



EUROPEAN PATENT APPLICATION

Application number : **95302834.7**

Int. Cl.⁶ : **D01G 25/00, D01G 15/52, D01G 27/00**

Date of filing : **26.04.95**

Priority : **27.04.94 GB 9408299**

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Date of publication of application :
02.11.95 Bulletin 95/44

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Designated Contracting States :
AT BE CH DE DK ES FR GB GR IE IT LI LU MC
NL PT SE

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Cotton wool roll pack.

A method of making a pack (36) of cotton wool rolls (34) in which a web (30) of cotton wool is divided into a plurality of lengths of cotton wool, the lengths of cotton wool being wound into rolls (34), the adjacent edges of the lengths of cotton wool being in close proximity to one another during the winding operation to loosely bind the rolls to one another.

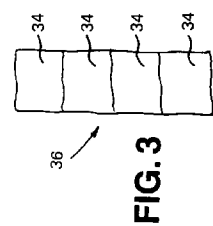


FIG. 3

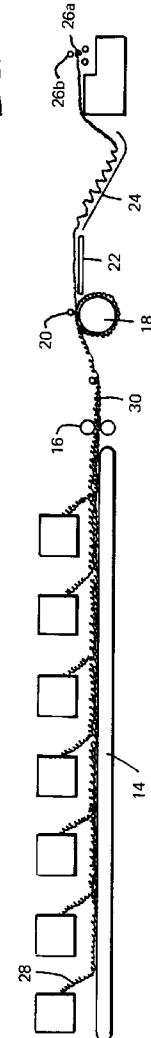


FIG. 2

The present invention relates to cotton wool products such as rolls of cotton wool.

Cotton wool is commonly used as a cleansing product for example in personal hygiene, medical care and in the care of babies and small children.

The cotton wool can be in the form of cotton wool balls, as a roll of cotton wool eg. as a web of cotton wool wound into a roll, or in other forms.

In the case of cotton wool in roll form the width of the roll is commonly about 12 inches and in use pieces of cotton wool material are torn from the roll at one end. Repeated removal of the cotton wool in this way tends to turn the remainder of the roll into a conical shape, and the material becomes progressively harder to remove.

Also due to the width of the material, it is bulky to carry out eg. by a mother for the care of a baby or small child.

The present invention seeks to provide a pack of cotton wool rolls in which the individual rolls are separable from each other and are of a width which is sufficiently small to overcome the problems encountered by rolls of cotton wool of a greater width.

Accordingly the present invention provides a method of making a pack of cotton wool rolls in which a web of cotton wool is divided into a plurality of lengths of cotton wool, the lengths of cotton wool being wound into rolls, the adjacent edges of the lengths of rolls being in close proximity to one another during the winding operation to loosely bind the rolls to one another.

The web of cotton wool can be formed by a plurality of layers of cotton wool laid on top of one another, the layers being produced by respective carding machines.

The web of cotton wool can pass in succession through calendaring means and condensing means.

In order to divide the web the web can pass through a plurality of cutters in order to divide the web into a the lengths of cotton wool, the lengths of cotton wool then passing through a rolling machine.

The wound cotton wool rolls are removed from the winding machine and enclosed in a protective sleeve.

The present invention also provides a pack of cotton wool rolls comprising two or more rolls in which the rolls are loosely bound together but which are readily separable from one another.

The pack can comprise any convenient number of individual rolls and can be contained with an outer sleeve of plastics material in order to protect the contents.

The present invention will now be more particularly described with reference to the accompanying drawing in which;

Figure 1 shows a plan view of an apparatus for forming the cotton wool rolls according to the present invention;

Figure 2 shows an elevation of the apparatus shown in figure 1; and

Figure 3 shows a pack of cotton wool rolls according to the present invention.

5 Referring to the figures, an apparatus (10) for forming cotton wool rolls comprises seven carding machines (12) which are arranged above a conveyor belt (14), a pair of calender rollers (16), a condensing roller (18), four cutters (20), a conveyor (22), a chute (24) and a rolling machine (26).

10 Each carding machine delivers a web of cotton wool (28) which is relatively open in structure and of a width approximately 36 inches.

15 It will be appreciated that the web (28) of cotton wool from each carding machine is laid upon the web of cotton wool issuing from the previous carding machine so that the web of cotton wool at the right hand end of the conveyor (14) before it enters the calender roller (16) comprises seven layers of cotton wool. These seven layers of cotton wool pass through the calender rollers (16) where it is compressed and a compressed web (30) from the calender rollers passes under a guide then on to the condensing roller (18) where the width of the web is reduced to approximately 12 inches.

20 The four cutters (20) divide the cotton wool web (30) into four narrow webs (32) of approximately 3 inches each and these narrower webs pass onto a conveyor (22) and into the reserve chute (24).

25 The four webs (32) which are distinct from one another but which are closely adjacent then pass simultaneously into the rolling machine (26) where four separate but closely adjacent rolls (34) of cotton wool are wound to form a pack (36) of cotton wool rolls which are separably attached to each other.

30 The rolling machine essentially comprises a central spindle (26A) which is driven and three forming rollers (26B) which are also driven.

35 The leading edges of each of the four webs of cotton material are secured to the driven spindle (26A) and the three forming rollers are brought into contact with the individual rolls of cotton wool as the spindle (26A) turns. The forming rollers move outwardly as the roll diameter increases and when the desired length of cotton wool has been wound into the four individual rolls the webs of cotton wool are cut. The forming rollers are moved out of contact with the wound rolls and the rolls which are separably attached to each other by intermingling of the fibres at adjacent edges of the rolls are removed from the spindle (26A) by a collar which is slidably mounted on the spindle (26A).

40 The pack (36) four wound cotton wool rolls can then be placed in a protective sleeve which can be for example a transparent plastics material.

45 In use the sleeve can be drawn back to expose one of the wound rolls of cotton wool which can be separated from the remaining rolls be hand. It will be

appreciated that this separated roll is approximately 3 inches in width and the cotton wool material can be readily removed from this roll and the roll can be easily stored and carried about as required. The remaining rolls in the pack can be sealed by closing the end of the sleeve for example by a draw string. 5

The adjacent rolls of cotton wool are separably attached to each other by an intermingling of the fibres at adjacent edges of the rolls whilst the rolls are being wound in the rolling machine (26). 10

The pack can contain any suitable number of rolls and the pack can be formed also by feeding webs of cotton wool material which have been previously formed in other ways than that described above into a roll forming machine in order to create a pack of cotton wool rolls which are readily separable from each other. 15

Claims 20

1. A method of making a pack of cotton wool rolls in which a web of cotton wool is divided into a plurality of lengths of cotton wool, the lengths of cotton wool being wound into rolls, the adjacent edges of the lengths of cotton wool being in close proximity to one another during the winding operation in order to loosely bind the cotton wool rolls to one another. 25 30

2. A method as claimed in claim 1 in which the web of cotton wool is formed by a plurality of layers of cotton wool laid on top of one another, the layers being produced by respective carding machines. 35

3. A method as claimed in claim 2 in which the web of cotton wool passes in succession through calendering means and condensing means.

4. A method as claimed in any one of the preceding claims in which the web passes through a plurality of cutters to divide the web into lengths, the lengths of cotton wool then passing through a rolling machine. 40 45

5. A method as claimed in claim 4 in which the wound cotton wool rolls are removed from the winding machine and enclosed in a protective sleeve. 50

6. A pack of cotton wool rolls comprising a plurality of wound cotton wool rolls, the ends of adjacent rolls being releasably bound to one another.

7. A pack as claimed in claim 6 in which the rolls are contained within a plastic sleeve. 55

8. A pack as claimed in claim 6 manufactured ac-

ording to any one of claims 1 to 5 inclusive.

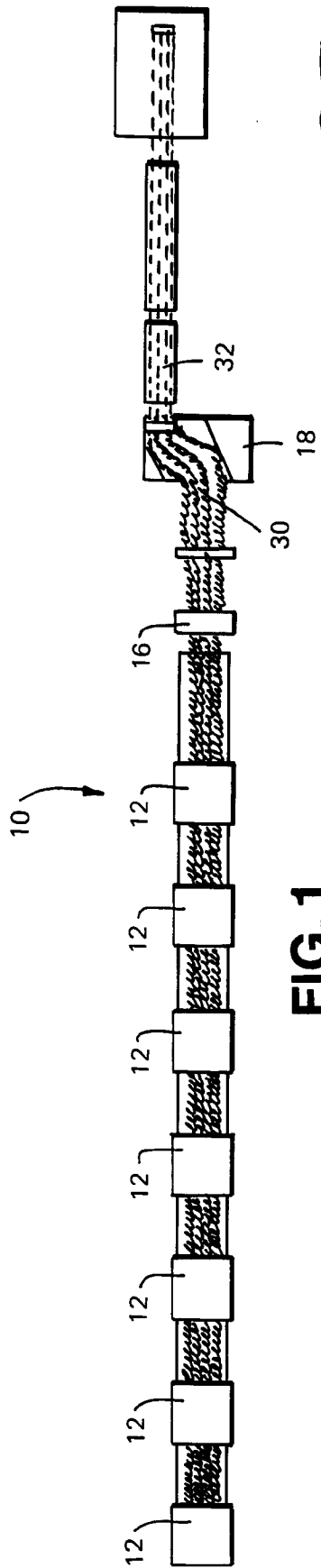


FIG. 1

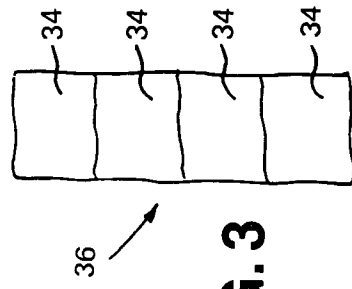


FIG. 3

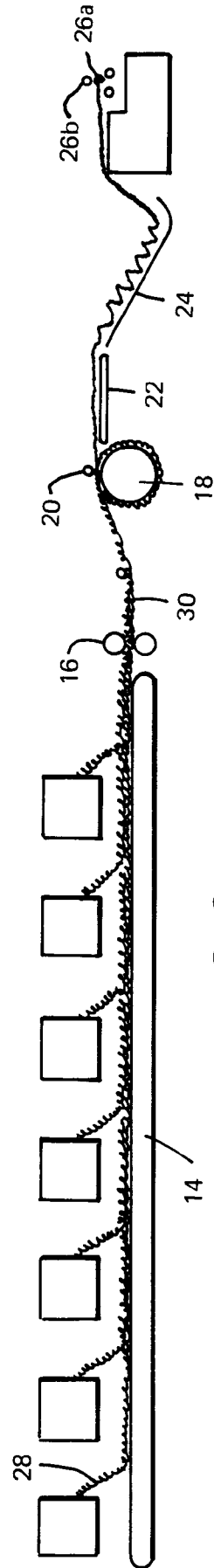


FIG. 2



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 95 30 2834

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.6)
X	GB-A-871 187 (KISTLER & CO.) * the whole document *	1	D01G25/00 D01G15/52 D01G27/00
Y		2	
A		4,6,8	
Y	DE-A-15 10 406 (FA.J.HEINRICH SPOERL) * page 2, paragraph 4 - paragraph 6; claim 1; figure 1 *	2	
A	GB-A-1 262 086 (SOUTHALLS(BIRMINGHAM)LTD) * page 1, line 70 - page 2, line 28; claim 1; figure 1 *	1,3,6,8	
A	DE-A-38 32 098 (JOHNSON & JOHNSON) * the whole document *		
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			D01G
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		17 August 1995	Munzer, E
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03.92 (P04C01)