

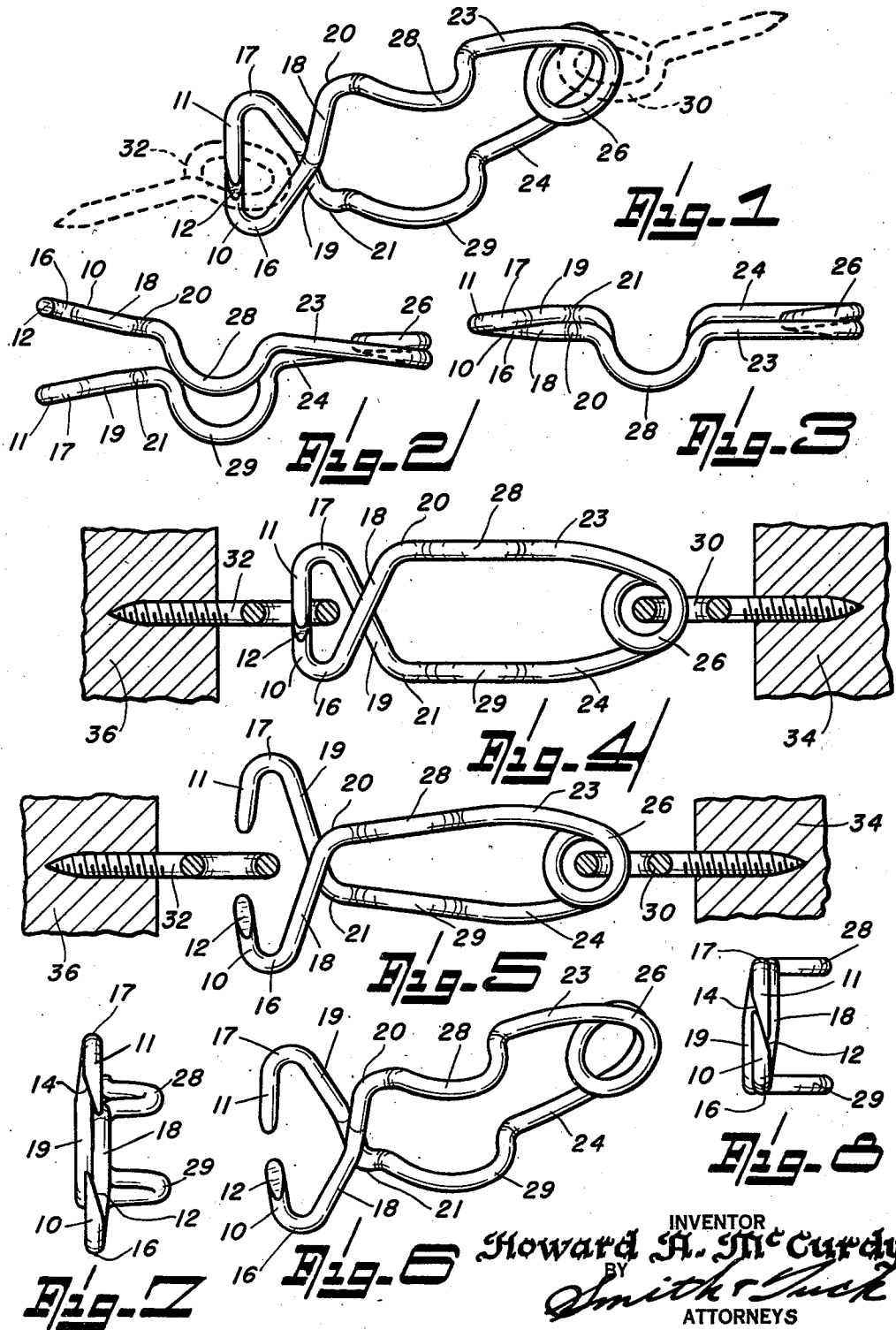
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RESILIENT SAFETY LATCH

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RESILIENT SAFETY LATCH

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My present invention relates to the art of latch or securing devices and more particularly to a resilient safety latch.

Essentially, my invention consists of a hook, made of spring wire, that is provided with two jaw members which are normally held in close contact with each other, and in their closed position, by the resiliency of the spring wire of which the device is made. The leg portions of my jaw members are deformed to provide finger engagement portions so arranged as to allow a reasonable area for the fingers to engage in order that sufficient pressure can be applied to overcome the rather strong spring action of the device. This deformation of the finger engagement portions prevents slipping of the same, particularly when considerable pressure is used. It is the intention of my present invention to make my device of reasonably heavy spring wire; so heavy in fact, that a small child could not operate the same. Therefore, it becomes an excellent locking means for gates, screen doors, and the like which are to be guarded against child operation.

My latch arrangement is particularly adapted for screen doors and the like due to the fact that a positive engagement is obtained, and no amount of vibration or deflection as by wind and the like can possibly disengage the catch. Normally, my catch is secured at one end by a screw eye which may be considered part of the catch, and is normally adapted at the other end to engage a screw eye. It has been found from experience that there are many places where vibration or wind action tends to loosen the average clasp, catch, or latch. Under such conditions, my device provides a secure and positive solution of the lock problem. It also provides a real measure of security against opening of the latch from the outside. This often happens to the average screen door lock when a thin-bladed instrument is inserted between the door jamb and the door, and the latch raised so as to disengage it. With my present device, however, such an action is definitely impossible. I have found my device particularly desirable in places where machinery causes vibration as in factories, manufacturing plants, or on vehicles of various types—trains, airplanes, and especially on boats where there is invariably a constant vibration due to the movement of the propelling methods. It is believed that many other uses will occur to persons who have encountered the difficulty of providing a quickly releasable latch under conditions where vibration maintains.

The principal object in my present safety catch is, therefore, to provide a simple, cheaply constructed catch that will provide a firm, safe, latch which, because of the materials used in its construction and its simplicity of form, can be expected to give long years of useful service without failure.

A further object of my present invention is to provide a safety catch which does not admit of being opened from the side presented to bar entry.

A further object of my invention is to provide a safety catch that is not affected by vibration and which no amount of vibration can unlock.

A further object of my invention is to provide initial tension in the device that tends at all times to keep the jaws set tightly together along their length, and at times to provide definite tension at all times to keep the jaws closed in the direction of the axis of the jaw members proper.

A further object of my invention is to provide convenient finger engaging portions which will permit of considerable pressure being distributed over a fairly large area so that, in turn, the fingers will not slip off the latch when the relatively heavy pressure required to operate the heavy spring tension is applied.

Other and more specific objects will be apparent from the following description taken in connection with the accompanying drawing wherein

Figure 1 is a perspective view of my safety catch proper.

Figure 2 is a top plan view of my safety catch before the same is fully assembled showing the direction in which the spring tension acts until the jaws are properly interlocked. There is a decided tendency to spread them apart. This same tension, when the jaws of the latch are properly engaged, tends to hold them transversely in tight engagement.

Figure 3 is a top plan view of my safety catch similar to Figure 2 but with the jaws interlocked in the position in which they are normally disposed for operation.

Figure 4 is an elevation of my safety catch showing the same as secured to the screw eyes normally used to facilitate adapting the device to various uses.

Figure 5 is a view taken in the same sense as Figure 4 but showing the safety catch with the jaws opened.

Figure 6 is a perspective view taken in the same general sense as Figure 1, but showing the jaws opened.

Figure 7 is an end view of my safety catch with the jaws opened.

Figure 8 is an end view taken in the same sense as Figure 7 but with the jaws closed to show the overlapping of the jaws, and the tapering of the points which insures proper and secure operation of the device.

Referring to the drawing throughout which like reference characters indicate like parts 10 and 11 designate, respectively, the two jaw members of my safety catch. These I prefer to form after the showing of the accompanying drawing in which one side follows the normal contour of the relatively heavy wire of which the device is made and is rounded naturally. The other side I prefer to flatten so as to provide the two engaging surfaces as 12 and 14 respectively; the angle of these two surfaces to be complementary so that they will permit the jaws to close with an overall thickness substantially equal to the diameter of the wire from which the device is made. The jaw portions themselves are made from straight portions of wire as is probably best noted in Figure 4. These straight portions each terminate in a rather sharp bend illustrated at 16 and 17, which bends are then followed in turn by the angularly disposed crossed legs 18 and 19. These legs are joined by curves at 20 and 21 to the divergently tensioned side bars 23 and 24. These side bars may be of whatever length is found best, but normally they must be of a sufficient length so that, considering the size of wire from which the device is made, the fingers of one hand of an adult will be sufficient to spring them enough to permit the opening after the showing, particularly of Figure 5. The two side members, 23 and 24, merge into the coil portion or tensioned helical twist spring 26. Throughout the drawing I have shown one full turn in this coil. It will be apparent, it is believed, that any reasonable number of turns might be employed—this being a matter that will be governed largely by the weight of materials used in the device, as the greater number of turns employed at this point, the heavier can be the wire and still be capable of operation by the fingers of one hand. In some instances the coil may be omitted.

Inasmuch as one of the outstanding advantages to be accomplished in my device is to provide a safety catch that will not permit of operation by a small child, considerable pressure should be required to open the jaws. To accomplish this, definite means are provided to give a position where the finger and thumb of one hand can grasp the wire and expend considerable pressure on it without discomfort. To this end I have found it most desirable to bend the side members 23 and 24 after the showing, of Figures 1, 2, and 3 in which the bends are provided at 28 and 29. These bends provide an increased area for the application of pressure and, because of their shape, provide a plane which prevents the slippage of the device on the fingers and thumb and thus permits considerable pressure to be applied without any danger of the wire pressing too deeply into the flesh of the finger and thumb. Following out this general principle, it is desirable that the two bends be directed over each other, as is probably best illustrated in Figure 3.

In order to insure that the two jaws will, laterally, be in secure engagement, I normally construct my catch with an outward spring tension as is illustrated in Figure 2 and then, by de-

pressing the side members 23 and 24, one jaw member is slipped in behind the other jaw member so that the slanting portions 18 and 19 will at all times be pressed tightly together. This will then insure the accurate engagement of the jaw engaging surfaces 12 and 14.

While my safety catch lends itself to a variety of uses and attaching means, one very convenient and useful arrangement is to provide a screw-eye in the loop provided by coil 26, as is illustrated at 30. The opposite, or jaw end, of my safety catch may likewise engage in any suitable loop or opening as, for instance, the screw eye shown at 32.

In using my safety catch one screw-eye, as 30 for instance, is secured to one member 34 and the opposite screw eye 32 is secured to another member 36, it making no material difference which of the two is the movable one. Then, when it is desired to engage or disengage screw-eye member 32, the fingers and thumb engage respectively the opposite bends 28 and 29, and by pressure thereon the jaws are separated as illustrated in Figures 5, 6, and 7. At this point engagement is readily effected. When the pressure is released the spring tension in coil 26, and to a degree in the side members 23 and 24, again seats the jaw members tightly after the showing of Figures 1, 4, and 8. In this arrangement it will be noted that the jaw members 10 and 11 overlap so that they offer a structure substantially as strong as the wire from which the device is made. This arrangement has been found very satisfactory for the securing of screen doors, gates, and particularly doors and ventilators on boats; as, by having a plurality of screw-eyes 32, the movable member—assuming screw-eye 31 to be secure therein—may be adequately held in a number of adjusted positions and even though it be subjected to slamming as by rolling of a boat, or by vibration, or wind action, the safety catch cannot be dislodged therefrom. This is quite the opposite of experience with the average hook used in so many instances for this purpose. Many uses will be observed for such a catch, particularly in package arrangements where the hooks may have to operate in any position; whereas the normal hook, if inverted, is apt to loosen and disengage, such an action is not at all possible with my present invention.

The foregoing description and the accompanying drawing are believed to clearly disclose a preferred embodiment of my invention, but it will be understood that this disclosure is merely illustrative and that such changes in the invention may be made as are fairly within the scope and spirit of the following claims.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A resilient latch formed of wire comprising a pair of divergently tensioned side bars which are spaced apart and bent to extend across each other, and gripping jaws formed on the ends of the said crossed-over side bars and adapted to rest together in overlapping relation opposite to that of the crossed-over side bars to form a latching loop.

2. A resilient latch formed of wire comprising a pair of divergently tensioned side bars which are spaced apart and bent to extend across each other, said side bars also being tensioned to cause the crossed-over portions to press against each other, and gripping jaws formed on the ends of said crossed-over side bars and adapted to rest

together in overlapping relation opposite to that of the crossed-over side bars to form a latching loop.

3. A resilient latch formed of a single piece of wire comprising a helical twist spring, a pair of side bars each extending tangentially from opposite ends of said spring complementary to and spaced apart from each other, a lateral bend on each side bar, said side bars being bent to extend across each other and so tensioned as to press 10

against each other, and gripping jaws on the ends of said crossed-over side bars, said jaws being beveled on the side opposite the sides of the crossed-over portions that are pressed together, said jaws being adapted to rest together with the beveled faces lying together in overlapping relation opposite that of the crossed-over side bars to form a latching loop.

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