Title: DISPOSABLE CHALK LINE DISPENSERS

Abstract: Disposable chalk line dispensers including a dispensing container housing a non-replenishable supply of ground chalk for chalking a non-replaceable supply of string for enabling chalked string to be pulled from the dispensing container for chalk line marking purposes.
Published:
without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
DISPOSABLE CHALK LINE DISPENSERS

Field of the Invention

The invention is in the field of chalk line dispensers.

Background of the Invention

Commercially available chalk line dispensers are geared more for the professional tradesman than the Do-It-Yourselfer. Chalk line dispensers are typically designed to provide several years of reliable service and to be periodically refilled with ground chalk. Chalk line dispensers typically include heavy duty string but continuous heavy use eventually leads to even heavy duty string becoming frayed or even snapping. Some top of the range chalk line dispensers have replaceable spools of string to extend their lifetime. A range of commercially available chalk line dispensers can be viewed online inter alia at Applicant’s website http://www.kapro.com/products/Layout/Chalk/Chalk.html.


Summary of the Invention

The present invention is for chalk line dispensers intentionally disposable after a small chalk line marking job or after exhausting either their initial supply of ground chalk or string. A first preferred embodiment of the present invention is implemented in a similar manner to a dental floss dispenser, namely, lengths of
chalked string are intended to be pulled from a dispensing container for immediate use before being immediately cut and discarded. Small lengths of sufficiently chalked string may be wound around a cleat for subsequent use. A second preferred embodiment of the present invention enables re-winding of string back into a dispensing container for re-chalking in a similar manner to a conventional chalk line dispenser. The second preferred embodiment of the present invention differs from conventional refillable counterparts by virtue of a particularly low cost design with a minimal number of parts.

**Brief Description of the Drawings**

In order to understand the invention and to see how it can be carried out in practice, preferred embodiments will now be described, by way of non-limiting examples only, with reference to the accompanying drawings in which similar parts are likewise numbered, and in which:

Fig. 1 is a partially cut away front perspective view of a chalk line dispenser in its initial closed state in accordance with a first preferred embodiment of the present invention;

Fig. 2 is a rear perspective view of Figure 1’s chalk line dispenser in its initial open state;

Fig. 3 shows the use of Figure 1’s chalk line dispenser;

Fig. 4 shows a length of spent string being cut;

Fig. 5 is a partially cutaway front perspective view of a second preferred embodiment of a chalk line dispenser in accordance with the present invention;

Fig. 6 is a first exploded view of Figure 5’s chalk line dispenser;

Fig. 7 is a second exploded view of Figure 5’s chalk line dispenser;

Fig. 8 is a cross section of Figure 5’s chalk line dispenser along line A-A in Figure 5; and

Fig. 9 is a cross section of Figure 5’s chalk line dispenser along line A-A in Figure 5 in an operative state for pulling chalked string for chalk line marking purposes.
Description of Preferred Embodiments of the Invention

Figures 1 and 2 show a chalk line dispenser 10 including an upright injection moulded or blow moulded plastic open topped cylindrical dispensing container 11 with a bottom surface 12 on which the dispensing container 11 stands. The dispensing container 11 contains a non-replenishable supply of ground white or colored chalk 13 and a non-replaceable supply of string 14, preferably cotton and multi strand, wound on itself, with no core, and having a loose end 16, and is sealed by a mounded plastic dispensing cap 17. The dispensing cap 17 has a top surface 18 with a channel 19 formed with a dispensing aperture 21 fitted with a felt washer 22 (not shown) through which chalked string 14 can be pulled for chalking purposes. The felt washer 22 ensures that string pulled from the dispensing container 11 is sufficiently chalked for chalking purposes but excess chalk remains in the dispensing container 11 for subsequent use. The dispensing cap 17 includes a string hook 23 for interference fitting into the channel 19. The string hook 23 includes a stopper 24 for sealing the dispensing aperture 21, and an eye 26 for hooking onto a fixed member such as a nail, a screw, or the like. The dispensing cap 17 includes a cleat 27 around which string 14 can be wound for tensioning purposes and also to allow the dispensing container 11 to act as a plumb bob. The dispensing cap 17 includes a slot 28 fitted with a cutting device 29 preferably in the form of a flat metal plate 31 with a raised tab 32 similar to a dental floss dispenser.

The use of the chalk line dispenser 10 is now described with reference to Figures 3 and 4:

A user purchases the chalk line dispenser 10 in its closed state (see Figure 1) and prepares it ready for use by pulling off the string hook 23 and tying it onto the string's loose end 16. The user replaces the string hook 23 to seal the dispensing aperture 21, and shakes the dispensing container 11 to transfer chalk 13 onto the string 14. The user removes the string hook 23 and hooks it onto a fixed member, and walks away to pull chalked string 14 from the dispensing
container 11. At the required length, the user wraps some of the chalked string 14 round the cleat 27 such that he can tension the chalked string 14. The user then twangs the chalked string 14 to deposit a chalk line at the desired location. The user can re-use the same length of chalked string 14 for another job; if only a short length of string has been used and there is sufficient chalk left on it, wind it on the cleat 27 for subsequent use; or cut it using the cutting device 29. The user repeats the above for different jobs. The user discards the chalk line dispenser 10 after finishing a small chalking job or after exhausting the initial supply of chalk 13 or string 14.

Figures 5-7 show a chalk line dispenser 50 includes a dispensing container 51 in the form of a pair of injection moulded or blow moulded plastic bowl shaped casings 52 and 53 housing a non-replenishable supply of chalk 54 and a non-replaceable plastic spool 56 of string 57 with a loose end 58 having a string hook 59 for hooking onto a nail, a screw, or the like. The spool 56 includes a blind hollow spindle 61 with an open end 62, and a closed end 63, and a pair of annular flanges 64 and 66. The flange 64 has an exterior surface 67 with elongated spacers 68 extending radially outwards from the open end 62 and having outwardly facing bulbous free ends 68A. The flange 66 has an exterior surface 69 with an annular array of saw shaped teeth 71 (constituting engaging members) adjacent the closed end 63.

The casing 52 has an interior surface 72 against which the spacers’ free ends 68A bear, a rim 73 with a peripheral groove 74, a central circular projection 76 for rotatably supporting into the spindle’s open end 62, and a dispensing aperture 77 through which string 57 passes into and out of the dispensing container 51. The dispensing aperture 77 includes a felt washer 77A for ensuring that string pulled from the dispensing container 11 is sufficiently chalked for chalking purposes but excess chalk remains in the dispensing container 51 for subsequent use. The casing 53 has an interior surface 78 with a central aperture 79 for rotatably supporting the spindle’s closed end 63 which protrudes therethrough, and a rim 81 for snap fit insertion into the peripheral groove 74.
thereby peripherally attaching casing 53 to casing 52. The interior surface 78 is formed with an annular array of recesses 82 (constituting engaging members) for selectively engaging teeth 71.

Snap fit assembly of the chalk line dispenser 50 causes the spacers 68 to axially urge the spool 56 to a natural axial position away from the casing 52 towards the casing 53 whereupon the teeth 71 engage the recesses 82 precluding pulling out chalked string even on application of reasonable force (see Figure 8). Axial depression on the closed end 63 towards the casing 52 urges the spool 56 from its natural axial position to a biased axial position by virtue of the elastic deformation of the spacers 68 at their roots adjacent the spindle’s free end 62 (see Figure 9). The spacer 68 bend inwards in the spool’s biased axial position towards the spool’s interior thereby releasing the spool 56 from the braking action of the teeth 71 whereupon the spool 56 is free to rotate.

The use of the chalk line dispenser 50 is now described with reference to Figures 8 and 9:

A user shakes the dispensing container 51 to transfer chalk 54 onto the string 57, holds the dispensing container 51 in one hand and places the string hook 59 onto a fixed member, for example, a nail, a screw, or the like. The user uses his thumb to press down on the closed end 63 which releases the spool 56 and then the user can walk away from the fixed member whereupon chalked string 57 is pulled from the dispensing container 51 rotating the spool 56 in an anticlockwise unwinding direction. The user will feel the spindle’s closed end 63 turning under his thumb as chalked string is pulled of the dispensing container 51. The user releases the closed end 63 whereupon the teeth 71 re-engage the recesses 82. The user is free to twang the taut chalked string to deposit a chalk line at a desired location. The user holds the casing 52 and applies sufficient force to overcome the friction between the rim 81 in the groove 74 to cause the casing 53 to rotate relative to the casing 52 in a clockwise rewinding direction to rewind the string 57 back onto the spool 56.
While the invention has been described with respect to a limited number of embodiments, it will be appreciated that many variations, modifications, and other applications of the invention can be made within the scope of the appended claims.
Claims:

1. A disposable chalk line dispenser comprising a dispensing container for housing a non-replenishable supply of ground chalk for chalking a non-replaceable supply of string for enabling chalked string to be pulled from said dispensing container via a dispensing aperture for chalk line marking purposes.

2. The device according to claim 1 wherein said dispensing container includes a cutting device for cutting a length of spent string.

3. The device according to either claim 1 or 2 wherein said dispensing container includes a cleat for wrapping string therearound for tautening a length of chalked string between said cleat and a loose end remote from said dispensing container.

4. The device according to any one of claims 1 to 3 wherein said dispensing container has a handheld cylindrical open topped shape with a bottom surface for standing said dispensing container upright on a surface, and a dispensing cap for sealing said dispensing container wherein said dispensing cap includes said dispensing aperture.

5. The device according to claim 1 wherein said dispensing container includes a pair of peripherally attached bowl shaped casings rotatable with respect to one another, said dispensing container housing a spool of string selectively manipulatable between a biased axial position in which said spool is freely rotatable for enabling chalked string to be readily pulled from said dispensing container causing said spool to rotate in an unwinding direction and a natural axial position in which said spool releasably engages said dispensing container whereupon relative rotation between said pair of casings in a counter rewinding direction rewinds string onto said spool.
6. The device according to claim 5 wherein said spool includes a spindle with an end surface and a pair of annular flanges each with an exterior surface, one of said exterior surfaces having at least one elastically deformable spacer for bearing against an inside surface of a first casing of said pair of casings and the other of said exterior surfaces having engaging members for engaging counterpart engaging members on the inside surface of a second casing of said pair of casings and said second casing having an aperture through which said end surface is accessible for manipulating said spool from said natural axial position to said biased axial position on depression on said end surface in the direction of said first casing.

7. The device according to claim 6 wherein said first casing includes said dispensing aperture.