

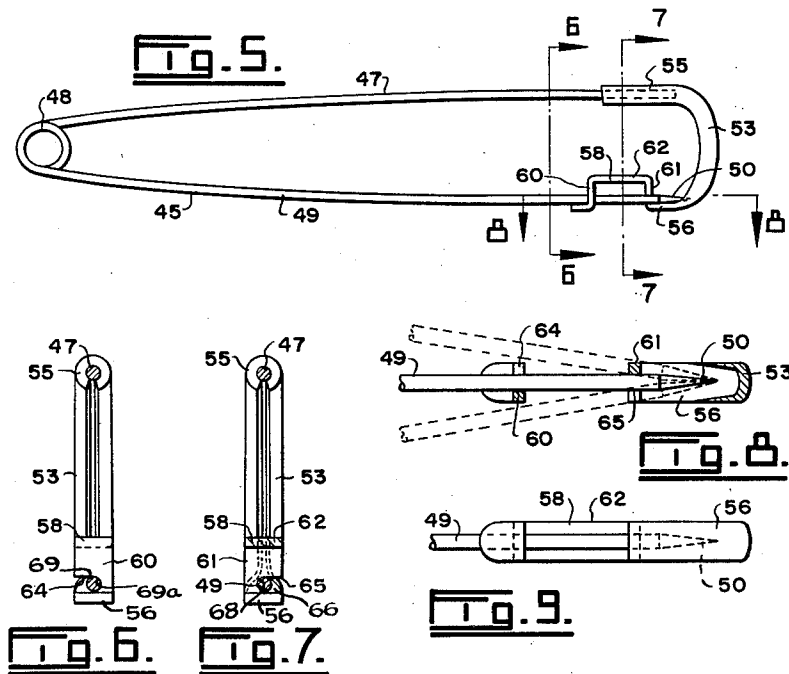
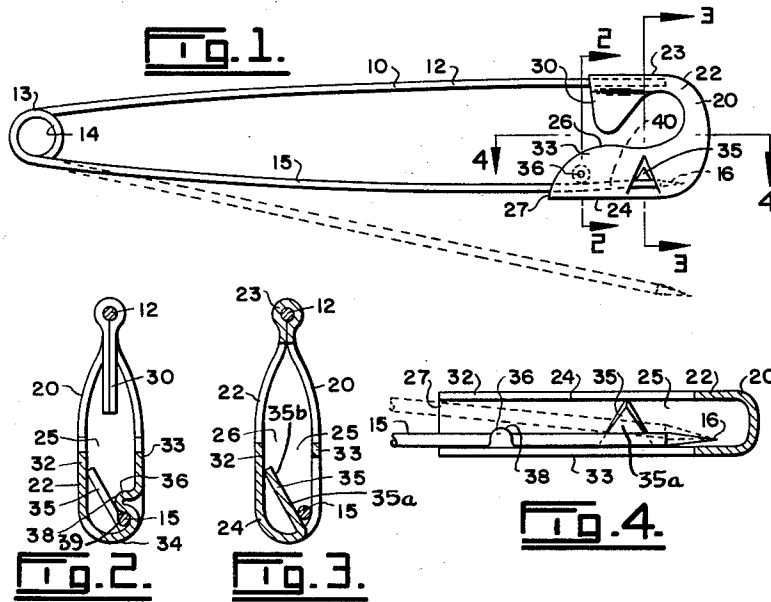
Sept. 15, 1959

A. E. PIPLACK
SAFETY PIN CLASP

2,903,773

Filed Nov. 30, 1956

2 Sheets-Sheet 1



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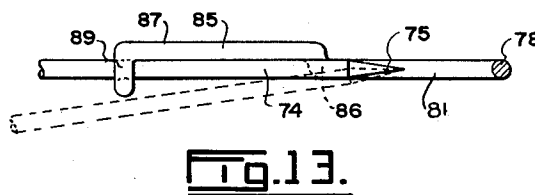
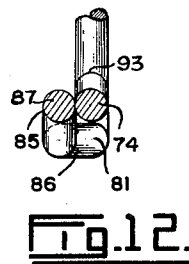
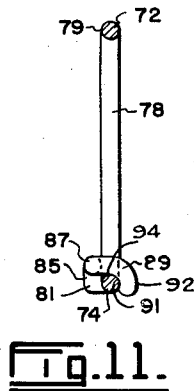
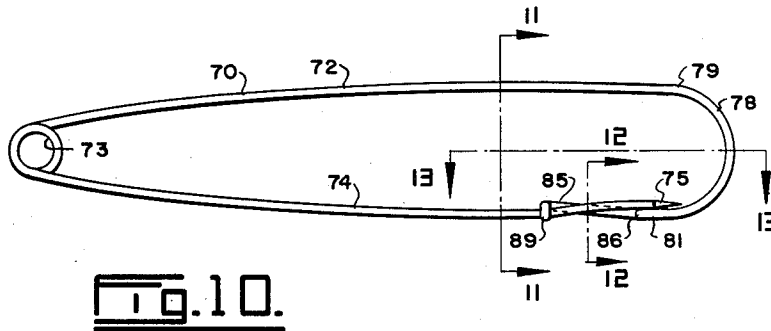
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SAFETY PIN CLASP

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18 Claims. (Cl. 24—156)

This invention relates to a clasp for safety pins.

An object of the present invention is the provision of a clasp for a safety pin which makes it practically impossible for the safety pin to come open accidentally, and yet which will not interfere with the easy opening and closing of the pin.

Another object is the provision of a safety pin having a safety clasp which is either less expensive or no more expensive than the safety pins now in common use.

It is common knowledge that the safety pin in common use is not altogether safe. In other words, these pins can and quite frequently do come open accidentally when in use. The standard safety pin has a pointed prong which fits into a channel in a guard at one end of the pin when the latter is closed. The end of the prong is moved laterally into the channel. There is, however, nothing to stop the prong from being moved back out of the channel.

The present safety pin clasp is so designed that sufficient effort must be made to bend the prong in order to get it into the closed-pin position and the prong must be bent again before the pin can be opened. This bending action takes place in a direction other than that in which the prong normally moves to and from the closed position.

The safety pin incorporating this clasp has a back with a head at one end and a pointed prong connected to its opposite foot end, said prong extending towards and overlapping part of the head and being normally resiliently urged outwardly from the back and head. The clasp itself comprises a pair of spaced lugs on the head aligned longitudinally in the direction of the foot end of the pin, said lugs being spaced apart longitudinally sufficiently to permit the prong to extend therebetween. The prong has to bend to get between the lugs so that some force and a bending action is required in order to move it into and out of position between the lugs.

Examples of this invention are illustrated in the accompanying drawings, in which,

Figure 1 is a side elevation of a safety pin with one form of safety clasp,

Figure 2 is an enlarged cross section taken on the line 2—2 of Figure 1,

Figure 3 is an enlarged cross section taken on the line 3—3 of Figure 1,

Figure 4 is an enlarged longitudinal section taken on the line 4—4 of Figure 1,

Figure 5 is a side elevation of a safety pin with an alternative form of safety clasp,

Figure 6 is an enlarged cross section taken on the line 6—6 of Figure 5,

Figure 7 is an enlarged vertical section taken on the line 7—7 of Figure 5,

Figure 8 is an enlarged longitudinal section taken on the line 8—8 of Figure 5,

Figure 9 is an enlarged edge elevation of a portion of the pin at the clasp thereof,

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Figure 10 is a side elevation of a safety pin with another alternative form of safety clasp,

Figure 11 is an enlarged cross section taken on the line 11—11 of Figure 10,

Figure 12 is an enlarged cross section taken on the line 12—12 of Figure 10, and

Figure 13 is an enlarged longitudinal section taken on the line 13—13 of Figure 10.

Referring to Figures 1 to 4 of the drawings, 10 is a safety pin which is mainly quite similar to the safety pins now in common use. This pin includes a back 12 formed of stiff resilient wire which is bent at the foot end 13 of the pin into a coil 14. This same piece of wire extends outwardly from the coil substantially parallel with back 12 to form a prong 15 having a point 16 at its free end. This pin has a head 20 at the end thereof opposite foot end 13. This head is U-shaped and in this example, the head is in the form of a U-shaped guard 22 having one side 23 connected to back 12 and an opposite side 24 which is free. In this example, the side 24 is in the form of a keeper channel 25 which opens inwardly of the pin towards the back 12 at 26 and towards the foot end of the pin at 27. The prong 15 is long enough to overlap the channel side of the head, as clearly shown in Figure 1. If desired, the pin may be provided with a guide 30 which is mounted on the head side 23 and extends towards the keeper channel 25, but terminates outwardly therefrom. The guide is relatively thin and is aligned with the longitudinal centre of the keeper channel, as shown in Figure 2. The pin described so far is the one in common use.

By referring to Figures 2 and 3, it will be seen that keeper channel 25 is formed with spaced side walls 32 and 33, said walls being connected to form a bottom 34 for the channel. Inner or first and outer or second spaced lugs 35 and 36 project inwardly from one of these walls and, in this example, they project inwardly from wall 33. By referring to Figure 1, it will be seen that these lugs are aligned longitudinally of the channel 25 in the direction of the foot end 13 of the pin.

The inner or first lug 35 is inclined from its wall 33 at or near the channel bottom across the keeper channel, see Figures 2 and 3. This inclined lug extends towards the channel opening 26. The lug may be formed by cutting a portion of the side wall 33 of the channel and pressing it inwardly, as shown. This lug has an inner surface 35a facing the pin back 12.

Outer or second lug 36 is preferably rounded at 38 see Figure 2, outwardly from its wall. This lug may be formed by pressing a small portion of the wall inwardly of the keeper channel.

In order to get prong 15 into the closed position shown in Figures 1 to 4, the free end thereof is moved into keeper channel 25 through opening 26. As the prong is depressed in the channel, it is inclined transversely thereof as shown in broken lines in Figure 4 to clear lug 36. When the free end of the prong engages the inclined lug 35, the prong tends to move laterally towards wall 33 of the channel. Sufficient force has to be applied to the prong during its movement towards the bottom of the channel to cause said prong to bend and slide around the lug 36. When the prong is in its final closed position it is bent slightly as indicated at 40 in Figure 1. The prong is trapped between the tip portion 35b and the upper surface 35a of lug 35, the lower surface 39 of lug 36 and backing wall 33.

The slope of the lug 35 retains the prong firmly against the channel wall 33, while lug 38 prevents the prong from moving towards the channel opening 26. Thus, the prong is firmly held in closed position.

In order to move prong 15 to the open position, it is necessary to apply sufficient force to bend it laterally

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towards channel wall 32 to enable it to move around lug 36. As soon as the prong clears the latter lug, it may be moved out of the channel and then shifted laterally with respect thereto. When the prong is released, it springs away from back 12 in the usual manner owing to the resiliency of the wire forming it and to the action of coil 14.

Figures 5 to 9 illustrate a safety pin 45 having a back 47, a coil 48 at the foot end thereof, and a prong 49 with a pointed free end 50. A U-shaped head 53 is provided at the end of the pin opposite its foot end. This head has a side 55 connected to back 47 and a free side 56. Most of the head is channel-shaped in cross section and opens inwardly of the pin. The free side 56 has a keeper projection 58 extending generally towards the foot end of the pin. This projection is shaped to form spaced outer or second and inner or first lugs 60 and 61 which extend towards back 47 or, in other words, extend across the plane of prong 49 when said prong is in its closed position. In this illustrated form of the invention, the projection 58 is U-shaped with the lugs 60 and 61 forming the sides of the U, while the bottom 62 of the U forms a connector extending between the lugs.

When the prong 49 is in its closed position, it extends between the lugs. It passes lug 60 on one side thereof and lug 61 on its opposite side. In order to do this, the prong must bend laterally.

Although the clasp of pin 45 may be left as just described, it is preferable to provide notches 64 and 65 in the sides of lugs 60 and 61, respectively. By referring to Figure 8, it will be seen that these notches open out from the opposite sides of their respective lugs, and they are large enough to receive prong 49. Notch 65 forms an inner surface 66 facing back 47 and a backing 68 at one side of lug 61, while notch 64 forms an outer surface 69 facing away from said back and a backing 69a on the opposite side of lug 60.

In order to get the prong into the lug notches 64 and 65, said prong must be bent sufficiently to move between the opposite edges of the lugs. As it is moved inwardly of the lugs, it slips into the aligned notches. At this time, the prong is trapped between the surfaces 66 and 69 of the two prongs and the backings 68 and 69a thereof.

Figures 10 to 13 illustrate a safety pin 70 having another alternative form of safety clasp. This pin is completely formed of wire, and it includes a back 72, a coil 73 at the foot end of the pin, and a prong 74 having a pointed free end 75. A U-shaped head 78 is provided at the end of the pin opposite the foot end thereof. This head has one side 79 integrally connected with back 72, and a free side 81. A keeper projection 85 extends generally towards the foot end of the pin. The wire forming the head side 81 and keeper projection 85 is bent laterally to form an inner or first projection 86. From this projection, the wire extends outwardly to form a connector 87, and at the outer end of the latter, the wire is bent again to form an outer or second projection 89 spaced from and extending substantially parallel with projection 86. It will be noted that connector 87 is inclined towards back 72 so that lug 89 is a little above lug 86, although these lugs are aligned longitudinally in the direction of the foot end of the pin. If desired, lug 89 may be curved longitudinally thereof to form a notch 91 within a tip 92 which opens away from back 72, see Figure 11. Lug 86 is formed with an inner surface 93 facing the back 72, and lug 89 is formed with an outer surface 94 facing away from said back. It will be noted that one end of connector 87 forms a backing at one side of the inner lug, while the tip 92 forms a backing at the opposite side of lug 89.

In order to close pin 72, the free end of prong 74 is moved over lug 86. Then the prong is bent sufficiently to enable it to move beneath lug 89 into its notch 91. The prong remains slightly bent at this time, as clearly shown in Figure 10. The two lugs prevent the prong

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from being moved inwardly or outwardly relative to the pin, while connector 87 and the free end of lug 89 prevent it moving laterally. Actually, the prong is trapped between the inner and outer surfaces of the two lugs, and the backings thereof.

In order to open pin 72, it is necessary to bend the prong sufficiently to get it out of notch 91, after which the prong may be moved laterally to clear lug 86.

While the back, foot end, and prong of each of the illustrated safety pins are shown as being of similar construction, it will be understood that these elements may be varied if desired. The main thing is that the prong and head of the pin must have a relationship similar to that described above.

What I claim as my invention is:

1. A clasp for a safety pin having a back with a U-shaped head at one end and a pointed prong connected to its opposite foot end, one side of the head U being connected to the back and the opposite side thereof being free and in the form of a keeper channel opening towards the back and foot end, said prong extending towards the channel side of the head and overlapping said channel side when in latched position, comprising inner and outer spaced lugs projecting inwardly from a wall of the head channel and aligned longitudinally of said channel, said inner lug being inclined from its wall across the keeper channel and extending generally towards the pin back, said lugs being spaced apart longitudinally sufficiently to permit the prong when moved laterally into the channel through the opening thereof to extend therebetween, said prong having to bend to get between the lugs thereby necessitating some force and a bending action to move it into and out of position between the lugs.

2. A safety pin clasp as claimed in claim 1 in which the outer lug is rounded outwardly from its wall.

3. A clasp for a safety pin having a back with a U-shaped head at one end and a pointed prong connected to its opposite foot end, one side of the head U being connected to the back and the opposite side thereof being free, said prong extending towards and overlapping the free side of the head and being normally resiliently urged outwardly from the back and head, comprising a keeper projection connected to the free side of the head and extending generally towards the foot end, said projection being shaped to form spaced lugs extending across the plane of the prong when the latter is in the closed position and aligned longitudinally in the direction of the foot end of the pin, said lugs being spaced apart longitudinally sufficiently to permit the prong to extend therebetween, said prong having to bend to get between the lugs thereby necessitating some force and a bending action to move it into and out of position between the lugs.

4. A safety pin clasp as claimed in claim 3 in which each lug has a notch in the side thereof, said notches opening out from the opposite sides of their respective lugs, and the prong fits in said notches when it extends between the lugs.

5. A clasp for a safety pin having a back with a U-shaped head at one end and a pointed prong connected to its opposite foot end, one side of the head U being connected to the back and the opposite side thereof being free, said prong extending towards and overlapping the free side of the head and being normally resiliently urged outwardly from the back and head, comprising a keeper projection connected to the free side of the head and extending generally towards the foot end, said projection being shaped to form spaced inner and outer lugs extending transversely of the pin and aligned longitudinally in the direction of the foot end of the pin, said lugs being spaced apart longitudinally sufficiently to permit the prong to extend over one side of the outer lug and the opposite side of the inner lug, said prong having to bend to get between the lugs thereby necessitating some

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force and a bending action to move it into and out of position between the lugs.

6. A safety pin clasp as claimed in claim 5 in which the outer lug is formed with a notch in the side thereof over which the prong extends for receiving said prong.

7. A safety pin with a safety clasp comprising a back having a foot and head end, a pointed prong connected to the foot end of the back and extending substantially parallel to said back, a U-shaped head having a side connected to the head end of the back and a free side, said prong overlapping the free side of the head and being normally resiliently urged outwardly from the back and head, a keeper projection connected to the free side of the head and extending generally towards the foot end of the back, said projection being shaped to form spaced lugs extending across the plane of the prong when the latter is in the closed position and aligned longitudinally in the direction of the foot end of the pin, said lugs being spaced apart longitudinally sufficiently to permit the prong to extend therebetween, said prong having to bend to get between the lugs thereby necessitating some force and a bending action to move it into and out of position between the lugs.

8. A safety pin as claimed in claim 7 in which the lugs have notches in the sides thereof, said notches opening out from opposite sides of their respective lugs, and the prong fits in said notches when it extends between the lugs.

9. A safety pin with a safety clasp comprising a back having a foot and head end, a pointed prong connected to the foot end of the back and extending substantially parallel to said back, a U-shaped head having a side connected to the head end of the back and a free side, said prong overlapping the free side of the head and being normally resiliently urged outwardly from the back and head, a keeper projection connected to the free side of the head and extending generally towards the foot end of the back, said projection being shaped to form spaced inner and outer lugs extending transversely of the pin and aligned longitudinally in the direction of the foot end of the pin, said lugs being spaced apart longitudinally sufficiently to permit the prong to extend over one side of the outer lug and the opposite side of the inner lug, said prong having to bend to get between the lugs thereby necessitating some force and a bending action to move it into and out of position between the lugs.

10. A safety pin as claimed in claim 9 in which the outer lug is formed with a notch in the side over which the prong extends for receiving said prong.

11. A safety pin as claimed in claim 10 in which the prong, back, head and projection are formed from a single piece of stiff, resilient wire.

12. A clasp for a safety pin having a back with a head at one end and a pointed prong connected to its opposite foot end, said prong extending towards and overlapping part of the head when in latched position and being normally resiliently urged outwardly from the back and head, comprising a first lug on the head, a second lug on the head spaced from the first lug longitudinally in the direction of the foot end of the pin, said lugs being spaced apart longitudinally sufficiently to permit the prong to extend therebetween, said first lug having an inner surface facing the pin back and the second lug having an outer surface facing away from the back, a backing at one side of the first lug, said first lug being free at the opposite side thereof, and a backing at the side of the second lug opposite the backing of the first lug, said second lug being free at its opposite side, the prong when the pin is closed being positioned against the first lug inner surface and the second lug outer surface and trapped therebetween and between the two backings, whereby said prong has to be bent in one direction and then displaced in at least one other direction during movement to an open position.

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13. A clasp for a safety pin having a back with a shaped head at one end and a pointed prong connected to its opposite foot end, one end of the head U being connected to the back and the opposite end thereof being free, said prong extending towards and overlapping the free side of the head when in latched position and being resiliently urged outwardly from the back and head, comprising a first lug on the free end of the head, a second lug on the free end of the head spaced from the first lug longitudinally in the direction of the foot end of the pin, said lugs being spaced apart longitudinally sufficiently to permit the prong to extend therebetween, said first lug having an inner surface facing the pin back and the second lug having an outer surface facing away from the back, a backing at one side of the first lug, said first lug being free at the opposite side thereof, and a backing at the side of the second lug opposite the backing of the first lug, said second lug being free at its opposite side, the prong when the pin is closed being positioned against the first lug inner surface and the second lug outer surface and trapped therebetween and between the two backings, whereby said prong has to be bent in one direction and then displaced in at least one other direction during movement to an open position.

14. A safety pin with a safety clasp comprising a back having a foot and head end, a pointed prong connected to the foot end of the back and extending substantially parallel to said back, a head connected to the head end of the back, said prong overlapping part of the head when in latched position and being normally resiliently urged outwardly from the back and head, a first lug on the head, a second lug on the head spaced from the first lug longitudinally in the direction of the foot end of the pin, said lugs being spaced apart longitudinally sufficiently to permit the prong to extend therebetween, said first lug having an inner surface facing the pin back and the second lug having an outer surface facing away from the back, a backing at one side of the first lug, said first lug being free at the opposite side thereof, and a backing at the side of the second lug opposite the backing of the first lug, said second lug being free at its opposite side, the prong when the pin is closed being positioned against the first lug inner surface and the second lug outer surface and trapped therebetween and between the two backings, whereby said prong has to be bent in one direction and then displaced in at least one other direction during movement to an open position.

15. A safety pin as claimed in claim 14 in which the head is U-shaped, one end of the head being connected to the back and the other head side being free, and the prong overlapping the free end of the head when in latched position and the lugs projecting from said free end.

16. A safety pin as claimed in claim 15 in which the free end of the head is in the form of a keeper channel opening towards the back and the foot end thereof, the prong end is movable into and out of said channel and the lugs are arranged as inner and outer lugs and project inwardly from a wall of the channel.

17. A safety pin as claimed in claim 16 in which the inner lug is inclined from its wall across the keeper channel and towards the channel opening.

18. A safety pin as claimed in claim 17 in which the surface of the outer lug is rounded.

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