(No Model.)

S. J. STONE & F. E. FARNHAM.

COLLAR BUTTON.

No. 556,219. Patented Mar. 10, 1896.

FIG. 1.

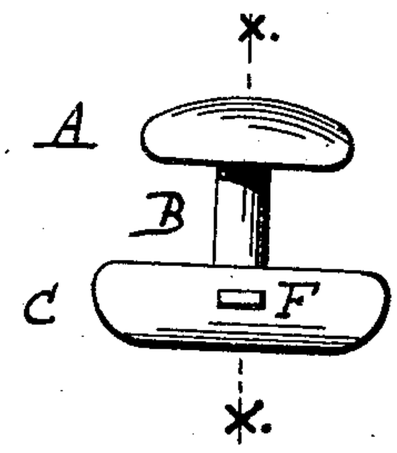


FIG. 2.

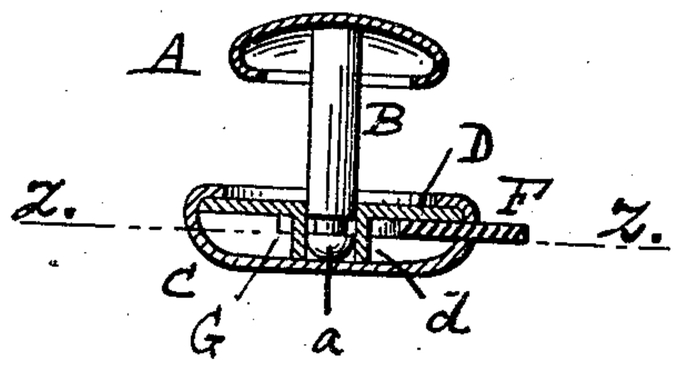
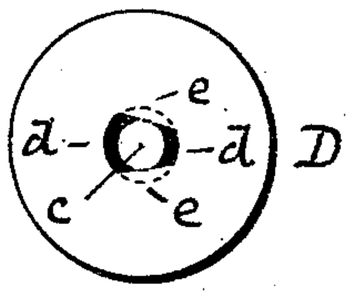


FIG. 3.

FIG. 4.



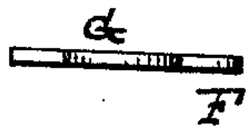


FIG. 5.

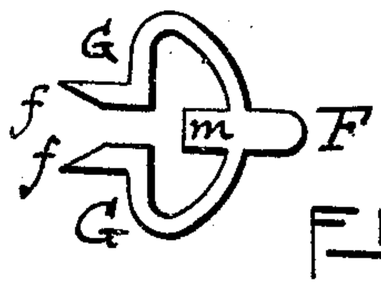


FIG. 6.

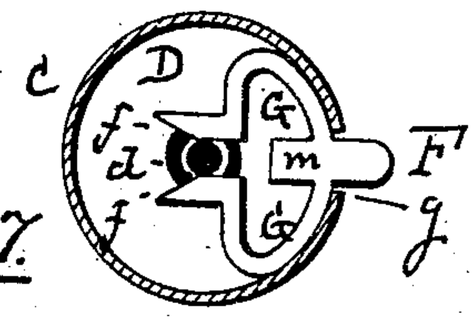


FIG. 7.

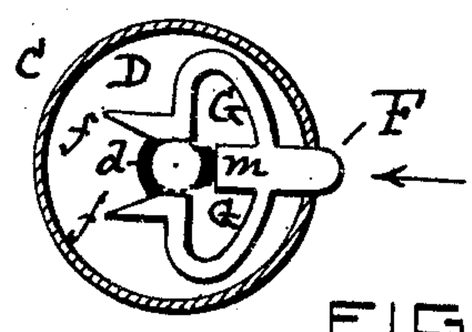


FIG. 8.

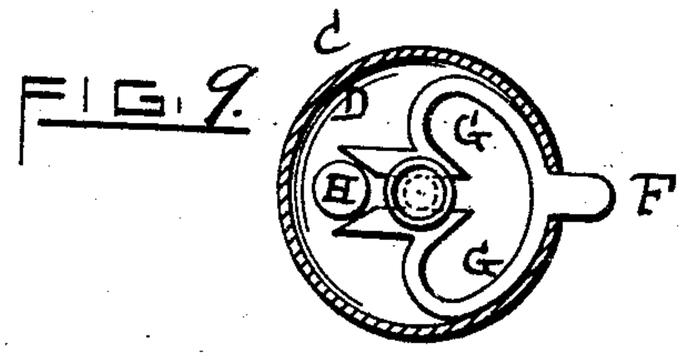


FIG. 9.

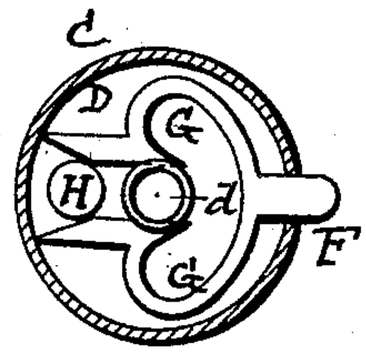


FIG. 10.

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SAMUEL J. STONE AND FRANK E. FARNHAM, OF PROVIDENCE, RHODE ISLAND.

COLLAR-BUTTON.

SPECIFICATION forming part of Letters Patent No. 556,219, dated March 10, 1896.

Application filed October 21, 1895. Serial No. 566,339. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL J. STONE and FRANK E. FARNHAM, of the city and county of Providence, in the State of Rhode Island, have invented a certain new and useful Improvement in Collar-Buttons and Studs; and we declare the following to be a specification thereof, reference being had to the accompanying drawings.

Like letters indicate like parts.

Figure 1 is a side elevation of our invention. Fig. 2 is a sectional view of the same, as seen on line *x x* of Fig. 1, the shank being shown in elevation. Fig. 3 is a side elevation of the lining-plate and its tubular extension. Fig. 4 is a bottom plan view of said lining-plate with said extension, shown in section on line *y y* of Fig. 3. Figs. 5 and 6 are respectively a side view and a top plan of the combined pusher and spring-arms. Fig. 7 is a plan view of the combined pusher and spring-arms in position within the shoe, the shank and the extension-piece of the lining-plate being shown on section-line *z z* of Fig. 2. Fig. 8 is a top plan of the combined pusher and spring-arms as seen in position within the shoe when the pusher and spring-arms are pressed inwardly, and the extension-piece is shown on section-line *z z* of Fig. 2, but the shank has been withdrawn. Figs. 9 and 10 represent modified forms of our invention.

Our invention relates to that class of separable buttons having a head or front with a shank connected therewith, a separate shoe having therein a spring to engage said shank, and a pusher to operate said spring. It consists of the combination of a button head or front having a shank whose end is rounded and provided with a circumferential groove or channel, a separate shoe having a lining-plate provided with a central aperture, and a tubular extension or socket adapted to receive the end of the shank, divergent transverse slots made in said tubular extension, and a pusher mounted in the shoe through a slot thereof and provided with springs of a peculiar shape integral therewith and adapted to be supported in the slots of said extension-piece of the lining-plate and to engage said shank in the circumferential groove thereof to lock the same in position, as hereinafter particularly specified.

In the drawings, A is the ornamental head or front of the button, and B the shank attached to said head in the center of the under side thereof. The shank B has the rounded end *a* and the circumferential groove or channel *b*.

C is the shoe. The lining-plate D is held in place in the shoe by the edges of said shoe, which are turned over upon it, as illustrated in Fig. 2. The lining-plate D is disk-shaped and has a central aperture *c* and a central tubular extension or piece *d*, which are adapted to receive the shank B therein. The extension-piece *d* is slotted transversely in the divergent directions shown at *e* in Fig. 4.

The pusher F has integral therewith the two spring-arms G, which are bent in a curve, as shown in Fig. 6, but whose ends are straight and parallel and terminate with the beveled faces *f*. The pusher is mounted in the shoe C through a slot *g* therein.

The parts are assembled as shown in Figs. 1 and 7, and in their normal position the inner edges of the straight portions of the spring-arms G, resting upon the slotted parts of the extension-piece *d* of the lining-plate D within the shoe, embrace and engage the shank B in the circumferential groove or channel *b* thereof, and so lock the shank to the shoe. In Fig. 7 the central black circle indicates the shank B, as seen in cross-section on line *z z* of Fig. 2, and the concentric white ring indicates the said groove *b*, while the two outer black arcs show the unslotted parts of the tubular extension *d*.

To disengage the shank B and its ornamental head A from the shoe C, the pusher F is pressed inwardly in the direction shown by the arrow in Fig. 8. This movement causes the inclined ends *f* of the spring-arms G to slide along the inclined inner ends of the slots *e* of the extension-piece *d*, which serve as fixed cam-surfaces, and the free ends of the spring-arms G are thus spread apart, and so the inner edges of the straight portions of said springs are moved out of their engage-

ment with the groove *b* of the shank B and allow the shank B to be withdrawn from the socket or tubular extension *d* of the lining-plate D. The inner end *m* of the pusher F, which extends centrally within the bow of the spring-arms G, as shown, limits the inward movement of the pusher by coming in contact with the exterior surface of the unslotted part of the extension-piece *d*. Fig. 8 illustrates the position of said pusher and spring-arms at the end of said inward movement, where it is seen that although the spring-arms are still supported in the slots *e* of the extension-piece *d* the straight portions of said spring-arms are so widely spread apart that the shank B can easily be withdrawn from the bore of said socket or tubular extension. The resilience of the spring-arms G cause the pusher F to resume its former position when released from pressure.

In Figs. 9 and 10 we show a modified form of our invention, in which in Fig. 9 the dotted central circle indicates the groove *b* of the shank B, the intermediate circle the cylindrical surface of the shank, and the outer circle at the center represents the exterior of the cylindrical tubular extension. In these figures the slots are not angularly disposed, but parallel with each other on opposite sides of the extension-piece; but a cylindrical post or block H, fixed upon the lining-plate D, is between the flaring ends of the spring-arms G, and the inward movement of the pusher (illustrated in Fig. 10) spreads the arms apart to allow their disengagement from the groove *b* of the shank B, as hereinbefore described.

The characteristic feature of our invention is that the pusher and springs, being integral, are in the same plane, whereas in all former devices of this class they have been in separate pieces and in different planes. By our peculiar construction we are able to place this locking device in a much smaller space than has been heretofore possible, and therefore our invention is well adapted to fine gold work and to small designs and patterns.

We claim as a novel and useful invention and desire to secure by Letters Patent—

1. In a separable button, the combination with a shoe, a button-head with a shank attached thereto and provided with a rounded end and a circumferential groove, of a lining-plate, held in said shoe, as shown, and provided with a central aperture and a central tubular extension, with transversely-arranged slots, a pusher mounted in the shoe through a slot thereof and provided with spring-arms, which terminate in straight parallel ends, having inclined faces, which arms are supported in the slots of said extension-piece and embrace by the inner edges of the straight ends the said shank in the circumferential groove thereof and are adapted to be spread apart by sliding on a fixed cam-surface, substantially as specified.

2. The improved separable button herein described, consisting of the button-head A, having the shank B, which is provided with a rounded end *a* and a circumferential groove *b*, the shoe C, having the lining-plate D, held therein, which is made with a central aperture *c* and a central tubular extension-piece *d*, transversely slotted as at *e*, on opposite sides thereof in divergent directions, the pusher F, mounted in the shoe through the slot *g* thereof and having, integral therewith, the spring-arms G, made with a bow, but with their ends straight and parallel and terminating in inclined faces *f*, which spring-arms are supported in the slots *e* of said extension-piece *d*, but are adapted to embrace by their inner straight edges the shank B in the channel or groove *b* thereof, and the inner projection or end *m* of the pusher F, adapted to serve as a stop, all arranged and operating substantially as specified.

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