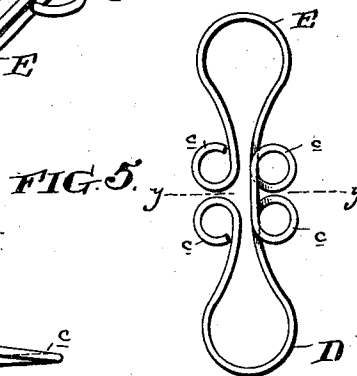
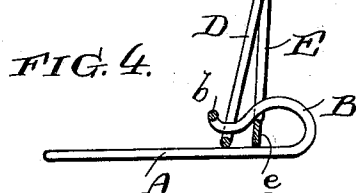
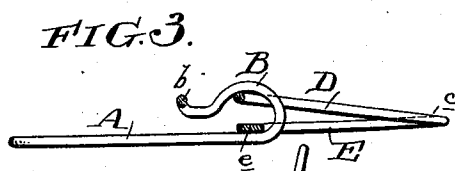
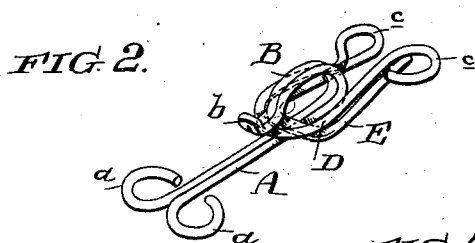
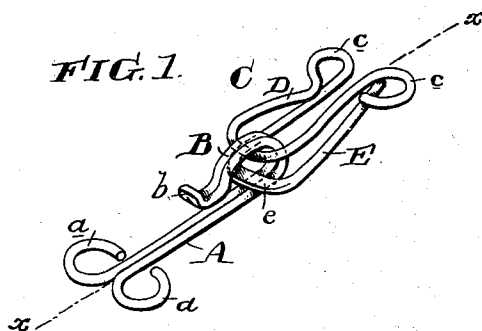


(No Model.)

L. M. PORTER.
HOOK AND EYE.

No. 478,360.

Patented July 5, 1892.



Witnesses:
Henry Dwyer
C. M. Dietrich

Inventor:
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By his attorney,
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UNITED STATES PATENT OFFICE.

LOUIS M. PORTER, OF MONTCLAIR, NEW JERSEY.

HOOK AND EYE.

SPECIFICATION forming part of Letters Patent No. 478,360, dated July 5, 1892.

Application filed April 7, 1892. Serial No. 428,127. (No model.)

To all whom it may concern:

Be it known that I, LOUIS M. PORTER, of Montclair, Essex county, New Jersey, have invented an Improvement in Hooks and Eyes, of which the following is a specification.

My invention relates to hooks and eyes; and it consists of certain improvements, which are fully set forth in the following specification and are shown in the accompanying drawings, which form a part thereof.

The object of my invention is to produce a construction of hook and eye which shall not be liable to accidental separation or disconnection of the two parts, though they may be easily connected or disconnected when desired.

In carrying out my invention it is my object to retain as nearly as possible the ordinary form of the hooks and eyes now in use and to permit their application and the connection and disconnection of the two parts in the usual manner, avoiding the use of all parts that require special or unusual manipulation.

It is also my object to produce a construction of hook and eye that will permit articles to be more tightly connected than is possible with the ordinary construction in use.

In obtaining these advantages it is also my object to produce an economical and simple construction.

I shall now describe more particularly in connection with the accompanying drawings the particular novelties and improvements in the construction of the hook and eye which I employ in carrying out my invention.

In the drawings, Figure 1 is a perspective view of my improved hook and eye. Fig. 2 is a similar view showing the eye at the moment of passing under the bend of the hook. Fig. 3 is a longitudinal sectional view on the line *xx* of Fig. 1. Fig. 4 is a similar view showing the hook and eye turned at an angle one to the other and illustrating the manner in which accidental separation of the two parts is prevented; and Fig. 5 is a plan view of a wire shaped to form the eye, illustrating a modification in the manner of constructing it.

A is the shank or body of the hook, which may have the usual eyelets or ears *a* for at-

tachment to the article to which the hook is to be secured.

B is the bent or hooked end, which is turned over and bent down to a greater or less extent toward the shank or body A, so as to form a more or less contracted opening for the passage of the loop of the eye between the bend B and shank A. The extremity of the hooked end or bend B is preferably turned up, as shown at *b*.

C is the eye, having the usual eyelets or ears *c* for attachment to the cloth. The eye C is provided with two looped portions D E, which are separated from one another, as shown, and are held apart by the spring action of the material of which the eye is constructed. The normal distance between the outer surfaces of these looped portions D E when separated by this spring action is greater than the width of the contracted opening between the bend B and shank A of the hook; but the distance between said surfaces when compressed or forced toward each other is less than the said opening.

When the hook and eye are united or hooked together, the two looped portions D E of the eye are passed through the contracted opening between the bend B and shank A, the bend B and shank acting to press the members together and permit them to pass freely through. Immediately upon passing through the contracted opening of the hook the natural spring of the members D E of the eye separates them again, as shown in Fig. 1, and the eye is thus locked against accidental separation from the hook. In Fig. 2 the loops D and E are shown at the moment of passing through the contracted opening of the hook. It will be seen that with this peculiar construction of the eye a much shorter lap or bend B is required in the hook than with the eyes now employed, since with the ordinary construction a long lap or bend is required to insure the two parts remaining hooked to any extent whatever. The use of this long bend is highly objectionable, since it renders it necessary to move the eye a greater distance over the hook in order to catch the loop of the eye over the bend of the hook, and as the eye is drawn to the inner end of the bend as soon as it engages the hook there is

a resulting loosening or separation of the two pieces of cloth, which respectively carry the hook and eye. It is thus difficult with the ordinary hook and eye to hook two articles tightly together. My invention entirely overcomes these objections by rendering possible the employment of a short bend in the hook.

To prevent the accidental passage of the end of the hook *b* between the two members *D* and *E*, I prefer to extend one of said members, preferably the upper one, slightly beyond the other. The upturning of the end *b* of the hook also serves to prevent the accidental passage of the hook between the two members instead of over both of them.

To prevent accidental separation of the hook and eye when the hook and eye are turned at an angle to one another, as shown in Fig. 4, I flatten or broaden one of the members of the eye, as shown at *e* in Fig. 4, so that its cross-sectional width is greater than the width of the opening between the shank *A* and bend *B* of the hook. By this construction the loop of the eye is prevented from passing through the contracted opening of the hook when the eye is turned at an angle to the hook, while it may pass freely through that opening when moved in line with the hook, so that the members *V* and *D* are pressed together, as has been heretofore described. Either one or both of the members *D* and *E* may be thus flattened.

It is immaterial to my invention in what manner the hook and eye are constructed. I prefer the construction of the eye shown in Figs. 1 and 2, in which it is formed of a single piece of wire bent into the required shape. With this construction the ears *c c* are each formed of a single loop. If desired, however, the eye may be formed of a single piece bent, as shown in Fig. 5, to form two single eyes, which may then be bent over together on the line *y y* or the two members *D* and *E* may be made separate and soldered or otherwise united together, or the parts may be struck up or stamped from sheet metal.

While I prefer such details of construction as have been shown, I do not limit myself to them, as it is apparent that they may be varied in many ways without departing from

the invention, which contemplates, broadly, the hook having the contracted opening in the bend and the eye having two looped members separated by their spring action.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a hook having its bend extending toward the shank of the hook to form a contracted opening, and an eye having two separated looped members located one above the other, adapted to pass through the contracted opening formed by the bend of the hook.

2. An eye of a hook-and-eye device having two looped members *D* and *E*, located one above the other and normally held slightly apart by the spring action of the metal.

3. An eye of a hook-and-eye device having two looped members *D* and *E*, located one above the other and normally held slightly apart by the spring action of the metal, either of said members being widened in cross-section at its looped end.

4. An eye of a hook-and-eye device having two looped members *D* and *E*, located one above the other and normally held slightly apart by the spring action of the metal, the looped end of one of said members extending slightly beyond the other.

5. A hook-and-eye device consisting of the hook having the shank *A* and bent-over end *B*, extended toward the body of the shank to form a contracted opening to the hook, and the eye *C*, having the two members *D* and *E*, located one above the other and normally separated slightly from one another by the spring action of the metal, but adapted to be pressed together when passed through the contracted opening of the hook, the looped end of one of said members having a width in one direction greater than the width of the contracted opening of the hook.

In testimony of which invention I have hereunto set my hand.

LOUIS M. PORTER.

Witnesses:

ERNEST HOWARD HUNTER,
S. T. YERKES.