No. 679,910. Patented Aug. 6, 1901.

# E. M. PHELPS.

## SEPARABLE BUTTON.

(Application filed Nov. 23, 1900.)

(No Model.)

Fig. 1.

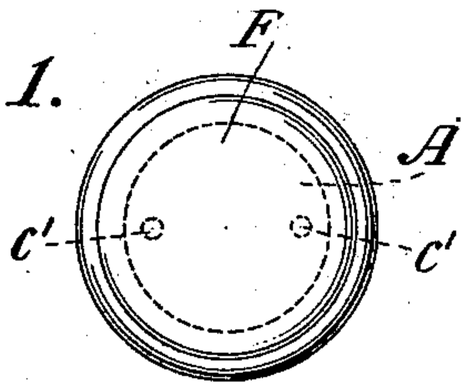



Fig. 12.

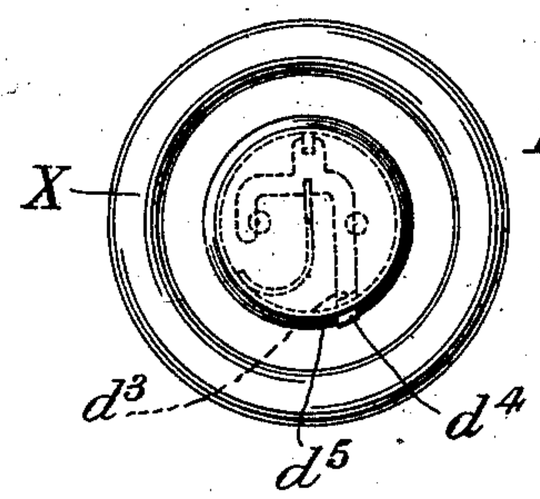



Fig. 2.

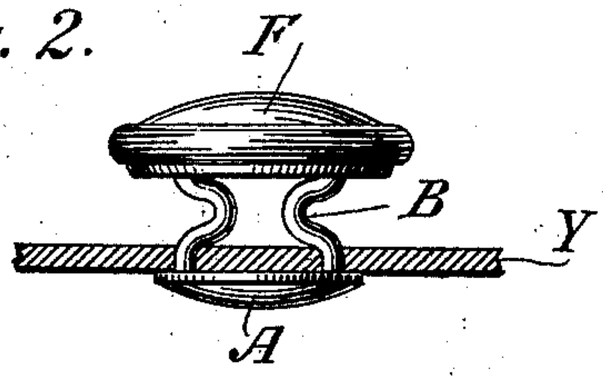



Fig. 13.

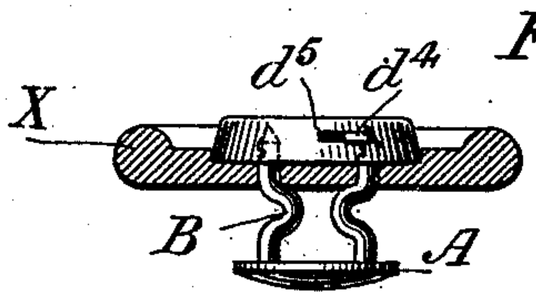



Fig. 3.

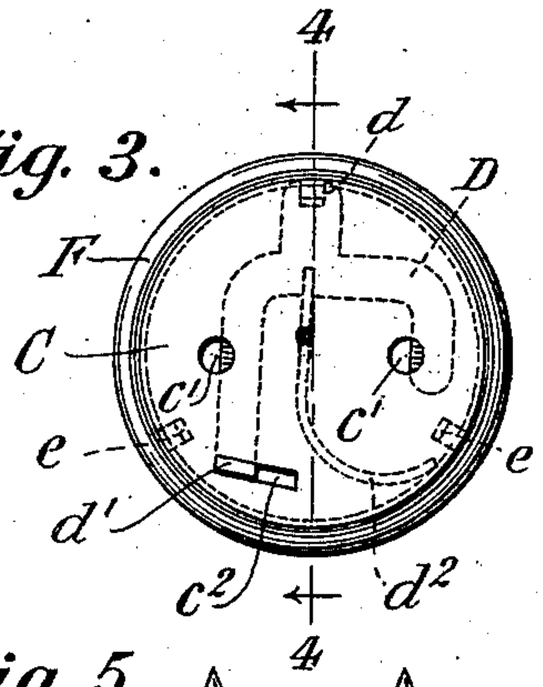



Fig. 4.

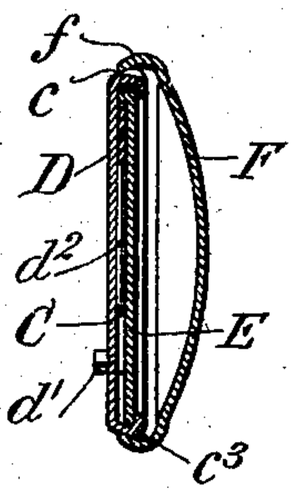



Fig. 7.

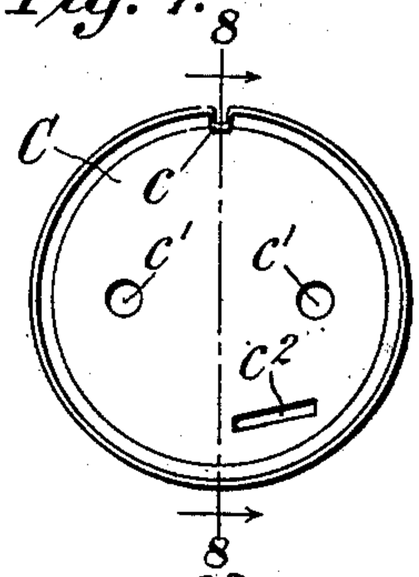



Fig. 8.


Fig. 5

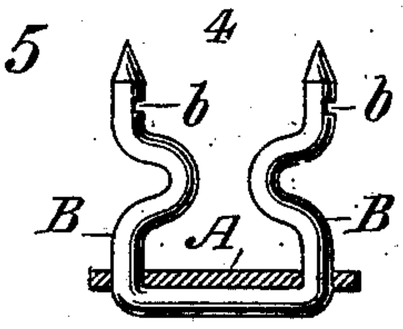



Fig. 9.

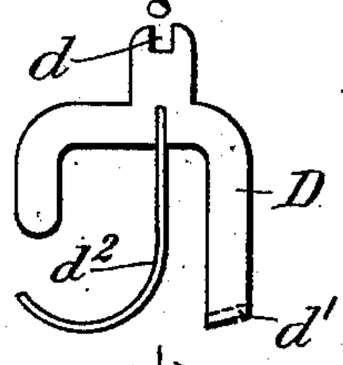



Fig. 11.

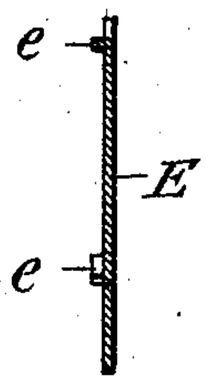



Fig. 6.

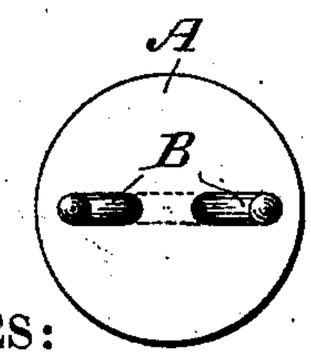
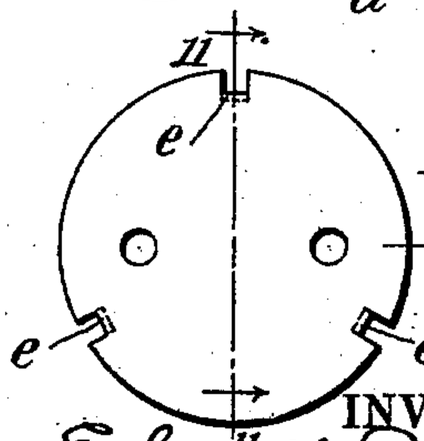



Fig. 10.

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By her Attorneys

Baldwin, Davidson & Wright

# UNITED STATES PATENT OFFICE.

ETHEL MINNA PHELPS, OF NEW YORK, N. Y.

## SEPARABLE BUTTON.

SPECIFICATION forming part of Letters Patent No. 679,910, dated August 6, 1901.

Application filed November 23, 1900. Serial No. 37,500. (No model.)

*To all whom it may concern:*

Be it known that I, ETHEL MINNA PHELPS, a citizen of the United States, residing in the borough of Manhattan, city of New York, county and State of New York, have invented certain new and useful Improvements in Separable Buttons, of which the following is a specification.

In another application filed by me July 24, 1900, Serial No. 24,643, I have shown and claimed a separable button and button-fastener in which the back-plate has cloth-piercing prongs which converge and then diverge to simulate the ordinary sewed button-shank and then enter recesses in the button or button-securing plate, where they are engaged by locking devices which may at will be operated to release the prongs.

The present invention relates, primarily, to a button or button-fastener of that character, and comprises certain improvements in the prongs and prong-locking devices and parts associated therewith, all as hereinafter set forth.

In the accompanying drawings, Figure 1 is a plan view, and Fig. 2 a side elevation, of a separable button; Fig. 3, a view, on an enlarged scale, of the under face of the button-head, the back-plate and shanks or prongs being removed; Fig. 4, a section therethrough on the line 4 4 of Fig. 3; Fig. 5, a section, and Fig. 6 a plan, of the back-plate carrying the cloth-piercing prongs. Fig. 7 is an elevation of the dish-shaped plate forming the rear face of the button-head; Fig. 8, a section therethrough on the line 8 8 of Fig. 7; Fig. 9, a detail view of the prong-locking catch with its spring; Fig. 10, a view of the cover-plate, which is placed over the locking catch or latch after the same has been placed in the dish-shaped back-piece shown in Fig. 7. Fig. 11 is a section on the line 11 11 of Fig. 10. Fig. 12 is a plan, and Fig. 13 a section, showing the device employed as a fastener for securing an ordinary apertured button.

The back-plate A has attached to it the prongs B, which converge and then diverge, their pointed ends being arranged in line with the points of attachment to the back-plate. Suitably adjacent to the points of the prongs and on corresponding sides thereof are notches *b b*. The rear face-plate C of the button-head may be dish-shaped, as shown in Figs. 7 and 8, and the side or edge struck in or indented, as at *c*, and is formed with two apertures *c' c'* for the passage of the prongs and with a slot $c^2$ for the reception of the end of the locking-latch D, which, as appears from Fig. 9, may be formed with three arms, one notched, as at *d*, and the other two projecting in the opposite direction and arranged on either side of the first one. Of the two oppositely-projecting arms of the latch one is made somewhat longer than the other and its end is turned at right angles, as at *d'*. When dropped into position in the dished rear face-plate, the notch *d* lies opposite or in line with the struck-in part *c* of the plate and the laterally-projecting end of the long arm of the latch lies in the slot $c^2$. A spring $d^2$, secured to the latch, bears upon the inner side face of the plate C and tends to hold the latch in such position that its locking-arms partly cover corresponding sides of the apertures *c' c'*.

Figs. 10 and 11 show a cover-plate E, which preferably at three points in its periphery has two inwardly-extending cuts leaving lips of metal *e*, that are turned at right angles to the face of the plate. One of the notches thus formed in the periphery of the plate straddles the struck-in or indented part *c* of the edge of the rear face-plate C, and the lip *e* passes into the notch *d* in one of the arms of the locking-latch, forming a pivot therefor, and all three of the lips rest upon the inner or flat face of the rear face-plate C and while holding the locking-latch in position prevent it from being clamped or bound, leaving it free to rock pivotally about the lip *e*, lying in the notch *d* of the latch. The edge or rim of the rear face-plate C may then be turned or spun down, as at $c^3$, Fig. 4, to hold the cover-plate E in position. The front face F of the button-head, which may be of any suitable material—as, for instance, metal plated or gilded or otherwise finished and embossed or otherwise ornamented, as are military, naval, and policemen's buttons—may then be secured to the flanges or sides of the rear face-plate C by turning or spinning down the edge of the front face-plate F, as shown at *f* in Fig. 4. When the prongs are pressed

through the cloth and the latter is drawn down against the face of the back-plate A, the pointed ends of the prongs are inserted in the apertures $c'$, pushing back the spring-locking latch until the notches $b$ in the prongs come opposite the arms of the locking-latch, which are then thrown into them by the spring. The two parts of the button are then securely united. By moving the end $d'$ of the latch lying in the slot $c^2$ of the rear face-plate the latch may be pressed against the tension of its spring $d^2$ out of engagement with the prongs and the head of the button readily removed. By notching corresponding sides of the prongs and similarly having the locking-arms of the latch cover corresponding sides of the two apertures $c'$ I am enabled to make the latch of one piece of metal, which may be economically and conveniently formed by stamping it out from sheet metal, the only additional operation required in its manufacture being the turning down of the end $d'$. The plate E may be similarly made, and the dished rear face-plate C may with equal facility and economy be struck up from sheet metal.

In Figs. 12 and 13 I have shown precisely the same construction, modified in only one particular, hereinafter described, to adapt it for use as a fastener for attaching an ordinary apertured button X to a garment. The modification consists in first bending the long arm of the locking-latch upwardly, as at $d^3$, Fig. 12, a suitable notch being formed in the plate E for its accommodation, and then outwardly, as at $d^4$, so that it will project through a slot $d^5$ in the side face of the part corresponding with the button-head, but now serving as a locking or attaching plate to secure the button X. This same construction may be applied to the button shown in the other figures if it is desirable to have the part $d'$ located at the periphery of the button.

In all of the constructions shown if the projection of the end $d'$ beyond the face of the button is objectionable it may be flush or substantially flush with the face, and its edge, if desired, milled or roughened, so that it may be moved by the thumb-nail or point of a knife or with any suitable device.

Y in Fig. 2 indicates the cloth or portion of the garment to which the button is applied.

I claim as my invention—

1. The combination with the back-plate and its cloth-piercing notched prongs, of the rear face-plate apertured to receive the prongs, the automatically-acting spring-locking latch lying in or on the rear face-plate and the cover-plate E placed over the latch in permanent concentric relation to the rear face-plate.

2. The combination with the back-plate and its cloth-piercing prongs notched on corresponding sides, of the rear face-plate apertured to receive the prongs and the one-piece spring-latch having two locking-arms normally covering or lying opposite corresponding sides of said apertures and a covering-plate placed over the latch in permanent concentric relation to the rear face-plate.

3. The combination with the back-plate and its cloth-piercing prongs notched upon corresponding sides, of the dish-shaped rear face-plate apertured to receive the prongs, the three-armed spring-latch and the cover-plate having projecting lips, one of which serves as the pivot of the latch and all of which serve to hold the cover-plate from bearing against the latch.

4. The combination of the back-plate and its cloth-piercing prongs notched upon corresponding sides, the rear face-plate having apertures to receive the prongs and also a slot, the one-piece three-armed latch having a projecting lip fitting in said slot and the cover-plate having projecting lips, one of which serves as the pivot for the latch and all serving to hold the cover-plate out of contact with the latch.

5. The combination with the back-plate and its cloth-piercing prongs notched upon corresponding sides, of the slotted and apertured dish-shaped rear face-plate struck in or indented as at $c$, the one-piece spring-latch having three arms, one pivot-arm notched or recessed at its end and two oppositely-projecting locking-arms, the bent end of the longer one of which lies in the slot in the rear face-plate, and the cover-plate fitting closely within the dish-shaped rear face-plate and having projecting lips or parts serving to hold it out of contact with the latch, a notch in its periphery through which the struck-in edge $c$ of the rear face-plate passes when the cover-plate is placed in position and a projecting part serving as a pivot about which the latch rocks.

6. The combination with the apertured dish-shaped rear face-plate having its edge indented or struck in as at $c$, the single-piece three-armed spring-latch, one arm of which is notched or recessed at its end, and the cover-plate closely fitting the dish-shaped rear face-plate, notched in its edge for the passage of the part $c$ of the rear face-plate, having a projecting part entering the notch in the arm of the latch and serving as a pivot therefor, and also projecting parts serving to prevent the plate from binding or bearing upon the latch.

7. The combination with the back-plate and its cloth-piercing prongs notched on the sides, and which converge and then diverge so that their ends are respectively in line with the points of attachment to the back-plate, of a button-head having an apertured rear face to receive the prong, a contained spring-latch and a slot in its outer face occupied by an end of the latch.

8. The combination with the back-plate and its cloth-piercing prongs notched on the sides, and which converge and then diverge so that their ends are respectively in line with the points of attachment to the back-plate, of a button-head apertured in its rear face to receive the prongs, a locking-latch within the

button-head for engaging the prongs and a slot in the rear face of the button-head occupied by an end of the latch.

9. The combination with the back-plate and its cloth-piercing prongs notched on the sides, and which converge and then diverge so that their ends are respectively in line with the points of attachment to the back-plate, of a button-head apertured in its rear face to receive the prongs, a locking-latch within the button-head for engaging the prongs and a slot in the rear face of the button-head to afford access to the latch to operate it to disengage the prongs.

10. The combination with the back-plate and its cloth-piercing prongs notched on the sides, and which converge and then diverge so that their ends are respectively in line with the points of attachment to the back-plate, of a button-head apertured in its rear face to receive the prongs, a spring-latch within the button-head acting to automatically engage the notches in the prongs and a slot in the button-head to afford access to the latch to operate it to disengage it from the prongs.

11. The combination with the back-plate and its cloth-piercing prongs notched on the sides, and which converge and then diverge so that their ends are respectively in line with the points of attachment to the back-plate, of a button-head apertured in its rear face to receive the prongs, a pivoted spring-latch within the button-head acting to automatically engage the notches in the prongs and a slot in the button-head to afford access to the latch to operate it to disengage it from the prongs.

In testimony whereof I have hereunto subscribed my name.

ETHEL MINNA PHELPS.

Witnesses:
EDWARD C. DAVIDSON,
C. D. LADLEY.