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(54) **Procedure for creating multi-thread forms on a grindstone, particularly for the micro-scoring of the underside of skis**

(57) This invention concerns a method for surface carving a grindstone by means of a diamond tool, particularly for the micro-scoring of the underside of a ski, when brought into contact with the grindstone. The

grindstone is carved by a diamond tool in order to create multistart helical threads which criss-cross one another, thereby defining a pattern of many threads, with pre-determined angles and pitches, which define tooth hubs between them.

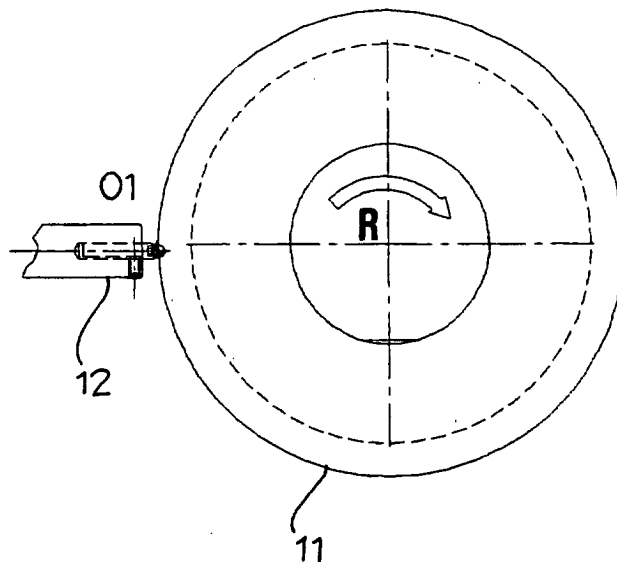


Fig. 1

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Description

Field of the invention

[0001] This invention concerns the equipment for creating the micro-scoring on the underside of skis, and refers in particular to a method for preparing the surface of a grindstone which can carry out said micro-scoring operation.

State of the art

[0002] It is already common practice to apply micro-scoring to the underside of competition skis, in order to define threads which favour the release of drops of water from under the skis, thereby increasing the sliding qualities and improving the skier's performance.

[0003] The micro-scoring operation on the underside of the ski is carried out with special machines, using a grindstone which has been prepared by carving its surface with a diamond tool that removes chippings.

[0004] One version of the micro-scoring machine and a method of preparing the grindstone are described in the patent request PC 97 A 000015, but there are also other machines on the market which do the same operation.

[0005] Research has shown that, in order to achieve certain performance levels and the sliding properties and speed that these require, it is necessary to use micro-scoring with a pattern in which the discharge threads are inclined very steeply compared to the sliding axis of the ski and, at the same time, have a very fine pitch. This problem is irresolvable with current scoring techniques.

Aim and description of the invention

[0006] Meanwhile, it is the aim of this invention to resolve said problem in a practical and efficient way, by means of a special carving of the grindstone in such a way as to create this micro-scoring on the underside of the ski, with a very fine pitch which, at the same time, is steeply inclined compared to the sliding axis of the skis.

[0007] The aim of this invention is achieved by a procedure which involves using a diamond tool to cut a grindstone in such a way as to create multistart helical threads, which criss-cross, thereby creating a pattern with many threads that will be reproduced on the underside of a ski when it is brought into contact with the grindstone.

Brief description of the drawings

[0008] One possible version will be described below, with reference to the enclosed drawings, in which:

Fig. 1 shows a grindstone and a diamond cutting tool, ready in position to carve the grindstone; and

Figs 2 to 6 show successive phases of the procedure for obtaining the desired carving.

Detailed description of the invention

[0009] For each figure, number 11 indicates a grindstone and number 12 a diamond tool for surface carving the grindstone by means of removing chippings while it rotates with respect to the tool, in the direction of the arrow R.

[0010] The carving operation described here refers to the creation of the first three threads, referred to here as the "mother threads", and of a similar number of secondary threads, referred to as "splitting threads", which criss-cross the mother threads. However, it is understood that the procedure is also similarly applicable to the creation of other thread quantities.

[0011] First of all, the mother threads are created, one at a time. With the start of the first mother thread, an axis "01" is memorised - Fig 1 - as the point in which the cutting tool 12 starts to attack the surface of the grindstone 11 to be carved.

[0012] Then the first mother thread is created, rotating the grindstone and moving the tool laterally to it, as required.

[0013] Once the first mother thread is completed, the tool is detached from the grindstone and the latter is made to rotate on its axis at a pre-determined angle α - Fig. 2 - in order to bring a second point "02" on the surface of the grindstone 11 into line with the tool. Then the tool is used to carry out a second mother thread, starting from point "02" on the grindstone, whilst the latter rotates and the tool is moved sideways according to the pre-determined pitch.

[0014] Similarly, once the second mother thread has been finished, the tool is removed from the grindstone and the latter is made to rotate on its axis, at a pre-determined angle β - Fig. 3 - with respect to point "02", thereby creating a third point "03" to which the utensil will be applied for the creation of another thread. A third mother thread is then created in such a way that the surface of the grindstone will have three threads, which may be equidistant or not according to the angles α and β through which the grindstone has rotated between points "01" and "02" and between points "02" and "03".

[0015] Having executed the mother threads one at a time, the grindstone is rotated to a new starting point "001", for the creation of the splitting threads. This new starting point "001" may coincide with point "01" of the first mother thread or it may be in line with another part of the grindstone surface. Then, starting from said point "001" - Fig. 4, the cutting tool is used to execute a first splitting thread, rotating the grindstone constantly in the direction R and moving the tool across the grindstone with the appropriate movement and with the chosen pitch.

[0016] Once the first splitting thread has been made, the tool is detached and the grindstone is rotated on its

axis by an angle α' , thereby establishing point "002" - Fig. 5 - as starting point for making the second splitting thread with the cutting tool.

[0017] Finally, once the second splitting thread has been finished, the tool is detached from the grindstone and the latter is rotated by a further angle β' , until a third starting point "003" - Fig. 6 - is reached, from where the cutting tool can begin cutting a third splitting thread.

[0018] These splitting threads criss-cross the mother threads and, together, form a pattern of threads which can have a slope and pitch as needed and which, between them, define on the surface a series of tooth hubs that will cut the underside of the ski when it comes into contact with the grindstone, reproducing the corresponding pattern of micro-scoring, producing, in particular, a scoring with a very fine pitch and at a steep angle with respect to the sliding direction of the ski.

4. Method according to claims 2 and 3, in which the starting points of the splitting threads coincide with the starting points of the mother threads.

5 5. Method according to claims 1 and 2, in which the starting points of the splitting threads are separate from the starting points of the mother threads.

Claims

1. Method of surface carving a grindstone with a diamond tool, particularly for the micro-scoring of the underside of a ski, when the latter is brought into contact with the grindstone, **characterised by** the fact of carving the grindstone with a diamond tool for the creation of multistart helical threads, which criss-cross in such a way as to define a pattern of various threads with pre-determined angles and pitches, defining a series of tooth hobs between them.

2. Method according to claim 1, consisting of:

- the execution of a first mother thread by a cutting tool, starting from a first point (01) on the grindstone surface;
- the execution of at least a second mother thread by the cutting tool, starting from a second point (02) on the grindstone surface, located at an angle (α , β) from the first starting point (01) of the first mother thread;
- the execution of a first splitting thread, criss-crossing said mother threads, by the cutting tool, which moves from a starting point (001) on the grindstone surface; and
- the execution of at least a second splitting thread, criss-crossing said mother threads, with the cutting tool starting from a second point (002) on the grindstone surface, located at an angle (α' , β') from the first starting point (001) of the first splitting thread.

3. Method according to claim 2, consisting of making three or more mother threads, starting from the respective points, located at angles, and three or more splitting threads, criss-crossing said mother threads.

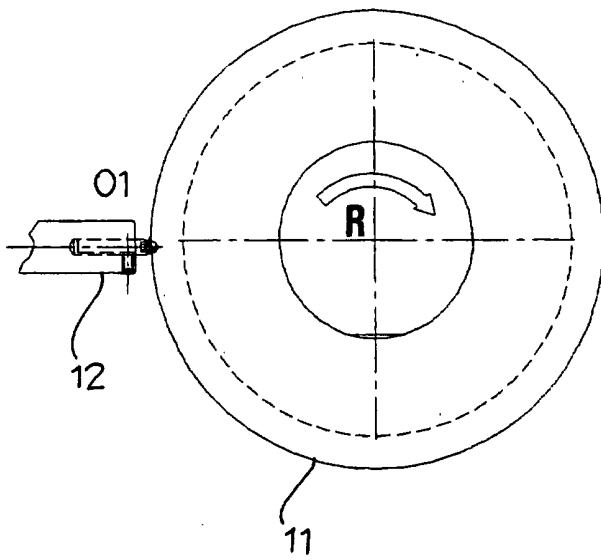


Fig. 1

Fig. 2

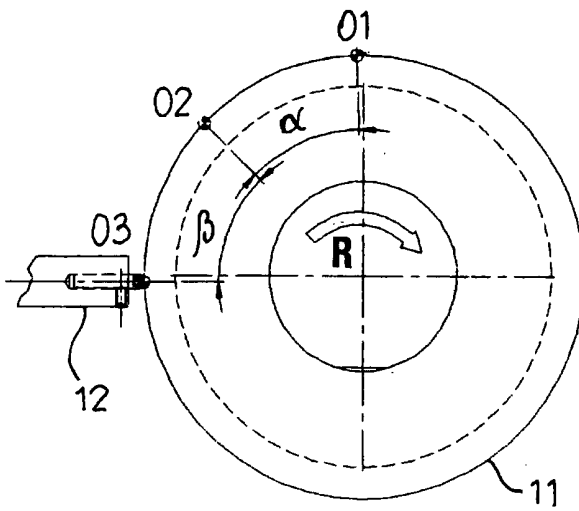
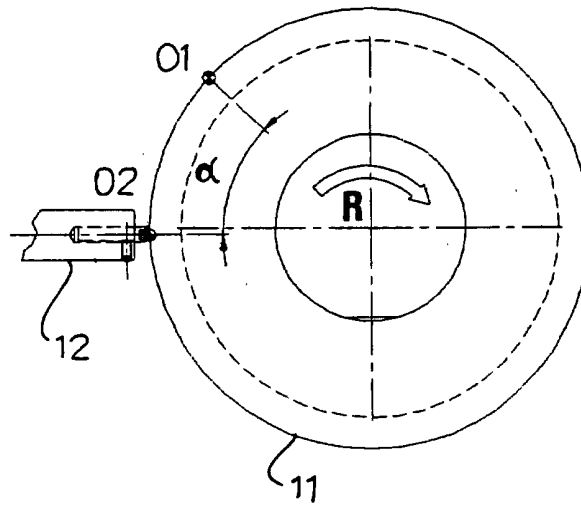


Fig. 3

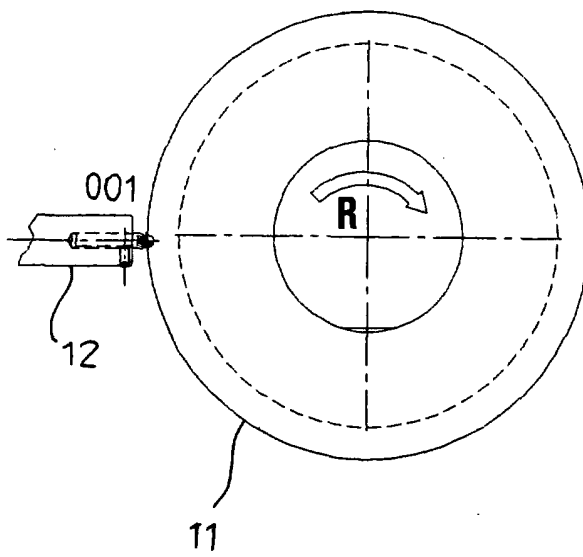


Fig. 4

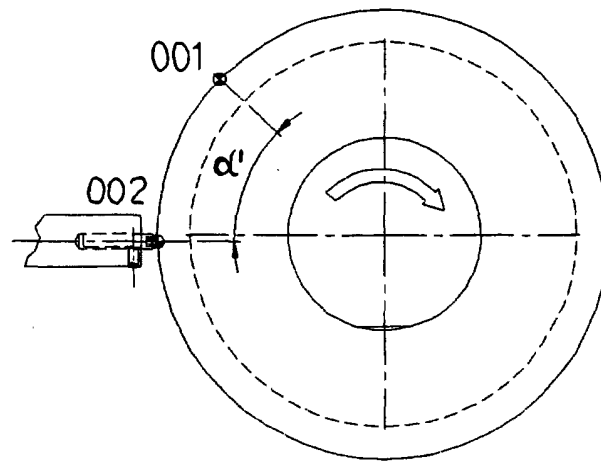


Fig. 5

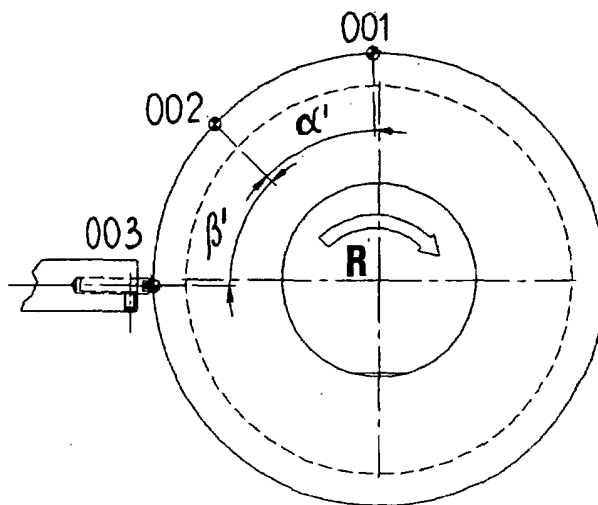


Fig. 6