

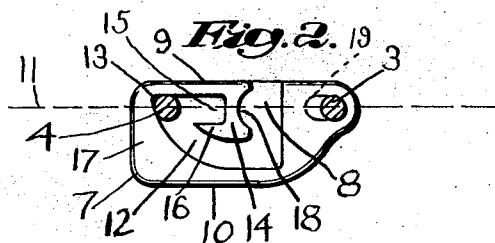
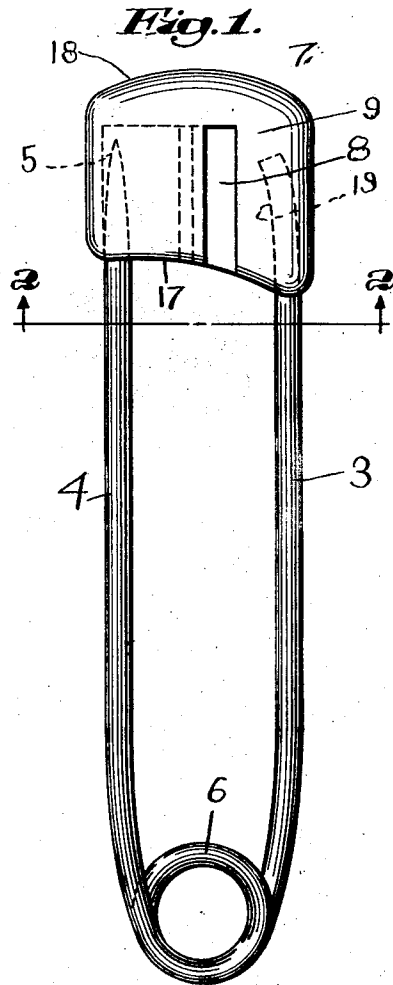
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FASTENING DEVICE FOR SAFETY PINS AND OTHER PINS

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## UNITED STATES PATENT OFFICE

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FASTENING DEVICE FOR SAFETY PINS  
AND OTHER PINS

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3 Claims. (Cl. 24—156)

This invention relates to pins, such as safety pins, jewelry pins and the like which comprise a body element and a pin element resiliently attached to the body element and movable toward and from the latter together with a fastening device co-operating with the point of the pin element for holding the pin closed and shielding the point and, particularly to the fastening device.

In order to give an understanding of the invention I have shown it herein as it would be applied to a safety pin, but I desire to state that the improved fastening device is equally applicable for use in connection with pins of other types such as jewelry pins and the like.

A primary object of the invention is to provide a novel fastening device for a pin which is so constructed that the danger of the pin's becoming accidentally opened when in use is reduced to a minimum.

The safety pin now in common use is made with a back leg and a pointed front leg connected at one end to the back leg by a spring coil that is integral with both legs and which provides a resilient connection between said legs, and is also provided with a point-shielding head at one end constructed to receive and shield the point of the pin when the latter is closed, but the construction is such that when the front or pointed leg of the pin is subjected to pressure toward the back leg the point of the pin will become disengaged from its shield, and when the pressure is released the point is very likely to move into an open exposed position instead of back into the shield.

It sometimes happens that when a safety pin of this known type is being used, especially as a diaper pin, some movement of the child may result in applying a pressure to the front or pointed leg of the pin sufficient to disengage it from its shield and a subsequent movement of the child will relieve this pressure. As stated above, when the pressure is thus relieved the point of the pin is apt to move into an open or unprotected position, a condition which is dangerous for the child.

It is, therefore, a further object of my invention to provide a novel safety pin in which the pointed end cannot be disengaged from its shield merely by pressing the front or pointed leg toward the back leg, but only by giving said pointed leg a peculiar movement which would never be accidentally given to it while in use.

A further object of the invention is to provide a fastening device for pins having various novel

features which will be more fully hereinafter set forth and then pointed out in the claims.

In the drawing wherein I have illustrated a selected embodiment of my invention,

Fig. 1 is a side view of a safety pin embodying the invention.

Fig. 2 is a section on the line 2—2, Fig. 1 looking toward the head.

The pin herein illustrated comprises the usual body member or back leg 3 and front leg 4 which is provided with the pointed end 5. The back leg and front leg are shown as being formed from a single piece of wire bent into the proper shape and also so bent as to provide the loop or coil 6 which constitutes a resilient connection between the legs adapted normally to move the legs away from each other, and to resiliently resist sidewise movement of the front leg 4 with respect to the back leg 3, said coil normally tending to hold the front leg in the plane indicated by the dotted line 11, Fig. 2 as it moves toward and from the back leg.

Carried by the end of the back leg 3 is the fastening device or head 7 involving my invention and adapted to receive and shield the point 5 of the leg 4. This head 7 may be made of any suitable material, such as metal or plastics, and it is rigidly attached to the end of the back leg 3 in such a way that said plane, indicated by the dotted line 11, Fig. 2, is situated between the opposite side faces 9 and 10 of said head. Said head 7 is formed with an entering slot 8 which extends from the side face 9 thereof transversely toward the opposite side wall 10, across the plane 11 and to a position beyond said plane. The inner end of this entering slot 8 communicates with a passage 12 which extends from the inner end of said slot away from the back leg 4 and which terminates in a seat 13 situated in said plane 11 but spaced a proper distance from the entering slot 8. The portion 14 of the head 7 between the entering slot 8 and the passage 12 is formed with a recess 15 which is situated in the plane 11 and communicates with said seat 13, the depth dimension (the dimension from the mouth or open end to the bottom) being parallel to the plane 11 and in a direction at right angles to the slot 8. The formation of this recess provides a protective beak 16 which forms one wall of the recess 15, the outside surface of the beak also constituting one wall of the passage 12. The entering slot 8, the passage 12 and the recess 15 are all open at the inner end 17 of the

head 7 and extend from said inner end 17 well toward the outer end 18.

When the pin is to be closed the pointed end 5 of the front leg 4 is entered into the entering slot 8 and is moved therein against the resiliency of the coil 6 from the open end of the slot across the plane 11 and to the inner end of said slot when it communicates with the passage 12. The movement of the front leg 4 toward the back leg 3 sufficiently to permit the pointed end of the pin to enter the slot 8 will subject the spring connection 6 to increased tension and as soon as the pointed end of the pin has been moved from the open end of the slot 8 to its inner end and the pressure on the front leg is released the resilient action of the spring 6 will cause the front leg to move away from the back leg and to be carried through the passage 12 to the seat 13 at the outer end thereof.

The passage 12 is preferably curved as shown best in Fig. 2 so that when the pressure on the front leg is released after the pointed end thereof has been carried to the inner end of the slot 8, the normal tendency of the coil 6 to bring the front leg into the plane 11 and to move it away from the back leg will carry said pointed end through said passage 12 into its position of rest against the seat 13 and in the plane 11. It has been stated that the head 7 is rigid with the back leg 3 and, therefore, the natural tendency of the two legs 3 and 4 is to assume some position relative to each other in the plane 11.

If after the pin has been closed as shown in the drawing the front leg 4 should be subjected to pressure tending to move it toward the back leg, such pressure will merely carry the point of the pin from its seat 13 into the recess 15 where the pin point is still locked in the head and is protected.

As soon as this pressure has been relieved, the resiliency of the spring 6 will move the pointed end 5 back into the position shown in the drawing.

My improved pin, therefore, will not become opened by reason of any pressure applied to the front leg 4 which moves said leg toward the back leg 3.

If, however, when the pin is in use the front leg 4 is subjected to pressure in an angular direction relative to the plane 11 which would cause the point 5 of the pin to move through the passage 12, the pointed end 5 will still be protected because it can only be disengaged from the head by an additional movement transverse to the plane 11 sufficient to carry it out from the entering slot 8. Hence even if the pressure to which the pin is subjected while in use is sufficient to carry the pointed end into a position at the junction of the entering slot 8 and the passage 12, yet when such pressure is released the resiliency of the pin will immediately return the pointed end of the pin through the passage 12 to its seat 13.

As an added safety feature the portion 14 of the head between the entering slot 8 and the passage 12 is formed with a second recess 18 on the side thereof opposite the recess 15 which second recess opens into the entering slot 8. The construction of these safety pins is such that the legs 3 and 4 always normally assume positions in the plane 11 in which said legs are located, and as the head 7 is rigid with the back leg 3 the entering slot 8 will always have a position at right angles to said plane and the recesses 15 and 18 will always be in said plane.

If the pointed end of the pin is moved from its position shown in the drawing into a position at the inner end of the entering slot 8 and then is allowed to move laterally, it will by its own resiliency move into a position in the plane 11 and if the front leg is then relieved of pressure it will tend to move away from the back leg in said plane and will become engaged in the second recess 18 in which position the point of the pin is still protected and the pin is held closed.

In order to open the pin it is necessary to force the front leg 3 laterally beyond the plane 11 sufficiently to carry it out from the open end of the slot 8. This operation of opening the pin, therefore, requires that the front leg 4 should be given a peculiar movement first in a direction to carry it through the passage 12 and then in a lateral direction sufficient to carry it past and through the plane 11 and out of the open end of the slot 8. This peculiar movement is one which it is extremely unlikely would ever be given to the front leg 3 accidentally while the pin is in use.

The head 7 can be rigidly secured to the back leg 3 in any approved way, and as herein shown the end 19 of the leg 3 is embedded in said head.

While the invention is capable of use with any pin of the safety type, yet it is of special importance in connection with a diaper pin because of the elimination of the danger involved in the accidental opening of such a pin when in use.

My improved fastening device is also adapted for use in pins of other types than safety pins, such as jewelry pins, barrettes, etc., which comprise a body member and a pin element resiliently connected at one end thereto to swing toward and from the body element for opening and closing the pin, and therefore I do not wish to be limited in the use of the invention to safety pins.

I claim:

1. A safety pin having a back leg and a front leg connected at one end by a spring coil that is integral with both legs, the free end of the front end being pointed, a point-shielding head rigid with the free end of the back leg, said spring coil normally maintaining the two legs in a plane situated between the opposite side faces of the head, said head having an entering slot extending transversely thereof from one side face toward the opposite side face and across and beyond the said plane of the two legs, and also having a passage leading laterally from the inner end of said slot in a direction away from the back leg and terminating in a seat located in said plane and adapted to receive the pointed end of the front leg when the pin is closed, said pointed end being yieldingly held against said seat by the spring coil, the portion of the head which separates the slot from the passage being formed with a recess situated in said plane and communicating with said seat.

2. A safety pin having a back leg and a front leg connected at one end by a spring coil that is integral with both legs, the free end of the front leg being pointed, a point-shielding head rigid with the free end of the back leg, said spring coil normally maintaining the two legs in a plane situated between the opposite side faces of the head, said head having an entering slot extending transversely thereof from one side face toward the opposite side face and across and beyond the said plane of the two legs, and also having a curved passage leading laterally from the inner end of said slot in a direction

away from the back leg and terminating in a seat located in said plane and adapted to receive the pointed end of the front leg when the pin is closed, said pointed end being yieldingly held against said seat by the spring coil, the portion of the head which separates the slot from the passage being formed with a recess which is situated in said plane and communicates with said seat and the depth dimension of which is at right angles to said entering slot.

3. A safety pin having a back leg and a front leg connected at one end by a spring coil that is integral with both legs, the free end of the front leg being pointed, a point-shielding head rigid with the free end of the back leg, said spring coil normally maintaining the two legs in a plane situated between the opposite side

5 faces of the head, said head having an entering slot extending transversely thereof from one side face toward the opposite side face and across and beyond the said plane of the two legs, and also having a passage leading laterally from the inner end of said slot in a direction away from the back leg and terminating in a seat located in said plane and adapted to receive the pointed end of the front leg when the pin is closed, 10 said pointed end being yieldingly held against said seat by the spring coil, the portion of the head which separates the slot from the passage being formed on one side with a recess situated in said plane and communicating with said seat and on the other side with a recess also situated 15 in said plane but communicating with said slot.

DONALD H. WHITE.