(No Model.)

E. N. CHAPMAN.

BUTTON.

No. 451,025. Patented Apr. 28, 1891.

Fig. 1.

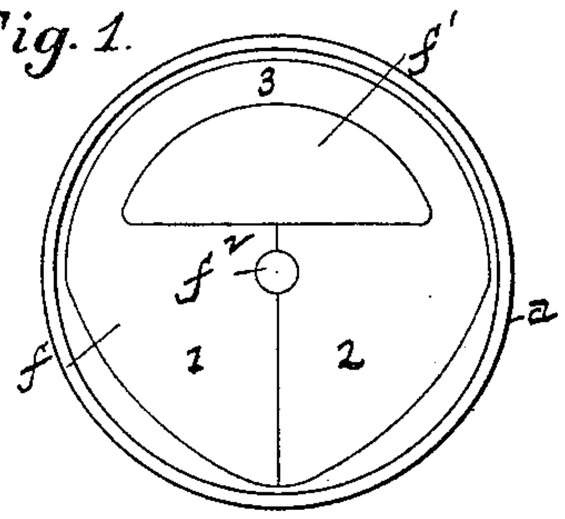


Fig. 2.

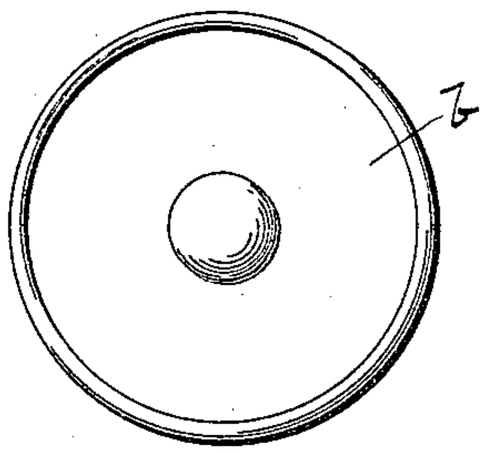


Fig. 3.

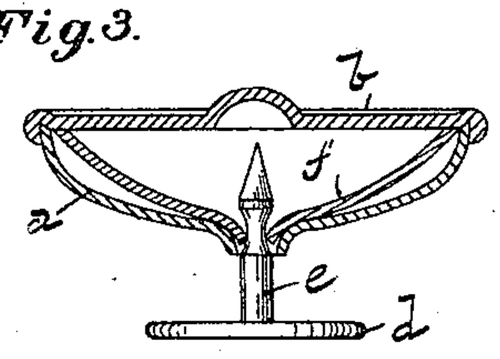


Fig. 4.

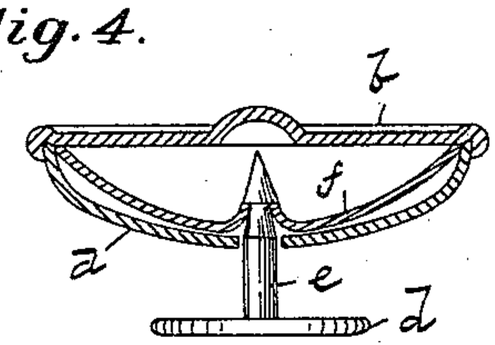


Fig. 5.

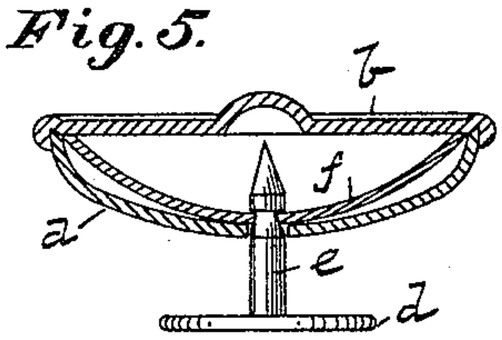


Fig. 6.

Fig. 7.

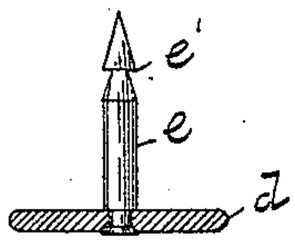
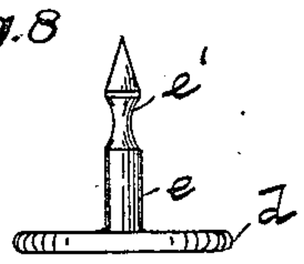


Fig. 8



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UNITED STATES PATENT OFFICE.

EDWARD N. CHAPMAN, OF HOLYOKE, MASSACHUSETTS.

BUTTON.

SPECIFICATION forming part of Letters Patent No. 451,025, dated April 28, 1891.

Application filed August 7, 1890. Serial No. 361,387. (No model.)

To all whom it may concern:

Be it known that I, EDWARD N. CHAPMAN, of Holyoke, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Buttons, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

My invention relates to that class of buttons which are adapted to be secured to garment without the use of thread, and are composed of a shank portion having a stud adapted to be inserted through the fabric and a front portion or button proper having a hole in the rear side thereof to receive said stud, and having means for engaging the latter to prevent withdrawal thereof, and thus lock the two portions of the button together.

The object of my invention is to improve the construction of the locking means in the front portion of such buttons, to the end that greatly-increased resisting strength will be secured to the button, while at the same time the cost of manufacture will be reduced to a minimum.

To this end my invention consists in the button constructed and operating as hereinafter fully described, and particularly pointed out in the claims.

Referring to the drawings, in which like parts are designated by like letters and numerals in the several figures, Figure 1 is a plan of the front portion of a button embodying my invention, the cap being removed to show the locking device. Fig. 2 is a similar view of the cap. Fig. 3 is a vertical section of the button with the two portions thereof locked together. Figs. 4 and 5 are similar views showing slight modifications in the locking means. Fig. 6 is a detail view of the stud forming part of the shank of the button. Fig. 7 is a similar view showing one manner of connecting said stud to its base. Fig. 8 shows a slightly-different form of stud.

The letter *a* designates the collet forming part of the front portion of the button, and *b* the cap, which is or may be secured to the collet in the usual manner. The rear portion or shank of the button is composed of a base *d* and a stud *e*, projecting from said base at a right angle thereto. I prefer to employ a single stud *e*, and it can be secured to the base, as shown in Fig. 7, by being inserted through said base, or can be soldered or otherwise secured to the latter, or the base and stud can be formed integrally with each other from a continuous piece of wire or otherwise, as may be desired. At its free end the stud *e* is tapered to form a comparatively sharp point, whereby said stud is adapted to be thrust through a fabric readily and without the use of a needle, and at the rear of said point it is provided with a shoulder *e'*, which may be a square shoulder, as shown in Figs. 6 and 7, or may be tapered, as shown in Fig. 8, to enable it to co-operate with the locking device in the front portion of the button, as will be presently described. The locking device *f* (see Fig. 1) consists of a thin plate of sheet metal, which is substantially circular in outline and of a diameter but slightly less than that of collet *a*. A portion of the metal forming said plate is removed, near one side thereof, by stamping or other process, thereby forming the opening *f'*, and the plate is slit from said opening to the opposite side thereof in a straight line, said slit passing through the center of the plate, at which point is made the orifice f^2. The plate is thus divided into two quadrant-shaped leaves 1 2 and a connecting-stem 3, the latter by its elasticity normally retaining said leaves in contact with each other, as shown in Fig. 1, while permitting them to separate from each other laterally and also to have a limited vertical movement. Said plate is also deflected by drawing or stamping to a concavo-convex shape in cross-section, as shown in Figs. 3, 4, and 5, so that while its edge bears against the cap when the parts are assembled its center will bear against or lie adjacent to the central portion of the collet, as shown. In assembling the parts said plate *f* is located within the collet, which is provided with a central orifice to receive the stud *e* of the shank, and the diameter of the plate being but slightly less than that of the collet, the orifice f^2 in the former will always be in substantial register with said central orifice in the latter, thereby causing said stud, when it is inserted within the collet, to infallibly enter said orifice in said plate. The cap *b*, when secured upon the collet, prevents movement of the locking-plate away from the col-

let by forming a bearing for the edge of said plate.

To fasten the button to a garment, the stud *e* is thrust through the fabric from the rear side of the latter, and is then inserted within the hole in the collet, and the two parts of the button are pressed together with the thumb and finger. By such action the stud is caused to enter the orifice f^2 in the locking-plate, and, its tapered point acting as a wedge upon the leaves 1 2, it separates the latter sufficiently to allow its shoulder *e'* to pass the plate, whereupon said leaves are returned to their former position by stem 3, and by closely embracing the stud beneath the shoulder *e'* are caused to lock the two portions of the button together. One-half of the orifice f^2 being located in each of the leaves 1 2, said leaves completely encircle the stud beneath the shoulder *e'*, and an exceedingly strong locking action is thereby secured. This would be true in case the portion of the leaves 1 2 surrounding the orifice f^2 were made substantially straight, as shown in Fig. 5; but still greater resisting strength can be secured to the button by deflecting that portion of said leaves immediately surrounding said orifice either toward the collet, as shown in Fig. 3, or toward the cap, as shown in Fig. 4. In the former case, as shown in Fig. 3, the collet is similarly deflected, immediately surrounding the hole therein, and the form of stud shown in Fig. 8 is preferably employed, whereby a wedging action between the deflected portions of the leaves and collet and the beveled shoulder *e'* on said stud is secured, which enables the button to withstand any strain which can be exerted upon it. In the form shown in Fig. 4, wherein the central portion of the locking-plate is deflected toward the cap, the engagement of the square shoulder on the stud with said deflected portion is such that any strain exerted upon the button must rupture the metal of which the plate is composed before the two portions of the button can be torn asunder, which is practically an impossibility. As the deflection of the locking-plate shown in said Fig. 4 somewhat facilitates the insertion of the stud *e* within the front portion of the button, I prefer to utilize said form in practice. In each of the forms shown the unity of a substantially circular locking plate having a diameter but slightly less than that of the collet, which completely surrounds the stud on the shank, and which is capable of yielding at its center toward the cap and also of expanding to increase the diameter of the orifice therein, is preserved.

In addition to the ease with which it can be secured to a garment and its great strength, the button devised by me possesses the further advantage that it can be manufactured very cheaply, since the locking-plate can be made complete by a single stamping operation.

It will be obvious that two studs or prongs on the shank can be utilized in a manner similar to the single one herein shown by providing the locking-plate with two orifices f^2, located in the line of the slit in said plate.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The button herein described, consisting of the shank provided with a pointed and shouldered stud adapted to be thrust through the fabric, and the front portion comprising a collet having a central orifice to receive said stud, a cap and an interposed locking-plate composed of a substantially circular piece of sheet metal of a diameter but slightly less than that of the collet, said locking-plate having a central orifice which registers with the orifice in the collet, a slot or opening near one side thereof extending substantially parallel with said side, and a slit extending from said slot or opening through said central orifice to the opposite side of the plate, substantially as and for the purpose set forth.

2. The button herein described, consisting of a shank composed of a base and a pointed and shouldered stud projecting therefrom, and a front portion composed of a collet having a central orifice to receive said stud, a cap, and the interposed locking-plate *f*, said plate being composed of the quadrant-shaped leaves 1 2 and stem 3 and having the orifice f^2 therein, substantially as set forth.

EDWARD N. CHAPMAN.

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A. T. GUYOTT.