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C. D. NYKWEST ET AL
TAPE REEL

2,680,576

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Fig. 1.

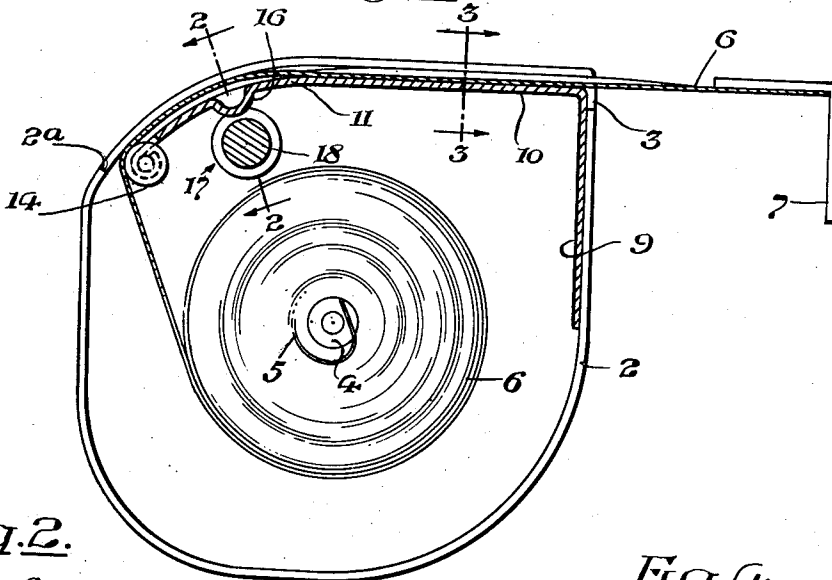


Fig. 2.

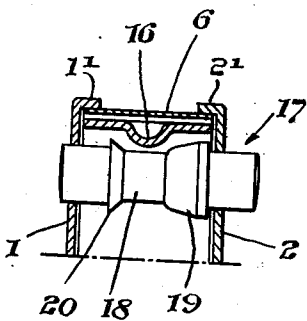


Fig. 3.

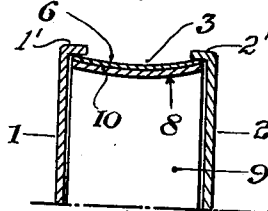


Fig. 4.

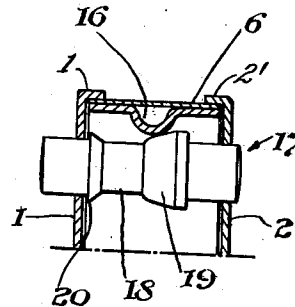


Fig. 6.

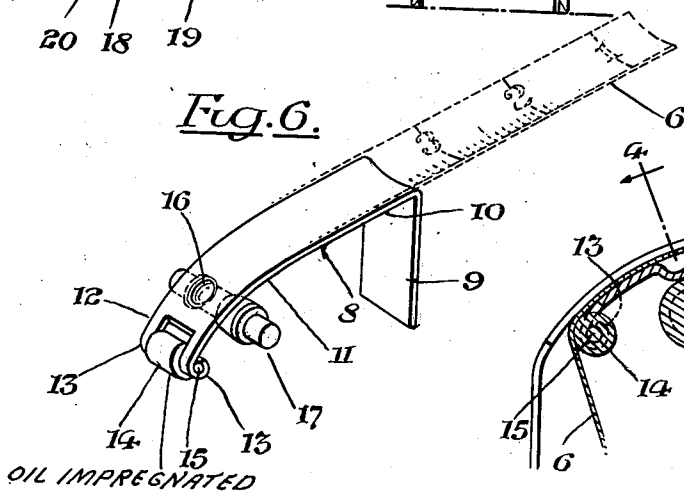
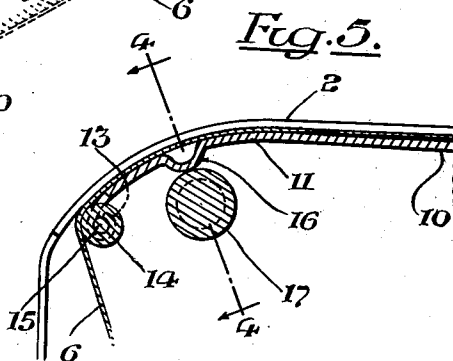


Fig. 5.



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TAPE REEL

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1 Claim. (Cl. 242—84.8)

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This invention relates to improvements in brakes for measuring tapes.

The main object of this invention is to provide a brake for a coil measuring tape to hold it in various extended positions which is strong, rugged and simple in construction and easy to operate.

Another object of the invention is to provide such a brake structure in a form so as not to mar the tape surface and in the case of tape blades having graduations on both sides to minimize defacement thereof.

A further object of the invention is to provide a brake having a guide roller for the point of deflection of the graduated blade from its coiled position into its path of movement through an opening in the housing commonly used therewith.

Another object of the invention is to provide an oil impregnated guide roller to provide light lubrication for the blade.

Still another object of the invention is to provide a brake structure which will grip the blade tightly over a substantial area and distribute the reaction forces evenly in the walls of the tape housing.

Another object of the invention is to provide a self locking brake which is easily released. In the accompanying drawings—

Figure 1 is a plan view of a measuring tape employing the brake of this invention looking into one of the housing portions and showing some parts in cross section;

Figure 2 is a cross sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a similar view on the line 3—3 of Figure 1;

Figure 4 is a cross sectional view taken on the line 4—4 of Figure 5;

Figure 5 is a longitudinal cross sectional view through the brake and brake actuator; and

Figure 6 is a perspective view of the brake structure and actuator.

This invention consists in an improved brake structure for a type of measuring tape employing a graduated steel blade of concavo-convex cross sectional form. Such tapes are commonly coiled into a housing and are connected at their inner end with a spiral spring which is anchored on a center post in the housing. The housing is provided with an opening through which the graduated blade may be extended and as it is extended, the spring is coiled up and tensioned. The result is that the spring tends to withdraw the blade into the casing when the blade is released. For this reason, some form

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of brake is needed to hold the blade in extended position and is commonly used.

This invention is concerned with improvements in the brake structure as applicable for such use. The invention is not concerned with any other part of such a device although sufficient structure has been illustrated to show clearly its relationship to the brake structure.

Figure 1 is a view looking into the housing which is composed of two complementary portions 1 and 2 of suitable configuration, each having a peripheral flange providing for one-half of the casing width when assembled with the edges of the flanges in contact. As shown, the housing portion 2 is provided with a central stud 4, the length of which is equal to the depth of the housing so that when the housing portions are assembled they may be permanently secured together by any suitable form of attaching means engaging with the stud 4, such as a machine screw. The spiral spring 5 has its inner end anchored in the stud 4 as, for example, in a slot lying along the chord of the stud. The outer end of this spring is attached to the inner end of the steel measuring blade 6 which is commonly graduated on both sides.

The flanges of the housing portions are of reduced width in the particular structure illustrated from a point indicated at 2a in Figure 1 to the right angle corner of the housing to leave narrow guide lips 1' and 2' so that the outer face of the blade is exposed, at which point the flange of each housing portion is completely removed to form an opening 3 through which the blade 6 can pass. The reduction in flange width from the point 2a to the corner exposes the outer face of the blade as is clear from Figures 2 and 4. This is for a purpose which is known in the art and is of no importance here. The terminal end of the blade is provided with a hook fixture 7 as is common.

The brake shoe 8 consists of a strip of metal shaped to provide a flat tail 9 and a right angle continuation thereof consisting of a cantilever tongue 10 of curved cross section to conform to the transverse shape of the blade and terminating in a blade end 11. The width of the brake shoe is equal to the width of the casing when the housing portions are assembled and the tail portion 9 is welded on the inner face of the flange of one of the housing portions. The right angle brake shoe is shaped to fit in the right angle portion of the casing as shown in Figure 1 so that the tongue portion 10—11 extends inwardly of the casing from the opening 3. Incidentally, it

3 will be noted that the brake shoe as thus mounted forms a guide and a support for assembling the housing portions. This brake shoe also forms a strengthening liner for a substantial portion of the housing, reinforcing it on two sides.

The tongue portion 10-11 of the brake shoe is of the same contour as the casing at its point of mounting to form a confined path along which the blade moves. The terminal end 12 of the portion 11 of the brake shoe is bifurcated as shown and formed into aligned tubes 13 to receive a pin 15 on which an oil impregnated fiber or suitable roller 14 is mounted. The length of pin 15 is equal to the depth of the casing so that no special means is needed to hold it in assembled relation. The portion 11 of the brake shoe is provided with a downwardly formed dimple 16 aligned with a brake actuator 17.

The brake actuator is of generally cylindrical form and is slidably mounted in a pair of aligned holes in the housing portions. It consists of a cylindrical portion 18 of constant diameter which underlies the dimple 16 when the brake is released. Contiguous to the cylindrical portion 18 is a camming surface formed by a frustoconical portion 19 which is initially sharply curved but which flattens off somewhat towards its end of maximum diameter. At this end there is a shoulder which limits the axial movement of the actuator to the right, see Figure 2. At the other end of the portion 18 is a shoulder 20, having a similar function, for movement in the opposite direction.

As is clear from Figure 2, the graduated blade 6 extends from the coil to the passage between the housing and the brake shoe around the guide roller 14. This prevents too sharp curvature at this point and provides a smooth rolling action which contributes to the life of the blade and minimizes marring thereof. If, as preferred, an oil impregnated roller is used, a thin film of oil is applied to the underface of the blade.

As is clear from Figures 4 and 5, when the actuator is moved so that the camming surface 19

engages the dimple 16, the brake shoe will clamp the blade between it and the adjacent flanges of the housing. The camming surface 19 flattens out enough in an axial direction so that the brake does not tend to release itself. On the other hand, a little pressure on the opposite end of the actuator releases the brake.

The construction illustrated transmits the action forces of applying the brake evenly into the side wall of the casing which is desirable. Likewise, the pressure of the brake is equally distributed to the adjacent flanges of the casing portions and the blade is gripped over a substantial area so it is quite firmly locked in any extended position.

Since it is obvious that those skilled in the art may vary the details disclosing the embodiments herein shown, I do not desire to be limited except as required by the appended claim.

What is claimed is:

A measuring tape as described comprising in combination a housing having an elongated flanged opening at one side, a graduated blade coiled therein and extending from the housing at the end of said opening, a brake shoe secured in said housing having a cantilever tongue conforming to the contour of the housing and underlying said opening, said tongue defining with said housing a passageway, an oil impregnated roller mounted on the end of said tongue for guiding said blade from the coil into said passageway, and an actuator cam mounted on said housing, operable slidably in a direction parallel to the axis about which the tape is coiled for moving said tongue to clamp the blade between it and the flanges at said opening.

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