

(No Model.)

E. P. CLARK & N. D. INGRAHAM.

SAFETY PIN.

No. 386,000.

Patented July 10, 1888.

FIG. 1.

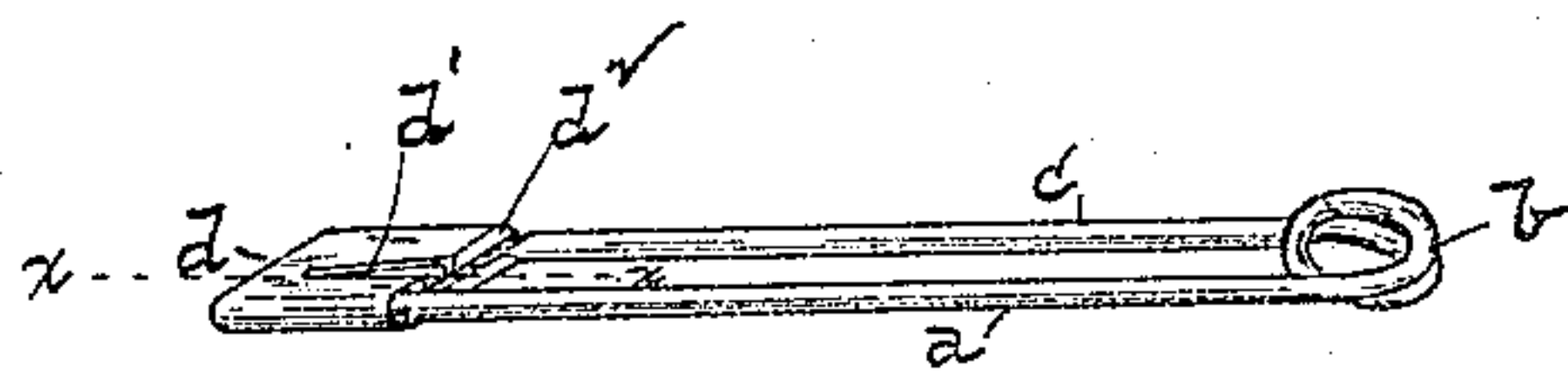


FIG. 2.

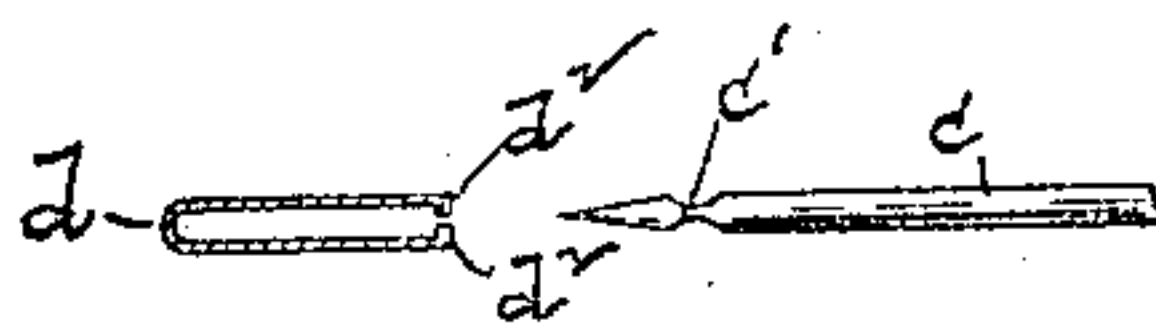


FIG. 3.

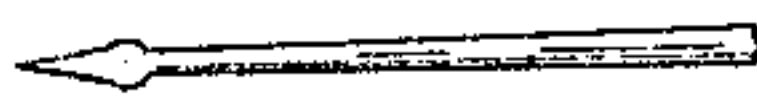


FIG. 4.

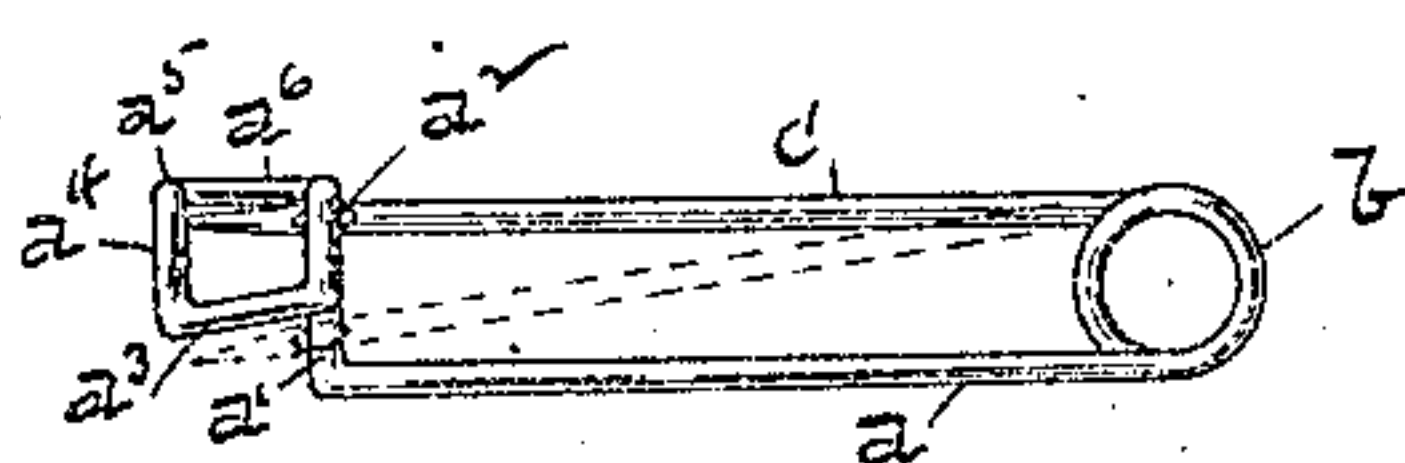
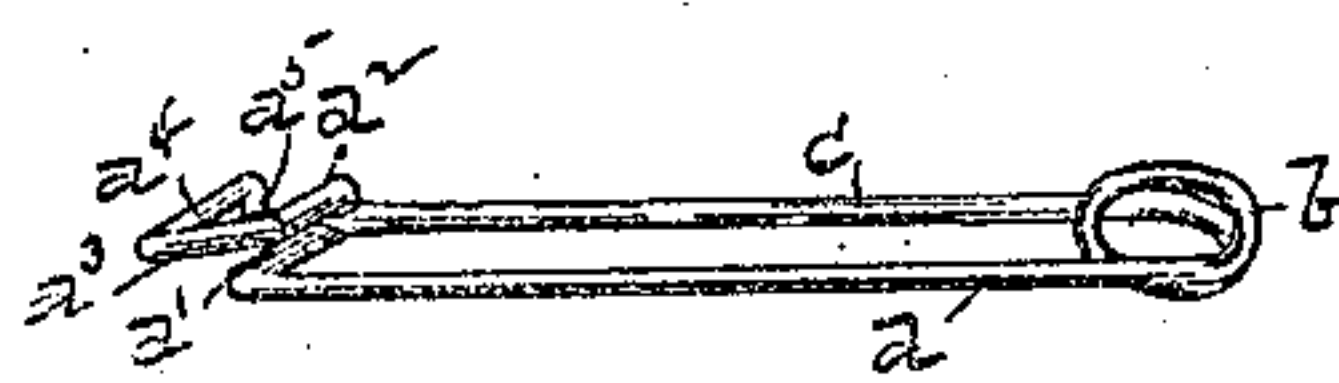


FIG. 5.



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# UNITED STATES PATENT OFFICE.

EMBURY P. CLARK AND NATHAN D. INGRAHAM, OF HOLYOKE, MASSACHUSETTS.

## SAFETY-PIN.

SPECIFICATION forming part of Letters Patent No. 386,000, dated July 10, 1888.

Application filed April 2, 1888. Serial No. 269,218. (No model.)

*To all whom it may concern:*

Be it known that we, EMBURY P. CLARK and NATHAN D. INGRAHAM, of Holyoke, in the county of Hampden and Commonwealth of Massachusetts, have invented a new and useful Improvement in Safety-Pins, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

10 The object of our invention is to provide a safety-pin which will have means for positively locking the point of the pin within its guard or shield in such manner that said point cannot be withdrawn from the guard in a direction parallel with the axis of the pin. It is well known that the strain exerted upon a safety-pin when in use is exerted in a direction at a right angle, or substantially so, to the axis of the pin, and that this strain causes the middle portion of the pin to bend outwardly, whereby its point is withdrawn from the guard in a direction parallel with its axis and the pin is rendered inoperative until again straightened. In addition to the annoyance caused by the liability of the pin to thus disengage itself at any moment, the constant bending and straightening thereof soon weakens it to such an extent as to render it entirely useless, and it is thrown aside for a new one.

30 As above stated, our invention is designed to overcome this vital objection to safety-pins as heretofore constructed; and to this end the invention consists in a safety-pin having a guard constructed to positively engage the pointed prong of the pin transversely of the latter and securely lock it against endwise movement, as hereinafter fully described, and particularly pointed out in the claims.

40 Referring to the drawings, in which like parts are designated by like letters in the several views, Figure 1 is a view in perspective of a safety-pin constructed according to our invention. Fig. 2 is a vertical section of the guard, taken upon line *xx* of Fig. 1, and a view in side elevation of the pointed prong of the pin. Fig. 3 shows a slightly-modified form of the pin proper. Fig. 4 is a plan, and Fig. 5 a perspective view, of the pin made from a single piece of wire.

50 The letter *a* designates the fixed prong of

the pin, and *b* the spring-coil at the rear end thereof, which are or may be of the ordinary construction.

The letter *c* designates the movable pointed prong of the pin, which is likewise of the ordinary construction, except that immediately in the rear of its point it is slightly flattened transversely, as shown at *c'* in Figs. 1, 2, 4, and 5, or is made with a slight bulge immediately behind its point, as shown in Fig. 3, both for a purpose which will be presently described.

As shown in Figs. 1 and 2, the guard *d* is of the same general form as that heretofore used, being a flattened hollow receptacle open at one end, and is secured to the prong *a* by soldering in the usual manner. In one of the flattened sides of the guard *d* is a slot, *d'*, extending from the open toward the closed end of the guard, preferably at an acute angle to the prong *a*, its open end being located at a point substantially midway between the two extremities of the open end of the guard. Said slot *d'* serves as the passage for the end of prong *c* to and from the interior of the guard, and being arranged at the angle described, prevents the passage of the said prong therethrough, except when the latter is compressed sufficiently to bring its pointed end substantially parallel with the wall of said slot lying farthest away from the fixed prong *a*, thus materially decreasing the liability of the prong *c* to escape from the guard when accidentally compressed. As hereinbefore stated, however, the most common cause of accidental escape of the prong *c* from the guard is the strain exerted upon the prongs *a* and *c* when the pin is used to unite separate articles or portions of the same article of clothing in a direction substantially perpendicular to the axes of said prongs, whereby they are bent outwardly in their middle portions, and the end of prong *c* is withdrawn from the guard. We therefore provide the guard with means for positively engaging with corresponding means upon said prong *c* whenever such a strain is exerted upon said prong, whereby the latter is prevented from withdrawing from the guard in the direction of its length. As shown in Figs. 1 and 2, such engaging means on the guard consists of an inwardly-extend-



ing flange,  $d^2$ , upon each of the flattened sides at the open end of the guard and upon that portion of said end lying between slot  $d'$  and the side opposite to that to which prong  $a$  is secured. The flanges are of such width, respectively, that the space between their adjacent edges is slightly greater than the diameter of prong  $c$  at the bottom of the depression  $c'$  in the latter, but less than the diameter of said prong between said depression and its point. The prong  $c$  therefore is adapted to have a free lateral movement within the guard so long as the plane of its depression  $c'$  coincides with that of flanges  $d^2$ , and the pin operates like the ordinary safety-pin; but as soon as a strain is exerted upon the pin which would have a tendency to bend said prong  $c$  the outermost wall of depression  $c'$  is brought against flanges  $d^2$  and further bending thereof is prevented and the point of said prong is positively retained within the guard. Such outermost wall of said depression thus forms a stop upon the prong to be engaged by the flanges  $d^2$ , and in Fig. 3 we have shown said prong as being provided with a stop in the form of a slight bulge or enlargement immediately in the rear of its point, which operates in the same manner and yet does not interfere with the insertion of the prong through a fabric nor with its withdrawal therefrom.

In Figs. 4 and 5 we have shown the safety-pin made from a continuous piece of wire, in which prong  $a$  is bent at a right angle to form the transverse bar  $a'$ , is then bent back upon itself to form bar  $a^2$ , which is preferably slightly more than one-half the length of bar  $a'$ , is then bent outwardly, preferably at an acute angle to prong  $a$ , to form bar  $a^3$ , is again bent to form bar  $a^4$  parallel to bar  $a^2$ , after which it is bent downwardly to form shoulder  $a^5$ , and is finally bent at a right angle to form bar  $a^6$ , which extends parallel with prong  $a$  to the junction between bars  $a'$  and  $a^2$ . The said bars  $a'$ ,  $a^2$ ,  $a^3$ ,  $a^4$ , and  $a^6$  thus form a guard to receive the pointed end of prong  $c$  and effectually inclose the latter, as shown in said Figs. 4 and 5. The space between bars  $a'$  and  $a^2$  corresponds with the space between flanges  $d^2$  in the first-described form of the pin, and said bars cooperate with the stop on prong  $c$  to lock the latter in the same manner, as just described, with reference to said flanges.

We are aware that means have heretofore been devised for locking the end of the pointed prong of a safety pin against lateral movement to prevent accidental inward compression of said prong; but, as hereinbefore pointed out, all devices of this nature wholly fail to provide against the most frequent cause of injury to pins of this kind, inasmuch as they offer no obstruction to the endwise withdrawal of

said prong when the latter is bent outwardly between its ends.

It is obvious that our invention is equally applicable to breast-pins and other similar articles of jewelry, in which a single prong and guard are used, and we contemplate making such application thereof. It is equally obvious that by mounting the shank of a button upon the pin shown at coil  $b$ , for example, a very efficient button-fastener would be formed.

We do not wish to limit ourselves to the exact construction shown and described in all of its various details, as modifications other than those herein mentioned can be made without departing from the spirit of our invention.

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

1. In a safety-pin, fixed prong  $a$  and movable prong  $c$ , having a sharp point, and having in the rear of said point a portion of slightly less diameter, whereby a transverse stop is formed thereon, in combination with guard  $d$ , secured to said fixed prong  $a$ , said guard having slot  $d'$  therein, and having an inwardly-projecting engaging device at its open end and at one side of said slot for engaging the stop on said prong  $c$ , substantially as and for the purpose described.

2. In a safety-pin, prong  $a$ , movable prong  $c$ , having a transverse depression therein near its point, guard  $d$ , having therein slot  $d'$  inclined at an acute angle to said prong  $a$ , said guard being provided with the inwardly-extending flanges  $d^2$  at its open end, the distance between the adjacent edges of which is slightly greater than the diameter of prong  $c$  at the bottom of the depression therein and less than the diameter of said prong between said depression and its point, substantially as and for the purpose set forth.

3. In a safety-pin, a fixed prong and a movable pointed prong which near its pointed end is of two diameters, of which the greater is nearest its point, and a guard secured to said fixed prong; said guard being constructed to receive within it the portion of said movable prong which is of greater diameter, and having in its end adjacent to said prongs an opening corresponding substantially in width with that portion of said movable prong which is of less diameter, combined and operating substantially as and for the purpose set forth.

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