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COMBINATION TAPE CASE AND LEVELING DEVICE

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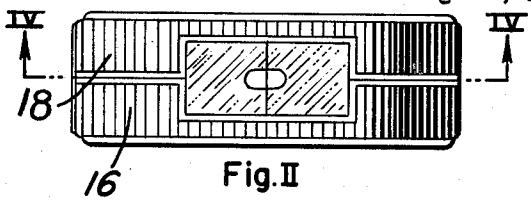


Fig. II

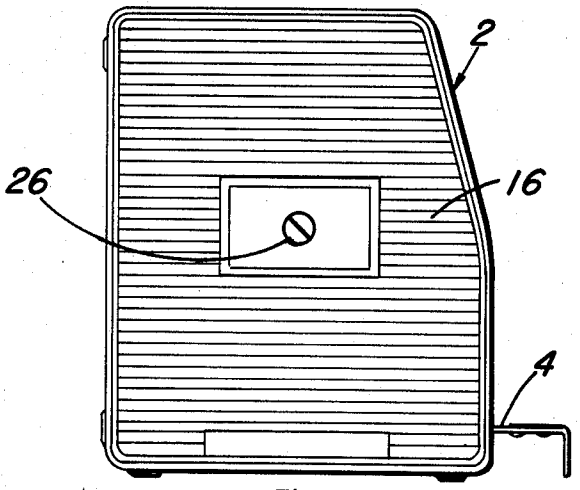


Fig. I

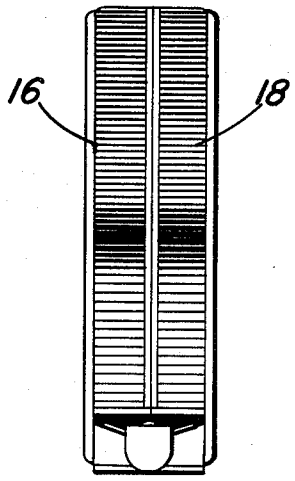


Fig. III

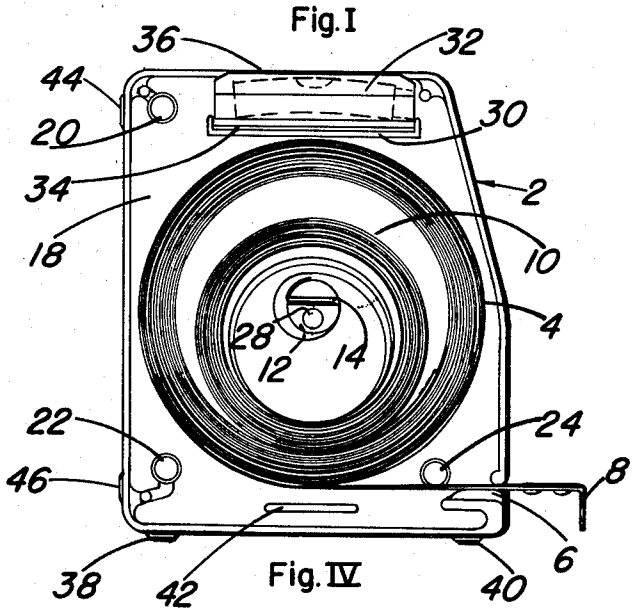


Fig. IV

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COMBINATION TAPE CASE AND LEVELING DEVICE

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3 Claims. (Cl. 33—89)

This invention relates to a combination tape case and leveling device. The device may also include means for checking square. Tools which include a measuring tape and leveling device have been known as early as 1900 (see, for example, Van Vliet Patent No. 642,888). However, such combination tools have never achieved popularity amongst carpenters and other mechanics because they have been awkardly constructed and cumbersome to use. None of the prior art tools of this type has achieved commercial success because of this and also because these prior art tools have not been constructed in a manner suitable for quantity production.

The objects of the present invention are to provide a combined tape case and leveling device which can be readily constructed in accord with present day high quantity production procedures and which is handy for the mechanic to use.

These objects of the invention and the means for their attainment will be more fully understood after reading the following description taken in conjunction with the accompanying drawing in which:

Fig. I is a view in front elevation of the combination tape case and leveling device.

Fig. II is a view in plan of the device.

Fig. III is a view in side elevation of the device.

Fig. IV is a view in front elevation broken along the line IV—IV of Fig. II to show the inside of the tape case.

Referring to the drawings, the combination tape case and leveling device is made up of an enclosure 2 for a measuring tape 4 which may be drawn out of the enclosure 2 through an opening 6. The end of the tape 4 which extends through the opening 6 is provided with an end hook 8 riveted on to the end of the tape 4. The other end of the tape 4 is attached to a spring 10 by conventional means such as a slot and tongue connection. The spring 10 prevents the inner end of the measuring tape from being completely removed from the case 2. The spring 10 will also retract the tape 4 into the enclosure 2 after the tape has been pulled out for making a measurement until the hook 8 contacts the edges of the opening 6. The inner end of the spring 10 is secured to a post 12 by passing it through a slot 14 provided in the post and bending it around the outside diameter of the post.

The enclosure 2 is made up of two castings 16 and 18 which are joined together along the line IV—IV of Fig. II. The term, "casting" as used herein is intended to include die-casting and the like which would normally be used if the two halves of the enclosure 2 were to be made of metal such as zinc or aluminum and molded parts such as would be produced by injection molding machines if the two halves of the enclosure were made of plastic or the like. The post 12 is preferably cast or molded as an integral part of one of the castings 16 and 18. One of the castings, such as 18, may also be provided with posts 20, 22 and 24 having cylindrical openings extending inward from the end thereof to receive cylindrical extensions provided on similar posts on the other casting, such as 16. These will insure that when the two halves of the enclosure 2 are assembled corresponding parts of the two castings will come together in the proper relationship to each other. The two castings 16 and 18 may then be held together simply by means of one screw 26 which, for example, may pass through a hole near the center of the front of the casting 16 into a threaded hole 28 provided in the center post 12 formed as part of the casting 18. An escutcheon plate may be provided on the central front surface of the casting 16.

At least one of the castings 16 and 18 is provided with a shelf 30 integrally formed as part of the casting. The shelf 30 supports a level bubble 32 enclosed in clear plastic. The level bubble 32 may be made by either molding or grinding an arcuate opening of circular cross section into the clear plastic material. This opening is then filled with a suitable liquid leaving a bubble of suitable size and the open end of the opening is plugged or sealed off in any suitable manner. A suitable marking is provided at the top of the level bubble to indicate when the bubble is centered. For example, a single line or a pair of lines may be cut in the upper surface of the clear plastic enclosing the level bubble and filled with a colored material. It is also possible to first make a conventional glass level vial filled with liquid in the usual manner and having a bubble and then imbed the glass level vial in a clear plastic such as methyl methacrylate. The clear plastic enclosing the level bubble is made wide enough to touch the walls of the castings 16 and 18 which form the front and rear walls of the enclosure 2 so that the level bubble enclosed in clear plastic is held between the two castings 16 and 18 which make up the enclosure 2. Preferably, a piece of resilient material 34 which may be merely a piece of ordinary white blotting paper is placed on the shelf 30 and under the level bubble 32 to force the plastic enclosed level bubble 32 against the edges of an opening 36 provided at the top of the enclosure 2 for viewing the level bubble 32.

The bottom edge of the enclosure 2 is provided with stand means such as the two pads 38 and 40 integrally cast on at least one of the castings 16 and 18. The bottom surfaces of the stand means 38 and 40 are made parallel to the axis of the level bubble 32 so that the level bubble 32 indicates whether the surface contacted by the stand means 38 and 40 is level. In production, this parallelism may be adjusted either by bending the shelf 30 or grinding the stand means 38 and 40. The opening 6 must be sufficiently high above the stand means 38 and 40 so that the end hook 8 will not touch the surface on which the stand means 38 and 40 is resting when the device is used for checking the level. A false bottom 42 may be molded or cast in either one or both of the castings 16 and 18 to prevent the tape from touching the actual bottom of the enclosure 2 which might cause the tape to get stuck. This may be desirable because of the height of the opening 6 above the actual bottom of the enclosure.

Square checking means such as the pads 44 and 46 may be provided on the upright edge of the enclosure 2. Preferably, the pads 44 and 46 are integrally cast with at least one of the castings 16 and 18. The construction is such that a surface contacted by the pads 44 and 46 will be square with the surface upon which the pads 38 and 40 rest and when the bubble is centered a surface contacted by pads 44 and 46 will be level.

Having thus described the invention what is claimed is:

1. A combination tape case and leveling device comprising an enclosure for a coiled up measuring tape made up of two castings forming the front and rear parts of

the enclosure, means in said enclosure tending to prevent one end of the measuring tape from being completely removed from the enclosure and for retracting all but the other end of the tape into said enclosure after the tape has been pulled out for making a measurement, a horizontal level bubble enclosed in clear plastic held between the two castings making up said enclosure above said coiled up measuring tape, said enclosure having an opening for the passage of the measuring tape in and out of the enclosure and an opening at the top for observing said level bubble, means on the inside of at least one of said castings above said coiled up measuring tape making up the two parts of said enclosure for holding said plastic enclosed level bubble and stand means on the bottom of at least one of said castings parallel with the axis of said level bubble so that said level bubble indicates whether the surface contacted by said stand means is level.

2. A combination tape case and leveling device comprising an enclosure for a coiled up measuring tape made up of two castings forming the front and rear parts of the enclosure, means in said enclosure tending to prevent one end of the measuring tape from being completely drawn out of the enclosure and for retracting all but the other end of the tape into said enclosure after the tape has been pulled out for making a measurement, a horizontal level bubble enclosed in clear plastic held between the two castings making up said enclosure above said coiled up measuring tape, said enclosure having an opening for the passage of the measuring tape in and out of the enclosure and an opening at the top for observing said level bubble, a shelf extending from the inside wall of at least one of said castings above said coiled up measuring tape making up the two parts of said enclosure for supporting said plastic enclosed level bubble, resilient means between said shelf and said plastic enclosed level bubble engaging said plastic enclosed level bubble directly and forcing said plastic enclosed level bubble against the edges of the opening for viewing said bubble and stand means on the bottom of at least one of said castings parallel with the axis of said level bubble so that said level bubble indicates whether the surface contacted by said stand means is level.

3. A combination tape case, leveling device and square comprising an enclosure for a coiled up measuring tape made up of two castings forming the front and rear parts of the enclosure, means in said enclosure tending to prevent one end of the measuring tape from being completely removed from the enclosure and for retracting all but the other end of the tape into said enclosure after the tape has been pulled out for making a measurement, a horizontal level bubble enclosed in clear plastic held between the two castings making up said enclosure above said coiled up measuring tape, said enclosure having an opening for the passage of the measuring tape in and out of the enclosure and an opening at the top for observing said level bubble, means on the inside of at least one of said castings above said coiled up measuring tape making up the two parts of said enclosure for holding said plastic enclosed level bubble, stand means on the bottom of at least one of said castings parallel with the axis of said level bubble so that said level bubble indicates whether the surface contacted by said stand means is level and means on at least one of said castings defining a line perpendicular to the surface contacted by said stand means so that the device may be used as a square and so that said level bubble indicates whether a surface contacted by said last named means is vertical.

References Cited in the file of this patent

UNITED STATES PATENTS

642,888	Van Vliet	Feb. 6, 1900
721,694	Green	Mar. 3, 1903
1,855,651	Roberson	Apr. 26, 1932
2,142,387	Udell	Jan. 3, 1939
2,240,807	Shaw	May 6, 1941
2,695,454	Dart	Nov. 30, 1954
2,755,556	Lindenbein	July 24, 1956
2,810,206	Ziemann	Oct. 22, 1957
2,813,349	Harris	Nov. 19, 1957

FOREIGN PATENTS

483,930	Great Britain	Apr. 28, 1938
825,903	Germany	Dec. 27, 1951
280,539	Switzerland	Jan. 31, 1952