

E. M. COWLES.
 HOOK AND EYE.
 APPLICATION FILED APR. 15, 1908.

958,369.

Patented May 17, 1910.

Fig. 1.

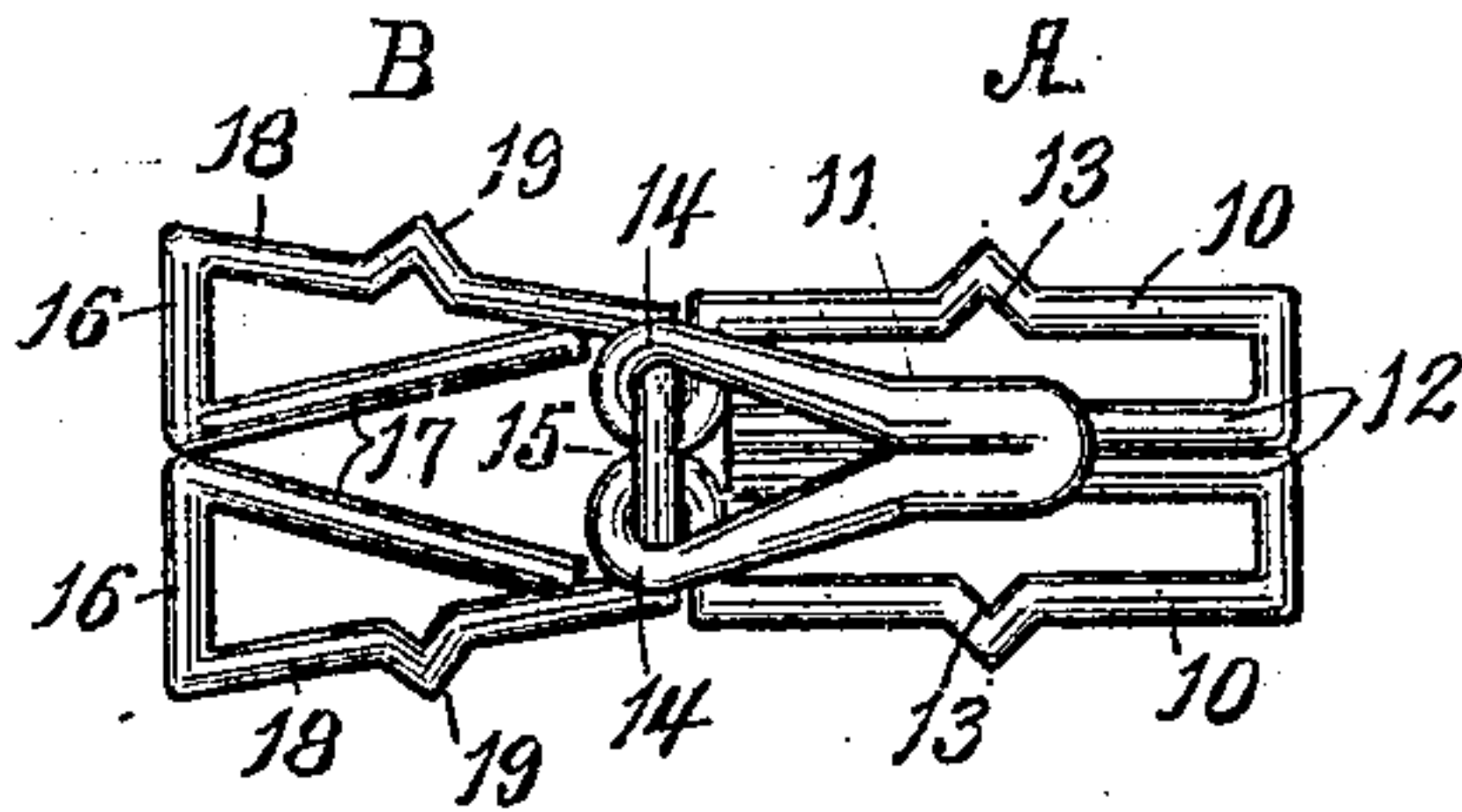


Fig. 2.

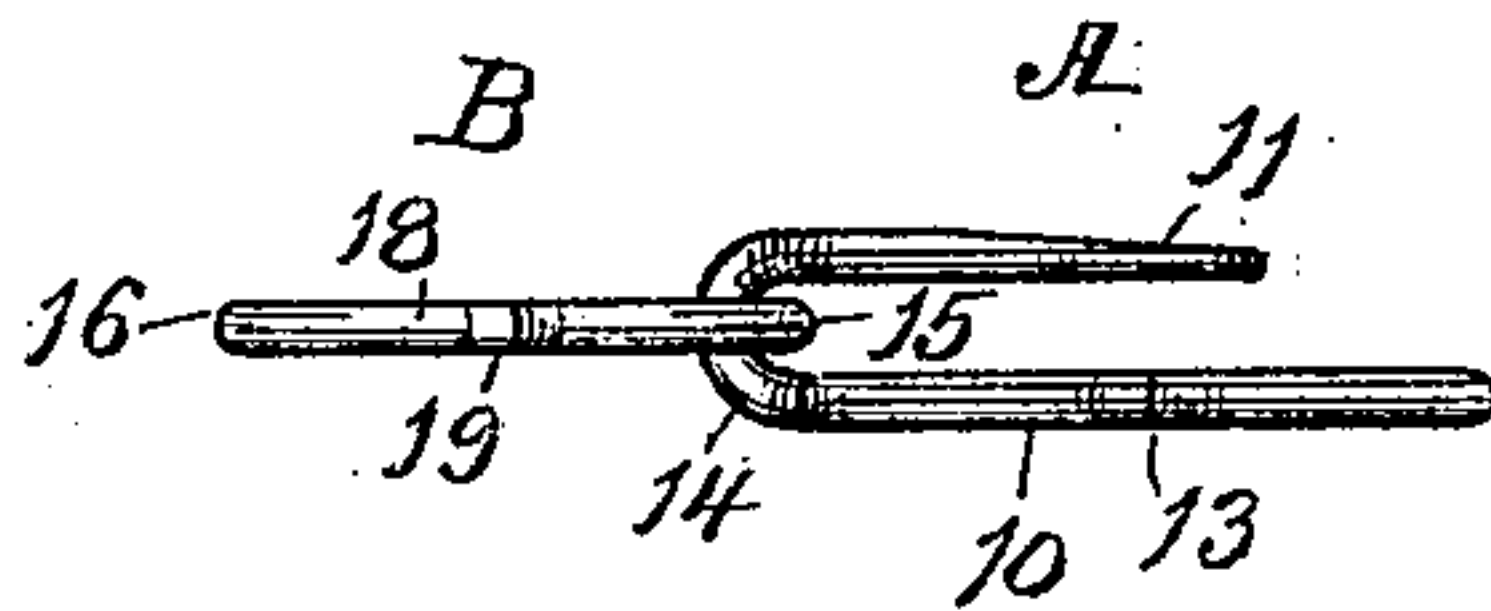


Fig. 3.

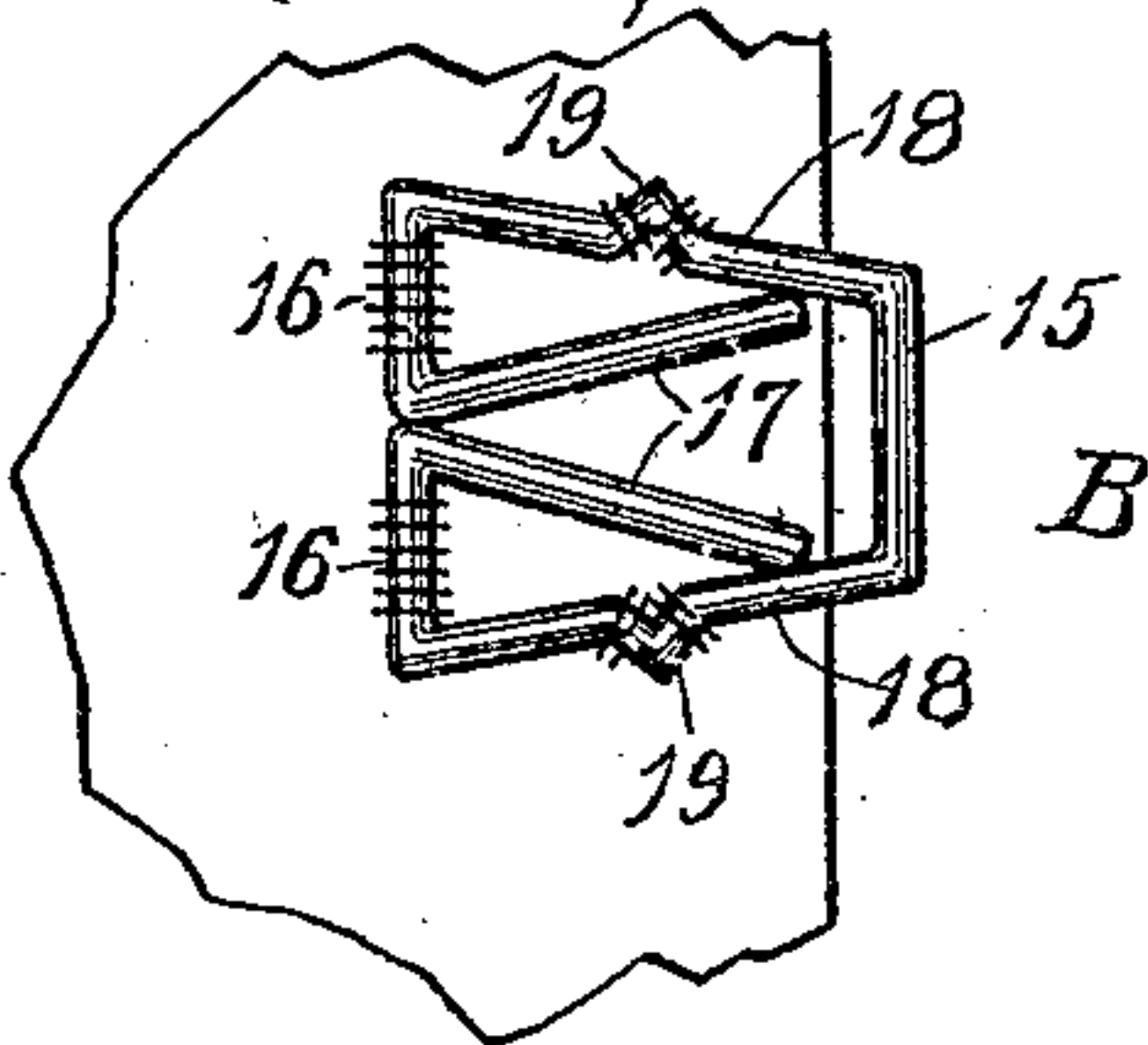
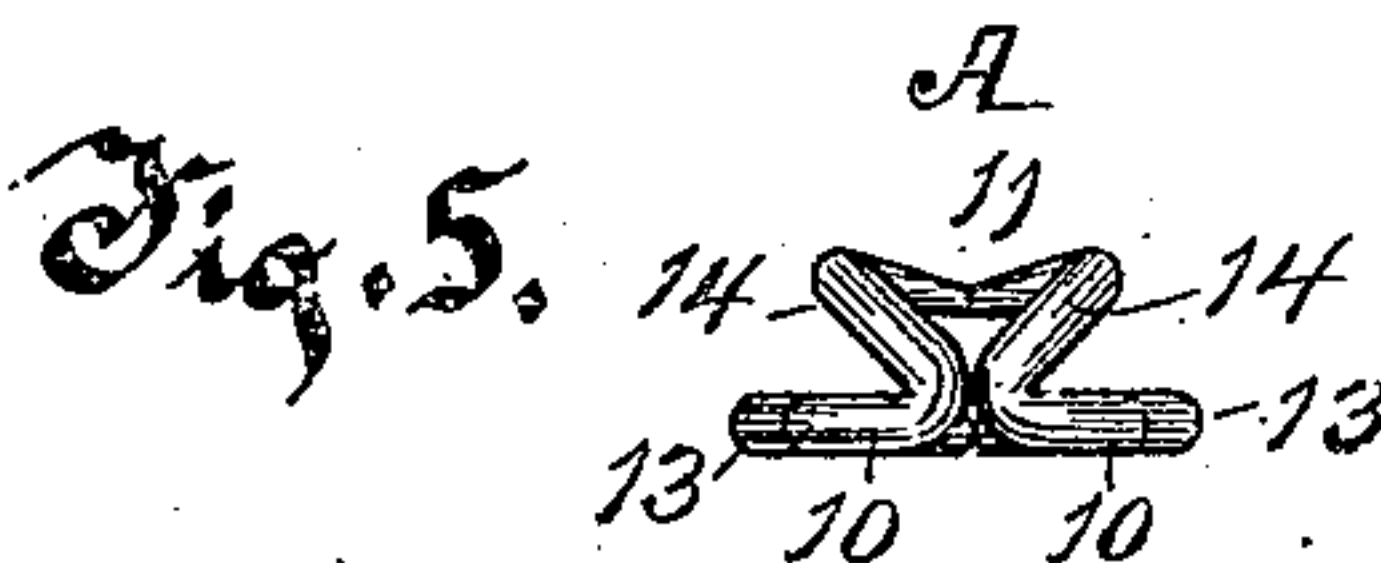
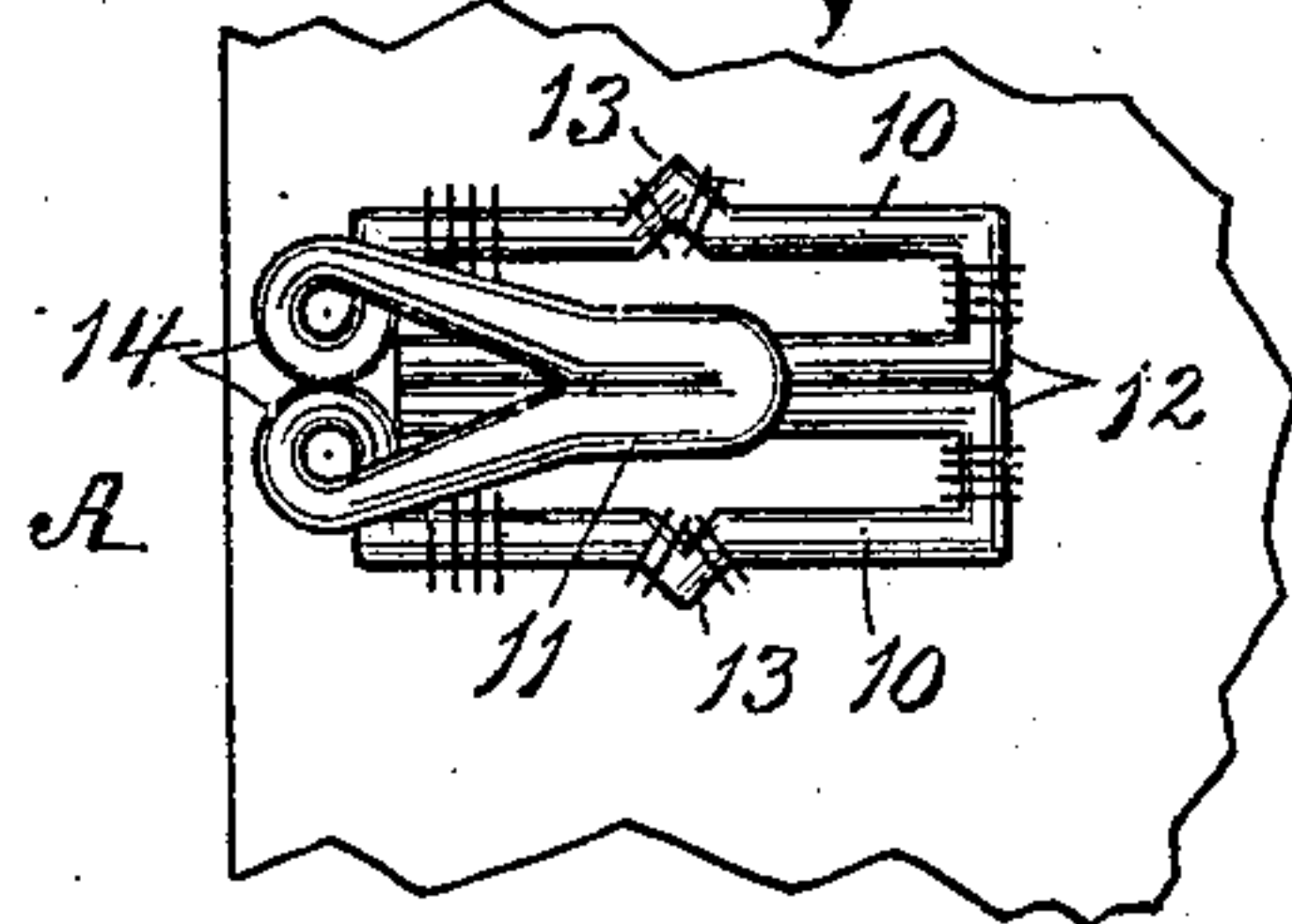


Fig. 4.



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UNITED STATES PATENT OFFICE.

EMMA M. COWLES, OF MILWAUKEE, WISCONSIN.

HOOK AND EYE.

958,369.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EMMA M. COWLES, residing in Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Hooks and Eyes, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

10 This invention has for its object to provide a hook and eye construction in which the members will lock in their engagement with each other to effectively prevent accidental disengagement and necessitate their
15 movement to planes at approximately right angles to each other to effect their disengagement.

Another object of this invention is to provide hook and eye members which by their
20 engagement will be locked against a lateral swinging or sliding motion with relation to each other.

Another object of this invention is to provide hook and eye members which depend
25 upon the lateral compression of the bill of the hook member to effect the locking engagement thereof.

Another object of this invention is to provide hook and eye members of a novel construction whereby they may be attached to
30 the material by stitches at different points in their length to cause them to lie flat against the material of the garment and be prevented from swinging away therefrom.

35 Another object of this invention is to provide such hook and eye members of a construction whereby the ends of the wires forming them are safely guarded against accidental engagement with the clothing.

40 With the above and other objects in view the invention consists in the hook and eye construction herein claimed, the parts and combinations thereof, and all equivalents.

Referring to the accompanying drawings
45 in which like characters of reference indicate the same parts in the several views; Figure 1 is a plan view of engaged hook and eye members constructed in accordance with this invention; Fig. 2 is a side elevation
50 thereof; Fig. 3 is a plan view of the eye member attached to a piece of cloth; Fig. 4 is a plan view of the hook member attached to a piece of cloth; and, Fig. 5 is an end elevation of the hook member.

55 In these drawings A indicates the hook member and B the eye member, each being

formed of a single length of wire bent to produce the shape substantially as shown in the drawings and having the characteristics as defined herein.

60 The hook member A comprises a base 10 and a hooked bill portion 11, the wire thereof having its two ends 12 extending side by side together directly beneath the bill and in the center of the base for the full length
65 thereof, said base being preferably of an oblong rectangular shape with sharply bent corners and indentations 13 approximately midway the length of its sides. At the end
70 of the base the loop forming the bill portion 11 is bent to form spiral eye engaging parts 14 which extend inwardly from the sides of the base toward each other and then turn
75 outwardly and upwardly and away from each other until the single turns of the spiral bends are completed when they converge to form the flattened bill in a plane approximately parallel with the base as
80 clearly shown in Fig. 2. This forms a heart shaped bill, or one with an intermediate greatest width, the inwardly turning parts of the bill declining to the plane of the base, as best shown in Figs. 1 and 4.

85 The eye member B comprises a wire which is bent preferably in the shape of an isosceles trapezoid, with its shorter base 15 constituting an engaging bar for the hook member and its longer base formed by the ends of a pair of loops 16. The two ends of the wire project inwardly from the middle point
90 of the longer base toward the bar 15 to form guards 17 terminating a short distance therefrom and bearing against the sides 18 of the eye member, the entire eye member being in a single plane, as shown in Fig. 2. The
95 sides 18 of the eye member are provided with indentations 19 at approximately midway the length thereof, or at any convenient position within the triangles formed by the loops 16, such indentations being similar to
100 and corresponding with the indentations 13 of the hook member.

In use, the hook member may be sewed to the garment by stitches passing over the looped ends of the base and wherever de-
105 sired along the sides of the base, particularly in the notches 13 which prevent their sliding. Also the stitches may be placed at the hook end of the base if desired. This provision for stitching from one end of
110 the base to the other assures the hook remaining in place against swinging on the

garment. The eye member may likewise be sewed to the garment by stitches passing through the loops 16 and wherever desired along the sides 18, but particularly in the notches 19 provided for the purpose. Here also the provision for securing the member to the garment by stitches at different parts of its length assures the member remaining flat against the garment.

In the operation of engaging the hook and eye members the bill of the hook member is engaged with the bar 15 of the eye member by bringing the two members in planes approximately at right angles to each other, to enable the widest portion of the heart shaped bill member to pass between the bar 15 and the ends of the guards 17. This widest portion of the bill member is somewhat wider than the bar 15 is long, so that the hook has to be crowded to pass therethrough. By the crowding the bill of the hook member has its sides slightly compressed until the widest portion thereof passes through the opening between sides 18, the bar 15 and the ends of the guards 17, when the spiral curvature of the parts of the bill neck causes the eye member to rest in the position shown in Fig. 2, where it has a double engagement with the hook member at points widely separated, as shown in Fig. 1.

To release the engagement of the hook and eye members it is not necessary to slide one upon the other with force, as with common hooks and eyes, but it is only necessary to depress their meeting parts or to otherwise bring them into planes nearly at right angles to each other, when the eye member snaps over the widest portion of the bill of the hook member and may then be easily moved off of the bill without the use of force. In fact the engagement and disengagement of the eye member with the hook member, so far as the passing of the widest part of the bill of the hook member is concerned, may be said to depend upon the swinging of the eye member as a lever on the hook member, or vice versa. On being placed upon the hook member the bar 15 serves as a fulcrum bearing against the underside of the bill just in advance of the widest portion thereof, while the outer end of the eye member has pressure applied thereto to force it over the widest portion of the bill of the hook member, thus crowding the shoulders of the bill slightly together to accomplish the engagement. On disengaging the eye member from the hook member the bar 15 bears upon the contracted neck portion of the bill as a fulcrum, while its outer edge is swung toward a plane at right angles to the base of the hook member to force the eye member over the broadened portion of the bill, crowding the bill shoulders together as before.

The lever action of the hook and eye mem-

bers relieves their attaching threads of considerable strain during the operation of engaging and disengaging the members, for the eye member need not be drawn along the hook member against an obstruction by means of its attaching threads, as is usually the case with hooks and eyes having means for preventing accidental disengagement.

Besides the double bearing between the hook and eye members at points widely separated serving to steady the members with relation to each other and avoid the lateral swinging of one member with relation to the other, this swinging is further prevented by means of the guards 17, for when an attempt is made to swing one member with relation to the other member in their common plane, one engaging point of the bill of the hook member bears against the bar 15 and the other engages the end of one of the guards 17, and consequently such lateral swinging movement is prevented. Furthermore, the separation of these engaging points of the bill of the hook member with the bar 15 of the eye member reduces the play thereof and restricts the lateral sliding movement of one member with relation to the other to keep the hook and eye members in alinement against such sliding movement.

The ends 12 of the hook member extending centrally through the base serve as a guide and bearing for the eye member as it is moved into or out of engagement with the bill of the hook member.

The guards 17 prevent the hook member from engaging the eye member at any other point than on the bar 15, besides serving to keep the bill against moving from its proper position as before explained.

What I claim as my invention is:

1. A hook and eye construction, comprising a hook member having a bill with an intermediate greatest width and eye engaging parts spaced apart, and a wire eye member having an engaging bar to be engaged by the bill, the wire forming the engaging bar of the eye member being bent to form stops at a distance apart less than the greatest width of the bill to compel said bill to be compressed when it is engaged with or disengaged from the bar of the eye member, said ends of the wire then being bent to form loops with divergent ends terminating close to the bar to confine the engagement of the bill to the bar and to prevent lateral swinging of the members with relation to each other.

2. A hook and eye construction, comprising a hook member having a heart shaped bill with eye engaging parts spaced apart and declining spiral bends forming the neck of the bill, and a wire eye member having an engaging bar to be engaged by the bill, the wire forming the engaging bar of the eye member being bent to form sides of the

eye member at a distance apart less than
the greatest width of the bill to compel said
bill to be compressed when it is engaged
with or disengaged from the bar of the eye
5 member, said ends of the wire being bent to
form loops with divergent ends terminating
close to the bar to confine the engagement
of the hook member to the bar and to pre-

vent lateral swinging of the members with
relation to each other.

19

In testimony whereof, I affix my signa-
ture, in presence of two witnesses.

EMMA M. COWLES.

Witnesses:

R. S. C. CALDWELL,

ANNA F. SCHMIDTBAUER.