No. 666,735. Patented Jan. 29, 1901.

G. J. CAPEWELL.

PIN RETAINER.

(Application filed July 2, 1900.)

(No Model.)

Fig. 1

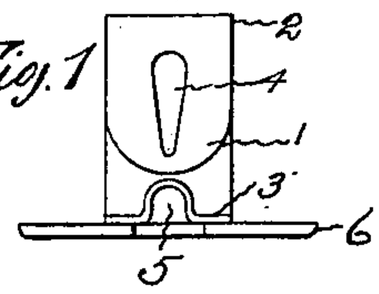


Fig. 4

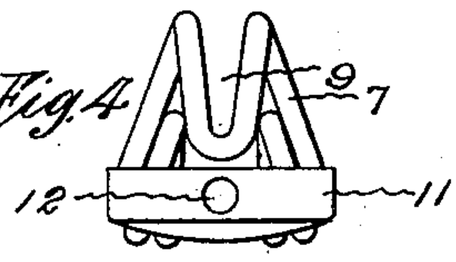
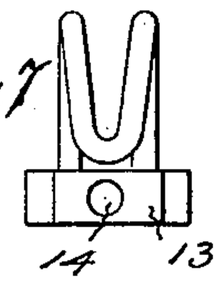


Fig. 7



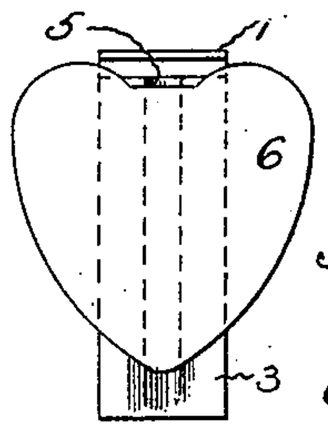


Fig. 2

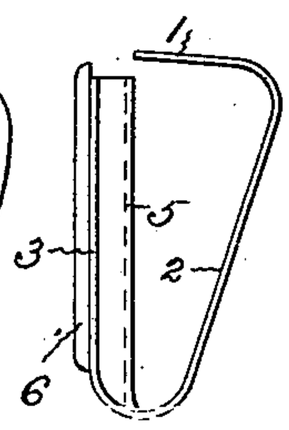


Fig. 3

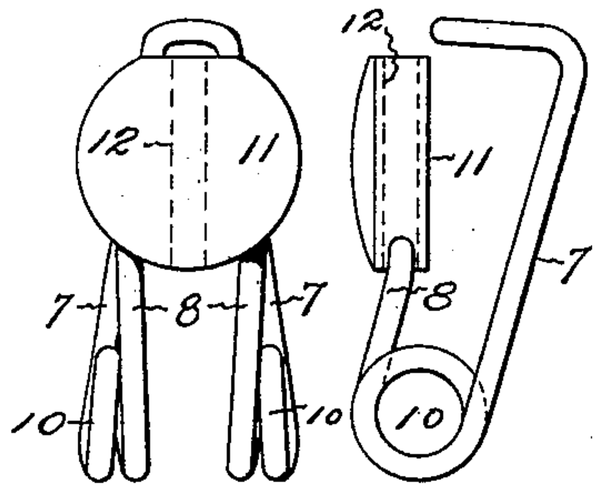


Fig. 5 Fig. 6

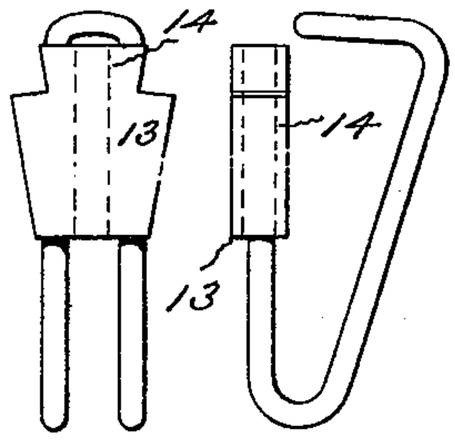


Fig. 8 Fig. 9

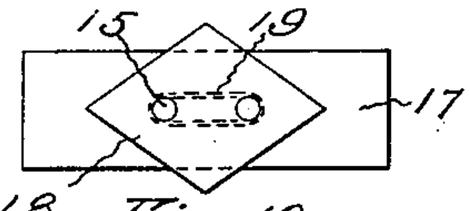


Fig. 10

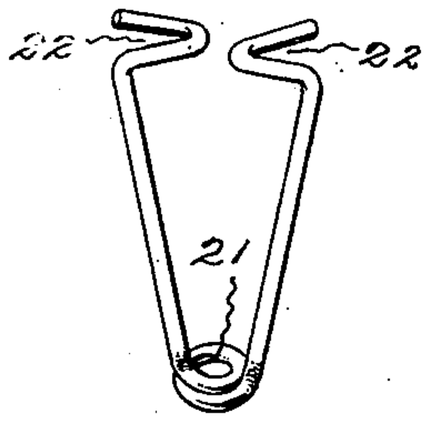


Fig. 12

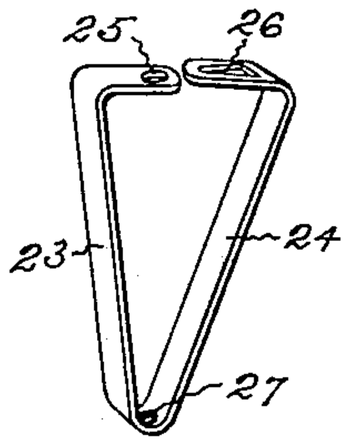


Fig. 13

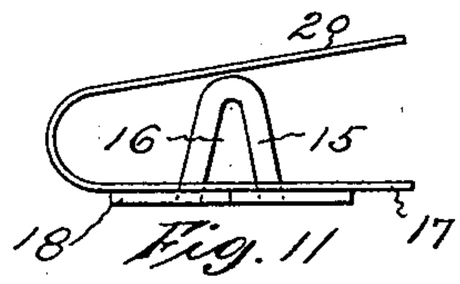


Fig. 11

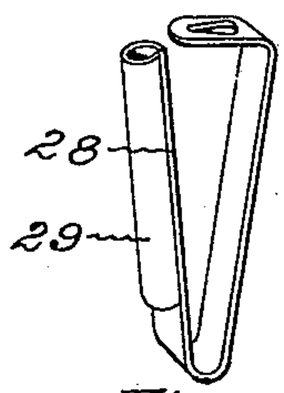


Fig. 14

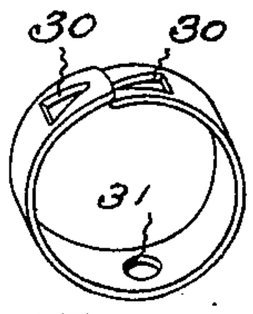


Fig. 15

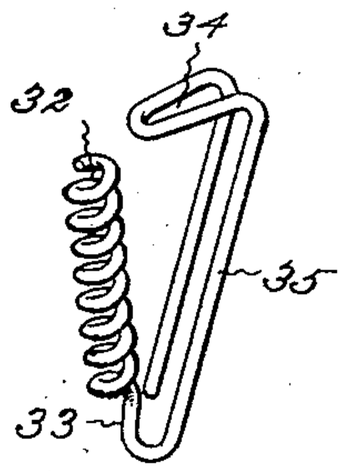


Fig. 16

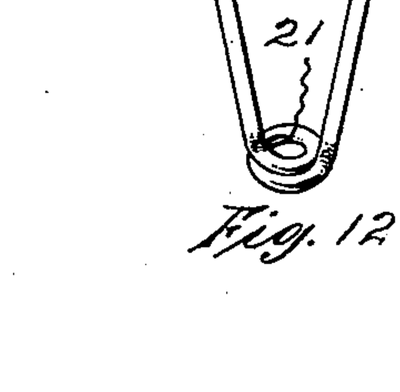


Fig. 17

Witnesses:
C. R. H. Howard.
C. E. Buckland.

Inventor:
George J. Capewell, by
Harry P. Williams,

UNITED STATES PATENT OFFICE.

GEORGE J. CAPEWELL, OF HARTFORD, CONNECTICUT, ASSIGNOR TO GEORGE J. CAPEWELL, JR., OF SAME PLACE.

PIN-RETAINER.

SPECIFICATION forming part of Letters Patent No. 666,735, dated January 29, 1901.

Application filed July 2, 1900. Serial No. 22,358. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. CAPEWELL, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Pin-Retainers, of which the following is a specification.

This invention relates to those articles which are designed to be thrust upon the shanks of valuable stick, brooch, or other ornamental pins or insignia to prevent the accidental or surreptitious removal of the pin or emblem.

The object of the present invention is to provide an automatically-gripping retainer of this nature which is cheap to manufacture, small in size, and convenient to use and which has a firm hold upon the pin when in use.

The invention resides in an article having a part with an opening that tapers in width from a size larger than to a size smaller than the diameter of the shank of the pin to be gripped and a part with an opening or openings for receiving the shank of the pin, which parts are connected in such a manner and normally thrust by a spring with such relation to each other that the shank of a pin thrust through the openings in both parts is crowded toward the smallest section of the tapering opening.

The accompanying drawings illustrate, on an enlarged scale, a number of different forms of articles that embody the invention.

Figures 1, 2, and 3 show a plan, a front, and an edge view of a retainer formed of sheet metal. Figs. 4, 5, and 6 show a plan, a front, and an edge view of a retainer formed of round wire. Figs. 7, 8, and 9 show a plan, a front, and an edge view of a retainer of round wire differently bent. Figs. 10 and 11 show a front and a plan view of a retainer formed partly of sheet metal and partly of round wire. Fig. 12 shows another form of wire retainer. Fig. 13 shows another form of retainer made from sheet metal. Fig. 14 shows another form of sheet-metal retainer. Fig. 15 shows still another form of sheet-metal retainer. Fig. 16 shows another form of wire retainer, and Fig. 17 shows still another modification of the invention.

In the form illustrated in Figs. 1, 2, and 3 a strip of spring metal is bent to U shape, and the upper end 1 of the limb 2 is bent toward the upper end of the limb 3. Through the end 1 of the limb 2 a tapering opening 4 is made, with its smaller end, which is less in width than the diameter of the shank of the pin with which the retainer is to be used, next to the upper end of the limb 3 and its larger end, which is greater in width than the diameter of the pin-shank, next the limb 2. A groove 5 is stamped in the limb 3 of this form, and when the heart-shaped finger-piece 6 is fixed to the front of this limb an opening is provided for the reception of the shank of the pin. When this form of the retainer is to be used, the two limbs are pressed toward each other by the thumb and finger until the larger part of the tapering opening in one limb is in line with the opening between the finger-piece and the other limb. With the parts in this relation the shank of the pin is thrust through the openings, and when the pressure is removed the resiliency of the metal causes the limbs to spring from each other, so that the shank of the pin is drawn by the limb 3 into the narrower section of the tapering opening in the other limb and held from movement. Any attempt to withdraw the pin from the openings causes the shank to be pulled more tightly toward the narrower end of the tapering opening, and thus increases the grip. To remove the pin, the limbs are pressed toward each other until the shank is in the larger section of the tapering opening, thus relieving it from the grip of the sides of the tapering section of the opening.

In the form shown in Figs. 4, 5, and 6 the limbs 7 and 8 are formed from a single piece of wire that is bent at the upper end of the limb 7 to provide the tapering opening 9 and that is coiled on each side 10, so as to increase the spring action between the limbs. At the upper end of the limb 8 the wire ends are connected with a circular finger-piece 11, that is provided with an opening 12.

In the form illustrated in Figs. 7, 8, and 9 the limbs are formed from a single piece of wire; but there are no coils between them, as in the form just described. In this case the finger-piece 13, that joins the ends of the wire

and has the opening 14, is in the shape of a keystone. In both of these forms the limbs are pressed toward each other until the tapering openings are in line with the openings through the finger-pieces in order to insert or remove the shank of the pin, and the elasticity of the metal tending to separate the ends of the limbs causes the shank to be crowded toward the smallest section of the tapering openings.

In the form shown in Figs. 10 and 11 instead of bending the end of one limb toward the end of the other, as in the previously-described forms, a wire 15, bent to form a tapering opening 16, is attached to the sheet-metal limb 17, that is provided with a finger-piece 18. An opening 19 is made through the limb 20 for the wire, so that the limbs may be pressed together. In this instance the limbs 17 and 20 are pressed toward each other, and the shank of the pin to be held is thrust through the tapering opening 16 back of the limb 20 in such manner that the spring-pressure of the limb 20 will force the shank into the narrowest section of the tapering opening.

In the form shown in Fig. 12 the single piece of wire is bent to make a coil 21 between the limbs. This allows the limbs the necessary spring action and provides an opening for the shank of the pin. The upper end of each limb of this form is bent toward the other and provided with a tapering opening 22. When these limbs are pressed together, the shank of a pin may be thrust through both tapering openings and the opening in the coil between the limbs, and then the resiliency of the wire will cause the shank thus located to be drawn into the smaller sections of the tapering openings and become clamped.

In Fig. 13 a strip of sheet metal is bent to form two limbs 23 and 24, and the end of each of these limbs is bent toward the end of the other. A circular opening 25 is made through the end of one limb, and a tapering opening 26 is made through the end of the other limb. With these limbs pressed together the shank of a pin may be thrust through the openings 25 and 26 and also the opening 27 at the bend between the limbs. When the pressure is relieved, the pin-shank is drawn into the narrow section of the tapering opening and clamped.

In the form shown in Fig. 14 the opening in the limb 28 is formed by bending a portion of the strip from which the limbs are made into the cylinder 29.

In Fig. 15 the limbs are shown as circular, and in the end of each is a tapering opening 30. When the limbs are pressed toward each other, the shank of a pin may be thrust through the tapering openings and through the opening 31, so that when the pressure is released the shank will be drawn into the narrower sections of the tapering openings. Only one of the openings in the ends of the limbs needs to be tapering.

In Fig. 16 the opening 32 is formed by coiling the wire of the limb 33, and the tapering opening 34 is produced by a bend in the wire that forms the limb 35.

In Fig. 17 the limbs 36 and 37 are jointed to a connecting-piece 38 and are pressed apart by the spring 39.

All of these forms have two spring-separated limbs with openings arranged to receive the shank of a pin in such manner that the spring action causes the shank of any pin thrust through the openings to be clamped by the edges of a tapering opening. With these constructions it is not necessary to have the openings provided with gripping-teeth, nor to have the shanks of the pins rough, nor to have a powerful spring. All that is necessary for clamping or unclamping a pin-retainer of any of these forms is to press the limbs so that the larger sections of the tapering openings are in line with the other openings. Each of these forms is simple to manufacture, light in weight, and small in size. All have a strong grip and are convenient to operate.

I claim as my invention—

1. A pin-retainer having a limb with a pin-receiving opening, and a limb with a tapering opening the smaller end of which is nearer the opening in the other limb, formed of resilient material and so bent that the openings are normally out of line, but may be alined, substantially as specified.

2. A pin-retainer having a limb with a pin-receiving opening, a limb with a tapering opening the smaller end of which is nearer the opening in the other limb, and a yielding connection between and normally holding the limbs with the openings out of line, substantially as specified.

3. A pin-retainer having a limb with a pin-receiving opening, and a limb with a tapering opening the smaller end of which is nearer the opening in the other limb, the said limbs yielding with relation to each other, so that the pin-receiving opening has a movement into and out of line with the tapering opening in the direction of the taper, substantially as specified.

GEORGE J. CAPEWELL.

Witnesses:
H. R. WILLIAMS,
V. R. HOLCOMB.