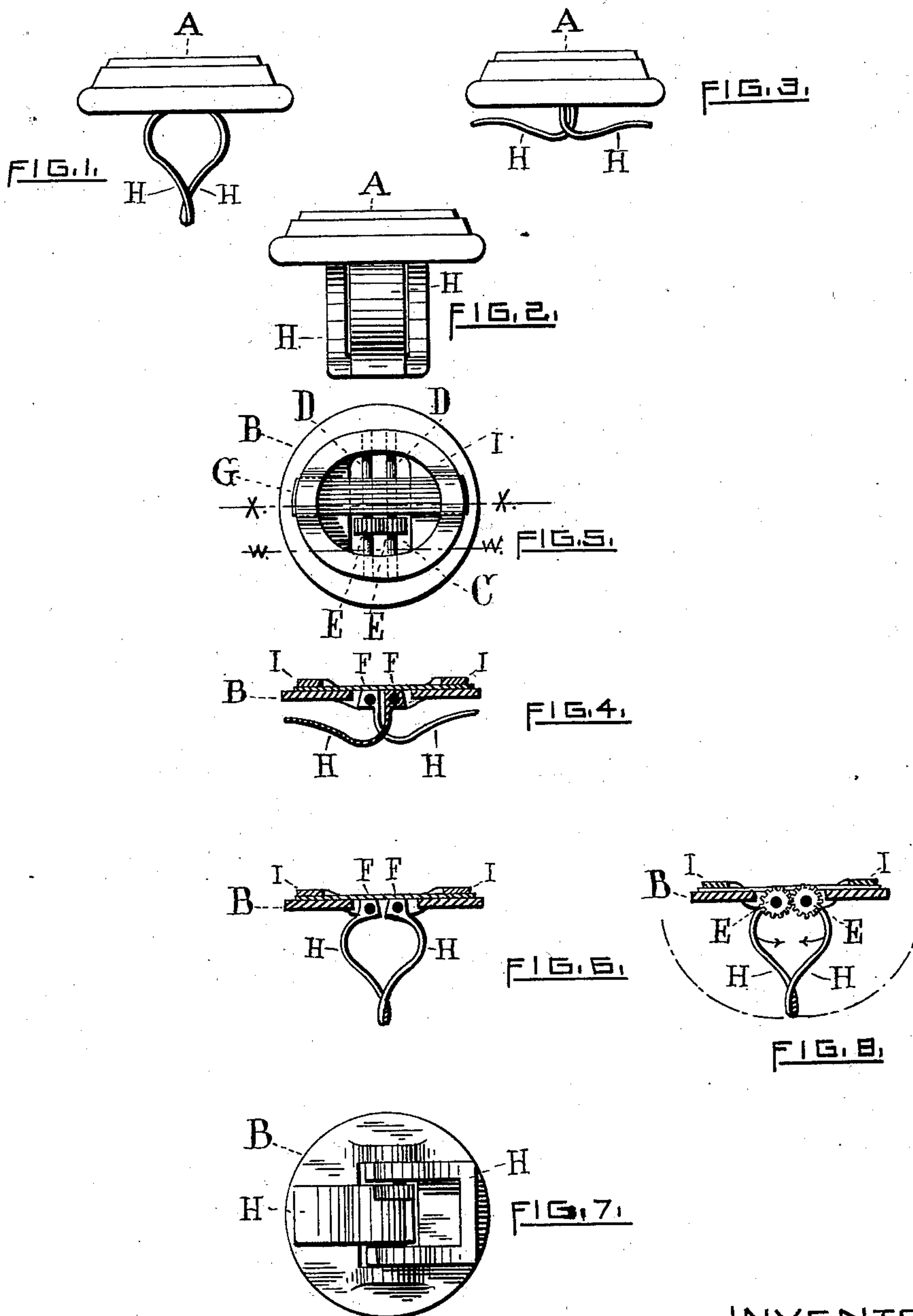


(No Model.)

G. E. ADAMS.
BUTTON OR STUD.

No. 308,647.

Patented Dec. 2, 1884.



WITNESSES,

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UNITED STATES PATENT OFFICE.

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BUTTON OR STUD.

SPECIFICATION forming part of Letters Patent No. 308,647, dated December 2, 1884.

Application filed October 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. ADAMS, of Providence, in the State of Rhode Island, have made certain new and useful Improvements in Buttons or Studs; and I do hereby declare that the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is an elevation of my device, showing the edge of the retaining levers or arms. Fig. 2 is an elevation showing the flat side of the levers or arms. Fig. 3 is a side view with levers locked or closed. Fig. 4 is a vertical section on line *x x*, with levers closed. Fig. 5 is a top view. Fig. 6 is a vertical section on line *x x*, with levers open. Fig. 7 is a view of the under side of the button with the levers closed. Fig. 8 is a vertical section on line *w w*.

The object of my invention is to produce a button or stud which shall be of the most durable construction, and at the same time capable of being easily introduced or withdrawn without any material distention of the button-hole; and it consists in the device hereinafter described.

In the drawings, A, Figs. 1, 2, and 3, is the top of the button or stud.

B, Figs. 4, 5, 6, 7, and 8, is the under plate or disk, having a rectangular opening, C.

Extending across the opening C, and working in suitable bearings upon either side thereof, are two parallel arbors, D D, upon which are two pinions, E E, engaging with each other. The arbors D D are also provided with locking-blocks F F, attached thereto, which are located in different perpendicular planes, so as to not interfere with each other during the rotation of the arbors, but sufficiently contiguous to be covered by a flat cross-spring, G, which is secured at either end to the disk or plate B in any suitable way.

To the arbors D D curved locking arms or levers H H are attached, one of which passes and works through a slot in the other, as shown in Fig. 7, the free ends being so bent and chamfered that they will practically be united in a single edge whenever they are brought into position for insertion in the button-hole, as shown in Figs. 1, 2, 6, and 8.

Around the opening C and above the spring

G is attached a flat annular plate, I, which serves to strengthen and hold the parts together and to sufficiently elevate the upper portion or top of the button and prevent it from coming in contact or interfering with the action of the spring or pinions. The pinions need not be provided with teeth around their entire circumference, as they will not at any time be required to perform a complete rotation.

Commencing with the parts in the position shown in Figs. 1, 2, 6, and 8, the free ends of the levers H H are inserted in the button-hole and the button gently pressed downward. After the thin edge formed by the combined ends of the two levers, as before described, have entered a sufficient distance to allow the thicker or curved parts of the levers to come in contact with the edges of the button-hole, the continued pressure upon the button causes the levers to move—one passing through a slot in the other—in the direction indicated by the dotted lines and arrows in Fig. 8, until they reach the position shown in Figs. 3, 4, and 7, when the button will be found to be firmly secured. During the travel of the levers and the rotation of the arbors D D a uniform and simultaneous movement thereof is secured by means of the pinions E E, which at all times compels the levers to retain a corresponding position to the plate B and to each other. The great advantage of this uniformity and direction of movement of the two levers, so far as they relate to the operation of the parts thus far described, resides in the avoidance of any injury to the appearance of the garment and the ease with which it can be attached thereto. As the levers continue their uniform and simultaneous change of position during the downward pressure upon the button, so do they continue their passage through the button-hole. It will now be readily seen that the width of the space required for the passage of the levers will be little, if any, more than the combined thickness of the two pieces of metal which compose the levers, and that any considerable distention of the button-hole will be avoided, and consequently no great pressure upon the button will be required to adjust it. Whenever the levers

H H are at rest, either in the position shown in Figs. 1, 2, 6, 8 or in Figs. 3, 4, 7, a flat side of the locking-blocks F F will be in contact with the spring G and will hold the levers in either position, as the case may be. When the position of the levers is changed, the pressure exerted must be sufficient to overcome the resistance of the spring G and permit the passage of the edge of the locking-blocks F F as the same are turned over and present a new flat surface to the spring. The purpose and operation of the blocks, being such as is well understood, will not require a more particular description.

When it is desired to remove the button, it is only necessary to lift the end of one of the levers with the finger, when the two levers, acting together through the aid of the pinions and in reverse of their action during insertion, will easily force the button out of the button-hole.

The spring G, and consequently the locking-blocks F F, may be omitted, although I consider their retention necessary to a satisfactory result.

The levers H H, the arbors D D, and the pinions E E may all be made in one piece, if desired.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a button or stud, the combination of the locking-levers H H, arbors D D, having pinions E E, and the plate B, the whole constructed and operating to secure a positive corresponding simultaneous movement of the said locking-levers, substantially as and for the purposes specified.

2. In a button or stud, the combination of the locking-levers H H, arbors D D, having pinions E E, and locking-blocks F F, with the spring G and plate B, the whole constructed and operating together in the manner substantially as described.

3. In a button or stud, the combination of the locking-levers H H, attached to their respective arbors, and working one through a slot or opening in the other, as described, their free ends uniting in a common edge to secure easy insertion in the button-hole, as specified.

GEORGE E. ADAMS.

Witnesses:

WALTER B. VINCENT,
CHARLES H. TITUS.