The invention relates to an arrangement (1) at rotatable disc-shaped holder (2) for grinding tools comprising grinding segments (3), which can be releasably attached in radially (4) directed tapering grooves (5) in the holder (2) in question. A number of magnets (6) in question is/are arranged to form obstacles to the grinding segments (3) and hold the grinding segments (3) in the intended holding positions (I).
Holder arrangement for grinding tools

The present invention relates to an arrangement at rotatable disc-shaped holder for grinding tools comprising grinding segments, which can be releasably attached in radially directed tapering grooves in the holder in question.

There is a problem to safely hold grinding segments, which are attached in rotatable grinding disc holders of the kind mentioned above, especially when the machine is shut off and transported between different premises. For example, the grinding segments can be displaced unwantedly in direction inwards towards the centre of the holder if the grinding segments are subjected to careless handling or if they hit a solid object on the ground, for example a pavement stone, when the machine is driven on the ground to/from transport vehicles. On such occasions the wedge effect between the grinding segments and the wedge-shaped grooves in the holder may decrease and disappear completely if it comes to the worst, whereby they are released from one another and the grinding segment comes loose and may be lost, which means that a complete set of new grinding segments must be obtained and replace the lost grinding segment as well as the other remaining grinding segments. It is important that the grinding segments are worn evenly, among other things in order to avoid unbalance on the disc, but also to avoid uneven grinding of the surface in question. Said grinding segments are arranged to be worn down substantially to the level of the front surface of the grinding disc, into which the radial grooves are milled.
By JP 11-151675 it is known to hold grinding disc segments by means of a surrounding band. This applies to grinding disc segments, which are inserted into radial wedge-shaped grooves from the outside of the periphery of the disc.

According to CH 523746 the intention is to hold the grinding segments in associated wedge-shaped radial grooves by means of pivoting locking hasp.

According to a holder assembly for grinding tools known by WO 2011/074,773 A2 a magnet (21) is adapted to be placed in a recess in a grinding disc and screwed into the disc by means of screws (21-1). See for example Figs. 6, 8-9. After that a grinding segment (30) is pressed down into fitting recess (2) in a top disc. See Fig. 6. Thereby, said grinding segments (30, 31) are held by means of the magnet (21) underneath and the metallic grinding segment plate (30).

The function of said holding by means of magnet is that it is only the magnetic force of the magnet that directly holds the grinding segment. Thus, it is entirely the magnetic force that determines the capacity to hold a grinding segment, which sometimes might be insufficient. This means that the segment can come loose if, for example, it is unintentionally subjected to an impact, for example if the machine is driven in the street when it is transported between a car and a working space.

The main object of the present invention is, therefore, in the first place among other things to solve the problem described above, that the grinding disc segments unintentionally come loose from the grinding disc, with simple and well-functioning means.

Said object is reached by means of an arrangement according to the present invention, which is
mainly characterized in that a number of magnets are arranged between the holder and the grinding segments in question in order to hold the respective grinding segments in intended working position, in which they are intended to be held, that said number of magnets in question is/are arranged to hold the grinding segments in the intended holding positions by forming obstacles, whereby the shape of a recess, which is located in the rear inner end of the respective holding groove at the middle of the groove, is adapted to the shape of a magnet in order to receive said magnet in the recess made in the holder, whereby said magnet, which is received in said recess, is arranged to prevent bringing back of the grinding segment in question, which is received in the associated groove with its bottom portion.

The invention is described below as a couple of preferred embodiments with reference to the accompanying drawings, in which the invention is illustrated, and where:

Fig. 1 is a perspective view of the front side of a holder with magnets, which are placed in recesses and stopping a shown grinding segment being held,

Fig. 2 is a perspective view of the holder without magnets and grinding segment,

Fig. 3 illustrates in detail a groove for the reception of the grinding segment and with transverse recess for the reception of magnet,

Fig. 4 is a front view of the holder comp-letely filled with magnets and grinding segments,

Fig. 5 is a sectional view along the line V-V in Fig. 4, and

Fig. 6 illustrates the back of the holder.
According to the present invention, which relates to an arrangement 1 at a rotatable disc-shaped holder 2 arranged for the reception of grinding tools comprising grinding segments 3, which can be releasably attached in radially 4 directed tapering grooves 5 in the disc-shaped holder 2 in question, a number of magnets 6, 7, 8 are arranged between the holder 2 and the grinding segments 3 in question. Said number of magnets are arranged to hold the respective grinding segments 3 in intended working position 1, in which they are intended to be held, on the disc-shaped holder 2 and its front surface 2A. Thereby, said number of magnets 6, 7, 8, as is shown in Figs. 1-5, are arranged to form obstacles to the grinding segment 3 in order to keep the grinding segments 3 in the intended holding positions 1.

The shape of a recess 9, which is located in the rear inner end 5A of the respective holding groove 5, at the middle of the groove, i.e. across said groove 5, is adapted to the shape of the associated magnet 6 in order to be able to receive said magnet 6 releasably in the recess 9 made in the holder 2. Thereby, said magnet 6, which is received in said recess 9, is arranged to prevent bringing back of the grinding segment 3 in question, which is received in the associated radial groove 5 with its bottom portion 10 having a cross-section shaped as a dovetail and congruent to the associated groove 5.

The depth of said recess 9 is so chosen and the height of the magnet 6 is so adapted that the magnet 6 in question, which is received in the recess 9, extends to a level which exceeds the bottom portion of the grinding segment 3, and that said recess 9 is transverse in relation to the holding groove 5 in the associated part of the holder 2.
According to the embodiment of the invention illustrated in Figs. 1-5 the magnets 7-8 are located in recesses 11, 12 arranged in pairs, which are completely or partially hidden by grinding segment 3 attached in intermediate, radially directed holding groove 5. The shape of said recesses 11, 12, which are arranged to receive one magnet 7, 8 each, is adapted to the shape of said magnets 7, 8 and the respective recess 11, 12 has a depth, which substantially corresponds to the thickness of the associated magnet 7, 8. The recesses 11, 12 are located at the periphery of the holder 2, whereby one recess 11, 12 is located on either side of the groove 5. The magnets 7, 8 and associated congruent recess 9/ recesses 11, 12 suitably have square shape, preferably rectangular shape.

One or more cavities 13 is/are located at the edge of said recess 9; 11, 12 for holding engagement between a magnet 6-8 received in the recess 9; 11, 12, and the edge of said recess, for example by means of a knife, a screw driver or another tool.

Removal of grinding segments according to the embodiment in the first example is performed in that the magnet 6 is taken away, for example by means of a knife, and so that the grinding segment 3 can be displaced in the associated groove 5 and after that can be lifted away from the groove 5, for possible replacement etc.

In reverse order the grinding segments 3 are attached to the holder 2.

Of course, the holder 2 as well as the grinding segments 3, at least their fastening parts which co-operate with the magnets 6; 7, 8, consist of metal or another material, to which magnets attach.
Of course, the invention is not limited to the embodiments described above and illustrated in the accompanying drawings. Modifications are possible, especially as far as the nature of the different parts is concerned, or by using equivalent technique, without departing from the scope of the invention as it is defined in the patent claims.
PATENT CLAIMS

1. Arrangement (1) at rotatable disc-shaped holder (2) for grinding tools comprising grinding segments (3), which can be releasably attached in radially (4) directed, towards the periphery of the disc tapering grooves (5) in the holder (2) in question, characterized in that a number of magnets (6) are arranged between the holder (2) and the grinding segments (3) in question in order to hold the respective grinding segments (3) in intended working position (1), in which they are intended to be held, that said number of magnets (6) in question is/are arranged to hold the grinding segments (3) in the intended holding positions (1) by forming obstacles, whereby the shape of a recess (9), which is located in the rear inner end (5A) of the respective holding groove (5) at the middle of the groove, is adapted to the shape of a magnet (6) in order to receive said magnet (6) in the recess (9) made in the holder (2), whereby said magnet (6), which is received in said recess (9), is arranged to prevent bringing back of the grinding segment (3) in question, which is received in the associated groove (5) with its bottom portion (10).

2. Arrangement (1) according to Claim 1, characterized in that the depth of said recess (9) is so chosen and the height of the magnet (6) is so adapted that the magnet (6) in question, which is received in the recess (9), extends to a level which exceeds the bottom portion of the grinding segment (3).
3. Arrangement (1) according to anyone of the Claims 1-2, characterized in that said recess (9) is transverse in relation to the holding groove (5) in the associated part of the holder (2).

4. Arrangement (1) according to anyone of the preceding Claims, characterized in that the magnets (6) and associated congruent recess (9) have square shape, preferably rectangular shape.

5. Arrangement (1) according to anyone of the preceding Claims, characterized in that one or more cavities (13) is/are located at the edge of said recess (9) for holding engagement between a magnet 6() received in the recess (9) and the edge of said recess, for example by means of a knife, a screwdriver or another tool.
AMENDED CLAIMS
received by the International Bureau on 20 March 2014 (20.03.2014)

1. Arrangement (1) at rotatable disc-shaped holder (2) for grinding tools comprising grinding segments (3), which can be releasably attached in radially (4) directed, towards the periphery of the disc tapering grooves (5) in the holder (2) in question, characterized in that a number of magnets (6) are arranged between the holder (2) and the grinding segments (3) in question in order to hold the respective grinding segments (3) in intended working position (I), in which they are intended to be held, that said number of magnets (6) in question is/are arranged to hold the grinding segments (3) in the intended holding positions (I) by forming obstacles, whereby the shape of a recess (9), which is located in the rear inner end (5A) of the respective holding groove (5) at the middle of the groove, i.e. across said groove (5), is adapted to the shape of a magnet (6) in order to receive said magnet (6) in the recess (9) made in the holder (2), whereby said magnet (6), which is received in said recess (9), is arranged to prevent bringing back of the grinding segment (3) in question, which is received in the associated groove (5) with its bottom portion (10).

2. Arrangement (1) according to Claim 1., characterized in that the depth of said recess (9) is so chosen and the height of the magnet (6) is so adapted that the magnet (6) in question, which is received in the
recess (9), extends to a level which exceeds the bottom portion of the grinding segment (3).

3. Arrangement (1) according to anyone of the Claims 1-2, characterized in that said recess (9) is transverse in relation to the holding groove (5) in the associated part of the holder (2).

4. Arrangement (1) according to anyone of the preceding Claims, characterized in that the magnets (6) and associated congruent recess (9) have square shape, preferably rectangular shape.

5. Arrangement (1) according to anyone of the preceding Claims, characterized in that one or more cavities (13) is/are located at the edge of said recess (9) for holding engagement between a magnet (6) received in the recess (9) and the edge of said recess, for example by means of a knife, a screw driver or another tool.
**INTERNATIONAL SEARCH REPORT**

**PCT/SE2013/051170**

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC: see extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC: B24B, B24D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, PAJ, WPI data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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[×] Further documents are listed in the continuation of Box C.  [×] See patent family annex.

* Special categories of cited documents:
  "A" document defining the general state of the art which is not considered to be of particular relevance
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  "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  "O" document referring to an oral disclosure, use, exhibition or other means
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  "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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Date of actual completion of the international search: 17-01-201 4

Date of mailing of the international search report: 20-01-201 4

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International Patent Classification (IPC)

B24D 7/06 (2006.01)
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