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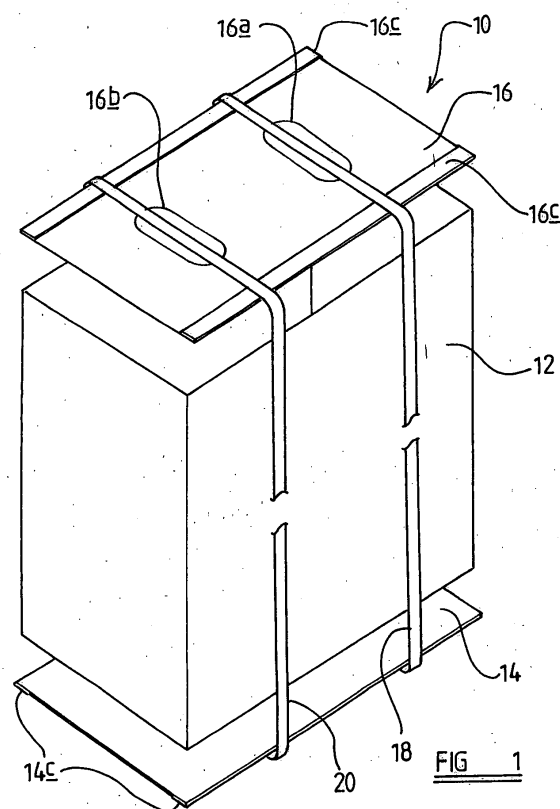
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(54) **Packaging for a stack of paper, a method of packaging a stack of paper, and a method of loading a stack of paper into a machine**

(57) Packaging (10) for a stack of paper sheets (8) is described which includes relatively rigid top (16) and bottom sheets (14), a sleeve (12), and at least one band (18) to secure the package together around the stack of paper.

Also described is a method of packaging a stack of paper comprising locating relatively rigid top and bottom sheets on the top and bottom of the stack of paper, and a sleeve around the stack of paper, and applying bands to secure the top and bottom sheets and sleeve in place to form a package.

Finally there is described a method of loading paper into the drawer of a machine comprising the steps of: placing a package formed in accordance with the above mentioned method into the drawer; cutting the bands and removing them; and removing the top sheet and sleeve from the stack of paper.



EP 1 342 675 A1

Description

Field of the Invention

[0001] The invention relates to packaging for a stack of paper, to a method of packaging a stack of paper, and to a method of loading a stack of paper into a machine, in particular the kind of machine having a paper sheet feeder.

Background of the Invention

[0002] Many kinds of machines incorporate paper sheet feeders, for examples printers, fax machines and photocopiers. These machines are operating at increasingly greater speeds, this being the case in particular for digital electronic printing machines which are now capable of 200 pages per minute. These machines are fed with paper from drawers which can only slide out of the machines to be refilled when the machines are stopped. The productivity of such machines is therefore dependent upon the speed with which the drawers can be reloaded. Paper is loaded into the drawers manually, and must be neatly stacked up against the "lay" at the side and end of the drawer if it is to feed correctly.

[0003] At present paper is supplied in packets of 500 sheets, the packet comprising a paper or plastic wrapping. Each packet has to be broken, and the loose sheets then loaded carefully into the machine and "knocked up" to ensure that the edges are square and up to the lay. Typically drawers in fast printers can take the contents of four or more such packets. During the time taken to load the machine it is switched off and unproductive, which can amount to 25% of the time.

[0004] The problem of down time on fast printers has been recognised for some time, and some manufacturers have addressed it by providing boxes of loose paper without the separate wrapping of each 500 sheets. However these do not provide any assistance in getting the paper loaded quickly and accurately into the printer, they simply save the time previously taken to unwrap each package.

[0005] It is an object of the invention to provide packaging for a stack of paper, a method of packaging a stack of paper, and a method of loading a stack of paper into a machine, which mitigate the above described problems.

Summary of the Invention

[0006] According to a first aspect of the present invention there is provided packaging for a stack of paper sheets including relatively rigid top and bottom sheets, a sleeve, and at least one band to secure the package together around the stack of paper.

[0007] Preferably the top and bottom sheets are substantially the same size as the paper sheets in the stack.

[0008] The top sheet may conveniently include two

cut outs for receipt of the fingers of each hand of a person lifting the package once secured.

[0009] Preferably the packaging includes two bands to secure the package together.

[0010] The sleeve is preferably substantially of a length equal to the height of the stack of paper.

[0011] Typically the top and bottom sheets are made from rigid card, and preferably they include reinforcing strips along their long edges, the sleeve may be made from thin relatively rigid card, and the band or bands may be made from polypropylene.

[0012] The packaging may further include outer packaging.

[0013] According to a second aspect of the invention there is provided a method of packaging a stack of paper comprising locating relatively rigid top and bottom sheets on the top and bottom of the stack of paper, and a sleeve around the stack of paper, and applying bands to secure the top and bottom sheets and sleeve in place to form a package.

[0014] Preferably the top sheet includes two cut outs and the bands are located across the cut outs to provide a person lifting the package once secured locations to get their fingers under the bands.

[0015] According to a third aspect of the invention there is provided a method of loading paper into the drawer of a machine comprising the steps of:

placing a package formed in accordance with the second aspect of the invention into the drawer; cutting the bands and removing them; and removing the top sheet and sleeve from the stack of paper.

Brief Description of the Drawings

[0016] The invention will now be described, by way of example only, with reference to the accompanying figures in which:

Figure 1 is a schematic exploded perspective view of the packaging of the invention;

Figure 2 is a perspective view of the packaging of the invention in use;

Figure 3 is a perspective view of the package of the invention in a drawer of machine (the top of which is cut away in order to show the package clearly) ready to be unpacked;

Figure 4 is a perspective view of the package of the invention being unpacked to load the paper into the drawer of Figure 3, and

Figures 5 and 6 are cross sectional views of different versions of top and bottom sheets for the packaging of the invention.

Detailed Description of the Preferred Embodiments

[0017] Referring to the Figures packaging 10 for a stack of paper sheets 8 comprises a sleeve 12, a bottom

sheet 14, a top sheet 16 and first and second bands 18, 20.

[0018] The sleeve 12 is the same shape as the individual paper sheets of the stack 8 and of such a cross section that the sheets of paper are a close but not over tight fit within it when lying flat. The sleeve 12 is of such a length that it is the same as the height of the stack of papers 8 to be packaged. Typically the sleeve 12 is formed of thin cardboard, but any relatively stiff material may be used.

[0019] The bottom and top sheets 14, 16 are of substantially the same size as the individual paper sheets and typically formed from cardboard, such as corrugated cardboard, or like stiff material. The top sheet 16 has two cut outs 16a and 16b each of the order of 10cm long and 6cm wide and oriented parallel to the short ends of the sheet 16. The bottom sheet 14 may also include cut outs if for convenience the sheets 14, 16 are made identically.

[0020] The top and bottom sheets 14, 16 may be simple sheets of card or other stiff material, but preferably to provide further protection for the edges of the sheets of paper at the top and bottom on the stack 8, reinforcing strips 14c and 16c are provided along the sides of the sheets crossed by the bands 18, 20 as best seen in Figure 5. The reinforcing strips 14c, 16c may be formed in any number of ways, however, one convenient method is to form the sheets 14, 16 with the necessary extra width and then to score and fold the edges over to provide the strips 14c, 16c which may then be glued in place if required. Alternatively the strips 14c, 16c may be made of a different material to the sheets 14, 16, for example they may be formed from plastics which is less crushable than card, and may simply be located in place prior to the bands 18, 20 being applied or may be glued to the sheets 14, 16.

[0021] In a further alternative the strips 14c' and 16c' may be "L" shaped such that rather than simply covering a portion of the outer surface of the respective sheet 14, 16, they also cover the edge of the respective sheet 14, 16, as seen in Figure 6, thus providing further protection.

[0022] The bands 18, 20 are typically of polypropylene as is commonly used to bind boxes relatively securely for transport, although any appropriate material may be used. The bands should however be made of material which does not bind too readily against the other materials around it in order that it can be removed when required, as described below.

[0023] The packaging 10 is used to package the stack of paper 8 as follows. The stack of paper is placed within the sleeve 12 on top of bottom sheet 14, and top sheet 16 is placed on top. The bands 18, 20 are then secured around the bottom sheet 16, sleeve 12 and top sheet 16 to secure them around the stack of paper 8 and create package 22. The bands 18, 20 are located such they pass across the cut outs 16a and 16b thus providing locations where a person can get their fingers under each band 18, 20 to lift the package 22 up.

[0024] Although stack of paper 8 is almost entirely concealed within the package 22 as described above it is not fully protected and thus is then wrapped, as appropriate for storage and transport, with outer packaging. For example it may be wrapped in moisture resistant paper and then placed into a outer box (not shown).

[0025] The manner in which the package 22 is actually put together can vary as required. The stack of paper 8 may, for example, be placed on the bottom sheet 14, and the top sheet placed on top, with the sleeve 12 then being slid into place or formed around the stack of paper 8. Alternatively the sleeve 12 may be located around a bottom sheet 14 -and the stack of paper 8 lowered into the sleeve 12 with the top sheet 16 being put in place on top afterwards. Furthermore the bands 18, 20 may be in place underneath the bottom sheet 14 from the outset, and simply brought up around the stack of paper and packaging once the other assembly has been completed, alternatively the bands may be put in place after the other assembly.

[0026] The package 22 is used to load a machine as follows. Any outer packaging is removed, and the package 22 is picked up by the bands 18, 20 and lowered into a drawer 24 being loaded. The bands 18, 20 are cut and pulled out from underneath the stack of paper 8. The top sheet 16 is then removed from the top of the stack of paper 8 and the sleeve 12 is pulled up and off the stack of paper 8 as shown by arrow A in Figure 4. The bottom sheet 14 remains beneath the stack of paper 8 and can be removed from the drawer 24 when the paper has been used.

[0027] Thus the package 22 provides a method for loading the stack of paper 8 into the drawer 24 of a machine quickly and accurately, when compared with the prior art. This can enable fast printing machines in particular to be more productive due to reduced down time for reloading of paper.

[0028] In the present specification "comprise" means "includes or consists of" and "comprising" means "including or consisting of".

[0029] The features disclosed in the foregoing description, or the following claims, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, as appropriate, may, separately, or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

Claims

1. Packaging for a stack of paper sheets including relatively rigid top and bottom sheets, a sleeve, and at least one band to secure the package together around the stack of paper.
2. Packaging according to claim 1 characterised in

that the top and bottom sheets are substantially the same size as the paper sheets in the stack.

3. Packaging according to claim 1 or 2 **characterised in that** the top sheet includes two cut outs for receipt of the fingers of each hand of a person lifting the package once secured.

4. Packaging according to claim 4 **characterised in that** it includes two bands to secure the package together.

5. Packaging according to any one of claims 1 to 4 **characterised in that** the sleeve is substantially of a length equal to the height of the stack of paper.

6. Packaging according to any one of claims 1 to 5 **characterised in that** the top and bottom sheets are made from rigid card.

7. Packaging according to any one of claims 1 to 6 **characterised in that** the top and bottom sheets include reinforcing strips along their long edges.

8. Packaging according to any one of claims 1 to 7 **characterised in that** the sleeve is made from thin relatively rigid card.

9. Packaging according to any one of claims 1 to 8 **characterised in that** the band or bands are made from polypropylene.

10. Packaging according to any one of claims 1 to 9 **characterised in that** it further includes outer packaging.

11. A method of packaging a stack of paper comprising locating relatively rigid top and bottom sheets on the top and bottom of the stack of paper, and a sleeve around the stack of paper, and applying bands to secure the top and bottom sheets and sleeve in place to form a package.

12. A method according to claim 11 **characterised in that** the top sheet includes two cut outs and the bands are located across the cut outs to provide a person lifting the package once secured locations to get their fingers under the bands.

13. A method of loading paper into the drawer of a machine comprising the steps of:

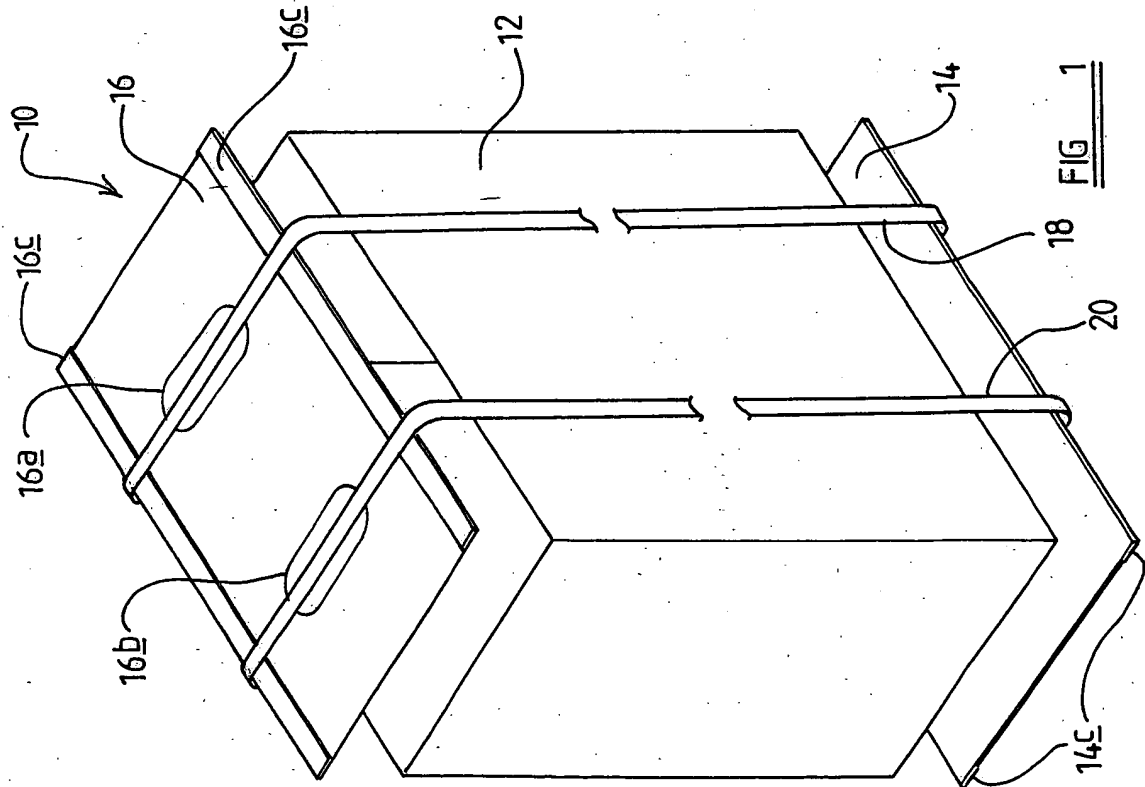
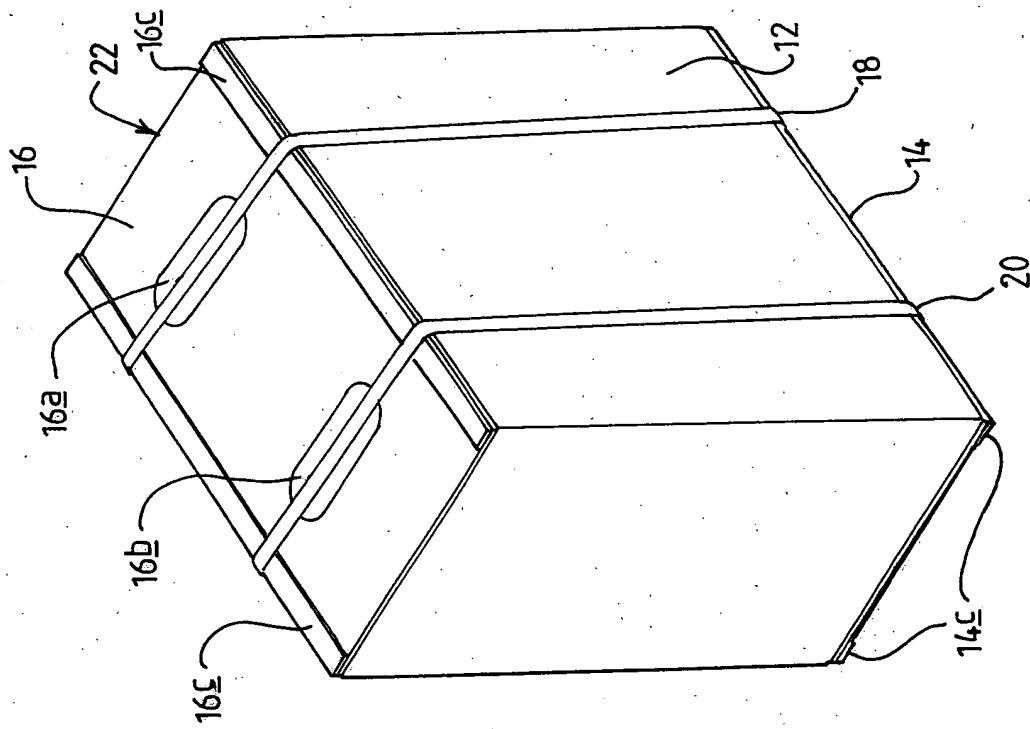
placing a package formed in accordance with claim 11 or 12 into the drawer;
cutting the bands and removing them;
removing the top sheet and sleeve from the stack of paper.

14. Packaging for a stack of paper sheets substantially as hereinbefore described with reference to the accompanying drawings.

15. A method of packaging a stack of paper sheets substantially as hereinbefore described with reference to the accompanying drawings.

16. A method of loading paper into the drawer of a machine substantially as hereinbefore described with reference to the accompanying drawings.

17. Any novel feature or novel combination of features described herein and/or in the accompanying drawings



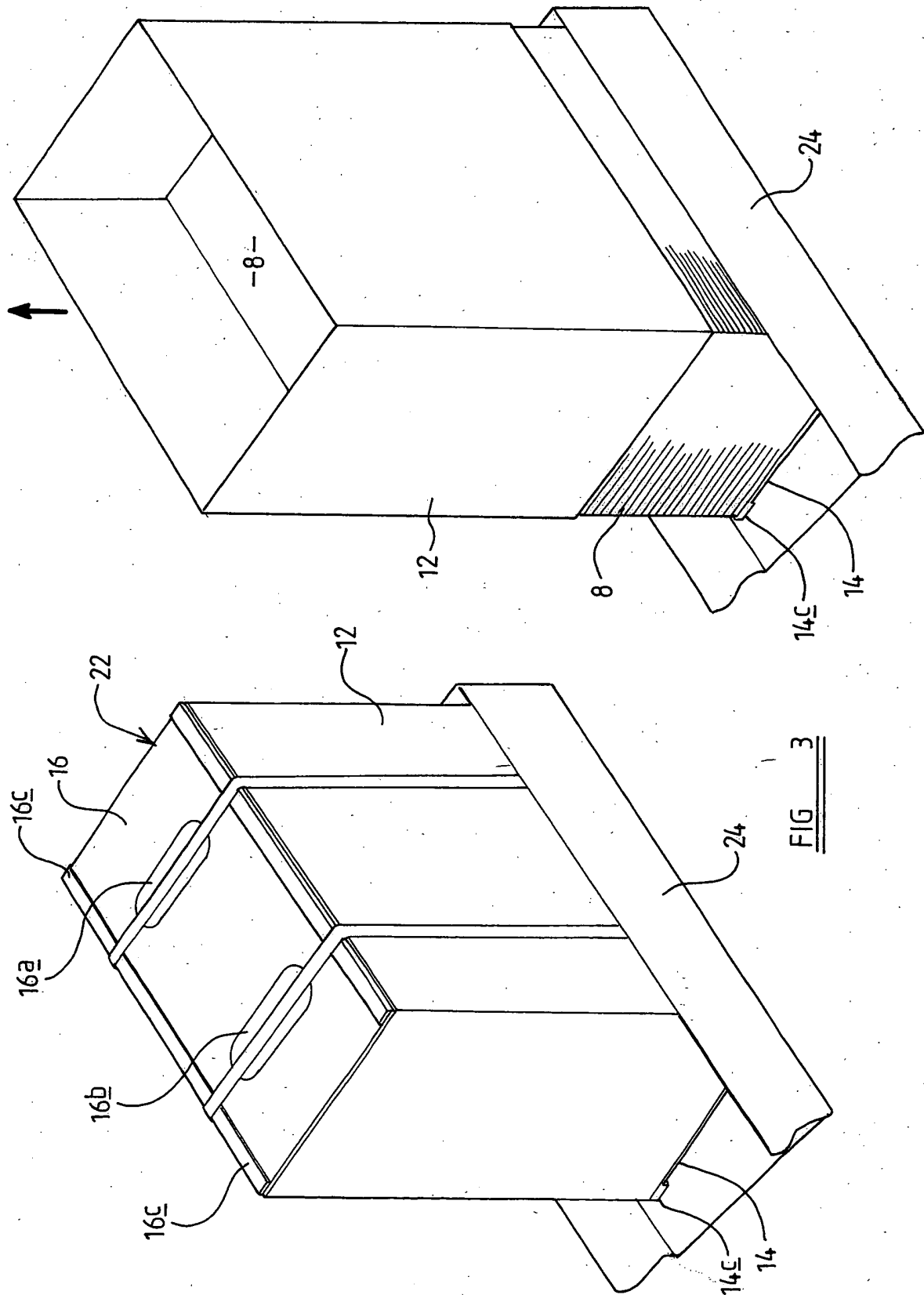
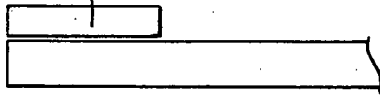


FIG 3

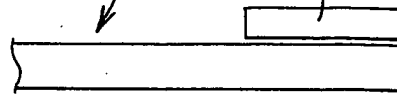
FIG 5

14C, 16C

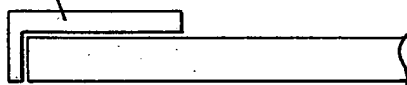


14, 16

14C, 16C

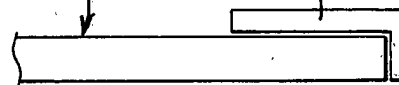


14C', 16C'



14, 16

14C', 16C'





European Patent
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PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention shall be considered, for the purposes of subsequent proceedings, as the European search report

EP 03 00 4668

DOCUMENTS CONSIDERED TO BE RELEVANT			
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.</p> <p>Claims searched completely :</p> <p>1-13</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>14-17</p> <p>Reason for the limitation of the search:</p> <p>Art.84 R.29.6 EPC</p>			
Place of search		Date of completion of the search	Examiner
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EPO FORM 1503 03.82 (P04C07)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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