(No Model.)

I. W. HEYSINGER.

DETACHABLE BUTTON.

No. 568,111. Patented Sept. 22, 1896.

Fig. 1.

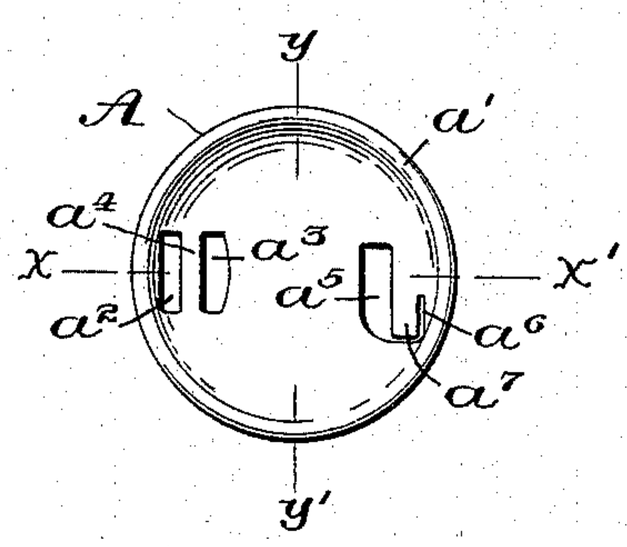


Fig. 2.

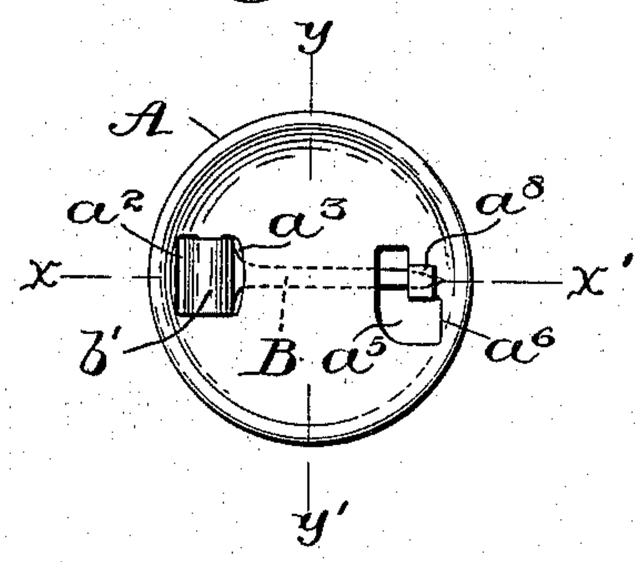


Fig. 3.

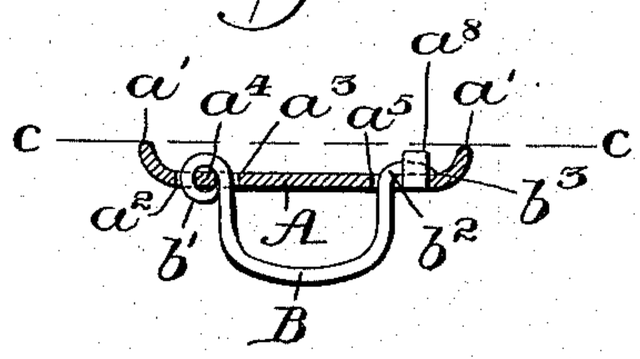


Fig. 4.

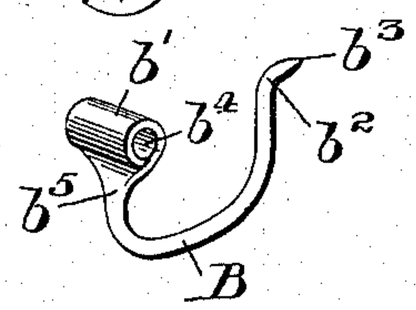


Fig. 5.

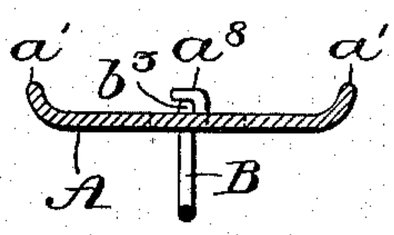


Fig. 6.

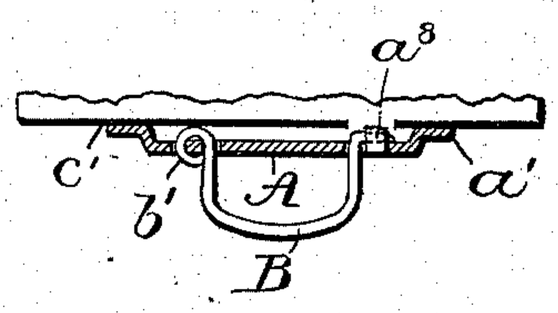
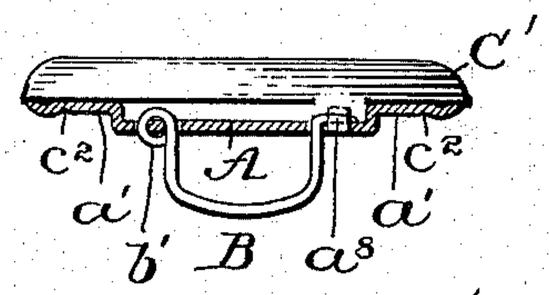


Fig. 7.



Witnesses.

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UNITED STATES PATENT OFFICE.

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DETACHABLE BUTTON.

SPECIFICATION forming part of Letters Patent No. 568,111, dated September 22, 1896.

Application filed February 10, 1896. Serial No. 578,665. (No model.)

To all whom it may concern:

Be it known that I, ISAAC W. HEYSINGER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have made a certain new and useful Improvement in Detachable Buttons, of which the following is a full, clear, and exact description, reference being had to the drawings which accompany and form a part of this specification, in which—

Figure 1 is a top view of a button blank or head perforated at different places for the reception of my fastening attachment or eye, but in which the lip a^7 has not yet been raised and turned over to temporarily secure the point of said eye. Fig. 2 is a view similar to Fig. 1, but showing the eye a^7 turned over to form the catch and also showing the bent pin or eye of the button in place across the face of said button-head. Fig. 3 is a cross-section along the line $x\,x'$ of Figs. 1 and 2, showing the hinged eye locked in place under the overlap of the lip a^8. Fig. 4 is a perspective view of the hinged eye removed from the button. Fig. 5 is a cross-section along the line $y\,y'$ of Figs. 1 and 2. Fig. 6 is a view similar to Fig. 3, but provided with a covering constituting a large ornamental button attached thereto, along the line $c\,c$ of Fig. 3; and Fig. 7 is a similar view to that shown in Fig. 6, but in which the extra button is not secured by solder or the like, as in Fig. 6, but by seaming in the margin of $a'\,a'$, the cloth covering being seamed in at the same time, as in the manufacture of ordinary cloth-covered buttons.

The lettering in all the figures is uniform.

My invention relates to the construction of a detachable button in which the fastening consists of a metallic eye, which passes through a fold of the fabric to which it is to be attached, and in which said eye is secured by a hinged joint at one end and by a pin catch or holder at the other, and in which I secure a more compact and cheaper construction and also much greater strength against strain and greater facility in use.

A reference to the drawings will clearly explain the construction and operation of my improved button.

A is the top plate or disk, which forms the button-head proper, and B is the eye by which the same is secured to articles of clothing or other fabric. As shown in Fig. 1, A is a disk of metal with the periphery raised to insure greater strength of form, as is frequently the case with ordinary trousers-buttons. The top surface may be left flat, however, if desired. Through this disk are punched the slots a^2 and a^3, leaving a cross-piece a^4 transverse to the diameter $x\,x'$ and toward the outer side of the disk A. Directly opposite, along the same diameter, is punched out the slot a^5, substantially of the form shown, and this slot extends across the diametric line transversely and is curved around toward the periphery a', so as to leave the lip a^7 between the slot a^5 and its recurved end a^6. This lip a^7 is then turned upward at right angles to the plane of the disk and then turned over on itself, as shown at a^8, Figs. 2 and 5, so as to leave an overhanging catch along the diameter $x\,x'$.

In Fig. 4 is shown the eye, which is fitted to the disk A of Fig. 1. It consists of a length of hard-brass wire, or wire or metal of other material, if preferred, of a rigidity and strength sufficient to insure safety against bending under the strain of a buttonhole under tension when in use, and one end of this piece of wire I flatten and bend, outwardly by preference, around the cross-piece a^4 of Fig. 1, so as to present the appearance shown in Fig. 3. The purpose in flattening the hinged end b' b^5 is not only to prevent looseness of the button when attached, but also and principally to give the eye a radial motion around a^4 as a center in a definite plane, so that when bent laterally, as will be shown, to enter the catch which holds the point of the eye secure, it will be locked in place by the lateral spring-tension of the eye itself.

The body of the wire eye B is bent downward in a curve, adapted to pass through a fold of the fabric to which the button is habitually secured, and this curve may be either a semicircle, as shown in Fig. 3, or two lateral downward vertical parts completed beneath by a semicircle, as shown in Fig. 6; that is to say, the eye B may be elongated downward beyond a semicircle. In small buttons I prefer to make it more semicircular and in large

buttons, for use with heavy fabrics, more elongated. At b^2 the eye B is bent by a sharp curve, but not a curve sharp enough to prevent easy passage of a fabric, into which it is inserted, longitudinally outward to the point b^3, the part between b^2 and b^3 occupying substantially a plane parallel with and immediately above the disk A when the eye is fastened in place, as shown in Figs. 3, 6, and 7. I prefer to bend the point of the eye slightly downward, so that the point b^3 will rest in immediate contact with the upper surface of the button-disk A, so as to prevent accidental catching of the fabric in the same. The eye B, thus hinged to the cross-piece a^4, moves along a diameter of the disk and will present its point b^3 immediately along the line $x\ x'$ of Fig. 1 and beneath the surface of the disk; but I form the length of this eye B with a slight lateral bend at the hinge, so that its point b^3 will present, not precisely along the diameter $x\ x'$, but beneath the slot $a^5\ a^6$, as shown in Fig. 2, and in this position the end of the wire eye will pass up through the said slot, and, if now pressed laterally to the left by the thumb or finger against the strain of the spring-wire of which the eye is composed, will pass across the top of the lip a^8, and by a downward pressure will slip in beneath it, as shown in Fig. 5, and there be held securely against upward pressure of the eye beneath or downward pull of the same by the fabric to which it is attached.

To detach the button, it is only necessary to press the eye beneath to the left, holding the disk from moving, and then press the eye upward, when it will clear the lip a^8, and its own spring-tension will carry the point $b^2\ b^3$ across the slot $a^5\ a^6$, when the hinged disk may be raised upon a^4 and the wire eye be removed from the fabric by a wriggling motion under traction of the hand upon the disk, the other hand holding the fabric. To insert the same, the eye is opened until the part b^5 of Fig. 4 rests against the under side of the disk at a^2, Fig. 3. The thumb and fingers grasping the disk with the eye projecting forward, a loop or fold is formed by pressing the adjacent parts of the fabric together where the button is to be attached. The point b^3 then pressed against this fold of fabric by a boring motion to and fro, the point rapidly enters and the fabric passes along the eye until it occupies the curved part of the same, when the fold is released, the point passed up through the slot $a^5\ a^6$, pressed over to the left and downward behind and beneath the lip a^8, where it closes with an audible click, and the button is fastened far more securely and durably than by thread and needle. Buttons fastened in this manner will neither tear out nor wear out. A single button may be replaced on a dozen garments worn out successively in use. This result is due to the fact that the button has a perfectly free motion to either the right or left upon the eye as a longitudinal joint. For a direct forward strain the semicircular eye in the cloth compresses the fabric to a single point of resistance instead of giving the whole strain to one point of attachment, which is liable to give way. As the eye is semicircular, any movement of the button-head, either to tip it upward or downward in front or rear while under strain, slides the eye through the fabric with perfect freedom, so that the entire strain is always taken by the entire mass of fabric within the eye.

In the form shown in Figs. 1 to 5, inclusive, I show the button complete for use in the form of an ordinary trousers-button, the surface being ornamented or finished as desired; but in Fig. 6 I show a substantially similar button used as a permanently-attached base for a large glass, metal, or enameled button, such as are used on ladies' cloaks, coats, &c., or the like. The raised margin a' a' is soldered or cemented to the under surface of the large button-plate, the whole thus forming a single construction, and the mechanism is out of sight.

In Fig. 7 I show a similar button to that shown in Fig. 3, but its raised periphery extended laterally and seamed in with the metal cap and cloth cover, just as the central tuft beneath is attached in ordinary cloth-covered buttons.

It will be seen that the buttons illustrated in Figs. 6 and 7 are of considerable utility, as ladies and others can set their buttons at any distance desired and change their positions very readily when necessary.

My improved button is not merely intended for use in a temporary emergency, but I propose to use it habitually and regularly in the making up of clothing in the shops, as the added cost will be but trifling, and the buttons may be readily changed in position to suit the convenience or form of the wearer. They are easier to button than those applied in the usual manner, and fit more snugly to the buttonhole, the single wire itself being the only obstacle within the buttonhole, and this lying longitudinally within the same. As before said, their durability exceeds that of the fabric to which they are applied, but if bent or broken they can be replaced by others in a moment.

I do not confine myself rigidly to the precise form and construction shown and described, but vary the same, (as, for example, in the form of the disk, or of the pin, or in the form of the attachments shown in Figs. 6 and 7, where C and C′ may be replaced with a bouquet-holder, or a pencil or eyeglass holder, or the like,) as would be done by any skilled mechanic having my invention before him, to meet such special requirements as may arise, without departing from the principles of my invention as described and claimed.

Having now described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. In a detachable button, the combination of a disk-shaped button-head having a doubled slot or its equivalent at one side of the center the interposed material to form a cross-piece transverse to the diameter, and slotted at the opposite side along said diameter to admit the passage up through said disk of the point end of a hinged eye, and with a point of support for said point end above said disk and along said diameter, with a hinged eye, said eye permanently secured to said interposed cross-piece by its free blunt extremity bent around the same in the shape of a ring, so as to form a permanently rotatable hinge-joint therefor, the body of said eye curved downward and then upward to form a central support in the fabric, and the point end of said eye extended longitudinally so as to rest upon the top surface of said disk, and having a pointed extremity, substantially as described.

2. In a detachable button, in combination with the disk or head thereof, a hinged eye, hinged at one end to said disk beyond the center thereof, said hinge-bearing being wide enough to prevent lateral play of said eye upon said hinged support, and a support provided on said disk for the forward end of said hinged eye, on a diametrical line passing through said hinge, said center, and said end support, substantially, said free forward end of said eye normally out of position laterally from said support, and sprung into the same by side pressure upon said eye as a spring, and retained therein by said spring-pressure, substantially as described.

3. In combination with the button-head provided with a hinge-support at one side, and a curved eye hinged thereto, and a catch support for the free end of said hinged eye on the opposite side of said button-head, a lip bent over said support, said free end of said eye forced into said support and past said lip against spring-pressure, and retained therein against pressure upon said eye from beneath, or upon said button-head from above, and against strain tending to separate said hinged eye from said button-head, substantially as described.

4. As an article of manufacture a detachable button consisting of a button-head slotted at opposite sides, the slot at one side being double, and with a cross-piece between, integral with said button-head, and the slot at the opposite side formed with a lip turned upward and then backward, so as to form a catch-support behind and beneath the same, above said button-head, and an arched eye, having a hinge turned around at one end adapted to said cross-piece, and a longitudinally-straight end piece, pointed at its extremity, said end piece adapted, after said arched eye has been passed through a layer of fabric, to pass up through said opposite slot, and be securely seated upon the top surface of said button-head, and behind said lip, substantially as described.

5. As an article of manufacture a detachable button, composed of a single operative structure, without detachable parts, consisting of a flat button-head, slotted at one side of the center, and having a slot and overhanging lip at the opposite side, and a hinged and pointed eye, having downward arch-shaped curve between said hinge and said opposite pointed end, said eye permanently hinged to said head at one slotted portion, and the free end of said eye adapted to pass up through said button-head and be securely seated, so as to prevent vertical movement by abutment thereof between the said overhanging lip of said button-head, and the flat upper surface of the same, substantially as and for the purposes described.

6. In a detachable button, the disk-shaped head, A, slotted at a^2 a^3, and with interposed cross-piece, a^4, and directly across said disk, at its opposite side slotted at a^5 a^6, the lip, a^7, turned upward and backward to form the overhanging catch, a^8, in combination with the hard-metal eye, B, curved into an arch in its central portion, and having at its rear end a flattened portion, b^5, bent over outwardly around the cross-piece, a^4, so as to form a permanent hinged joint therewith, the arch of the said eye descending from the inner margin of said hinge so as to leave a free disk-surface, a' a^2, externally thereto, and the opposite or free end of said eye pointed, and for a part of its length bent longitudinally along the plane of said disk, when fastened in place, the whole adapted to be attached to a fabric by opening said eye upon said disk-shaped head, and forcing the point, b^3, through said fabric, the same passing along said curve, b^2, and finally down along the arch, so as to free said pointed end, b^2 b^3, and said latter then adapted to be pressed upward through said slot, a^5 a^6, forced backward laterally behind said lip, a^8, and finally rest upon the upper surface of said head, A, substantially as described.

7. In a detachable button, the combination of disk A, hinged and arched eye, B, said disk slotted at one side so as to form a cross-piece transverse to the diameter of said disk, for the permanent attachment of eye, B, by its hinged extremity, and at the opposite end for the reception of the pointed end of B, securely seated upon the disk, A, and beneath a support placed above said pointed end, and the supplemental enlarged button-head, C, permanently secured to said disk, A, substantially as and for the purposes described.

8. In combination with disk, A, having raised periphery, a', transverse hinge-support a^4, and pin-support, a^5 a^8, the hinged eye, B, permanently hinged upon said sup-

port, a^4, by a ring-shaped hinge at one end, and detachably secured to said pin-support, a^5, a^8, at its opposite end, so as to be supported against both upward and downward pressure, and removed by a lateral movement from said support, together with enlarged head, C, secured to said raised periphery, a', the whole adapted to form a single, detachable button, or like device, substantially as described.

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Witnesses:
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