April 21, 1936. M. A. COE 2,038,099

COILABLE MEASURING DEVICE

Filed June 6, 1932

Fig. 1

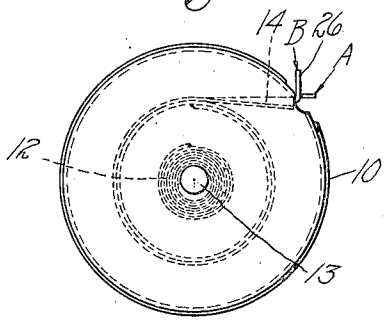


Fig. 2

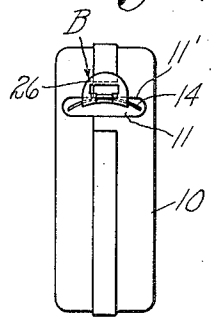


Fig. 3

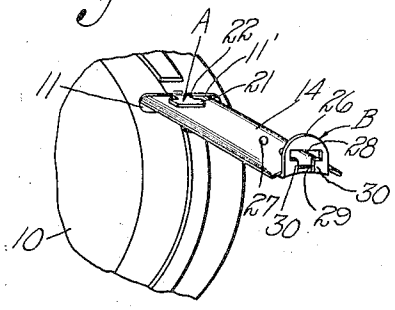


Fig. 4

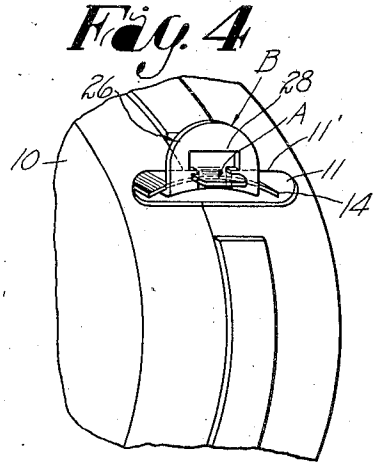


Fig. 5

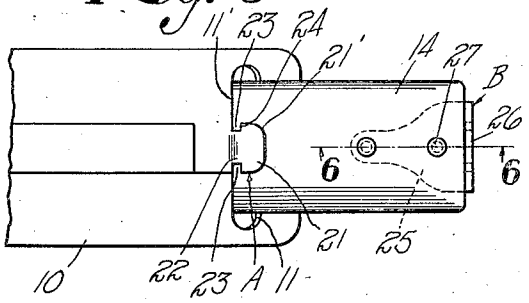
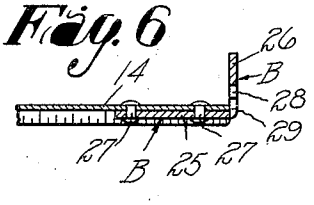


Fig. 6



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COILABLE MEASURING DEVICE

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Application June 6, 1932, Serial No. 615,611

8 Claims. (Cl. 33—138)

This invention relates, generally, to measuring devices of the type which includes a steel tape adapted to be coiled within a suitable holder or casing. The improvements find particular application in connection with a tape having a bent transverse form, such as a concavo-convex form, so that the tape has an inherent tendency to assume a rectilinear state.

It is usual to provide, in devices of this sort, a hook having a finger or ear which serves as an abutment for engagement with the object to be measured, and which also serves as a finger piece by means of which the tape may be pulled out of or pushed into the casing. With this arrangement, when the tape is completely coiled up in the casing, the tip or finger engages one edge of the slot or opening in the casing through which the tape is adapted to extend, and the tip extends beyond the periphery of the casing. Also, in some arrangements, the edge of the opening in the casing is provided with a tongue against which the hook is adapted to engage so as to prevent the free end of the tape from being forced through the slot and into the casing. In such case, the corners of the free end of the tape are exposed. With these old arrangements, it not infrequently happens, in handling the device, that the hook accidentally catches on an object or edge with the result that the tape is pulled out slightly and sharply bent, resulting in injury to the tape. This, in fact, frequently occurs when the device is pulled from the pocket of the user. Also, the exposed corners of the tape are liable to catch in the clothing, causing damage to either or both the tape and the clothing.

The aim of the present invention is to provide an improved arrangement wherein the above and other objections to constructions as heretofore made are eliminated and, more particularly, to provide an arrangement wherein the hook may be positively interlocked with the casing when the tape is in completely wound condition so that accidental pulling out of the tape and the catching of the corners are avoided.

Other objects are in part obvious, and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawing, wherein is shown for illustrative purposes, one embodiment which the present invention may take:

Figure 1 is a side view of a measuring device in which the improvements of the present invention are incorporated;

Fig. 2 is an edge view of the device;

Fig. 3 is a perspective view showing the free end of the tape partly drawn out of the casing;

Fig. 4 is a view similar to Fig. 3 but showing the hook on the tape interlocked with the casing;

Fig. 5 is a top plan view of what is shown in Fig. 3; and

Fig. 6 is a longitudinal sectional view through the free end of the tape, this view being taken substantially on line 6—6 of Fig. 5.

Referring to the drawing in detail, 10 designates a casing or holder of any suitable size or configuration, it here being shown as being generally circular and as having an entrance opening or slot 11 in its peripheral wall. Within the casing is a suitable winding device which is here shown as comprising a metal ribbon 12 coiled upon itself and having its inner end suitably anchored to a centrally disposed stud 13 and having its other end connected to the inner end of the measuring tape 14. This measuring tape may comprise a strip of resilient metal having a concavo-convex form so that, when extended, it will automatically assume a rectilinear state or straight rod-like form. The tendency of this tape is to unwind and, preferably, the tension of the winding strip 12 is only such as to approximately balance the resistance of friction and the tendency of the measuring strip to resist bending. With this arrangement, the measuring tape is adapted to be pulled out of and pushed into the casing and will be retained in any position of adjustment. Also, the tendency of the free end of the tape, when the latter is completely coiled, is to spring outwardly, that is, towards the rear edge 11′ of the opening 11. This rear edge 11′ of the opening 11 may be defined as that edge of said opening proximate to that surface of the tape which is disposed on the outer side of the convolutions of that portion of the tape 14 which is coiled within the casing 10. It is, of course, understood that the winding instrumentality may comprise a coiled spring having sufficient tension to overcome the resistance of friction and the resistance of the measuring tape to bend. In such case, when the measuring strip is released, it is immediately and automatically re-wound into a coil.

Referring now to the improvements of the present invention, the casing is provided with a lug or tongue A which extends forwardly and outwardly from the rear edge 11′ of the entrance opening in

the casing. In the present instance, this lug is formed integrally with the casing and is centrally disposed between the ends of the slot 11. This lug is of generally T-shape form, it having a head 21 and a neck portion 22 connecting the head to the casing. More particularly, the lug has, at each side, a laterally extending notch 23 and a rearwardly directed abutment 24. These abutments are at the forward edges of the notches and the rear edge of the head. The forward corners of the head are rounded or bevelled, as at 21'.

The free end of the tape is provided with a hook B which is of generally right-angle shape so as to provide a tang or attaching portion 25 and a finger or ear 26, the latter being disposed in a plane which is substantially at right angles to the plane of the free end of the tape. The attaching portion may be connected to the tape with the finger abutting against the free end of the tape in any suitable manner, as by means of rivets 27. The finger or ear 26 is provided with a generally T-shape or stepped opening having an outer portion 28 of such width as to permit the head 21 of the lug A to pass therethrough, and an inner portion 29 of lesser width than the width of the head 21 but of such width as to receive the neck 22 of the lug A. By so forming the slot, there is provided, at each side thereof and extending at right angles to and from the plane of the free end of the tape, a pair of spaced abutments or shoulders 30 which are adapted to take in behind and engage the abutments 24 of the lug A when the parts are in the position shown in Figs. 2 and 4.

It will be observed that, when the tape has been pushed completely into the casing, the lug A and the hook are interlocked, as shown in Fig. 4, and in this position the corners of the free end of the tape are within the casing so that they cannot catch on any external object. Also, should the hook catch on any object, such as the edge of a pocket, when the device is withdrawn from the pocket, the tape will not be drawn out and, therefore, injury to the tape is avoided. Due to the resiliency of the tape, the hook is automatically held in its locked position. It is clear that the lug prevents the hook from being pushed entirely through the entrance slot and into the casing. When it is desired to withdraw the tape from the casing, the hook is pressed inwardly toward the casing and then the tape is drawn out by means of the finger piece. When the tape is pushed completely into the casing, the head of the lug A will pass through the enlarged portion 28 of the opening in the finger piece and then, when pressure on the hook is released, the tape will force the hook outwardly thereby engaging the shoulders 30 of the finger piece behind the abutments 24 of the lug A.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

1. In combination, a casing having an entrance opening provided with a rear edge a measuring tape having a free end and adapted to be coiled within the casing and to pass through said opening, said tape being resilient and adapted to assume a rectilinear state when withdrawn from the casing, said casing having, adjacent said entrance opening, a rearwardly directed abutment, and a hook on the free end of said tape having a shoulder adapted to engage behind said abutment, said shoulder being retained in position behind said abutment solely by the resiliency of said tape.

2. In combination, a casing having an entrance opening provided with a rear edge, a measuring strip having a free end and adapted to be drawn in and out through said opening, said opening having, extending from its rear edge, a lug provided with a rearwardly directed abutment, and a hook on the free end of said tape having an opening through which said lug is adapted to extend, said hook having a shoulder adapted to engage behind said abutment.

3. In combination, a casing having an entrance opening provided with a rear edge, a resilient tape having a free end and adapted to be drawn in and out through said opening, said opening having a lug extending from its rear edge and provided with a rearwardly facing abutment; and a hook on the free end of said tape having an ear provided with an opening having an enlarged portion through which the lug is adapted to pass, and a reduced portion, an edge of which forms a shoulder adapted to engage behind said abutment.

4. In combination, a casing having an entrance opening provided with a rear edge, a resilient measuring tape having a free edge and adapted to be coiled within said casing and to pass through said opening, said casing having a T-shaped lug extending from the rear edge of said opening; and a hook on the free end of said tape and having an opening with an enlarged outer portion through which the head of said lug is adapted to pass, and a reduced portion, the side edges of which are adapted to engage behind the head of said lug.

5. In combination, a casing having in its periphery an entrance opening provided with a rear edge, a measuring tape having a free end and adapted to be coiled within said casing and to pass through said opening, said casing having, adjacent the rear edge of said opening, a pair of spaced apart rearwardly facing abutments, and a hook secured to the free end of said tape and having an ear provided with an aperture having an enlarged portion adapted to pass said abutments and a restricted portion flanked by a pair of spaced apart shoulders adapted to respectively engage behind said abutments.

6. In combination, a casing having in its periphery an opening provided with a rear edge, a resilient measuring tape having a free end and adapted to be coiled within said casing and to pass through said opening, said casing having adjacent the rear edge of said opening a member disposed substantially parallel to the unwound portion of said tape and provided with rearwardly facing abutments, a hook secured to the free end of said tape extending at an angle thereto and provided with an aperture adapted to receive said member on said casing, and a pair of spaced apart shoulders adapted to respectively engage behind said abutments to restrain said tape against accidental withdrawal from said casing.

7. In combination, a casing having an entrance opening provided with a rear edge and a front

edge, a measuring tape having a free end and adapted to be coiled within said casing and moved through said opening between said edges thereof, said casing having, adjacent the rear edge of said opening and to the same side of said tape as said rear edge, a portion projecting from said casing and having a shoulder thereon facing rearwardly in the direction in which said tape is moved as it is fed into the casing, and a hook on the free end of said tape having a shoulder adapted to engage behind and interlock with said first shoulder to prevent accidental withdrawal of the free end of the tape from the casing.

8. In combination, a casing having an entrance opening provided with a rear edge and a front edge, a measuring tape having a free end and adapted to be coiled within said casing and to pass through said opening between said edges thereof, said casing having, adjacent the rear edge of said opening and to the same side of said tape as said rear edge, a pair of spaced apart shoulders facing rearwardly in the direction in which said tape is moved as it is fed into the casing, and a hook on the free end of said tape and provided with a pair of spaced apart shoulders adapted to respectively engage behind said first shoulders to prevent accidental withdrawal of the free end of the tape from the casing.

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