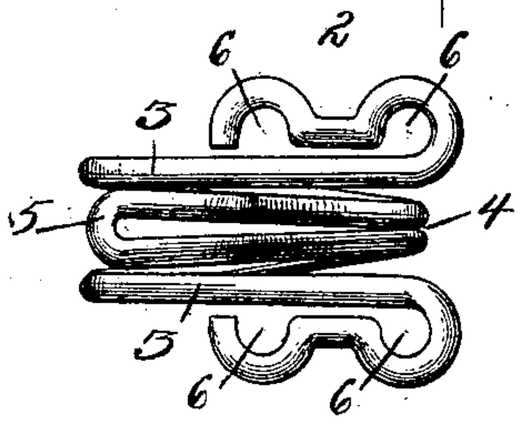

FIG. 3.

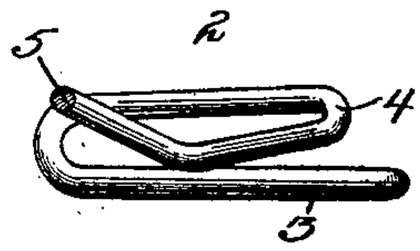

FIG. 4.

Inventor

Witnesses
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UNITED STATES PATENT OFFICE.

BENJAMIN F. OREWILER, OF SHELBY, OHIO, ASSIGNOR OF ONE-HALF TO JAMES CURRIE, OF SAME PLACE.

HOOK FOR HOOK-AND-EYE FASTENING.

SPECIFICATION forming part of Letters Patent No. 607,189, dated July 12, 1898.

Application filed May 9, 1896. Serial No. 590,905. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. OREWILER, a citizen of the United States, residing at Shelby, in the county of Richland and State of Ohio, have invented a new and useful Hook and Eye, of which the following is a specification.

My invention relates to garment-fasteners of the hook-and-eye type, and particularly to the construction of a hook adapted for engaging an eye of the ordinary form, the object in view being to provide a comparatively flat hook projecting but slightly from the plane of its shank or base, and hence but slightly from the surface of the garment to which it is attached; to provide such means for holding the eye in engagement with the hook as will prevent accidental displacement, but will permit the manual engagement and disengagement of the eye with facility; to provide a plural spring elasticity as a means of maintaining the holding-tongue yieldingly in its normal position and as a means of permitting the forcible flattening of the hook members without injuring the same or destroying the elasticity of its parts; to provide a yielding connection between the shank of the hook and the attaching-eyes whereby outward strain of the butt or seat of the hook is permitted without the risk of tearing or otherwise injuring the garment to which the hook is attached, and, furthermore, to provide a holding-tongue of such a construction as to possess lateral elasticity parallel with the plane of the shank, whereby the members of the hook-bill are held laterally in contact to prevent the introduction of the coöperating eye between said members, and also to provide for manually deflecting and straining the holding-tongue out of its normal position to release the eye.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a plan view of a hook constructed in accordance with my invention, with an eye engaged therewith, the same being shown attached to the parts of a garment. Fig. 2 is a side view of the same. Fig. 3 is an inverted plan view of the hook. Fig. 4 is a longitudinal central section of the hook.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The eye 1, which is illustrated in the drawings, is of the ordinary construction, with its attaching-loops 1^a arranged out of transverse alinement for a purpose well known in the art, and for engagement with said eye I provide a hook 2, of which the essential parts are a shank 3, a hook-bill 4, and a holding-tongue 5. The hook is constructed of a single blank of spring-wire doubled upon itself at its center to form a looped tongue 5, of which the sides or members converge toward a point of contact at the bill 4, and this loop exerts a lateral spring tendency or elasticity by which the front extremities of the hook-bill members are held in close contact to prevent the introduction of the wire of the eye 1 therebetween by accident. From the point of contact at 4 the members of the hook diverge and connect with the parallel spaced members 3 of the shank by means of loops which are disposed perpendicularly with relation to the plane of the shank and have a spring action designed to resist movement of the bill 4 perpendicularly either toward or from the plane of the shank. Obviously the rearward spreading of the members of the hook strengthens the same laterally or in a plane parallel with the shank, and at the same time the lateral spacing of the shank members 3 provides a broad base for the hook to prevent the rolling or turning thereof in use. Said perpendicularly-disposed loops by which the hook members are connected with the shank members form seats at the butt of the hook to receive the eye 1, and these perpendicular loops are spaced apart a distance equal to the width of the free looped end of the tongue 5, as will be seen by reference to Fig. 3, to provide for the free vertical movement of said looped end of the tongue between the members of the hook at the butt thereof. After the sides of the loop formed by the blank have been extended forwardly to the transverse plane of the bill 4 they are bent outwardly in the plane of the shank members 3 to form attaching-loops 6, of which the open sides face in-

wardly or toward the shank members and are closed thereby. This arrangement of the attaching-loops has numerous advantages, among which may be mentioned the fact that it increases the transverse extent of the base of the hook, and thus still further guards against lateral rolling or turning of the hook in use. It will be noted, however, that the attaching-loops 6 do not project laterally from the shank, but are formed as extensions of the shank members, and hence are connected with the ends of the shank members, whereby a swinging movement of the entire body of the hook, including its shank members, is possible in opposition to the torsional resistance of the foremost attaching-loops at the points where said loops merge into the shank members. This yielding attachment of the hook adapts it to swing perpendicular to the plane of its shank when strained outwardly from the garment to which it is attached, and thus avoids breaking the stitches or tearing the material of the garment.

As hereinbefore described, the shank members are connected with the bill members by loops disposed perpendicular to the plane of the shank and adapted to yield in planes perpendicular to that of the shank, whereby movement of the bill members perpendicular to the plane of the shank is possible; but in addition to this the tongue members are connected with the bill members by loops disposed perpendicular to the plane of the shank, and hence are also capable of a yielding movement perpendicular to the plane of the shank, whereby when the tongue is strained upwardly the hook is capable of yielding both at the front and rear ends of the bill members. In order to allow space for the tongue to yield vertically and independently of the bill members, the tongue members are deflected downwardly at an angle from the transverse plane of the bill members until they reach a point approximately in the plane of the upper surfaces of the shank members, thereby closing the throat of the hook-seat. From this depressed point the tongue members incline upwardly and forwardly and terminate in the above-described tongue-loop in the plane of the bill members and at the foremost point of the hook between the perpendicular loops by which the bill members are connected with the shank members. In other words, the tongue from its most depressed point, approximately at the center of its length, is inclined upwardly both toward the front and rear ends of its members, whereby in engaging an eye 1 with the hook said eye passes between the plane of the front inclined portions of the tongue and the plane of the shank, and thereby elevates the tongue, and also, if necessary, the front ends of the bill members, until the eye passes the depressed intermediate portion of the tongue. After passing this point the eye reaches the seats at the rear end of the hook and the tongue returns to its normal position to close the throats of the seats. Obviously an attempt to disengage the eye from the hook will be resisted by the tension of the spring-tongue; but the displacement of said tongue may be accomplished by backing the eye under the upwardly and rearwardly inclined portion of the tongue, and thus raising the latter in opposition to the resistance offered thereby. Furthermore, in case it is desired to disengage the eye more easily than by backing the same under the inclined portion of the holding-tongue the free looped end of said tongue may be elevated manually by inserting the end of the finger thereunder, said looped end being exposed between the deflected butt-ends of the bill members, and it will be seen that this looped free end of the tongue is in rear of the path of the eye as it is disengaged from the hook, and thus may be held elevated until the eye has been backed a sufficient distance to pass the deflected intermediate points of the tongue members.

As hereinbefore described, the sides or members of the tongue lie between the perpendicular planes of the shank members throughout their lengths, whereby depression of the hook, as by a force applied in a direction perpendicular to the plane of the shank, will force the deflected portions of the tongue members downwardly between the shank members without in any way affecting the elasticity of the structure or disarranging any of its members and also without resulting in any injury to the fabric to which the hook is attached. In addition to this fact an advantage of this construction resides in the fact that the deflected portions of the tongue member are adapted to normally occupy a position slightly below the outer surface of the shank members, and thus insure a compactness of the hook, while not offering too great resistance to the introduction or disengagement of the eye. For instance, in engaging the eye with the hook an angular position of the former will cause its rounded end to pass down between the perpendicular planes of the shank members, and thus under the deflected portions of the tongue members, without causing a material deflection of the latter.

The most important feature of the described construction resides in the fact that the tongue is practically held in its normal position by a double spring action provided in the first place by the perpendicular contiguous loops at the front end of the bill and the spaced perpendicular loops located at the butts of the bill members and forming the connection between said bill members and the shank members, whereas the front ends of the bill members are held laterally in contact by the spring action of the transverse loop at the free end of the tongue. It will also be seen that when the front ends of the bill members are depressed in a direction perpendicular to the plane of the shank members the downwardly-deflected intermediate portions of the tongue members will come in

contact with the surface upon which the shank members are arranged and will limit said depression of the bill members before the front extremities of the latter reach a point in the plane of the shank members, and hence said front ends of the bill members will always be sufficiently above the plane of the shank members to allow the introduction thereunder of an eye. In other words, the downward deflection of the tongue members serves to strengthen the hook against a crushing force, and hence prevents such a force, unless unusually severe, from destroying the usefulness of the hook.

It is obvious that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A hook for garment-fasteners having shank members arranged in a common plane and provided with attaching-loops, forwardly-convergent bill members connected respectively with the shank members by yielding loops perpendicular to the plane of the shank members, tongue members respectively connected with the bill members by yielding loops perpendicular to the plane of the shank members, and connected at the opposite end by a transverse loop by which the front ends of the bill members are yieldingly held in lateral contact, substantially as specified.

2. A hook for garment-fasteners having parallel spaced shank members provided with attaching-loops, forwardly-convergent bill members respectively connected with the shank members by yielding loops perpendicular to the plane of the shank members, the front ends of the bill members being in lateral contact, rearwardly-divergent tongue members arranged between the planes of the bill members and shank members and respectively connected with the bill members by yielding loops arranged perpendicular to the plane of the shank members, the rear ends of the tongue members being connected by a transverse yielding loop arranged between the perpendicular planes of the loops at the rear ends of the bill members, and manually accessible between said loops, said transverse loop being laterally yielding to normally hold the front ends of the bill members in lateral contact, and the tongue members being deflected at intermediate points toward the plane of the shank members, and occupying positions between the perpendicular planes of said shank members, for depression therebetween, substantially as specified.

3. A hook for garment-fasteners constructed of a single blank of spring-wire, doubled upon itself at its center to form a looped holding-tongue of which the sides or members are in a common transverse plane; having said tongue members folded upon themselves to form parallel loops perpendicular to the plane of the tongue-loop, and extended rearwardly and divergently to form bill members of which the rear ends are spaced apart a distance equal to the width of the rear end of said tongue-loop; having said bill members folded upon themselves to form loops perpendicular to the plane of the first-named transverse loop, and extended forwardly to form parallel spaced shank members; and having said shank members folded upon themselves, outwardly, to form attaching-loops, in the plane of the shank members, the open sides of the attaching-loops being disposed to face inwardly or toward the shank members, and said shank members being capable of swinging movement perpendicular to the plane of the attaching-loops and opposed by the torsional elasticity of the wire blank at the points of connection of the shank members with the attaching-loops, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BENJAMIN F. OREWILER.

Witnesses:

JAMES CURRIE,

NELLIE FLETCHER.