(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 930 391 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
21.07.1999 Bulletin 1999/29

(51) Int Cl.[6]: **D06C 13/00**

(21) Application number: **99500002.3**

(22) Date of filing: **05.01.1999**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **19.01.1998 ES 9800087**

(71) Applicant: **Torres Maquinaria Textil S.A.**
08205 Sabadell (ES)

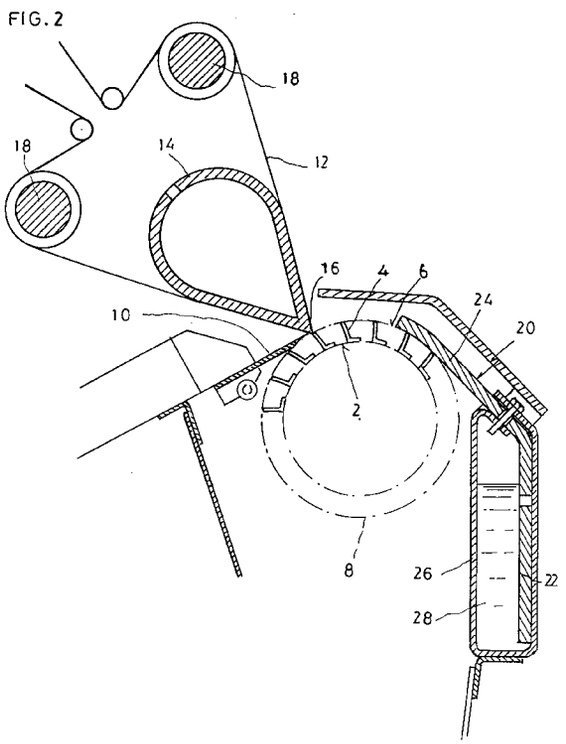
(72) Inventor: **Pérez Bellmunt, Juan**
08026 Barcelona (ES)

(74) Representative: **Curell Sunol, Jorge et al**
c/o Dr. Ing. M. Curell Sunol I.I. S.L.
Passeig de Gràcia 65 bis
08008 Barcelona (ES)

(54) A fabric shearing machine

(57) A fabric shearing machine, having one or more shearing units, provided with a shearing drum (2) having shearing blades (4) equipped with first cutting edges (6) which respectively describe one same cylindrical path (8); a sheet (10) having a second cutting edge which makes contact with the first cutting edges (6) in operation; a table (14) having a surface for guiding the fabric (12) up to an area (16) in close proximity to the second cutting edge and lubricating means for lubricating said first cutting edges (6) and said second cutting edge, comprising a fibrous member (20) impregnable with a fatty fluid and adapted to remain in contact with said shearing blades (4). At least four fifths by volume of said fibrous member (20) are situated at a level below the level at which said area (16) in close proximity to said second cutting edge is situated.

FIG. 2



EP 0 930 391 A1

Description

[0001] The invention relates to a fabric shearing machine of the type having at least one shearing unit, each of which is formed by: a shearing drum provided with a plurality of shearing blades having first cutting edges which are respectively adapted to describe one same cylindrical path; a sheet having a second cutting edge situated in close proximity to said path; a table having a surface adapted for serving as a guide for said fabric up to an area in close proximity to said second cutting edge; drive means adapted to move said fabric along said table, while keeping it taut; and lubricating means for lubricating said first cutting edges and said second cutting edge, said lubricating means comprising a fibrous member impregnable with a fatty fluid and adapted to remain in contact with said shearing blades.

[0002] It is known that in certain fabrics, outstanding among which are velvet, certain carpets, blankets, upholstery and also woolen fabrics when applied to certain uses, either part of the warp threads or part of the weft threads form outstanding loops which, when cut, form threads projecting out from the fabric surface. It is a regular practice to run such fabrics through shearing machines, either because such threads are too long or because they are frequently of unequal lengths.

[0003] As is also known, such shearing machines are provided with at least one shearing unit, and each of them is formed by a shearing drum, a flat cutting blade or sheet and a table for supporting the textile web and guiding the movement thereof. A plurality of shearing blades are attached around the shearing drum on the cylindrical surface thereof, disposed in helical form and which at one point of their path make contact with the second cutting edge of the blade or flat shearing plate and it is at this point where the loops or the threads of the fabric to be sheared are cut. This produces a material which must be removed from the shearing machine and to this end it is the usual practice to use a suction cleaner which aspirates this material. The air current generated by the suction cleaner also avoids overheating of the shearing members.

[0004] The shearing drum and the shearing blades rotate at high speed and as a result of the friction of the shearing blades with the flat blade or sheet the helical shearing blades of the drum, as also the flat sheet, are subject to wear. With a view to mitigating this wear, it is necessary to lubricate these shearing members. This is particularly acute when working with synthetic fibres, which are usually harder to cut and mention must also be made of microfibres which are highly hygroscopic and abrasive, whereby they require greater lubrication.

[0005] All known machines are currently lubricated by an oil-soaked woolen felt member which is in permanent contact with the shearing drum blades and this causes serious drawbacks, consisting of the formation of stains on the textile web produced by the oil and the sheared material in suspension which are deposited in their fall on the textile web.

[0006] This drawback causes production and quality problems since, on the one hand, the stains must be removed or the fabrics must be scoured, with the respective cost of these operations. It is, furthermore, necessary to stop the machine to clear away the sheared material from the shearing unit (by suction, for example), which obviously has a negative effect on the machine throughput.

[0007] It is an object of the invention to overcome the above drawbacks and this object is achieved with a machine of the type first mentioned above which is characterized in that at least four fifths by volume of said fibrous member are situated at a level below the level at which said area in close proximity to said second cutting edge is situated.

[0008] Further advantages and characteristics of the invention will be appreciated from the following description in which there is described a preferred embodiment of the invention, without any limitative nature and with reference to the accompanying drawings, in which:

[0009] Figure 1 is a schematic cross section view of the shearing unit of a conventional machine.

[0010] Figure 2 is a schematic cross section view of the shearing unit of a machine according to the present invention.

[0011] Figure 3 is a schematic view of the operation of the shearing members on the threads, it being pointed out that, in the position shown, this Figure relates to the prior art and, on being reversed would relate to the present invention.

[0012] Figures 1 and 2 show a drum 2 which is provided on the outer surface thereof with shearing blades 4 forming spirals and having first cutting edges 6 which, while the machine is in movement, describe one same cylindrical surface 8. The machine is also provided with a fixed sheet 10, having a second cutting edge which makes contact with the said first cutting edges 6 of the shearing blades 4.

[0013] The fabric 12 to be sheared is driven by not shown drive means and is guided by a table 14 in such a way that the fabric moves up to a region 16 close to the second cutting edge of the sheet 10. During this movement the fabric 12 is held taut by rollers 18 (Figure 1) and other means not shown.

[0014] The machine is further provided with lubricating means comprising a felt member 20 situated in such a way as to maintain continuous contact with the first cutting edges 6 of the helical shearing blades 4. This felt member is impregnable with a fatty fluid or oil which is applied to the shearing blades 4 to prevent wear and abrasion. The threads 19 are cut as shown schematically in Figure 3 and there are suction means (not shown) to remove the sheared material and, at the same time, provide a current of air to avoid or at least reduce the heating of the shearing members. The sheared material obviously frequently forms a lint impregnated with at least part of the oil from the felt member.

[0015] In the conventional machines of the type shown in Figure 1, the felt member 20 is located above the drum 2 and, consequently, the fabric 12 receives oil and also receives the (unaspirated) lint formed by the cut lengths of the threads 19, which may contain oil or be substantially dry. This causes stains which, as said above, much be cleaned or the fabrics must be scoured. Furthermore, as said above, it is also frequently necessary to stop the machine for clearing the sheared material away from the shearing unit (with suction, for example), with the consequent negative effects on the machine performance.

[0016] On the contrary, with the machine according to the invention shown in Figure 2, neither the cut portions of threads 19 nor the lint formed thereby can fall on the fabric 12. Nor can any drops of oil which may fall from the felt member 20 reach the fabric. This is because the fabric 12 is not located at a lower level that the felt member 20 nor is it located at a lower level relative to the place where the threads 19 are cut.

[0017] The felt member 20 is preferably provided with a lower portion 22 and an upper portion 24. The portion 22 is housed in a container 26 for the oil and, this oil rises by capillarity to the upper portion 24, from where it is transferred to the first cutting edges 6 of the shearing blades 4. If the container is of sufficient volume, the successive additions of oil may be spaced apart at lengthy intervals of time.

[0018] It is, furthermore, possible to maintain a constant oil level in the container 26 by means of valves or floats, already known, if the container 26 is in communication with a large volume reservoir.

Claims

1. A fabric shearing machine of the type having at least one shearing unit, each of which is formed by: a shearing drum (2) provided with a plurality of shearing blades (4) having first cutting edges (6) which are respectively adapted to describe one same cylindrical path (8); a sheet (10) having a second cutting edge adapted to establish contact with said first cutting edges (6); a table (14) having a surface adapted for serving as a guide for said fabric (12) up to an area (16) in close proximity to said second cutting edge; drive means (18) adapted to move said fabric along said table, while keeping it taut; and lubricating means for lubricating said first cutting edges (6) and said second cutting edge, said lubricating means comprising a fibrous member (20) impregnable with a fatty fluid and adapted to remain in contact with said shearing blades (4), characterized in that at least four fifths by volume of said fibrous member (20) are situated at a level below the level at which said area (16) in close proximity to said second cutting edge is situated.

2. The machine of claim 1, characterized in that said fibrous member (20) is a felt member provided with capillarity.

3. The machine of claim 1 or claim 2, characterized in that said fibrous member (20) has a lower portion (22) capable of being housed in a container (26) adapted to contain a fatty liquid (28) and an upper portion (24) adapted to be held in contact with said shearing blades (4).

4. The machine of claim 1, characterized in that said container (26) is in communication with a reservoir of said fatty liquid (28).

FIG.1

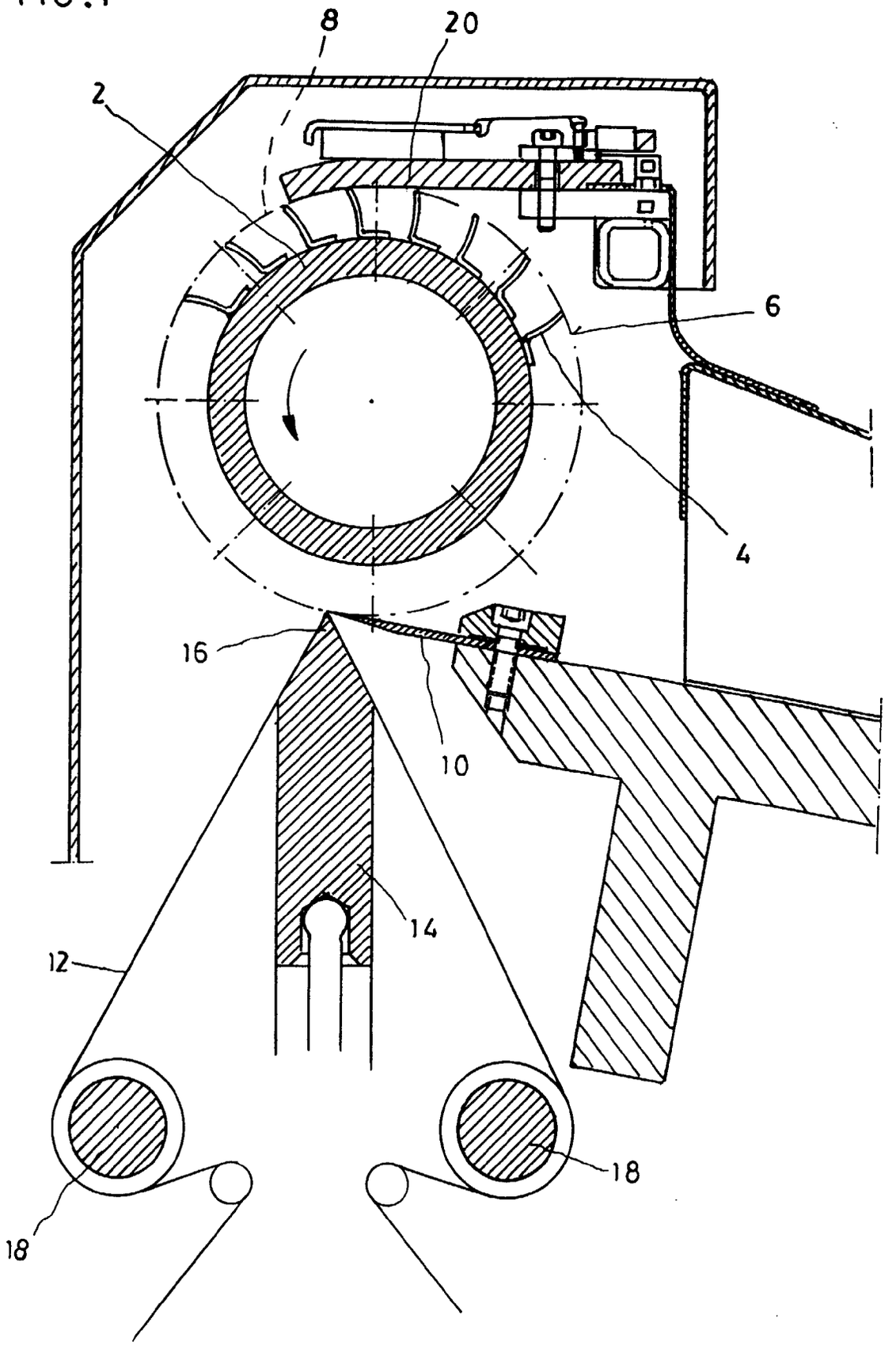


FIG. 2

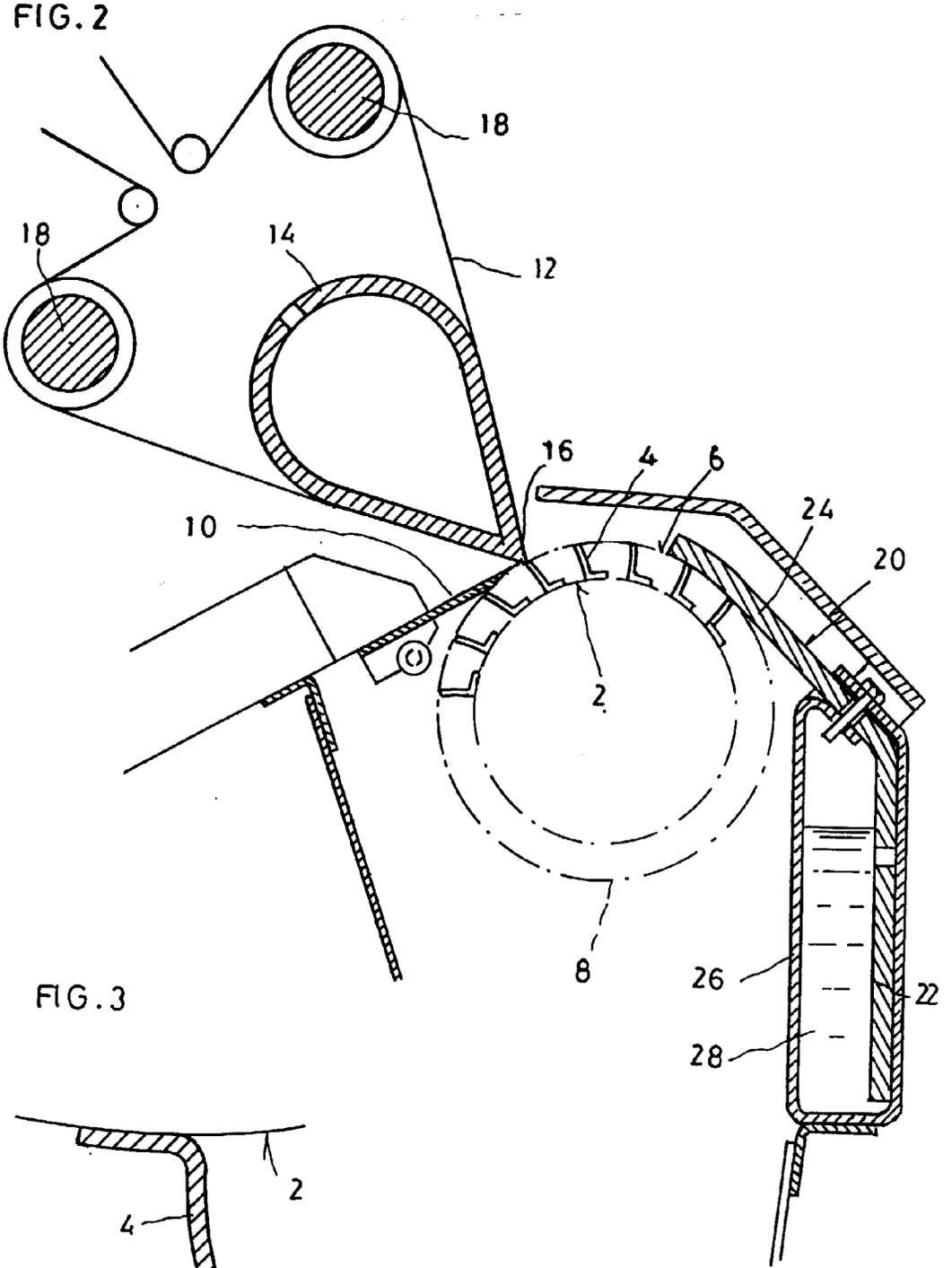
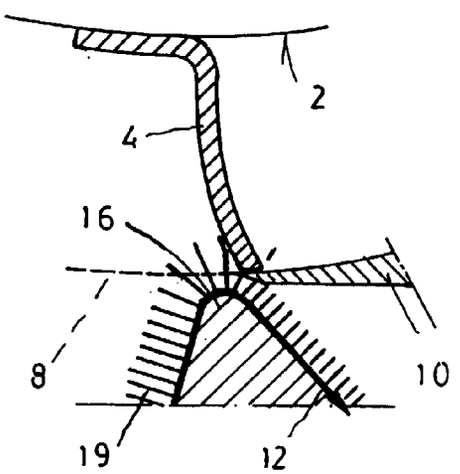


FIG. 3



European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 50 0002

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	DE 920 184 C (JOHANNES MENSCHNER TEXTILMASCHINENFABRIK) 15 November 1954 * page 2, line 23 - line 59 *	1-4	D06C13/00
A	US 2 173 613 A (C.G. RICHARDSON) 19 September 1939 * page 1, column 2, line 23 - page 2, column 1, line 31 *	1	
A	GB 1 230 962 A (RIGGS & LOMBARD INC.) 5 May 1971		

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

D06C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	14 April 1999	Goodall, C

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 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 99 50 0002

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

14-04-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 920184 C		NONE	
US 2173613 A	19-09-1939	NONE	
GB 1230962 A	05-05-1971	BE 744801 A	01-07-1970
		CH 520224 A	15-03-1972
		DE 2002306 A	29-07-1971
		US 3570080 A	16-03-1971

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82