E. I. & E. JAFFE.

RELEASABLE SELF FASTENING BUTTON.

APPLICATION FILED MAR. 1, 1916.

1,204,159. Patented Nov. 7, 1916.

Fig. 1

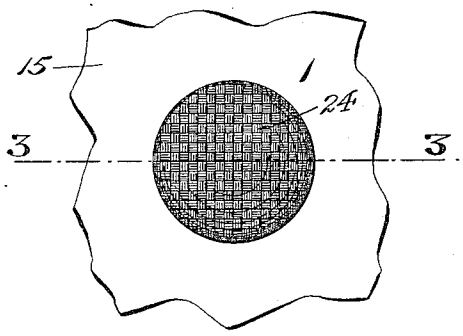
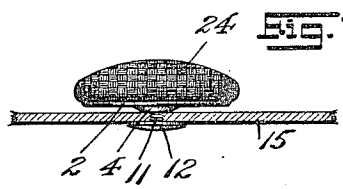


Fig. 2



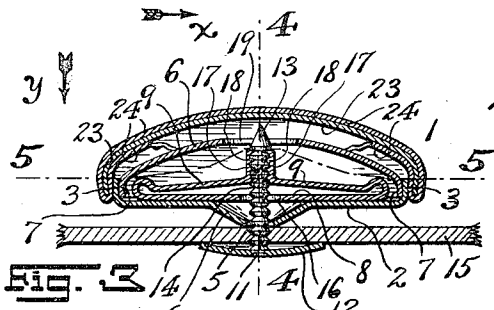


Fig. 3

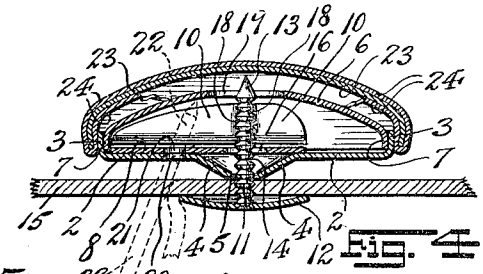


Fig. 4

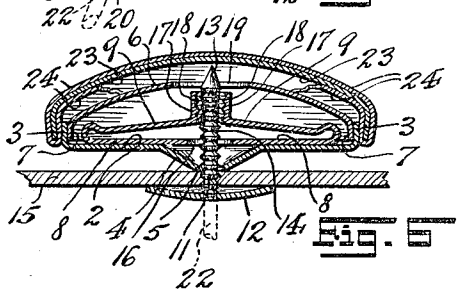


Fig. 6

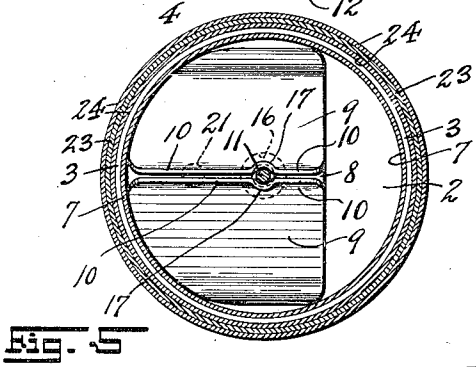


Fig. 5

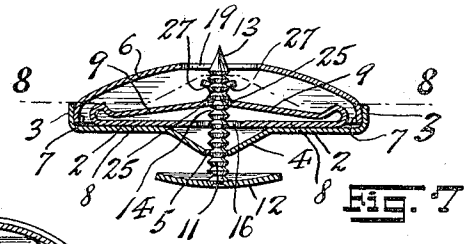


Fig. 7

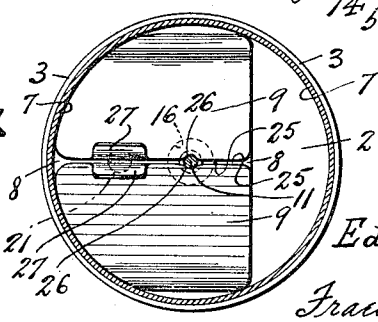


Fig. 8

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RELEASABLE SELF-FASTENING BUTTON.

1,204,159. Specification of Letters Patent. Patented Nov. 7, 1916.

Application filed March 1, 1916. Serial No. 81,348.

To all whom it may concern:

Be it known that we, EDWARD I. JAFFE, a citizen of the United States, and ELIAS JAFFE, a subject of the Czar of Russia, residing at New York, in the county of Bronx and State of New York, have invented certain new and useful Improvements in Releasable Self-Fastening Buttons; and we 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, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

The present invention relates to improvements in that class of buttons which are to be attached to a garment without the use of thread and a needle; and, the invention has reference, more particularly, to a releasable self-fastening button for garments.

The present invention has for its principal object to provide a simple, cheap, strong and secure self-fastening button, so constructed, however, as to be very easily and quickly released from its fastened relation to a garment so that it can be removed and replaced without destroying the button or injuring the garment with which it is used.

A further object of the invention is to provide a novel fastening means which readily withstands all strains and pulls, so that the same cannot be removed accidentally from the garment by the most severe twisting, turning or pulling strains, and yet which may, by a simple manipulation, be easily released from such securely fastened relation to the garment, and removed therefrom.

Other objects of the present invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the same.

With the various objects of our present invention in view, the same consists, primarily, in the novel construction of releasable self-fastening button hereinafter set forth; and the invention consists, furthermore, in the novel arrangements and combinations of the various devices and parts, as well as in the details of the construction of the said parts, all of which will be more fully described in the following specification, and then finally embodied in the claims which are appended to and which form an essential part of the said specification.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a face view of our novel button attached to a piece of cloth or a portion of a garment; and Fig. 2 is a side elevation of the same, the cloth or garment being shown in section. Fig. 3 is a vertical cross section of our novel construction of button, the same being taken on line 3—3 in said Fig. 1, and being drawn on a considerably larger scale. Fig. 4 is a vertical transverse section taken on line 4—4 in said Fig. 3, looking in the direction of the arrow *x*. Fig. 5 is a horizontal section taken on line 5—5 in said Fig. 3, looking in the direction of the arrow *y*. Fig. 6 is a vertical cross section similar to that shown in Fig. 3, but illustrating the relation of the internal parts thereof as manipulated to release the button from the garment. Fig. 7 is a cross section of a slightly modified construction of our novel button, the face portion being removed; and Fig. 8 is a horizontal section of the same, taken on line 8—8 in said Fig. 7, looking downward.

Similar characters of reference are employed in all of the hereinabove described views, to indicate corresponding parts.

Referring now to the said drawings, the reference character 1 indicates the complete novel construction of releasable self-fastening button made according to and embodying the principles of our present invention, the same comprising a back-plate or shell 2 provided at its marginal edge with an upwardly turned flange or rim 3. Said back-plate or shell 2 is further provided with a centrally disposed and downwardly or outwardly projecting depressed portion or off-set 4 which is also provided in turn with a centrally disposed opening or hole 5.

The reference character 6 indicates a cover-shell or plate, the main body of which is bowed or arched upwardly to give it a preferential concavo-convex form, this cover shell or plate 6 being also provided at its marginal edge with a downwardly turned flange or rim 7 which fits into or is received within the flange or rim 3 of said back-plate or shell 2 when said cover-shell or plate 6 is assembled with the latter in normal relation thereto.

The reference character 8 indicates the

main body of a spring-plate which is laid upon and supported by said back-plate or shell 2 beneath said cover-plate or shell 6. Each end of said main body of said spring-plate 8 is doubled upon itself so as to provide a pair of oppositely and inwardly extending spring-arms or members 9, the free edges of which are opposed to each other in substantially diametrical alinement and relation to said back-plate or shell 2. Said spring-arms or members 9 are further constructed and arranged so as to incline upwardly from the edges of said main body 8 from which they extend. Connected with the free edge of each spring-arm or member 9 is an upwardly extending lip 10. The said lips 10 thus provided parallel each other, and are normally but slightly separated.

The reference character 11 indicates a fastening shank, which is provided with a suitable head or anchor flange 12 at its bottom end. The free end of said fastening shank 11 is ground down to provide a sharpened piercing point 13. The body of said fastening shank is provided with a series of transverse or annular grooves 14, which are parallel one with another and independent of each other, and in such particulars of construction differ from and must not be confused with a continuous screw-thread.

In securing the button to the cloth of a garment, the piercing point 13 is thrust through the cloth 15 and the shank 11 pushed therethrough until the head or anchor flange 12 is brought up against the inner side of the cloth 15. The free end of said shank 11 is then passed upwardly through the entrance opening or hole 5 of the back-plate or shell 2 and on through an opening or hole 16, which is provided in the body of said spring-plate 8 and which is registered or alined with said entrance opening or hole 5, upwardly between the opposed lips 10 of said spring-arms or members 9. Formed in said lips 10, at the point where said shank normally passes therebetween, are a pair of opposed semi-cylindrical gripping jaws 17, the inner sides of which conform substantially to the contour of the shank 11. Said inner sides of said gripping jaws are provided with a series of transverse or annular gripping ribs or teeth 18 which enter said transverse or annular grooves 14 of said shank 11. The respective grooves 14 and corresponding ribs or teeth 18 are preferably made V-shaped in cross-section, so that the same will readily pass one another when the shank 11 passes upwardly and the spring-arms or members 9 yield to the upward thrust of the latter. When, however, it is sought to pull either the button off of the shank 11, or the shank 11 out of the button, the engagement of the shank 11 with the gripping-jaws tends to move the spring-arms or members 9 downward, but since the latter are inclined upwardly, their free ends or edges are caused to move together in their attempt to describe the arc of movement about their fixed ends or edges, and consequently it follows that said gripping-jaws 17 are more firmly than ever forced into holding or binding engagement with said shank 11, under such pulls or strains, all of which will be readily understood from an examination of Figs. 3 and 5 of the drawings. Consequently the greater the pull or strain upon the button, the greater is the resistance offered thereto by the gripping jaws 17 carried by the spring-arms or members 9, hence a very secure fastening is thus provided by means of which the button is most firmly secured to the garment.

We also desire to call attention to the fact that although the button may be turned upon the shank 11, it cannot be disengaged therefrom in such manner, since the action of such movement upon the shank 11 is that of a swivel and not like that of a screw. This is due to the arrangement of said annular grooves 14 upon the shank 11, which do not permit of vertical movement, relative to the latter, of the gripping-jaws when engaged therewith.

We also desire to point out that while the annular grooves and annular teeth respectively of the shank and gripping-jaws are the preferred manner of roughening the mutually engaging surface of said parts, it will be apparent that other means for so roughening the same may be employed, as for example nurling or file-cutting such surfaces, the essential necessity being to assure strong friction between the engaging parts.

The said cover-plate or shell 6 is provided with a centrally disposed opening or hole 19 into or through which said shank 11 may pass when thrust upwardly between the gripping-jaws 17 as above described.

The reference character 20 indicates a hole or opening situated in said back-plate or shell 2 diametrically in line with the central hole or opening 5, but spaced between the latter and the outer circumference of said back-plate or shell 2. The reference character 21 indicates a similar hole or opening situated in said body of said spring-plate 8 and so positioned as to be alined with and directly beneath the meeting free edges of said spring-arms or members 9, said hole or opening 21 being also registered or alined with the hole or opening 20 formed in said back-plate or shell 2. The purpose of said alined holes or openings 20 and 21 is to provide a means of entrance for a releasing tool, whereby the fastening means of the button may be released from normal holding engagement so that the button can be removed from the shank 11, and consequently from the garment to which it may be attached. The means and manner of

thus releasing the button consists of inserting through said alined holes or openings 20 and 21, a wire, a pin, or some rod-like member 22, such as illustrated by dotted lines in Fig. 4 of the drawings, and then pushing the end of the same upwardly through or between the opposed lips 10 of the spring-arms 9. In thus passing upwardly between the lips 10 the spring-arms 9 yield to the thrust and permits the member 22 to enter between the lips 10 not only to separate them but to hold them separated so long as said member 22 remains in such position. This swinging upward of the spring-arms 9 and consequent separation of the lips 10 results also in separating the gripping-jaws 17, and removing the teeth 18 of the latter from engagement with the grooves 14 of the shank 11 (as shown in Fig. 6 of the drawings), consequently permitting either the button to be withdrawn from the shank 11, or the latter from the button, easily and quickly and without danger of any disarrangement or injury to the internal parts of the fastening or gripping elements. It will thus be apparent that our button can be with little effort removed from a garment and replaced thereon, so that the same may be used over and over again.

The reference character 23 indicates a button-face shell, which may be covered with cloth 24, and then associated with and fixed upon the back-plate or shell 2 in the manner well-known to those skilled in this art, and of course it will be understood that such button-face shells may be made in many ways and of many designs, and may, if desired, or need not, be covered with cloth or other material, so that any desired ornamental design or effect can be used.

Referring now to Figs. 7 and 8 of the drawings, we have illustrated therein a slightly modified construction of our novel releasable self fastening button, and such parts thereof as are the same as in the above described construction we will indicate by the same reference letters already employed. The essential point of modification lies in the omission of the gripping-jaws 17, and providing that merely the free edges 25 of the spring-arms themselves engage the grooves 14 of the shank 11, slightly indenting said edges 25 as at 26 where contact with the shank 11 occurs, so that a firm contact is secured and tendency to lateral displacement of said shank 11 prevented. Connected with said free edges 25, in such position as to be registered above or alined with the openings 20 and 21, are the upwardly extending lips 27 which will receive the engagement of the separating or releasing tool in the same manner as above described. The functioning and method of operating this modified construction of button is the same in all essential respects as described in connection with the main construction. There is one more function of both the lips 10 and 27, which we desire to point out, namely that since the same are upturned and vertical they eliminate sharp edges which can engage the releasing tool and prevent or impede its withdrawal and since merely their smooth flat or slightly rounded vertical faces alone contact with such releasing tool it is only necessary to overcome the friction of such contact due to the tension of the spring-arms, when withdrawing the releasing tool from between the same.

From the above it will be seen we have devised a construction of button the parts of which can be quickly assembled and arranged in their holding position on fabrics of different thicknesses, so that the button is firmly secured thereon without undue looseness of relation between the button-back and the face of the fabric.

We are aware that some changes may be made in the several arrangements and combinations of the various devices and parts of our novel button, as well as in the details of the construction of the same, without departing from the scope of our invention as set forth in the foregoing specification and as defined in the claims appended hereto. Hence, we do not limit our invention to the exact arrangements and combinations of the several devices and parts as described in the foregoing specification, nor do we confine ourselves to the exact details of the construction of said parts as shown in the accompanying drawings.

We claim:—

1. In a device of the kind described, a back-plate having a centrally disposed opening therein, a spring-plate supported upon said back-plate having an opening registered with said opening of said back-plate, opposite ends of said spring-plate being doubled upon themselves to provide upwardly inclined spring-arms the free ends of which are opposed to each other and slightly separated, a fastening shank having an anchor head at one end and a piercing point at its opposite end, said fastening shank having a plurality of annular transverse grooves formed in its body, said shank being adapted to be passed between said opposed ends of said spring-arms so as to be engaged thereby, upwardly extending lips connected with the free ends of said spring-arms so as to be opposed one to the other and between which a releasing tool may be thrust to separate the opposed ends of said spring-arms to disengage the same from said fastening shank, said back-plate and said spring-plate being provided with registered openings located beneath said lips through which a releasing tool may be passed.

2. In a releasable self-fastening button, a back-plate having a centrally disposed entrance opening, a spring-plate supported upon said back-plate having an opening therethrough registered with said entrance opening, opposite ends of said spring-plate being doubled upon themselves to provide upwardly inclined spring-arms the free ends of which are opposed to each other and slightly separated, a fastening shank having annular grooves in its body adapted to be engaged and held against withdrawal by said spring-arms when passed upwardly between said opposed free ends of the latter, and said back-plate and said spring-plate having additional registered openings located beneath and in line with said opposed ends of said spring-arms through which a releasing tool may be passed upwardly between said opposed ends of said spring-arms to separate the same and thereby release the same from holding engagement with said fastening shank to permit the withdrawal of the latter.

3. In a releasable self-fastening button, a back-plate having a centrally disposed offset shoulder provided with an entrance opening, a spring-plate supported upon said back-plate having an opening therethrough registered with said entrance opening, opposite ends of said spring-plate being doubled upon themselves to provide upwardly inclined spring-arms the free ends of which are opposed to each other and slightly separated, upwardly extending vertical lips connected with the opposed free ends of said spring-arms, opposed gripping-jaws formed in said lips, a fastening-shank having an anchor head at one end and a piercing point at its opposite end, said fastening shank having a roughened surface, said gripping surfaces of said gripping-jaws having a correspondingly roughened surface, said shank being adapted to be passed between said gripping-jaws, said back-plate and said spring-plate being provided with registered openings located beneath and in line with said opposed lips for the purposes set forth, and an arched cover-shell having a centrally disposed opening extending over said spring-arms and secured to said back-plate.

4. In a releasable self-fastening button, a back-plate having a centrally disposed offset shoulder provided with an entrance opening, a spring-plate supported upon said back-plate having an opening therethrough registered with said entrance opening, opposite ends of said spring-plate being doubled upon themselves to provide upwardly inclined spring-arms the free ends of which are opposed to each other and slightly separated, upwardly extending vertical lips connected with the opposed free ends of said spring-arms, opposed gripping-jaws formed in said lips, a fastening-shank having an anchor head at one end and a piercing point at its opposite end, said fastening shank having a roughened surface, said gripping surfaces of said gripping-jaws having a correspondingly roughened surface, said shank being adapted to be passed between said gripping-jaws, said back-plate and said spring-plate being provided with registered openings located beneath and in line with said opposed lips for the purposes set forth, an arched cover-shell having a centrally disposed opening extending over said spring-arms and secured to said back-plate, and a button-face member secured to said back-plate.

5. In a releasable self-fastening button, a back-plate having a centrally disposed offset shoulder provided with an entrance opening, a spring-plate supported upon said back-plate having an opening therethrough registered with said entrance opening, opposite ends of said spring-plate being doubled upon themselves to provide upwardly inclined spring-arms the free ends of which are opposed to each other and slightly separated, upwardly extending vertical lips connected with the opposed free ends of said spring-arms, opposed gripping-jaws formed in said lips, a fastening-shank having an anchor head at one end and a piercing point at its opposite end, said fastening shank having a plurality of annular transverse grooves formed in its body, said gripping-jaws being provided on their gripping surfaces with a plurality of corresponding transverse annular teeth, said shank being adapted to be passed between said gripping jaws, and said back-plate and said spring-plate being provided with registered openings located beneath and in line with said opposed lips for the purposes set forth.

6. In a releasable self-fastening button, a back-plate having a centrally disposed offset shoulder provided with an entrance opening, a spring-plate supported upon said back-plate having an opening therethrough registered with said entrance opening, opposite ends of said spring-plate being doubled upon themselves to provide upwardly inclined spring-arms the free ends of which are opposed to each other and slightly separated, upwardly extending vertical lips connected with the opposed free ends of said spring-arms, opposed gripping-jaws formed in said lips, a fastening-shank having an anchor head at one end and a piercing point at its opposite end, said fastening shank having a plurality of annular transverse grooves formed in its body, said gripping-jaws being provided on their gripping surfaces with a plurality of corresponding transverse annular teeth, said shank being adapted to be passed between said grip-

ping jaws, said back-plate and said spring-plate being provided with registered openings located beneath and in line with said opposed lips for the purposes set forth, and an arched cover-shell having a centrally disposed opening extending over said spring-arms and secured to said back-plate.

7. In a releasable self-fastening button, a back-plate having a centrally disposed offset shoulder provided with an entrance opening, a spring-plate supported upon said back-plate having an opening therethrough registered with said entrance opening, opposite ends of said spring-plate being doubled upon themselves to provide upwardly inclined spring-arms the free ends of which are opposed to each other and slightly separated, upwardly extending vertical lips connected with the opposed free ends of said spring-arms, opposed gripping-jaws formed in said lips, a fastening-shank having an anchor head at one end and a piercing point at its opposite end, said fastening shank having a plurality of annular transverse grooves formed in its body, said gripping-jaws being provided on their gripping surfaces with a plurality of corresponding transverse annular teeth, said shank being adapted to be passed between said gripping-jaws, said back-plate and said spring-plate being provided with registered openings located beneath and in line with said opposed lips for the purposes set forth, an arched cover-shell having a centrally disposed opening extending over said spring-arms and secured to said back-plate, and a button-face member secured to said back-plate.

8. In a releasable self fastening button, a casing having an entrance opening in the back thereof, a pair of spring-arms fixed within said casing, said spring-arms inclining upwardly from their fixed ends so that their free ends are opposed to each other and slightly separated, a fastening shank having an anchor head at one end and a piercing point at its opposite end, annular grooves formed in the surface of said shank, said shank being adapted to be passed into said casing and upwardly between the free ends of said spring-arms so as to be gripped thereby, said free ends of said spring-arms being further provided with upwardly turned and oppositely facing lips, and said casing having a second opening registered beneath said lips for the purposes set forth.

9. In a releasable self fastening button, a casing having an entrance opening in the back thereof, a pair of spring-arms fixed within said casing, said spring-arms inclining upwardly from their fixed ends so that their free ends are opposed to each other and slightly separated, upwardly turned and oppositely facing lips connected with the free ends of said spring-arms, half-round gripping-jaws formed in said lips, annular grooves formed in the gripping surfaces of said gripping-jaws, a fastening-shank having an anchor head at one end and a piercing point at its opposite end, annular grooves formed in the surface of said shank, said shank being adapted to be passed into said casing and upwardly between said gripping-jaws so as to be gripped thereby, and said casing having a second opening registered beneath said lips for the purposes set forth.

In testimony that we claim the invention set forth above we have hereunto set our hands this twenty-eighth day of February, 1916.

EDWARD I. JAFFE.
ELIAS JAFFE.

Witnesses:
GEORGE D. RICHARDS,
MARION M. BANTA.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."