

Nov. 13, 1928.

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SNAP HOOK

Filed Sept. 9, 1926

1,691,111

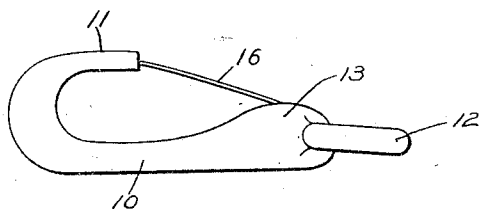


Fig. 1.

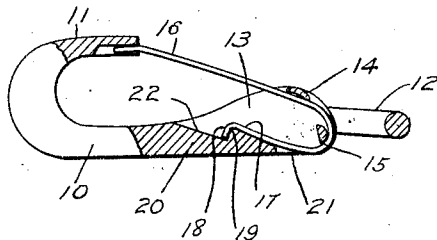


Fig. 2.

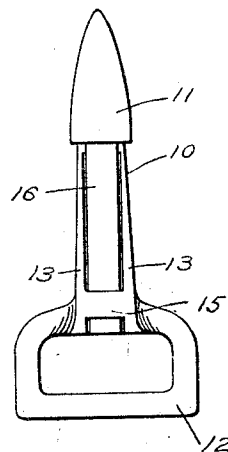


Fig. 3.

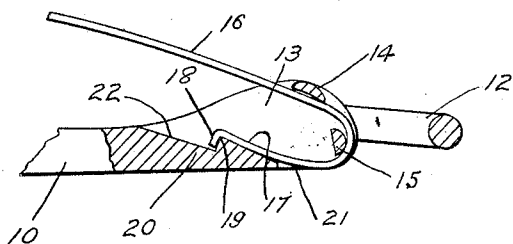


Fig. 4.

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SNAP HOOK.

Application filed September 9, 1926. Serial No. 134,471.

This invention relates to improvements in snap hooks of the spring tongue type in which a bent strip of spring metal is secured in the body of the snap hook and has a tongue which presses resiliently against the hooked end or nose of the hook, and is adapted to be pressed away from the nose to permit the connection of the hook with, and its disconnection from a ring or other member.

The bodies of these hooks are usually made of malleable castings, and it has been usual in the manufacture thereof to cast the bodies with small lugs or parts which, after the spring has been placed in the body, are bent from the position in which they are formed in casting to a position to secure the spring in position and prevent its disconnection from the body of the hook. The molding or casting of the body in this way with portions which afterward have to be bent into their final spring-securing position results in a very large percentage of loss in manufacture. The portions which have to be bent after casting are ordinarily made of smaller cross section than the adjacent parts of the device in order to properly define the bending points and facilitate the bending of these parts without undue distortion or deformation of the other parts of the body. Furthermore, the lugs or parts which require to be bent to secure the spring in place are objectionable in that they detract from the neat appearance of the snap hooks and result in the formation of projections or parts which are apt to mar, chafe or catch on the harness or objects with which the hooks contact in use.

One object of the invention is to provide a practical or desirable snap hook which will be strong and durable, which overcomes the above stated objection in manufacture, and which can be made with the minimum labor and economically, and is free from parts which have to be bent from the positions in which they are originally formed.

Other objects of the invention are to provide a spring tongue snap hook in which the spring is adapted to be readily inserted into position in the device, and securely fastened against unintentional displacement without necessitating the bending or deformation of parts of the body of the hook, and is of such construction that while the spring cannot become accidentally displaced in the use of the hook, nevertheless it can be readily removed in the event that the spring should be broken

or become so weak as not to bear firmly against the nose of the hook and effectually prevent the disengagement of the hook from the ring or other part with which it is engaged; also to provide a snap hook in which the cheeks or side walls at the inner end of the body are permanently connected and strengthened by an integral cross bar around which the bent spring passes and also by an integral cross wall or portion which is located above the bent portion of the spring and prevents the disengagement of the spring in the use of the device; also to make these parts of such relative form and disposition that the hook body can be readily molded and the spring can be inserted into place without liability of damage to the spring; and also to provide a snap hook with a smooth, continuous back which extends nearly to the inner end of the body of the hook so as to strengthen the body and enhance the appearance of the hook, and at the same time eliminate lugs or projections which are apt to wear or catch on the harness or parts with which the hook may contact or rub against in use.

In the accompanying drawings:

Fig. 1 is a side elevation of a snap hook embodying the invention.

Fig. 2 is a side view, partly in longitudinal section and partly in elevation, of the snap hook.

Fig. 3 is a plan view thereof.

Fig. 4 is a fragmentary, longitudinal, sectional elevation thereof on an enlarged scale.

10 represents the body of the snap hook, which, as usual, consists of a malleable casting provided at one end with a hook or curved nose portion 11, and preferably has at the opposite or inner end the usual strap loop 12 by which the snap hook is adapted to be secured to a strap, chain or the like. At its inner portion, the body of the hook is provided with spaced side walls or cheeks 13 which form between them a cavity in which the bent inner end of the spring is confined, and which are connected above or in front of said inner portion of the spring by a transverse wall or portion 14 which is formed integrally with and permanently connects the cheeks. The spring is of substantially U-shape, comprising two arms or portions 16 and 17 connected by a bent or curved portion. The bent portion of the spring passes around a spring stop preferably in the form of a cross bar 15 connecting the cheeks, and the arm 16 which forms the

spring tongue extends outwardly beneath the transverse wall 14 with the free end of the tongue adapted to bear against the inner end of the nose of the hook, which, as usual, is recessed to form a seat for the free end of the spring tongue. The short arm 17 of the spring is provided with a rearwardly turned extremity or hook 18 which hooks over a transverse stop or shoulder 19 on the front side of the back wall 20 of the body. The engagement of the hooked end 19 of the spring with this shoulder 18 prevents inward movement of the spring in the body and prevents the spring from being forced out through the opening between the transverse wall 14 and the inner end of the back wall. The spring can be readily placed in position in the body by inserting the two arms of the spring through the open, inner end of the body above and below the cross bar 15 and shoving the spring forwardly while depressing the spring tongue until the free end of the tongue engages beneath the nose of the hook and the hooked end 18 of the lower arm 17 of the spring snaps over the shoulder 19 on the back of the body, thereby retaining the spring in position.

It will be noted that the cross bar 15 around which the spring passes is of comparatively small cross section, being decidedly smaller than the internal diameter of the bend of the spring, and is located substantially at the inner rear corner of the body and well spaced from the inner end of the back or bottom wall of the spring cavity, so that a space or opening 21 is left between the cross bar and the inner end of the back wall sufficient to permit of the ready insertion of the hooked short arm of the spring through this space without undue deflection or bending of the arm. The shoulder 19 with which the hooked end of the short arm of the spring engages is located forwardly from the inner end of the back wall of the body, and the front face of the back wall preferably slopes gradually upwardly and forwardly to said shoulder, so that when inserting the spring, the hooked end thereof will readily slide forwardly on this inclined face of the back wall and snap over the securing shoulder with only a moderate deflection of the short arm of the spring. The front face of the back wall also preferably slopes upwardly, forwardly of the shoulder 19; as indicated at 22. The inclined face 22 facilitates the engagement of a pointed tool with the hooked end of the spring for disengaging it from the shoulder 19. It will also be noted that the cross wall or portion 14 above the bent portion of the spring is well spaced away from the cross bar 15, and it does not overhang or extend inwardly over the cross bar 15. This leaves a clearance between these parts such that the pattern for the body can be properly drawn from the mold, and it is not necessary to use a core in casting the body.

By the construction described, the spring is held securely in place in the body, and the possibility of its accidental displacement is precluded. The cross bar 15 prevents forward movement and the shoulder 19 rearward displacement of the spring. While the attaching end of the spring is securely anchored against displacement, nevertheless the tongue and the bent portion of the spring are free to deflect practically from the point of bearing of the hooked end of the short arm on the shoulder 19, and since the bent part of the spring more or less loosely embraces the cross bar 15, the spring has the maximum length of free portion adapted to deflect in the use of the snap hook. While the spring is thus securely and firmly retained in position, and the upper transverse wall or portion 14 prevents the disengagement of the spring tongue from the nose of the hook by the pull of a ring or other member outwardly against the inner side of the tongue, nevertheless, the spring can be readily inserted into position in the body without deflecting the short arm of the spring enough to break or impair the resilience of the spring. However, if it should be necessary for any reason, such as the loss of resiliency of the spring, so that the tongue does not press firmly against the nose of the hook, the spring can be removed for replacement by a new spring simply by disengaging the hooked end 18 of the spring from the shoulder 19 and pushing the spring out through the opening in the inner end of the hook body. The hooked end of the spring can be disengaged for this purpose by means of a suitable pointed tool adapted to be inserted between the side walls or cheeks of the body. A spring can thus be removed and replaced by a new spring without disconnecting the snap hook from the attached strap or part which passes through the strap loop 12. This is an advantage because the strap is usually sewed or riveted in the loop 12, and it is often a matter of considerable trouble or inconvenience for the user to detach and again fasten the snap hook to the strap. Notwithstanding the adaptability of the device for the ready insertion and renewal of the spring, the body has no lugs or parts which have to be bent or deformed to secure the spring in place, and yet the spring is securely retained in the body against accidental displacement. Furthermore, the back of the snap hook body is smooth and unbroken to the exposed, inner end of the spring, which is substantially flush with the edges of the side walls at the inner end of the body; and there are no lugs or portions which can abrade or catch on parts with which the back of the hook may contact in the use of the hook.

I claim as my invention:

1. A snap hook comprising a body having a hooked nose at one end, and an attaching loop at the opposite end, and a bent spring secured in said body and having a tongue

which bears resiliently against the nose, said body having spaced side walls at its inner end, a transverse bearing for said spring between said side walls and around which the bent portion of the spring passes and a transverse wall which connects said side walls and is located above the inner portion of the spring tongue and extends nearer to said nose than said transverse bearing, the space between said side walls being unobstructed inwardly beyond said spring bearing whereby the bent spring can be inserted and removed through said space, and said body having a continuous back wall provided on its front side between said side walls with a stop with which a hook on the end of the spring engages for retaining the spring in place in the body, said spring hook being held in engagement with said stop by the resilience of the spring and being adapted to be disengaged from said stop by flexing said spring.

2. A snap hook comprising a body having a hooked nose at one end, and an attaching loop at the opposite end, and a bent spring secured in said body and having a tongue which bears resiliently against the nose, said body having spaced side walls at its inner end connected at their back inner portions by a cross bar around which the bent portion of the spring passes and at their front portions by a transverse wall which is located above the inner portion of the spring tongue and extends nearer to said nose than said cross bar, the space between said side walls being unobstructed inwardly beyond said cross bar whereby the bent spring can be inserted and removed through said space, and said body having a smooth unbroken back wall provided with a front face sloping gradually forwardly and upwardly from its inner end and a shoulder at the forward end of said sloping face with which a hook on the end of the spring engages for retaining the spring in place in the body.

3. A snap hook comprising a body having a hooked nose at one end, and an attaching loop at the opposite end, and a bent spring secured in said body and having a tongue which bears resiliently against the nose, said body having spaced side walls at its inner end connected at their back portions by a cross bar around which the bent portion of the spring passes and at their front portions by a

transverse wall which is located above the inner portion of the spring tongue, the space between said side walls being unobstructed inwardly beyond said cross bar whereby the bent spring can be inserted and removed through said space, and said body having a smooth unbroken back wall provided with forwardly and upwardly sloping front faces interrupted by a shoulder with which a hook on the end of the spring engages for retaining the spring in place in the body.

4. A snap hook comprising a body having a hooked nose at one end, and a bent spring secured in said body and having a tongue which bears resiliently against the nose, said body having spaced side walls at its inner end, a transverse bearing for said spring between said side walls and around which the bent portion of the spring passes and a transverse wall which connects said side walls and is located above the inner portion of the spring tongue, said spring bearing being spaced inwardly beyond the inner edge of said transverse wall, the space between said side walls being unobstructed inwardly beyond said spring bearing whereby the bent spring can be inserted and removed through said space, and said body having a back wall provided on its front side between said side walls with a stop with which a hook on the end of said spring engages for retaining the spring in place in the body.

5. A snap hook comprising a body having a hooked nose at one end, and a bent spring secured in said body and having a tongue which bears resiliently against the nose, said body having spaced side walls at its inner end connected at their back inner portions by a cross bar around which the bent portion of the spring passes and at their front portion by a transverse wall which is located above the inner portion of the spring tongue, said cross bar being spaced inwardly beyond the inner edge of said transverse wall, the space between said side walls being unobstructed inwardly beyond said cross bar whereby the bent spring can be inserted and removed through said space, and said body having a back wall provided on its front side between said side walls with a stop with which a hook on the end of said spring engages for retaining the spring in place in the body.

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