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(54) **A fabric shearing machine**

Schermaschine für Stoffbahnen

Tondeuse pour étoffes textiles

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## 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 (see for example DE-C-920184 and US-A-2173613) 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 having the characteristics of claim 1.

**[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 11 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 11 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 than 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 (11) 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 (11); 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 (11) said lubricating means comprising a fibrous member (20) impregnable with a fatty fluid and adapted to remain in contact with said shearing blades (4), where 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 (11) is situated **characterized in that** said fabric (12) is located above said second cutting edge (11).

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).

## Patentansprüche

1. Gewebescheremaschine mit zumindest einer Schereinheit, wobei jede Schereinheit durch folgendes gebildet ist: eine Schertrommel (2) mit mehreren Scherklingen (4) mit ersten Schneidkanten (6), welche dazu angepasst sind, einen und denselben zylindrischen Weg (8) zu beschreiben; ein Blech (10) mit einer zweiten Schneidkante (11), welche dazu angepasst ist, einen Kontakt mit den ersten Schneidkanten (6) herzustellen; einen Tisch (14) mit einer Oberfläche, welche als Führung für das Gewebe (12) bis zu einem Bereich (16) nahe der zweiten Schneidkante (11) dienen kann; Antriebsmittel (18), die das Gewebe entlang des Tisches bewegen können, während sie es gespannt halten; und Schmiermittel zum Schmieren der ersten Schneidkanten (6) und der zweiten Schneidkante (11), wobei die Schmiermittel ein fasriges Element (20) aufweisen, welches mit einem fetthaltigen Fluid imprägnierbar ist und dazu angepasst ist, in Kontakt mit den Scherklingen (4) zu bleiben, wobei zumindest vier Fünftel des Volumens des fasrigen Elements (20) sich auf einer Höhe unterhalb der Höhe befinden, auf welcher der Bereich (16) nahe der zweiten Schneidkante (11) angeordnet ist, **dadurch gekennzeichnet, dass** das Gewebe (12) oberhalb der zweiten Schneidkante (11) angeordnet ist.
2. Maschine nach Anspruch 1, **dadurch gekennzeichnet, dass** das fasrige Element (20) ein Filzelement ist, welches mit Kapillarwirkung versehen ist.
3. Maschine nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** das fasrige Element (20) einen unteren Bereich (22) hat, der in einem Container (26) unterbringbar ist, welcher dazu ausgestaltet ist, ein fetthaltiges Fluid (28) zu beinhalten, und einen oberen Bereich (24), welcher dazu angepasst ist, in Kontakt mit den Scherklingen (4) gehalten zu werden.

4. Maschine nach Anspruch 1, **dadurch gekennzeichnet, dass** der Container (26) in Verbindung mit einem Reservoir für die fetthaltige Flüssigkeit (28) steht.

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## Revendications

1. Une machine tondeuse de tissu du type comportant au moins un dispositif de tondage, dont chacun est formé par: un tambour tondeur (2) muni d'une pluralité de lames tondeuses (4) ayant des premiers bords tranchants (6) qui sont agencés de façon à décrire respectivement le même trajet cylindrique (8); une plaque (10) ayant un second bord tranchant (11) agencé pour établir un contact avec lesdits premiers bords tranchants (6); une table (14) ayant une surface agencée de façon à servir de guide pour ledit tissu (12) jusqu'à une région (16) disposée en étroite proximité dudit second bord tranchant (11); des moyens d'entraînement (18) agencés pour déplacer ledit tissu le long de ladite table, tout en le maintenant tendu; et des moyens de lubrification pour lubrifier lesdits premiers bords tranchants (6) et ledit second bord tranchant (11), lesdits moyens de lubrification comprenant un organe fibreux (20) susceptible d'être imprégné avec un fluide gras et agencé de façon à rester en contact avec lesdites lames tondeuses (4), au moins les quatre cinquièmes en volume dudit organe fibreux (20) étant situés à un niveau inférieur au niveau auquel ladite région (16) disposée en étroite proximité dudit second bord tranchant (11) est située, **caractérisée en ce que** ledit tissu (12) est disposé au-dessus dudit second bord tranchant (11).
2. La machine de la revendication 1, **caractérisée en ce que** ledit organe fibreux (20) est un organe en feutre présentant une capacité de capillarité.
3. La machine de la revendication 1 ou de la revendication 2, **caractérisée en ce que** ledit organe fibreux (20) comporte une partie inférieure (22) capable d'être logée dans un récipient (26) agencé pour contenir un liquide gras (28) et une partie supérieure agencée pour être maintenue en contact avec lesdites lames de tondage.
4. La machine de la revendication 1, **caractérisée en ce que** ledit récipient (26) est en communication avec un réservoir pour ledit liquide gras (28).

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FIG. 1

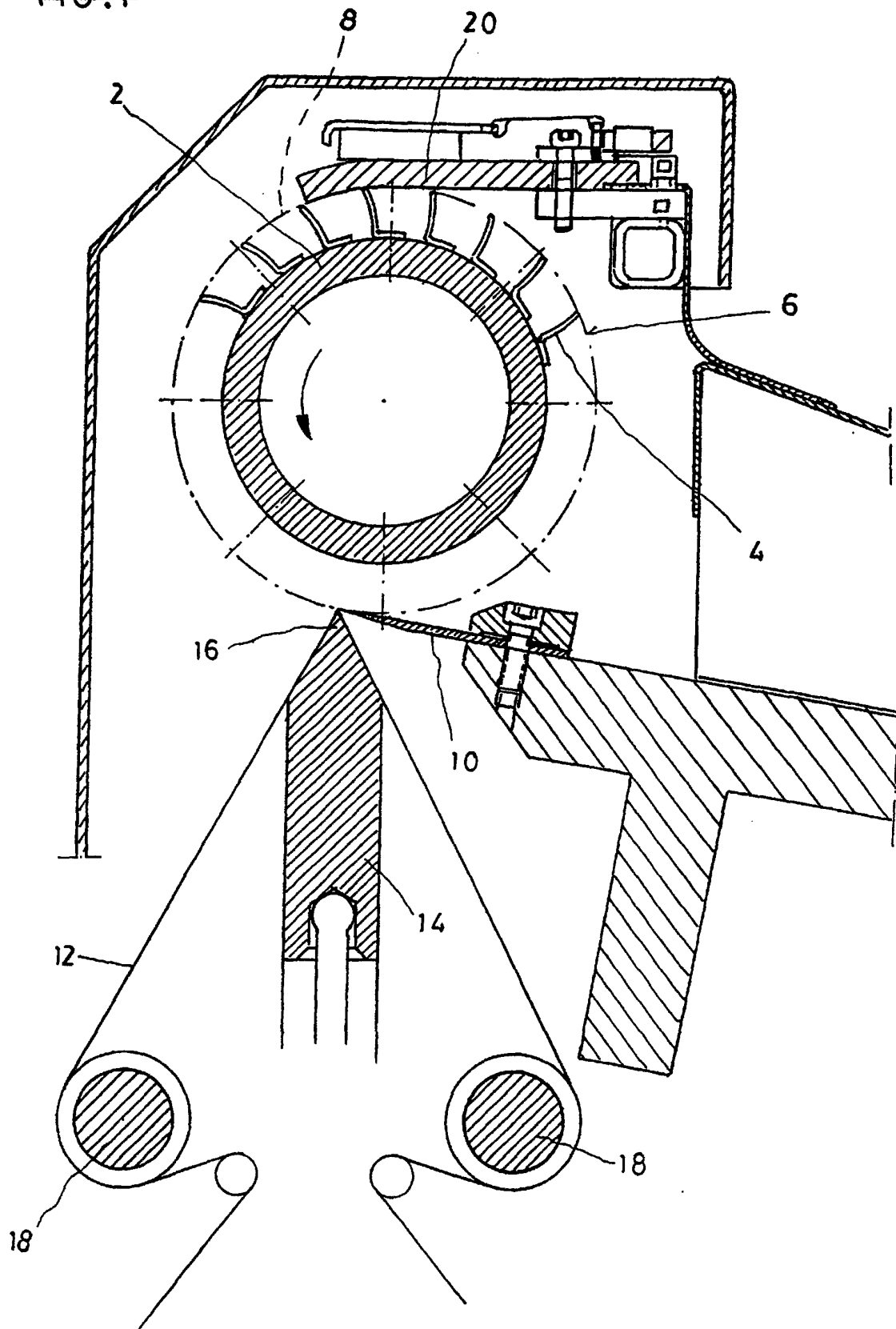


FIG. 2

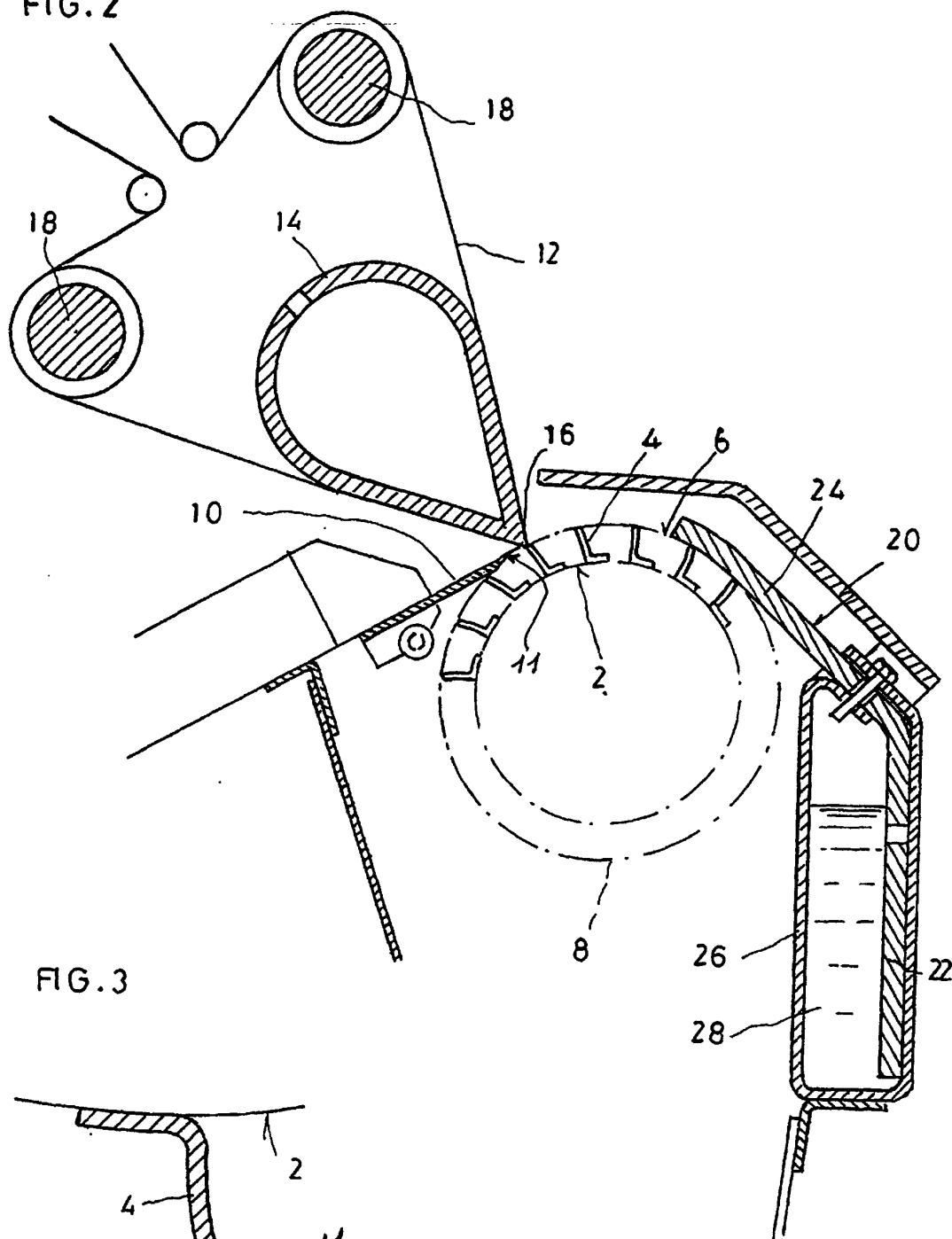


FIG. 3

