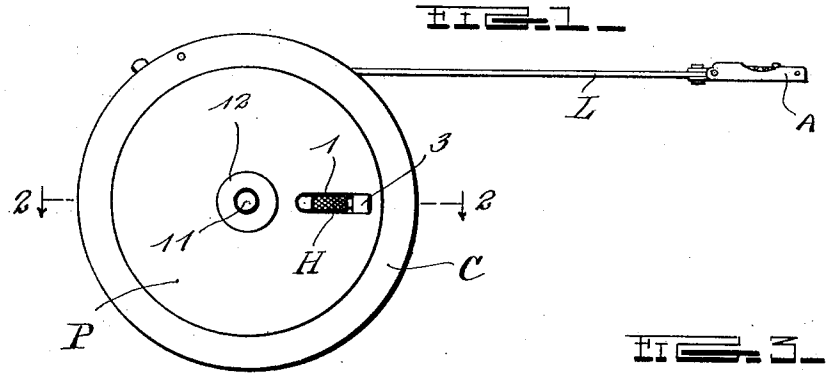
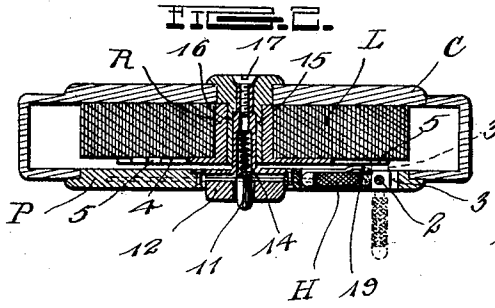
L. E. WOOD.

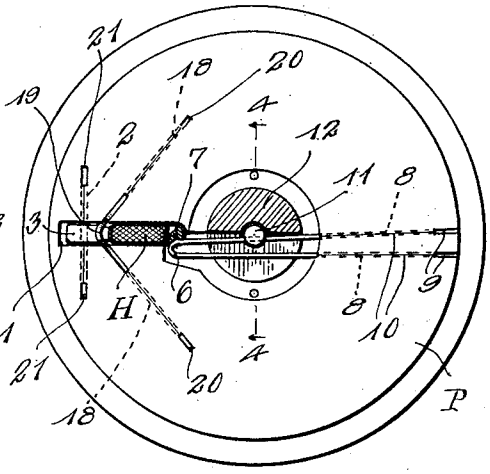
TAPE MEASURE.

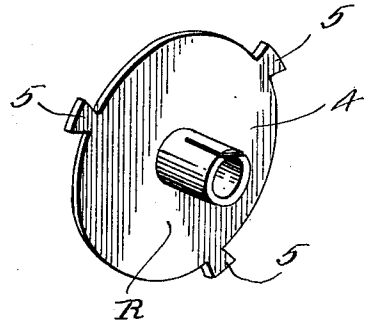
APPLICATION FILED JUNE 7, 1920.

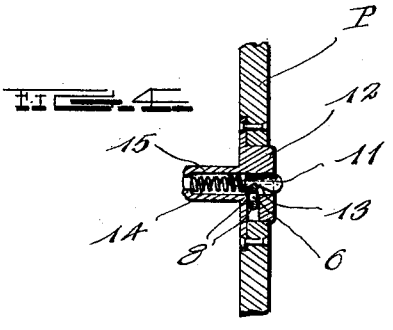
**1,383,587.** **Patented July 5, 1921.**

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# UNITED STATES PATENT OFFICE.

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## TAPE-MEASURE.

1,383,587. Specification of Letters Patent. Patented July 5, 1921.

Application filed June 7, 1920. Serial No. 387,231.

*To all whom it may concern:*

Be it known that I, LOUIS E. WOOD, a citizen of the United States, residing at Farrell, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Tape-Measures; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to means for manually operating reels or other rotatable members mounted within a casing, and more particularly to driving means for reels upon which tape lines are wound.

The principal object of the invention is to provide a handle for the reel carried by a movable side plate of the reel casing and capable of inward folding when not in use, novel provision being made for disconnecting the reel and handle when it is so folded and for operatively associating them when the handle is extended for use.

A further object is to provide spring means for swinging the handle outwardly when desired, latch means for holding said handle in folded position, and means for releasing said latch means to permit the handle to be projected for use by spring action.

With the foregoing in view, the invention resides in the novel construction and arrangement of parts hereinafter described and claimed, the descriptive matter being supplemented by the accompanying drawing.

Figure 1 is a side elevation of a tape measure embodying my invention.

Fig. 2 is a horizontal section on the plane designated by line 2—2 of Fig. 1.

Fig. 3 is an inner side elevation of the handle-carrying plate and associated parts, the latch guide of this plate being shown in section.

Fig. 4 is a detail vertical section on the plane indicated by line 4—4 of Fig. 3.

Fig. 5 is a perspective view of the tape reel and its driving disk.

In the drawings above briefly described, C designates a substantially flat circular casing within which is mounted a reel R for a tape line L, the outer end of said line being shown as provided with an anchor A whose construction is covered by my United States application Serial No. 389,709, filed June 17, 1920. The casing C includes a rotatable side plate P carrying a handle H for operating the reel R. This handle is normally folded inwardly as shown in full lines in Figs. 1, 2 and 3 and is then disconnected from the reel R, but when said handle is projected for use as seen in dotted lines in Fig. 2, it is connected operatively with the reel so that rotation of the plate P will correspondingly turn said reel.

In the preferred form of the invention, the plate P is provided with a radial slot 1 within which the handle H is pivoted on a pin 2 adjacent to but spaced from the inner end of said handle, whereby upon outward swinging of the handle for use, its inner end 3 constitutes a reel driver for engagement with a suitable driving shoulder on the reel. In the present showing, the reel is equipped with a driving disk 4 serving also as a retainer for the line L, the peripheral edge of said disk having a plurality of circumferentially spaced driving projections 5 with any one of which the reel driving end 3 of the handle H may coact.

I contemplate the provision of a latch for holding the handle H in folded position, and spring means for projecting said handle for use when the latch is released, and although these parts could be of any preferred form, the construction shown is desirable on account of its simplicity and ease of manufacture. The latch is formed of a single length of resilient wire bent upon itself so that its bend 6 is receivable in a notch 7 in the free end of the handle H, while the two ends 8 of the wire are fixedly mounted in a pair of grooves 9 formed in the inner side of the plate. This anchoring is preferably accomplished by beating the metal over the wire in any suitable manner, as indicated for instance at 10.

For the purpose of releasing the latch, a push button 11 is provided, said button being suitably mounted in a guide 12 at the center of the plate P. The button 11 is provided with a cam notch 13 receiving one arm 8 of the spring latch, and a coil spring 14 normally forces said button outwardly to an inactive position. As soon as this button is forced inwardly however the cam surface of the notch 13 forces the latch laterally and releases its end 6 from the notch 7, whereupon the spring means above mentioned comes into play and swings the handle H outwardly for use.

The spring 14 is by preference housed in

a tubular extension 15 with which the guide 12 is provided, and this extension is received within a tubular stub shaft 16 upon which the reel R is mounted. A screw 17 is threaded into the free end of the extension 15 and countersunk into the casing C to hold all parts assembled, but when this screw is removed, the plate P and all parts carried thereby may be detached, and after unwinding a sufficient quantity of the line L, the reel R may also be removed.

The means for opening the handle H is preferably in the form of a V-shaped wire spring 18 whose angle 19 bears against said handle while its ends are secured in grooves 20 in the plate P, in the same manner as the wire ends 8 are secured in the grooves 9. The pivot pin 2 of the handle may well be anchored in this same manner in a groove 21.

When the handle H is folded into the slot 1, the reel R is free to rotate without turning the plate P and thus the tape line L may be more easily pulled out without causing any vibration of the casing C, as commonly occurs when an eccentrically positioned handle is carried around a circular path by unwinding of the line. However, when the line L is to be rewound, the handle H is projected, this being accomplished merely by pushing the button 11. This movement of the button causes the cam surface of its notch 13 to thrust laterally against the adjacent arm 8 of the handle latch, with the result that said latch is disengaged from the handle H. The moment this occurs, the spring 18 comes into play and projects the handle, and when the latter is in its projected position, its reel driving end 3 is positioned for engagement with one of the driving projections 5, so that rotation of the plate P by means of said handle, will correspondingly turn the reel R. When the line L is wound to the required extent, the handle is returned to its receiving slot 1 against the tension of the spring 18 and is held within such slot by the latch above described.

The device is comparatively simple and inexpensive, yet is highly efficient and in every way desirable, and since excellent results have been obtained from the details disclosed, such details are preferably followed. I wish it understood however that within the scope of the invention as claimed, numerous changes may well be made and the invention need not be restricted to use in connection with tape measures.

I claim:

1. In a device of the class described, a casing having a rotatable side plate, a rotatable member within said casing, and an inwardly foldable handle carried by said side plate, said handle and said rotatable member having coacting driving means coöperable when the handle is extended for use.

2. In a device of the class described, a casing having a rotatable side plate provided with a slot, a rotatable member mounted in said casing and having a driving shoulder operable adjacent said slot, and a handle pivotally mounted in said slot to normally fold into the latter, said handle having a reel driver for engagement with said driving shoulder when said handle is swung outwardly.

3. In a device of the class described, a casing having a rotatable side plate provided with a slot, a rotatable member mounted in said casing and having a driving disk adjacent said side plate having a plurality of driving projections on its edge, and a handle pivotally mounted in said slot to normally fold into the latter, said handle having a reel driver for engagement with said driving projections when said handle is swung outwardly.

4. In a device of the class described, a casing having a rotatable side plate, a rotatable member within said casing, an inwardly foldable handle carried by said plate, said handle and said rotatable member having coacting driving means coöperable when the handle is extended for use, means for holding said handle normally folded, and means for opening said handle when said holding means is released.

5. In a device of the class described, a casing having a rotatable side plate, a rotatable member within said casing, an inwardly foldable handle carried by said plate, said handle and said rotatable member having coacting driving means coöperable when the handle is extended for use, a laterally movable latch arm carried by said plate for holding said handle in folded position, a push button carried by said plate for releasing said latch arm, and means for opening said handle when said latch arm is released.

6. In a device of the class described, a casing having a rotatable side plate, a rotatable member within said casing, an inwardly foldable handle carried by said plate, said handle and said rotatable member having coacting driving means coöperable when the handle is extended for use, a laterally movable latch arm for holding said handle in folded position, said latch arm being formed of a length of wire bent substantially upon itself, the inner side of the aforesaid plate having grooves in which the ends of said wire are anchored, a push button carried by said plate for releasing said latch arm, and means for opening the handle when said latch arm is released.

7. In a device of the class described, a casing having a rotatable side plate, a rotatable member within said casing, an inwardly foldable handle carried by said plate, said handle and said rotatable member having coacting driving means coöperable when the handle is extended for use, a laterally

movable latch arm secured at one end to the aforesaid plate and having its other end disposed for holding the handle in retracted position, a push button guide carried by the aforesaid plate, a push button slidable in said guide and having a cam surface coacting with said latch arm for releasing the same when the button is forced inwardly, a spring within said guide for normally forcing said button outwardly, and means for projecting the handle for use when said latch arm is released.

8. In a device of the class described, a casing having a rotatable side plate, a rotatable member within said casing, an inwardly foldable handle carried by said plate, said handle and said rotatable member having coacting driving means coöperable when the handle is extended for use, releasable means for holding the handle in retracted position, and a V-shaped spring whose angle bears against said handle for projecting it when the holding means is released, the aforesaid plate having grooves in which the ends of said spring are secured.

9. A device of the class described comprising a substantially flat circular casing having a rotatable plate and having its other side plate provided with an inwardly extending tubular stub shaft, a reel mounted on said stub shaft and having a driving disk adjacent said rotatable plate, said disk having driving projections on its periphery, a handle pivotally carried by said rotatable plate, the latter having a slot receiving said handle, a latch arm carried by said plate and engaging said handle to normally hold the same in folded position, a push button for releasing said latch arm, a push button guide carried by said rotatable plate and having a tubular extension received within the aforesaid tubular shaft, means associated with said extension for holding the same against withdrawal from said tubular shaft, a spring in said tubular extension for projecting said push button, and spring means for projecting the handle for use when said latch arm is released, the inner end of said handle being disposed for driving contact with said driving projections when said handle is projected.

10. In a device of the class described, a casing having a rotatable side plate provided with a normally retracted driving member and a normally folded handle for projecting said driving member when unfolded for use, and a rotatable member in said casing having driving means coöperable with said driving member when the latter is extended.

11. In combination, a casing, a rotatable member therein, a foldable handle on the exterior of the casing for rotating said member, and means for automatically connecting said handle and member when the handle is unfolded for use and for breaking such connection when the handle is folded.

In testimony whereof I have hereunto set my hand.

LOUIS E. WOOD.