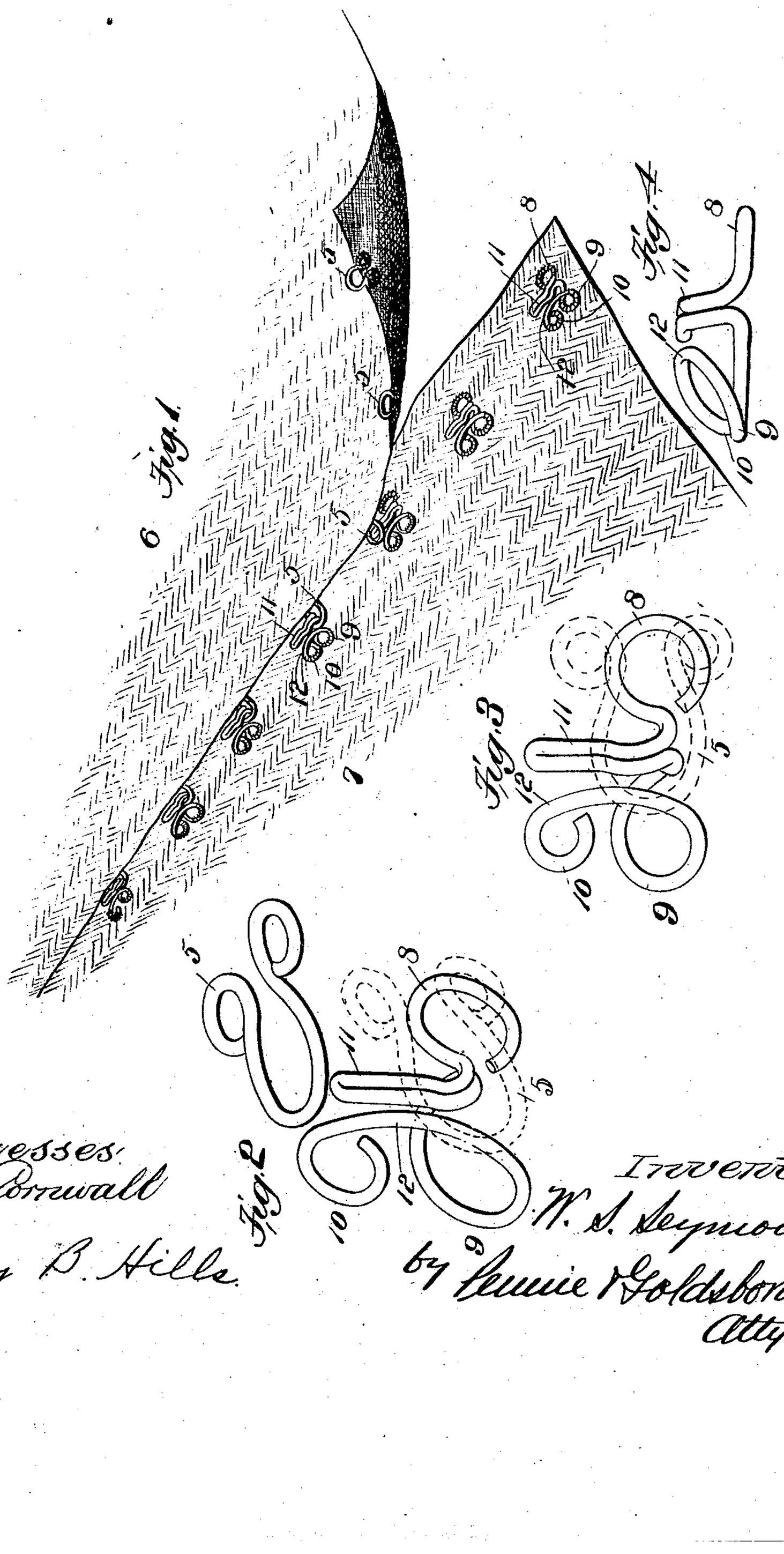
(No Model.)

2 Sheets—Sheet 1.

W. S. SEYMOUR.

HOOK AND EYE.

No. 502,238. Patented July 25, 1893.



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(No Model.)

2 Sheets—Sheet 2.

W. S. SEYMOUR.

HOOK AND EYE.

No. 502,238. Patented July 25, 1893.

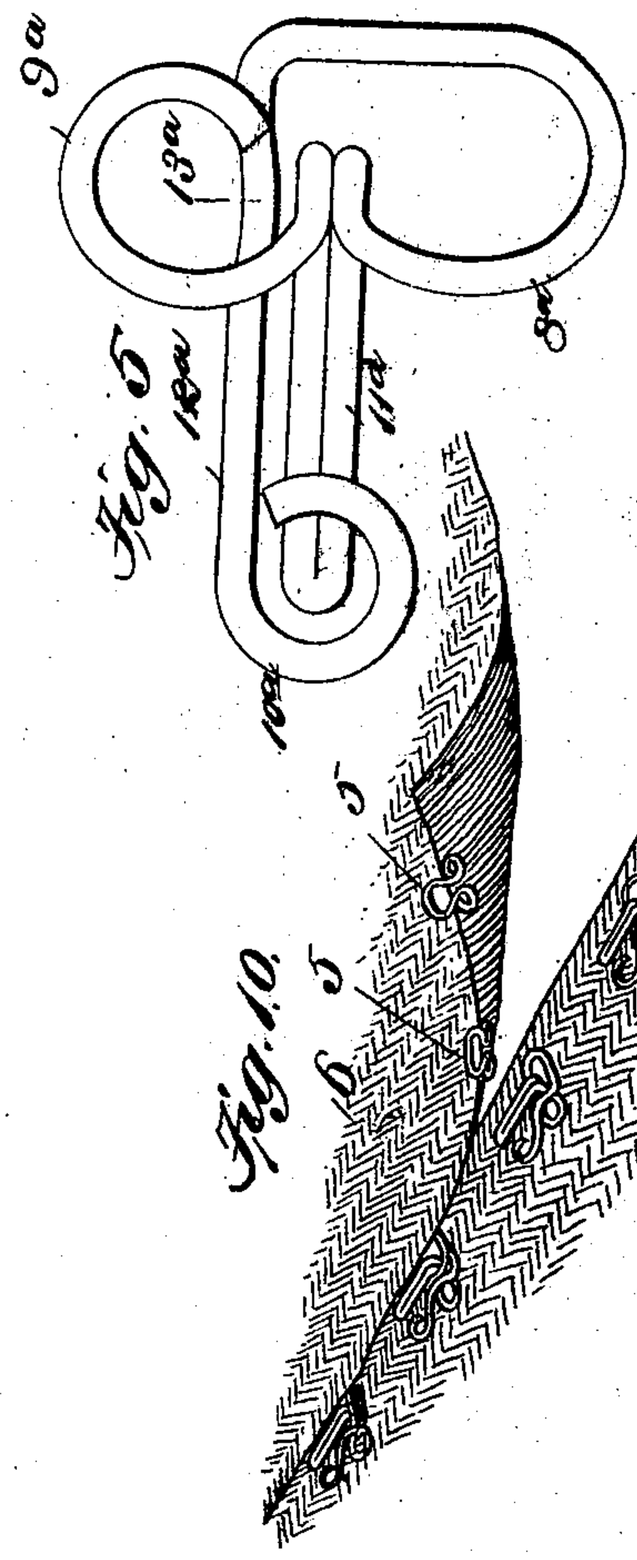

Fig. 5

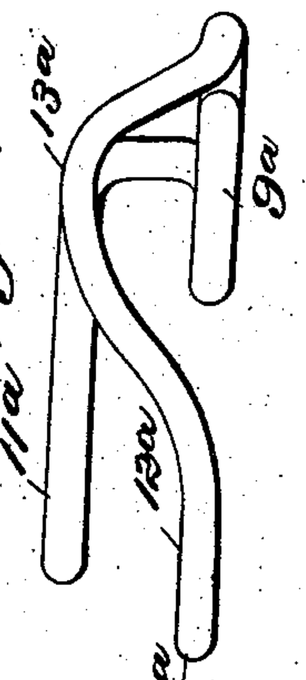

Fig. 6.

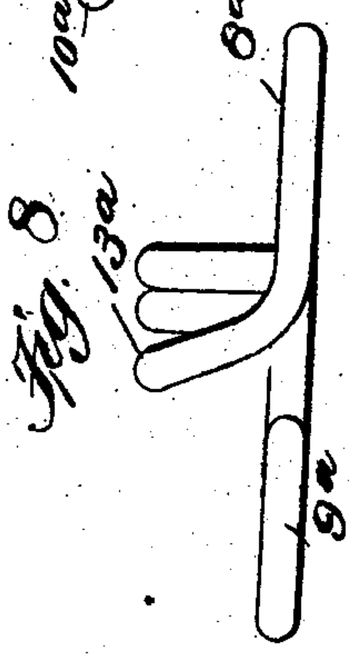

Fig. 8

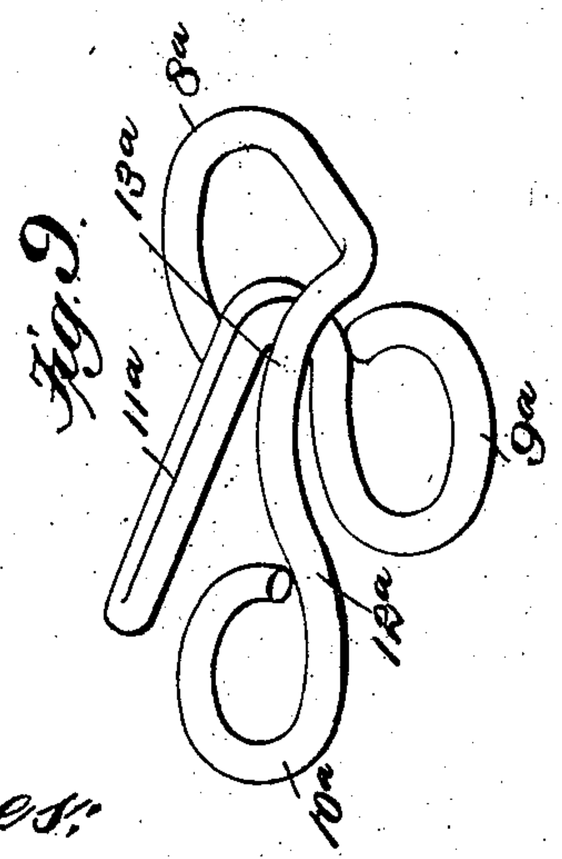

Fig. 9.

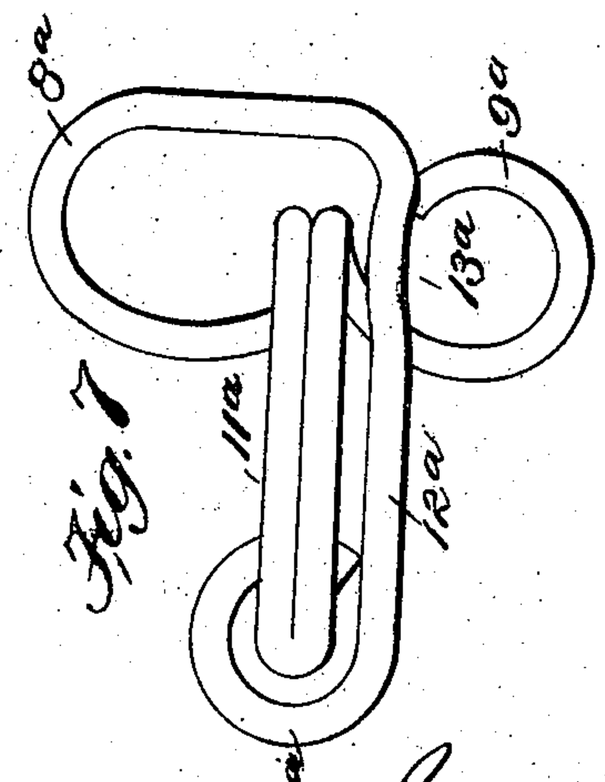

Fig. 7

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UNITED STATES PATENT OFFICE.

WILLIAM S. SEYMOUR, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JOSEPH S. KELLER, OF SAME PLACE.

HOOK AND EYE.

SPECIFICATION forming part of Letters Patent No. 502,238, dated July 25, 1893.

Application filed June 18, 1892. Serial No. 437,197. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. SEYMOUR, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in and Relating to Hooks and Eyes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in and relating to hooks and eyes, and more particularly to an improved construction of the hook portion thereof, permitting a series of said hooks to be so arranged with relation to the co-operating eyes that the eyes may be stripped off or disengaged from the series of hooks by a single rapid continuous movement transverse to the line of strain exerted by the wearer upon the two parts when the fastening is in use; whereby the inconvenience, difficulty, exertion, and loss of time incident to the usual operation of detaching each eye by a separate movement is avoided.

Other important features of my invention are that although the tongue of the hook extends in a direction transverse to the line of strain, it is anchored to the fabric in such manner as to prevent it from being turned or twisted out of its normal position of security; furthermore, the construction is such as to afford the necessary slight forward and backward play for the eye, incident to the ordinary conditions of use, without danger of having such play effect a disengagement of the fastening.

In the accompanying drawings, Figure 1 represents, in perspective, two pieces of fabric, provided with hook and eye fastenings constructed and arranged in accordance with my invention. Fig. 2 represents, on a larger scale, the two parts of the fastening, in perspective, illustrating in full lines the position of the eye just before it is slipped over the tongue of the hook, and in dotted lines, its position after engagement. Fig. 3 represents a plan view of the fastening, also on an enlarged scale, the eye being shown in dotted lines. Fig. 4 represents an enlarged end elevation of the hook. Figs. 5, 6, 7, 8 and 9, represent respectively a bottom plan view, side elevation, top plan view, end elevation, and perspective view of a modified form of the invention; and Fig. 10 represents, in perspective, a similar view to Fig. 1, but showing the modified form referred to.

Similar numerals indicate similar parts throughout the several views.

Referring to the drawings, it will be noted that the eyes 5, which may be of any of the usual constructions, may be conveniently attached at the edge of one of the flaps or pieces of fabric 6 or the like to be connected, in the ordinary way. The co-operating hooks are attached to the other flap or piece of fabric 7, opposite the several eyes, so that the series of hooks and eyes may be connected together to join the two pieces of fabric.

I will first describe the construction and operation of the modification shown in Figs. 1 to 4 inclusive, wherein the hook portion of the fastenings is preferably made of a single piece of wire bent into the shape illustrated, so as to have the anchoring loops or bends 8, 9, 10, the tongue 11, and the combined spring guard and guide 12, adjacent to the tongue. The tongue 11 is, in the forming operation, made stout and durable by having its two branches laid close together so as to act as a reinforcement the one to the other, and, at a point indicated by the lateral bend 13 of the tongue 11, the distance between the tongue and the adjacent guard 12 is made somewhat less than the thickness of the wire of the eye 5, so that in passing such point the parts will yield sufficiently to allow the eye to engage with the hook portion beyond, and will then spring back to their original position so as to serve as a keeper against accidental disengagement of the eye.

It will be noted that the part 12, in rising to the level of the tongue of the hook leaves space beneath said part 12 for a slight backward and forward play of the eye, after the latter has been engaged with the hook. It will also be observed that the bow-like shape of the part 12 enables it to act as a guide, both in engaging and in disengaging the eye from the hook.

In applying the hook to the fabric 7, the

tongues 11, are designed to extend, as shown, in a direction transverse to the line of strain exerted by the wearer or user upon the two parts of the fastening. The hooks are also so applied that their tongues as a series shall all point in the same direction, so that a single rapid continuous movement will suffice to strip the eyes from engagement with the entire series, or as many thereof as are thus arranged in succession for this single movement of disengagement.

The anchoring loops 8, 9, 10, are of great importance, as an element of the invention for the reason that they connect the hook in such a fixed relationship to the fabric 7 that the tongue of the hook cannot be turned or twisted from its normal position by any strain exerted upon it by the wearer under the ordinary conditions of use. Thus the loop 8 acts as a brace at the inner side of the hook, and the loops 9 and 10 act as hold-backs at the outer side thereof; moreover, the loop 10 is of special advantage by reason of the fact that it extends well up along the tongue.

The mode of operation is apparent. The eyes are engaged with the hooks by being slipped over the tongues 11 past the bend 13 thereof. After being forced past the bend, the parts of the hook spring back into their original position so as to retain the eye in place. When a strain is exerted, in use, upon the fastening, the eye passes into the slight re-entering angle of the hook below the bend 13, and any play of the eye brought about by the movements of the body of the wearer of the garment in connection with which the fastening is employed, can take place without danger of disengaging the two parts of the fastening. When it is desired to unfasten or disconnect the two fabrics so as to release the garment from the wearer, the same may be effected by a single rapid continuous movement, in the manner indicated in Fig. 1, wherein the movement of disengaging or stripping the eyes from the series of hooks is shown as under way. Care must be taken that the slight re-entering angle referred to shall not be of such a character as to interfere with the stripping off operation. To this end, it is so formed as to constitute but a slight deviation from the otherwise straight sides of the tongue.

In the form of my invention shown in Figs. 5 to 10, inclusive, the same generic features of construction and the same general mode of operation are present, although the specific details vary in several particulars, as will more fully appear from the drawings and from the description I am about to give. In this modification of the invention, the hook is, as before, preferably made of a single piece of wire, bent into such shape as to form three anchoring points of attachment to the fabric 7, and a retaining guard at the side of the tongue of the hook, these broad features of construction being present in both modifications. It will be noted, however, that in the modification shown in Figs. 5 to 10, the retaining guard 12^a is formed by continuing the loop 8^a, instead of continuing the loop 9^a. I prefer this construction for the reason that the guard 12^a is thereby rendered more springy or resilient, so as to enable the cooperating eye 5 to be more readily stripped from the hook. Moreover, the guard 12^a is thereby brought more nearly above the eye 5 when the latter is in the position of engagement, so as to permit the free movement of the eye beneath the guard. A further advantage is that the loop 10^a may to better effect be turned in an opposite direction to the loop 10, so that a better anchoring is secured for the hook, by reason of the fact that the loop 10^a is thus located substantially beneath the outer or free end of the tongue 11^a. It will be observed that the guard 12^a rises from the loop 10^a, and, at the point 13^a approaches the tongue 11^a a distance less than the diameter of the wire of the eye 5, thereby retaining the eye in place as before. The mode of operation will be apparent from what has already been said in explanation of the mode of operation of the modification shown in Figs. 1 to 4. The eyes are slipped over the hooks in like manner in making the fastening, and are adapted to be stripped from the hooks by a similar continuous rapid movement.

In the form shown in Figs. 5 to 10, I prefer, as illustrated, to make the tongue 11^a quite straight from its bend to its tip, *i. e.*, omitting even the slight re-entering angle of the other modification, and correspondingly facilitating the stripping off or disengagement of the eyes. A further advantage, not heretofore alluded to, of the construction shown in Figs. 5 to 10, is that by reason of the fact that the eye 5 when in engagement with the hook lies between the loop 9^a and the overhanging guard 12^a, it is thereby restrained or held normally in the same plane, so as to more effectually prevent or guard againt the separating or gaping apart of the edges of the pieces of fabric joined by the fastening.

Having thus described my invention, what I claim is—

1. As a means of fastening separable pieces of fabric or the like, a series of eyes attached to one of said pieces of fabric, and a series of hooks attached to the other of said pieces of fabric, the tongues of the hooks extending in a direction transverse to the line of strain; whereby the eyes may be stripped or disengaged from the entire series of hooks by a single continuous movement, substantially as described.

2. In a hook and eye, a hook having anchoring projections at the bend of the tongue and having a retaining guard extending along the side of the tongue; substantially as described.

3. In a hook and eye, a hook having anchoring projections at the bend of the tongue and

having a retaining guard extending along the side of the tongue and anchored at its outer end; substantially as described.

4. In a hook and eye, a hook having a retaining guard extending along the side and past the base of the tongue to the opposite side of the tongue; substantially as described.

5. In a hook and eye, a hook having two anchoring projections at its bend, and a third anchoring projection beyond the same and beneath the free end of the tongue; substantially as described.

6. In a hook and eye, a hook having a retaining guard at the side thereof, said hook being provided with a free space beneath the guard to permit backward and forward play of the eye; substantially as described.

7. In a hook and eye, a hook having a retaining guard at the side thereof, said hook being provided with a free space beneath the guard to permit backward and forward play of the eye, and having a projection between which and the retaining guard, the eye is adapted to rest; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM S. SEYMOUR.

Witnesses:

JOHN C. PENNIE,

J. A. GOLDSBOROUGH.