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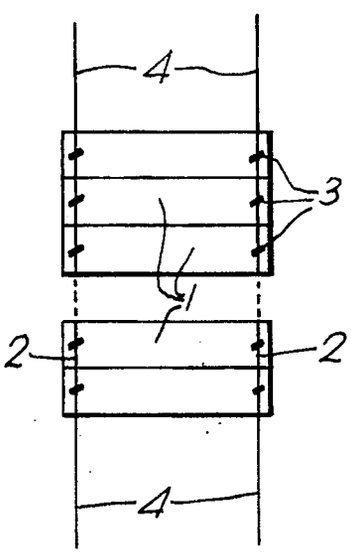
(54) Drum packaging for cables and the like.

(57) Cable or other elongate product wound on a drum (5) is protected with "lagging" without use of nails and without requiring shaped battens or difficult application techniques. The battens (1) or other lagging strips are preformed into at least one mat (6) by use of strings (2) or other flexible material, suitably stapled to the strips, positioned so that they overly and can be fixed to the drum flanges, again preferably by staples. This is sufficient to hold the mat(s) (6, 9) in place, at least until an encircling metal strap (10) can be applied. The strips can be closely spaced; they are easily removed simply by cutting the string (2) (or other flexible material) in a small number of places, present no hazards from projecting nails after removal, and are more likely than loose individual strips to be recovered for re-use.

Fig.1.



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DRUM PACKAGING FOR CABLES AND THE LIKE

This invention relates to the packaging of cables and other like elongate products on drums made of wood or of other materials capable of accepting nails, staples and the like.

After an electric cable has been wound on such a drum, it is the usual current practice to protect it in transit by nailing to the circumference of the drum an enclosing layer of wooden battens, known as lagging. As each batten is individually nailed, both the application and the removal of lagging is time-consuming and there may be danger of injury or damage arising from nails projecting from a lagging batten after removal. Sometimes use of nails has been avoided by using battens that are secured solely by a surrounding metal strap, but this requires expensive battens rebated to seat on the drum flanges and further complicates application. In an attempt to mitigate these disadvantages, lagging has sometimes been applied in the form of preformed mats in which the individual battens are connected together by strings, or other flexible material, stapled to them (carpet or cat lagging). Known carpet lagging has been applied to the wound cable, inside the drum flanges, and has been made with gaps between the battens comparable with their own width; it thus gives less satisfactory protection than conventional lagging.

The present invention provides a method of packaging elongate products, and the resulting package, in which plain battens can be used expeditiously without nails, and yet can be closely packed and supported by the drum flanges.

The invention relies on the use of lagging strips (such as wooden battens) preformed into at least one mat by two lengths of flexible material (such as strings) fixed to all the strips of the mat and is characterised by the facts that the positions of the lengths of flexible material are such that when the or each mat is applied to a portion of the drum circumference the flexible material is positioned substantially on the circumference of the respective drum flanges, and that the mat is secured by fixing the flexible material in a taut condition directly or indirectly to the drum flanges.

Preferably (if the material of the strips permits) the or each mat is formed by stapling the flexible material to the strips. Preferably also the or each mat is secured by stapling projecting ends of the flexible material directly to the flanges or (in the case of a second or any subsequent mat) to the end strip of an adjacent mat already secured to the drum.

Preferably the or each mat is applied with the flexible material on the inside, so that the lagging strips protect it from damage. However, after the mat or mats have been secured in position as described, conventional metal straps can be applied for extra security.

Preferably a single mat preformed in one or more than one stage is used and is applied by fixing its leading end to the drum flanges and rotating the drum, either mechanically or manually, while supporting it off the ground, preferably with its axis horizontal. The preforming of the mat may overlap with its application to the drum.

The invention incurs no significant extra material cost - indeed the cost of string and staples may be less than that of nails. On arrival at site, the lagging can be removed in a very short time by cutting the metal straps (if used) and the flexible material, without leaving any projecting nails (nor staples); and since the lagging remains in the form of a mat (or a number of mats) that can be readily rolled up, there is a reasonable chance that it can be recovered for reuse in at least a proportion of cases, saving a significant cost.

The invention will be further described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a plan view of a lagging mat for use in accordance with the invention;

Figure 2 is a diagrammatic representation of six successive stages one method of applying two such mats to a cable drum; and

Figure 3 is a diagram illustrating the application of a single lagging mat in accordance with the invention using a motor-driven drum stand. The wooden cable drum used in the Example of figures 1 and 2 has a diameter of 1.7m, a traverse (length inside flanges) of 0.8m, and a flange thickness of 76mm, and is to be lagged with common softwood battens 953mm by 102mm by 38mm (52 required).

Two mats are first made (figure 1) by laying out two groups of 26 battens 1 touching edge to edge and securing them with two polypropylene strings 2 positioned about 38mm from respective ends of the battens and each stapled to the battens by a single staple 3 positioned near the midline of each batten. Projecting ends 4 are left on the strings.

The drum 5 (figure 2, stage a) is now supported clear of the floor; the first of the mats 6 is brought to it and one of its ends is secured (stage b) by stapling the respective ends 4 of the strings to the flanges at 7 with three staples per string. The drum is now rotated into a position (stage c) in which the weight of the mat tends to keep it taut and the other end similarly stapled at 8. A second

mat 9 is similarly applied (stages d and e), except that in this case in order to minimise the gap between the two mats only one staple per end is driven into the flange and the string ends then each secured by three more staples driven into the end battens of the first mat 6. Lagging is thus complete except for the optional addition of metal packing bands 10 (stage f).

A possible variant of this method, at least when the drum is small enough to be easily handled, is to lay the or each mat on the floor, roll the drum onto the mat in the appropriate alignment, lift one end of the mat and staple it to the reel flanges, and then rotate the reel until the mat is properly wrapped around it; this would avoid need for any lifting equipment.

Figure 3 illustrates a further development of the method of the invention in which stapling can be done at a convenient bench-top height and in which lifting of the whole preformed mat is avoided. This improved method uses a portable worktable 11 and a motor-driven drum stand 12. Battens 1 are laid out in groups on the flat top of the worktable 11 and the string 2 (drawn from packages 13) is stapled in position to form a section of a single mat. In this case two staples 3 per batten have been shown. The completed section of mat 14 is slid down the ramped end 15 of the worktable (and eventually onto the floor 16) and more battens added and stapled in place until the required length of matting is complete (the diagram shows the third stapling operation in progress). When the leading end of the mat reaches a convenient position, the leading ends 4 of the strings are lifted and stapled to the drum flanges at any convenient position 7. It is not essential that the battens engage the drum flanges when the first staples are driven to fix the strings to the flanges, provided the spacing is substantially the same for both strings: if necessary the drum can be rotated after first stapling the string and more staples added when this brings the first batten into engagement with the drum flanges. Rotation is then commenced or resumed and continues (subject to interruption for the addition of more battens if required, depending on the drum size) until the whole mat is in place. Preferably the ends of the mat are spaced apart the width of one batten, allowing ample space for stapling the trailing free ends of the strings 2. This space is then filled with a single batten, not stapled but held in place solely by tensioned metal straps applied as in the previous example (10 in figure 2(f)).

In either case, after arrival of the drum at the site where the cable is to be used, the metal strips are first cut and the loose batten (if any) falls out; the strings are cut free from the drum flanges, and the mat or mats can be rolled up and returned.

Claims

1 A method of packaging an elongate product comprising winding it on a drum made of wood or of other material capable of accepting nails, staples and the like and applying to the drum lagging strips (such as wooden battens) preformed into at least one mat by two lengths of flexible material (such as strings) fixed to all the strips of the mat, characterised in that the positions of the lengths of flexible material are such that when the or each mat is applied to a portion of the drum circumference the flexible material is positioned substantially on the circumference of the respective drum flanges, and that each mat is secured by fixing the flexible material in a taut condition directly or indirectly to the drum flanges.

2 A method as claimed in Claim 1 in which the mats are formed by stapling the flexible material to the strips.

3 A method as claimed in Claim 1 or Claim 2 in which the or each mat is secured by stapling projecting ends of the flexible material directly to the flanges or (in the case of a second or any subsequent mat) to the end strip of an adjacent mat already secured to the drum.

4. A method as claimed in any one of Claims 1-3 in which the or each mat is applied with the flexible material on the inside.

5 A method as claimed in any one of the preceding claims in which after the mat or all the mats have been positioned metal straps are applied for extra security.

6 A package in which an elongate product is wound on a drum made of wood or of other material capable of accepting nails, staples and the like and enclosed by lagging strips preformed into at least one mat by two lengths of flexible material (such as strings) fixed to all the strips of the mat characterised in that the positions of the lengths of flexible material are such that they are positioned substantially on the circumference of the respective drum flanges, the or each mat being secured by the flexible material secured in a taut condition directly or indirectly to the drum flanges.

7 A package as claimed in Claim 6 in which the or each mat is formed by stapling the flexible material to the strips.

8 A package as claimed in Claim 6 or Claim 7 in which the or each mat is secured by stapling projecting ends of the flexible material directly to the flanges or (in the case of a second or any subsequent mat) to the end strip of an adjacent mat already secured to the drum.

9 A package as claimed in any one of Claims 6-8 in which the or each mat is applied with the flexible material on the inside.

10 A package as claimed in any one of Claims 6-9

in which additionally metal straps are applied.

Fig.1.

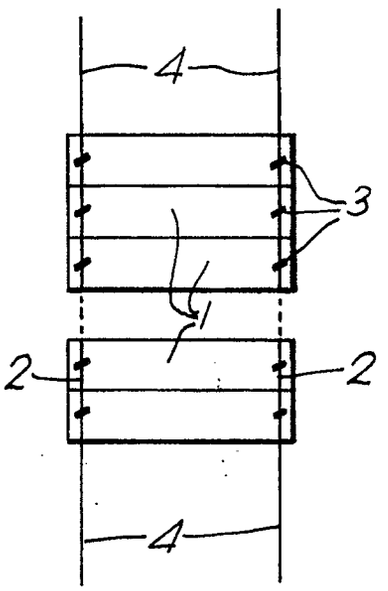


Fig.3.

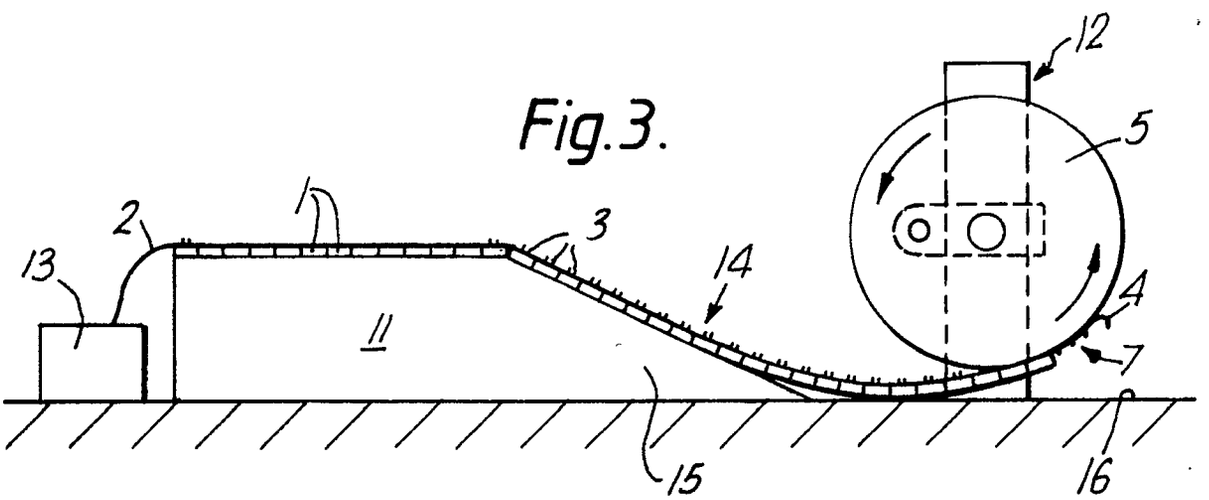
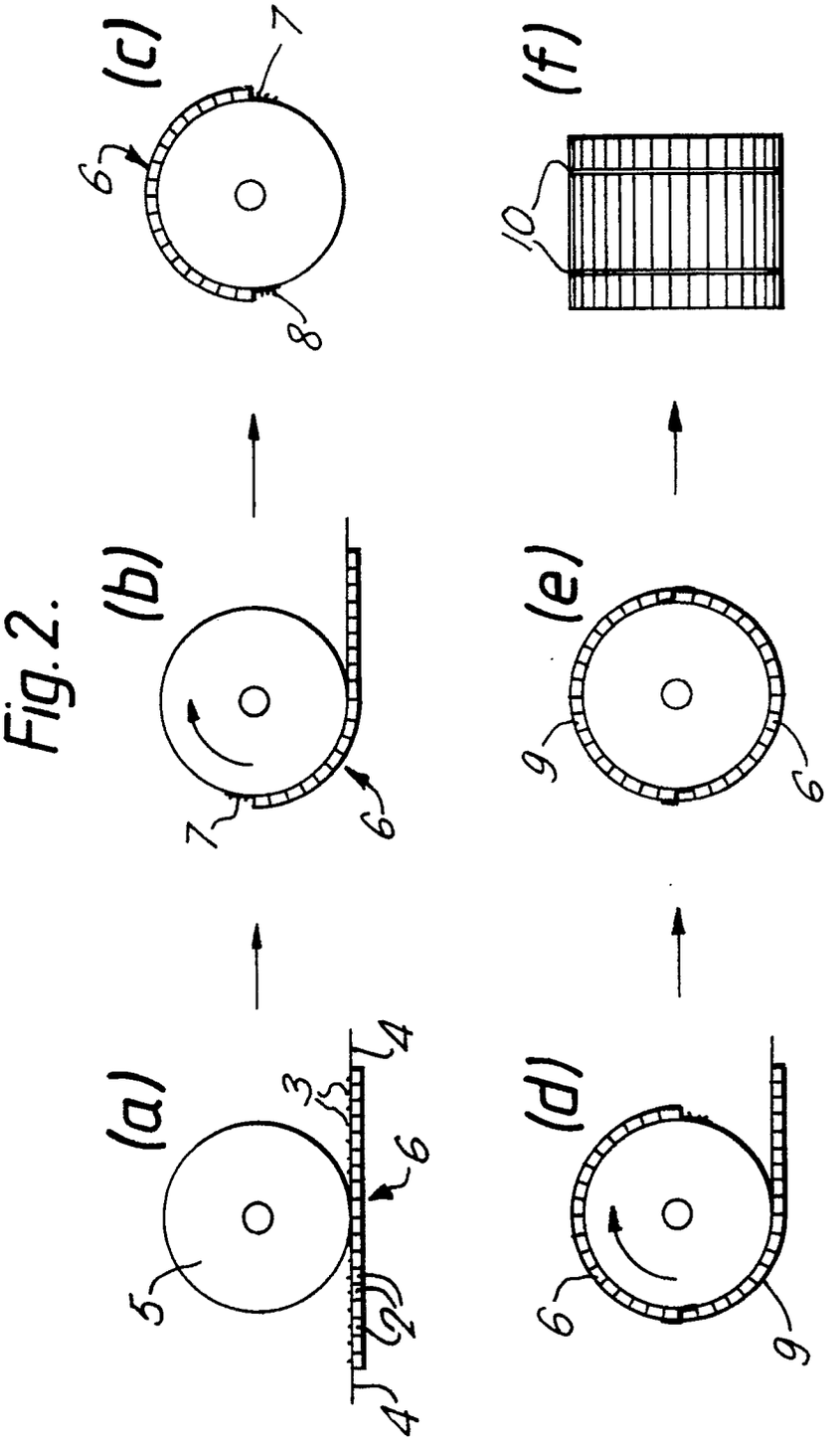


Fig.2.



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EUROPEAN SEARCH REPORT

Application Number

EP 90 31 1627

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	FR-A-2095890 (SIMONCELLI) * page 2, lines 16 - 30; figures 1-5 *	1, 6	B65H75/14 B65D85/66
Y		2, 4, 5, 7, 9, 10	
Y	US-A-4850487 (ROBERTSON) * the whole document *	2, 4, 5, 7, 9, 10	
A		1, 6	
A	DE-B-1176225 (SIEMENS-SCHUCKERTWERKE) * column 2, lines 46 - 51; figure 1 *	1, 5, 6, 10	
A	US-A-2763056 (KIMMEL) * figures 1-6 *	1, 5, 6, 10	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

B65H
B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	25 JANUARY 1991	SPETTEL, J.D.M.L.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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