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3,279,591

MULTIPLE SPOOL RETAINER

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Filed July 22, 1964, Ser. No. 384,382
10 Claims. (Cl. 206—65)

This invention is concerned with spool retainers, particularly with disposable retainers which are suitable for retaining a vertical stack of spools in an integrated package but which are readily disassembled to permit removing one or more of the spools.

Spools of ribbons, elastic, adhesive tape and the like are generally difficult to merchandise because unless they are displayed in boxes, they must be stacked to conserve shelf space. The stacks are rarely stable even when the spool sides are perfectly flat and as a result the retail merchant is confronted with a loose collection of spools.

It is an object of this invention to provide a spool stack retainer which will retain a stack of spools in such a way that no immediate container will be necessary for transporting, displaying and selling the spooled product.

It is a further object of the invention to provide a spool stack retainer in which the carrying handle also is a lock which must be removed before spools may be displaced from the stack but which is so easily removed as to provide ready access to the spools.

Referring to the drawings:

In FIGURE 1, a typical stack of spools is shown integrated by a typical stack retainer of the invention.

FIGURES 2 is a cross section of the stack of FIGURE 1 taken below a spool proper but cutting through the sleeve thereof.

FIGURE 3 is a side view of a typical stack retainer of the invention showing the locking arrangement.

FIGURES 4 and 5 are alternate locking portions for the retainer of FIGURE 3.

The stack retainers of this invention are very economical to manufacture and hence are disposable. The preferred material for the retainers is corrugated board. Double-faced corrugated in the range of 125 to 275 pounds per square inch bursting strength by the Mullen test in A, B, C and E flutes is preferred. Crushed B flute corrugated is particularly appropriate. Paperboard is also suitable in proper thickness of about 20–36 points (.020–.036 inch). All grades of paperboard such as lusterboard, clay-coated news, patent-coated, bleached manila and chipboard are suitable. The stack retainers may also be made of sheet metal or sheet plastic. Sheet polyethylene and polypropylene are particularly appropriate in thickness from 3 to 10 or more mils. Other more expensive thermoplastics in sheet form may also be used. With some thermoplastics it may be necessary to soften the material by heat or solvents to properly bend it. Thermosetting resins which generally have a plastic stage before crosslinking or thermosetting occurs may be used by folding the retainer to final form when the resin is in the plastic stage and then converting the resin to the thermoset form.

Referring once more to the drawings:

In FIGURE 1, the assembled spool stack 10 consists of a number of spools 11. The spools are preferably flat on both sides but interfitting spools, as illustrated, also form very compact spool stacks. The device of this invention will contain the spools in stacked condition, however, regardless of whether the spools have flat, interfitting or irregular sides. The spools should have individual cores such as 12 but they may or may not have end flanges such as 31 and 32 or sleeves 25 as in the em-

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bodiment illustrated in FIGURE 1. The metal sleeve 25 illustrated has an inwardly rolled stop edge 26 at one end and an outwardly rolled mouth edge 33 at the other end. The flanged spool slides in at the mouth end of the sleeve and is stopped by contact of the leading flange with the stop edge of the sleeve. As has been indicated, however, the retainer of this invention will retain rolls of any material rolled on a hollow core and its operation is not dependent upon protective devices such as flanges and sleeves.

The retainer of the invention consists of a support portion 13 and a combination handle and lock portion 14 which portions frictionally interfit to retain hollow-cored rolls threaded on the support portion. The support portion consists of an upright triangular sectioned column formed of panels 21, 22 and 23 and a horizontal base 19. These panels and the base may be molded integrally from plastic in which case the base could extend on all sides and be connected directly to each of the panels. In such a molded support panels 22 and 23 would have a common edge and panel 24 would be unnecessary. But if the retainer is made of sheet material as is illustrated in the drawings, the column and base may be made from a single sheet thereof by folding or bending. In practice, the base 19 is formed to fit into the recess at the stack bottom of the embodiment as is shown in FIGURE 1. But if there is no such recess, the bottom spool will rest directly on the base and the latter may be made in a variety of shapes and sizes. With sheet material, the base is formed depending and integral with one of the column panels preferably but not necessarily with panel 21. The support column is formed by bending or folding the sheet material as indicated to form a prism-shaped upright support with a substantially triangular cross section. Although not essential, it is preferred that the cross section of the support column be substantially circumscribed by the roll cores. The base 19 is folded or bent along a line 20 transverse to the panel to which it is attached so as to be perpendicular thereto and preferably to underlie the support column. With some materials the triangular sectioned support column will substantially retain its folded or bent shape and this is helpful in assembling the stack. It is not essential that panels 23 and 24 be directly attached to form a permanent column, however. Even when the support column is made of materials which, after bending, relax to increase the angle between adjacent panels, the shape will be retained in those cases where the column is substantially circumscribed by the roll cores. Because of the ease of handling and assembly which accompanies a stable support column, however, I prefer, where necessary, to retain the bent or folded shape by attaching the overlapped panels 23 and 24 together. They may be fastened mechanically as by stapling or riveting; or they may be glued or heat sealed where appropriate or otherwise fastened. Optionally, the panel 19 may also be fastened to the support so that it no longer hinges on the fold 20.

The combination handle and lock portion 14 of the retainer is shown in the FIGURE 3 embodiment to consist of a locking blade 15 and an integral handle and lock 16 hinged together at fold 17. The end of the blade 17 is preferably tapered as at 18 to facilitate insertion of the locking blade into the triangle of the support column as shown in FIGURE 2. The blade wedges itself to such a degree that the stack may be lifted and carried by the handle 16 without pulling out the blade. Because the handle is wider than the roll cores, it tends to lock the rolls in place as long as the blade is wedged into place.

In practice either or both the support column 13 or the locking blade 15 should be somewhat resilient. Thus if the column 13 is of rigid plastic, then the locking blade

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should be of some less rigid material which can bend and distort sufficiently to wedge itself into carrying position. Polyethylene is suitable as a resilient material as is cardboard or corrugated.

In FIGURE 4, an alternative combination handle and lock portion 34 includes a toothed locking blade 36 hinged along the fold 28 to the handle 35. The teeth 27 permit a more rigid material to be used than otherwise.

In FIGURE 5, an alternative combination handle and lock portion 29 includes a locking blade 37 hinged along fold 39 to the handle 38. Wedging wings 30 provide additional friction surfaces.

In using the retainer of the invention it is placed, support column upright, on its base. Spools are then placed on the support with the support column threading the spool cores. When the stack is complete, the blade of the combination handle and lock portion is inserted into the support column triangle and pushed home locking the spools in a compact stack. Where spools are recessed as in FIGURE 1, the handle of the locking portion may be fitted into the spool recess. Otherwise the handle may be bent over or left upright. Likewise the base of the stacking column may fit into the spool recess or may simply be bent over to provide a rest for the stack.

The stack may be dissembled by pulling the handle upward with sufficient force to overcome the friction of the locking blade against the inside of the support column whereupon the blade is withdrawn thus permitting removal of one or more spools. The blade may then be re-inserted to provide a stop for the remaining spools.

I claim:

1. A spool dispenser and retainer for vertically displaying hollow-cored spools with their vertical sides unobscured comprising a supporting portion and a locking portion, said supporting portion comprising a base having a width greater than the inside diameter of the core of spools to be retained and attached thereto and rising therefrom a hollow support column of triangular cross section capable of being circumscribed by a circle not greater in diameter than the inside diameter of the core of spools to be retained, said locking portion including a blade and a handle therefor, said handle having a width greater than

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the inside diameter of the core of spools to be retained, said blade, when inserted swordlike into said hollow column, frictionally engaging the same with such force as not to be disengaged by the weight of any spools retained when said retainer is suspended by said handle but being readily disengaged solely by the application of moderate withdrawing force whereby one or more spools threaded and retained on said column may be removed therefrom, whereupon said blade may be re-engaged with said column for retaining the remaining spools.

2. The retainer of claim 1 wherein the portions are made of sheet material.

3. The retainer of claim 1 wherein the portions are made of corrugated board.

4. The retainer of claim 1 wherein the portions are made of paperboard.

5. The retainer of claim 1 wherein the portions are made of sheet plastic.

6. The retainer of claim 1 wherein the blade of said locking portion is toothed.

7. The retainer of claim 1 wherein the blade of said locking portion has side wings.

8. The retainer of claim 1 wherein the supporting portion is integral.

9. The retainer of claim 8 wherein the supporting portion is formed from a sheet folded to shape.

10. The retainer of claim 1 wherein the blade and handle for said locking portion are integral.

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