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3,227,391

STEEL TAPE MEASURE

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FIG. 1

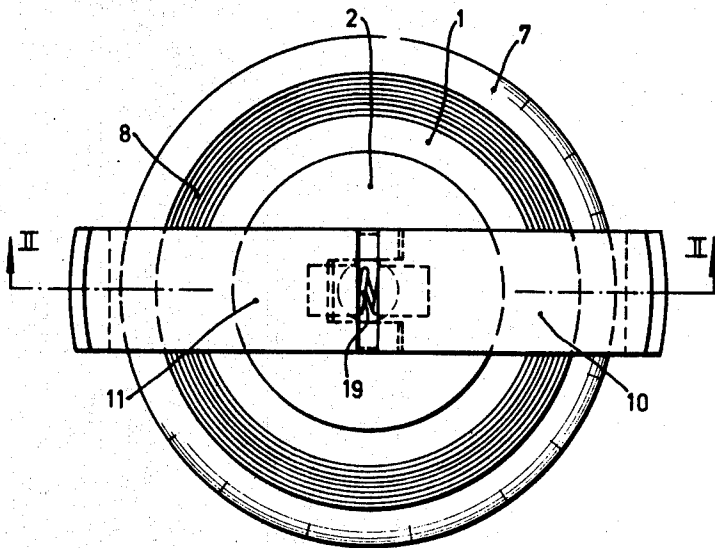
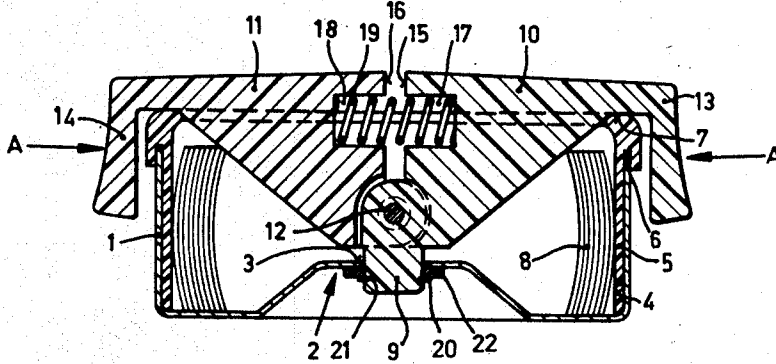


FIG. 2



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STEEL TAPE MEASURE

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2 Claims. (Cl. 242—84.8)

Winding systems for line-measuring steel tapes constituted by an open casing inside which is wound a yielding steel tape and including a braking bar, are incorporated with the oldest pocket tape measures on the market.

Hitherto, such arrangements were generally constituted by an open casing of nickel-coated steel, including at the center of its bottom a convex section to which is secured removably a head holding in position against the action of a spring blade, two ends of the two parts of a transverse bar, the two other ends of which are folded over the upper peripheral edge of the casing, so as to form a brake for the latter. The ends of the spring blade are secured to both parts of the bar so as to hold them in contact with the casing. A yielding steel tape, wound inside the casing, may be drawn out of the latter through a pressure exerted jointly on the two nickel-coated steel parts of the bar, so as to release the braking of the cylindrical casing and to allow it to pivot around the head and around the stationary bar, under the action of the elastic tape which has a tendency to be projected outwardly.

Such known arrangements are sturdy and cheap. They show however various drawbacks. The friction produced by the direct contact between the steel tape and the steel casing, as well as between the steel tape and the steel braking bar, oppose on the one hand the movement of the tape out of the casing, chiefly when the latter is soiled by dirt and on the other hand this friction increases the wear of the scale and digital inscriptions on said measuring tape. It has been proposed to line the inner peripheral surface of the casing as well as its peripheral edge with a sheath of plastic material, which reduces the friction between the tape and the casing, but an important frictional action remains, that between the tape and the braking bar.

Another drawback of such known arrangements consists in the execution of the braking bar itself. As a matter of fact, the spring blade holding elastically the two parts of the bar which bear against the peripheral edge of the casing makes the braking of the latter a difficult matter, since the force required for overcoming the elasticity of the spring blade increases with its flexion in a manner such that, on the one hand, the elasticity of the spring does not cooperate to the desired extent with the braking, on the other hand, it operates at a maximum when the user of the arrangement has to actually overcome it to ensure operation.

Now, the present invention has for its object to remove these drawbacks.

To this end, it has for its object chiefly a winding system for a tape measure, constituted by an open casing, a tape wound inside said casing and means for braking the movements of the casing.

According to a primary object of the invention, the casing is made of steel and its inner peripheral surface is lined by a sheath of plastic material folded outwardly over the upper peripheral ridge of the casing.

According to another object of the invention, the braking means are constituted by a transverse bar made of two parts, pivotally interconnected through one of their ends while their other ends are curved so as to engage

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to either side the outer peripheral lateral surface of the casing.

According to a still further object of the invention, the medial part of the pivotal connection between the two parts of the transverse bar carries a tenon rigidly secured to one of said parts and adapted to be fitted through the central opening of the convex section of the casing, so as to pivotally secure the latter with reference to the bar.

The accompanying drawings illustrate by way of a nonlimiting example an embodiment of the present invention. In said drawings:

FIG. 1 is a plan view of said embodiment.

FIG. 2 is a cross-section through line II—II of FIG. 1.

The arrangement illustrated includes a casing 1, the upper part of which is open and of which the bottom includes a raised convex section 2 provided with a central opening 3. The inner peripheral surface 4 of said casing is lined with nylon at 5, said lining being folded over the peripheral edge 6 of the casing so as to form an upper annular ridge 7. A steel tape 8, the cross-section of which is transversely concave, is simply wound inside the casing, without being attached thereto.

The casing is pivotally carried on the tenon 9 rigid with a transverse nylon bar made of two parts 10 and 11, pivotally secured around a transverse pivot 12. The parts 10 and 11 of the bar have a generally triangular shape, and are pivotally connected with each other through said pivot 12 at their inner apex, while their outer apices terminate with lugs, respectively 13 and 14, which are folded at right angles over the edge 7 of the casing. In the cooperating surfaces 15 and 16 of the parts 10 and 11 are formed symmetrical recesses 17 and 18 inside which is housed a coil spring 19.

For the inoperative position of the system, the casing 1 is held on the tenon 9 of the bar through a circlip 20 engaging a groove 21 in the tenon in contacting relationship with a washer 22 while the downwardly facing surfaces of the parts 10 and 11 bear against the upper edge 7 of the casing under the action of the pressure exerted by the spring 19 on said parts pivotally carried by the pivot 12 so as to space them apart. The bar and the casing are thus braked with reference to each other.

Now, if the end of the tape 8 is withdrawn from the center of the coil outwardly through the open end of the casing, it bears on the one hand against the nylon ridge 7 of the casing and on the other hand through its upper edge, against the lower surface of one of the parts of the nylon bar. In such a position, the system which is still braked is ready for use.

The arrangement is held between the user's thumb and forefinger which engage on either side the outer slighter concave surfaces of the lugs 13 and 14. The pressure of the spring 19 is sufficient for holding the two parts of the bar apart. If now the thumb and the forefinger exert a pressure in opposite directions as illustrated by the arrows A, the two parts of the bar are urged towards each other in antagonism with the spring so that the casing is no longer subjected to the braking exerted on it previously by said parts of the bar. The tape, the material forming which and the convex shape of which ensure its plastic linear release, is projected outwardly, whereas the casing pivots freely around the tenon 9. By reducing the pressure exerted on the bar, the braking action is resumed.

The spontaneous projection of the tape out of the casing is thus furthered by the very favorable frictional coefficient between the steel measuring tape and the nylon sheath lining the casing as well as the nylon bar. The pressure required for braking is on the other hand limited by the favorable leverage between the pivotal axis of the parts of the bar and the points of application of the forces exerted by the spring, the braking remaining efficient.

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The structure and fitting of the braking bar according to the invention leads to a useful and attractive measuring system of the open casing type. The aesthetic appearance may be varied by resorting to different combinations of the appearance and of the color of the material used for the different components of the tape measure. Obviously, the casing may be made entirely of plastic material.

What I claim is:

1. In a tape-measure of the type comprising an open casing with an upstanding circular peripheral flange, a measuring metal-tape coiled inside said casing without being attached thereto, a two-part transverse bar the center of which is attached to the center of the casing and the outer ends of which are folded downwardly against the casing flange, and adapted to resiliently lock said tape with respect to said casing, a pressure exerted on both outer ends of said bar unlocking said casing and permitting the release of said tape from the center of the coil outwardly through the open end of said casing, the combination of a lining of plastic material covering the inner surface of said flange and extending over the upper edge of the latter, said transverse bar being of plastic material and its two parts being pivotally interconnected, the inner end of each part of said bar being provided with a recess facing the recess in the other part, a spring-means being fitted inside both recesses to urge the two parts of the bar apart, in order to brake the relative angular movement of said tape with respect to said bar, whereby, upon pressing on both outer ends of said bar against any action of said spring-means, the said tape is projected outwardly due to the release of said braking.

2. In a tape-measure of the type comprising an open casing with an upstanding circular peripheral flange and a centrally perforated bottom, a measuring metal-tape coiled inside said casing without being attached thereto, a two-

part transverse bar the outer ends of which are folded downwardly against the casing flange, and adapted to resiliently lock said tape with respect to said casing, a pressure exerted on both outer ends of said bar unlocking said casing and permitting the release of said tape from the center of the coil outwardly through the open end of said casing, the combination of a lining of plastic material covering the inner surface of said flange and extending over the upper edge of the latter, said transverse bar being of plastic material and its two parts being pivotally interconnected, the inner end of each part of said bar being provided with a recess facing the recess in the other part, a spring-means being fitted inside both recesses to urge the two parts of the bar apart, in order to brake the relative angular movement of said tape with respect to said bar and a depending tenon rigid with one of the parts of the bar at a point adjacent the pivotal connection between the said two parts and revolvably fitted in the perforation in the casing bottom, whereby upon pressing on both outer ends of said bar against any action of said spring-means, the said tape is projected outwardly due to the release of said braking.

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