Aug. 9, 1932. A. F. KIPPER ET AL 1,871,064

LOCKING DEVICE

Filed Dec. 20, 1930

Fig. 1.

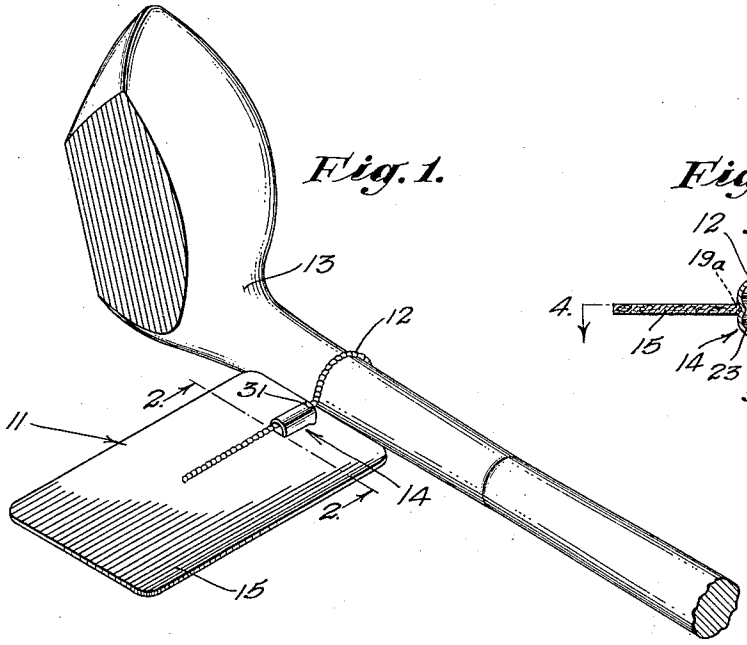


Fig. 2.

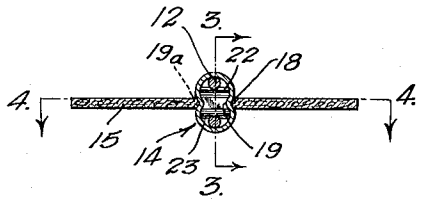


Fig. 3.

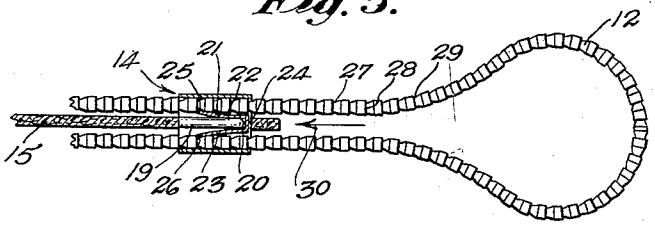
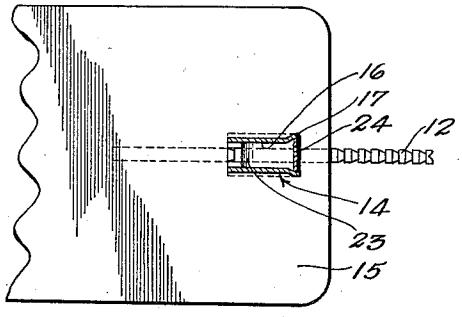


Fig. 4.



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UNITED STATES PATENT OFFICE

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LOCKING DEVICE

Application filed December 20, 1930. Serial No. 503,685.

Our invention relates to a locking device, and more particularly to a locking device for tagging or sealing articles in such a manner that the tag or seal cannot be removed without its destruction.

Because of the wide range in the dimensions of articles which it is desired to seal together or tag, it is sometimes desirable that the loop means for encircling the articles to be sealed or tagged be separate from the locking means and the tag in order that the stock of parts for the sealing or tagging device for a variety of articles may be a minimum.

It is a corresponding object of our invention to provide a sealing or tagging device which includes a locking means of such character that the loop means for encircling the articles to be sealed or tagged may be assembled with the locking means after the loop means has been passed around the said article.

It is a further object of our invention to provide a locking or sealing device which includes locking means which is secured to the tag by the passage of the loop means therethrough.

It is still another object of our invention to provide a tagging or sealing device which includes a locking means so related to the loop means encircling an article that the locking means cannot be manipulated to release the loop means without the destruction of the device.

It is a further object of our invention to provide a device of the character described which can be very economically manufactured.

One embodiment of our invention which is capable of performing the foregoing objects, and others, some of which will be made evident hereinafter, will be disclosed in the following specification. This description may be better understood with reference to the accompanying drawing in which,

Fig. 1 is a perspective view of an embodiment of our invention attached to an article.

Fig. 2 is a sectional view taken as indicated by the line 2—2 of Fig. 1.

Fig. 3 is a sectional view taken as indicated by the line 3—3 of Fig. 2.

Fig. 4 is a plan view, partially sectioned, taken as indicated by the line 4—4 of Fig. 2.

Referring to the drawing, which is for illustrative purposes only, the numeral 11 indicates a sealing or tagging device embodying our invention which includes a loop means 12 adapted for encircling an article such as a golf club 13, and being extended through a locking means 14 associated with a tag 15. As best illustrated in Fig. 4, the tag 15 is provided with an opening 16 adjacent one end. That end of the opening 16 which is closer to the end of the tag 15 is provided with an enlarged portion 17, for a purpose which will be later described.

The locking means 14 of our invention may be formed of any suitable metal resisting deformation to the required degree, and is substantially elliptical in cross-section, as illustrated in Fig. 2. As may be seen with reference to this figure, the locking means 14 is provided with a groove 18 in each of its sides, the grooves 18 being formed by bending inwardly the sides of the locking means 14. An inwardly extending fin 19 is provided by the groove 18 along the inner surface of each of the sides of the locking means 14. The groove 18 and the fin 19 of each of the sides of the locking means 14 extend from one end of the locking means 14 to a plane normal to the axis of the locking means and adjacent the other end of the locking means 14. The remainder of each side of the locking means 14 defines a regular ellipse, as indicated by the dotted lines 19*a* of Fig. 2, so that the end of each of the fins 19 provides in the locking means 14 a shoulder or stop 20, as illustrated in Fig. 3.

As illustrated in Figs. 1 and 2, the length of the locking means 14 is substantially equal to the length of the opening 16 in the tag 15 so that the locking means 14 may be positioned in the opening 16 with the major axis of the ellipse of its cross-section normal to the plane of the tag 15. When installed in this position those portions of the tag 15 which define the sides of the opening 16 are received in the groove 18 so that the locking means 14 is temporarily held in place relative to the tag 15. The enlarged portion 17 of the open-

ing 16 is provided for the reception of those portions of the sides of the locking means 14 which extend from the shoulders 20 to the adjacent end of the locking means 14.

Disposed within the locking means 14 is an engaging means 21 of our invention. The engaging means 21 is formed of spring steel or any other metal possessing the requisite degree of resiliency. The engaging means 21 includes two pawls or engagers 22 and 23 which are integral with a connecting portion 24. As is best illustrated in Fig. 3, the pawls 22 and 23 are bent outwardly so that their outer ends 25 and 26, respectively, resiliently engage the inner surface of the top and bottom of the locking means 14.

The wire 12 comprising the loop means of our invention is provided with a plurality of continuously extending indentations or notches 27 which extend around the wire 12. Each of the indentations or notches 27 comprises a normal wall 28 which is normal or perpendicular to the axis of the wire 12 and an inclined wall 29 sloping from the inner end of the normal wall 28 towards the middle of the wire 12.

When it is desired to attach the tagging or sealing device 11 to the article 13, the wire 12 is passed around the article 13, one end of the wire 12 is then passed through the locking means 14 on one side of the tag 15, and the other end of the wire 12 is passed through the locking means 14 on the other side of the tag 15. As illustrated in Fig. 3, the engagers 22 and 23 are easily forced towards the plane of the tag 15 to permit the introduction of the ends of the wire 12 through the locking means 14 in the direction indicated by the arrow 30 of Fig. 3. When the ends of the wire 12 are pulled through the locking means 14 until the end of the tag 15 engages the surface of the article 13, the ends 25 and 26 of the engagers 22 and 23 are disposed in the indentations 27. As is illustrated in Fig. 3, each of the engager ends 25 and 26 contacts the normal wall 28 of one of the indentations 27, and thus effectually prevents either end of the wire 12 from being withdrawn from the locking means 14 in the direction opposite to that indicated by the arrow 30 of Fig. 3.

The end of the tag 15 adjacent the locking means 14 being in contact with the article 13, and the cross-sectional area of the locking means 14 on each side of the tag 15 being greater than the cross-sectional area of the wire 12 by only a small amount, it should be apparent that the end of the locking means 14 which is adjacent the article 13 is effectually blocked so that an instrument cannot be inserted therein to move the engagers 22 and 23 out of engagement with the wire 12. Because of the fact that the engager ends 25 and 26 are covered by the normal walls 28 of the indentations 27 in which they are disposed, it should likewise be obvious that the engagers 22 and 23 cannot be moved out of engagement with the wire 12 by the introduction of an instrument from that end of the locking means 14 which is the more removed from the article 13. The shoulders 20 on the inner surface of the sides of the locking means 14 engage the connecting portion 24 of the engaging means 21, thus preventing the withdrawal of the engaging means 21 from the locking means 14 in the direction indicated by the numeral 30 of Fig. 3.

The removal of the engaging means 21 from the locking means 14 in a direction opposite to that indicated by the numeral 30 of Fig. 3 is prevented by the engagement of the connecting portion 24 with the tag 15.

Because the wire 12 need not be inserted in the locking means 14 until after it has been disposed around the article 13 which is to be tagged or sealed, it should be apparent that we have by our invention provided a tagging or sealing device which requires only a large stock of wires 12 of a variety of lengths, or a roll of wire 12 which may be cut to the required lengths, instead of a large stock of complete devices to accommodate articles having a variety of dimensions.

If it is desired to provide an embodiment of our invention which prevents the removal of the wire 12 and the substitution of another wire, one end of the wire 12 is extended through the locking means 14 when the sealing or tagging device 11 is assembled and a depression 31 is formed in the locking means 14, as illustrated in Fig. 1. This depression 31 engages an indentation 27 in the wire 12 and prevents the withdrawal of the wire 12 in either direction.

It is to be noted that the tagging or sealing device of our invention comprises only four parts, each of which may be simply and easily manufactured. We have therefore by our invention provided a device of the character described which can be very economically manufactured.

While that embodiment of our invention hereinbefore illustrated and described is fully capable of performing those objects and advantages primarily stated, there are various other embodiments of our invention likewise capable of performing these objects and providing these advantages, and we therefore wish our invention to be understood as not restricted to that embodiment hereinbefore set forth.

We claim as our invention:

1. In a sealing device for an article, the combination of: loop means for encircling the article to be sealed, said loop means having a continuously notched surface; aperture forming means providing an aperture through which both ends of said loop means may be inserted; and integrally formed engaging means associated with said aperture

forming means for preventing the withdrawal of said loop means.

2. In a tag structure to be sealed to an article, the combination of: loop means for encircling the article to be tagged, said loop means having indentations extending around its surface; a tag body having an opening therethrough; aperture forming means in said opening, said means providing an aperture on each side of said tag body through which one end of said loop means may be forced; and integrally formed engaging means in said aperture forming means, said engaging means being adapted for engagement with said indentations to prevent the withdrawal of said loop means.

3. In a tag structure to be sealed to an article, the combination of: loop means for encircling the article to be tagged, said loop means having continuously extending notches in its surface; a tag body having an opening therethrough; aperture forming means in said opening, said means providing an aperture on each side of said tag body through which one end of said loop means may be forced; a stop at one end of said aperture forming means; and integrally formed engaging means retained in said aperture forming means by said tag body and said stop, said engaging means being adapted for engagement with said notches to prevent the withdrawal of said loop means.

4. In a tag structure to be sealed to an article, the combination of: a wire having indentations in its surface; a tag body having an opening therethrough; aperture forming means having a groove in each side thereof, said means being retained in said opening by the engagement of said tag body with the sides of said groove, and said means providing an aperture on each side of said tag body through which said wire may be extended; an internal shoulder at one end of said aperture forming means; and an engager comprising two pawls disposed in said aperture forming means, said engager being confined between said tag body and said shoulder to prevent the withdrawal of said wire.

5. In a sealing device for articles, the combination of: a loop member having indentations in its surface; a tag providing an opening therethrough; aperture forming means retained in said opening by the engagement of said tag with the walls of said means, said means providing an aperture on each side of said tag through which one end of said loop member may be extended; a shoulder at one end of said aperture forming means; and pawls disposed in said aperture and engaging said shoulder, said pawls forming means adapted to engage said indentations to prevent the withdrawal of said loop member.

6. In a sealing device for articles, the combination of: a loop member adapted for encircling an article to be sealed, said loop member providing a continuously arranged series of notches extending therearound; a tag having an opening therethrough; aperture forming means having a groove in each side thereof, said means being retained in said opening by the engagement of said tag with the sides of said groove, and providing an aperture on each side of said tag through which the end of said loop member may be extended; and an engager comprising two pawls disposed in said aperture forming means adapted to engage said notches to prevent the withdrawal of said loop member.

7. In a sealing device of the character described, the combination of: a wire adapted to encircle an article to be sealed, said wire having continuously disposed notches extending therearound; a tag having an opening therethrough; aperture forming means disposed in said opening, said means providing an aperture on each side of said tag through which said wire may be extended; and an engager comprising a pawl in each of said apertures, said pawls being adapted to engage said notches to prevent the withdrawal of said wire.

8. A combination as set forth in claim 6 in which said loop member is adjustable for encircling articles of different cross-sectional area.

9. A combination as set forth in claim 7 in which said wire is adjustable to encircle articles of different dimensions.

In testimony whereof, we have hereunto set our hands at Los Angeles, California, this 12th day of December, 1930.

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