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(54) Support disc for expendable polishing pad

(57) A support disc (3) is described for an expendable pad (4) for a polishing machine (1), having a raised peripheral edge (12). Said disc (3) also provides a self-centring lower central neck (7) suitable for being coupled with a central hole (8) of the pad (4).

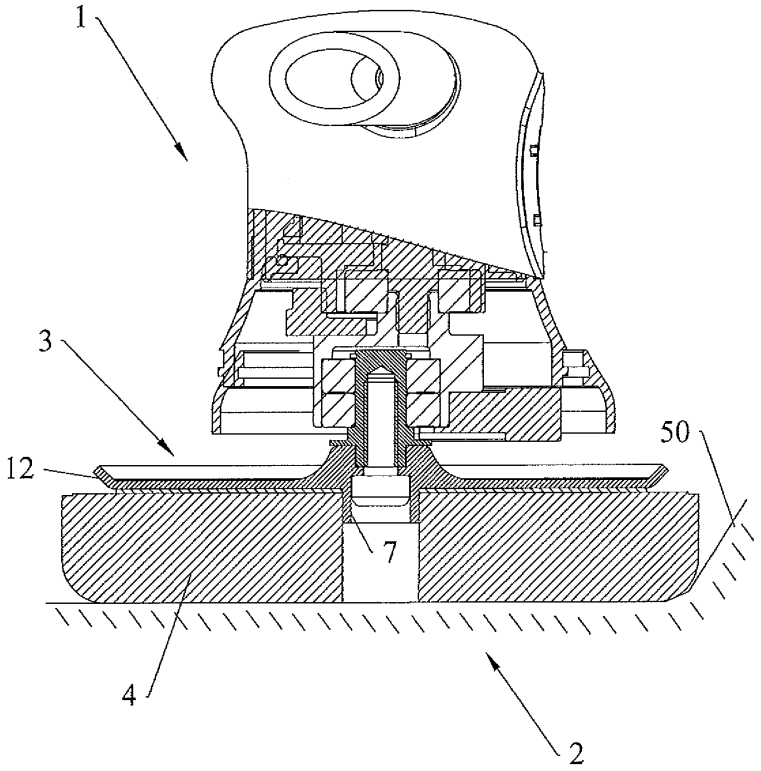

FIG.1

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Description

[0001] The present invention relates to a support disc for expendable polishing pad.

[0002] Backing pads are known for polishing machines comprising a compact expendable pad, e.g., in polyurethane foam, attached by means of a layer of hooked Velcro strip to a support disc coupled to the machine using known connection systems.

[0003] The efficiency of the polishing machine is penalised by deformations of the extremities of the pad which are created above all when working faceways or crossways, or when, due to morphological requirements of the surface to be polished, we are forced to use the side extremities of the pad.

[0004] As a result of the pressure exercised by the operator, said extremities tend to deform and bend upwards. By interacting with the thin and often sharp edge of the disc, the pad tends to crack or even break.

[0005] The efficiency of the pad is furthermore impaired by the type of pad/disc coupling which is currently done manually by the operator and is therefore subject to centring error.

[0006] Incorrect centring causes strong vibrations which, besides damaging the operator also negatively affect the quality of the work.

[0007] Object of the present invention is to make a support for expendable polishing machine pad that allows increasing the quantity of work done by the pad thanks to correct centring and a more controllable deformation of the pad edges.

[0008] According to the present invention, such object is achieved with an expendable polishing machine pad characterised in that it is provided with a raised edge suitable for sustaining and balancing the peripheral deformation of the pad.

[0009] Advantageously, said disc has a self-centring lower central neck suitable for being coupled with a central hole of the pad.

[0010] These and other characteristics of the present invention will be made clearer by the following detailed description of a practical embodiment illustrated in a non-limiting way in the attached drawings, in which:

figure 1 shows a backing pad fitted on a polishing machine;
figure 2 shows an expendable pad support disc with M8 screw connection;
figure 3 shows an expendable pad support disc with M14 thread.

[0011] The polishing machine in figure 1 shows a backing pad 2 comprising a disc 3 under which is attached an expendable pad 4 in polyurethane foam.

[0012] As is more clearly shown in the figures 2 and 3, the disc 3 consists of a central portion 5 which envisages a self-centring cylindrical lower neck 7 suitable for being coupled with a central through hole 8 of the pad 4.

[0013] In the version with M14 thread shown in the figure 3, the hole 8 may not be a through hole, the fastening to the rotation shaft of the machine occurring by means of the female thread 12 integrated in the upper part of the central portion 5 of the disc 3.

[0014] In the version with M8 screw shown in the figure 2, the central portion 5 envisages a through hole 6 through which to pass the fastening screw 20.

[0015] The pad 4 is attached to the flat lower surface 9 of the disc 3 by means of a layer of hooked Velcro strip 10. More in detail, the hooked Velcro strip 10 is glued to the lower surface 9 of the disc 3, and is coupled with a looped strip in turn glued to the flat upper surface 11 of the pad 4 (figure 2).

[0016] The disc 3 also has a raised peripheral edge 12 suitable for offsetting the deformations of the pad 4 during the work (see portion 50 of the deformed pad 4 in figure 2).

[0017] The life of the pad 4 is increased both because of the precise centring made possible thanks to the neck 7 which allows a uniform and foreseeable wear of the pad 4 (human error has been eliminated from centring), and because of the raised edge 12 on the lower part of which rests the peripheral part 13 of the pad 4 which being usually wider than the disc 3, on deforming tends to bend upwards.

[0018] Without the raised edge 12, the pad tends to crack or even break because it interacts with the thin and therefore partially sharp extremity of the disc 3.

[0019] The angle of the edge 12 shown in the illustrations is about 45°, but it is best to change this angle according to the actual hardness of the pad 4: the harder the pad, the lesser the angle must be.

[0020] For example, for a pad with hardness between 22 and 26 Sh an angle is advisable between 10° and 15° with respect to the flat portion 30 of the disc 3; for a pad with hardness between 18 and 22 Sh an angle is advisable between 15° and 30°; for a pad with hardness between 12 and 18 Sh an angle is advisable between 30° and 50°.

[0021] The present invention appears advantageous both for working on the flat or faceways or crossways , or in situations when access and manoeuvrability of the tool is difficult as shown in figure 1 where a surface portion 50 can be seen that is angled with respect to the horizontal (e.g., car door edges).

[0022] In the case of polishing machines working prevalently crossways, an angle is advisable between 45° and 60°, because the peripheral portions 13 of the pad 4 are subject to greater stress.

Claims

1. Support disc (3) for expendable pad (4) for polishing machine (1), **characterised in that** it is provided with a raised peripheral edge (12).

2. Disc (3) according to the claim 1, **characterised in**

that it is provided with a self-centring lower central neck (7) suitable for being coupled with a central hole (8) of the pad (4).

3. Disc (3) according to the claim 1 or 2, **characterised in that** the edge (12) is angled at between 10° and 15° with respect to the flat portion (30) of the disc (3) for a pad with hardness between 22 and 26 Sh.

4. Disc (3) according to the claim 1 or 2, **characterised in that** the edge (12) is angled at between 15° and 30° with respect to the flat portion (30) of the disc (3) for a pad with hardness between 18 and 22 Sh.

5. Disc (3) according to the claim 1 or 2, **characterised in that** the edge (12) is angled at between 30° and 50° with respect to the flat portion (30) of the disc (3) for a pad with hardness between 12 and 18 Sh.

6. Disc (3) according to any of the preceding claims, **characterised in that** the edge (12) is angled at between 45° and 60° with respect to the flat portion (30) of the disc (3) for polishing machine (1) for working faceways.

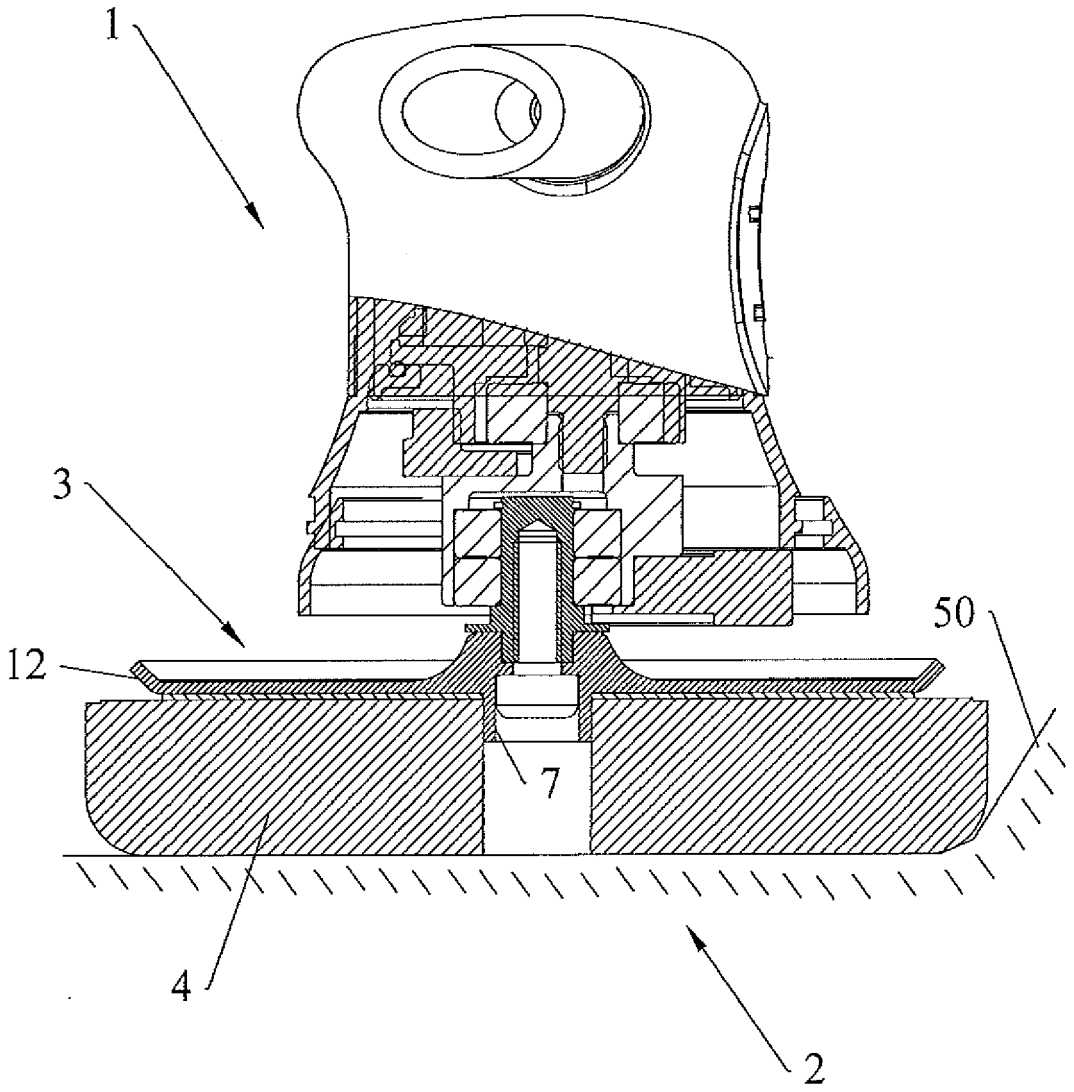

FIG.1

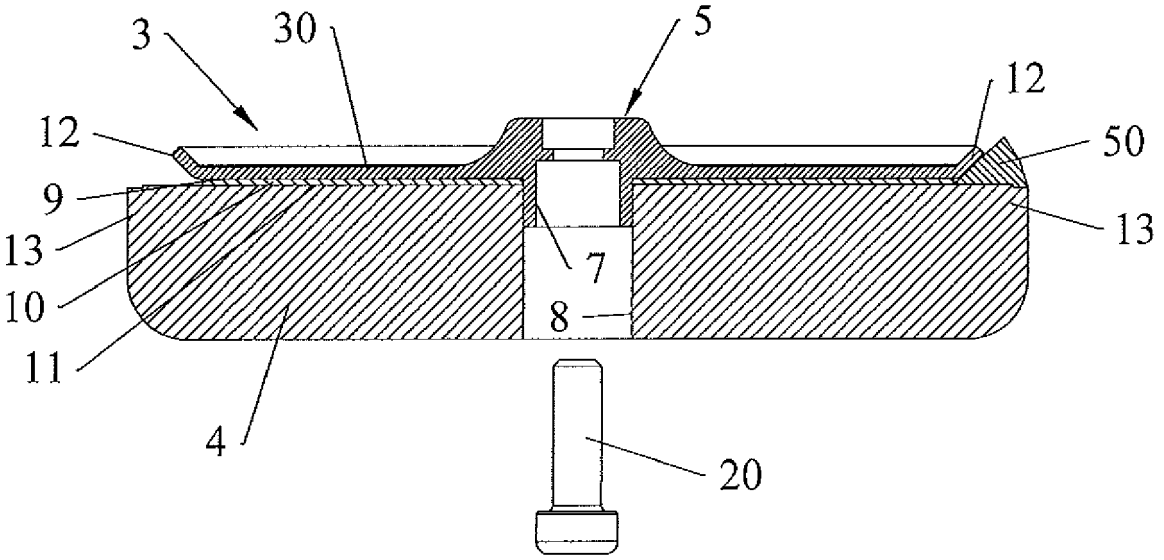

FIG.2

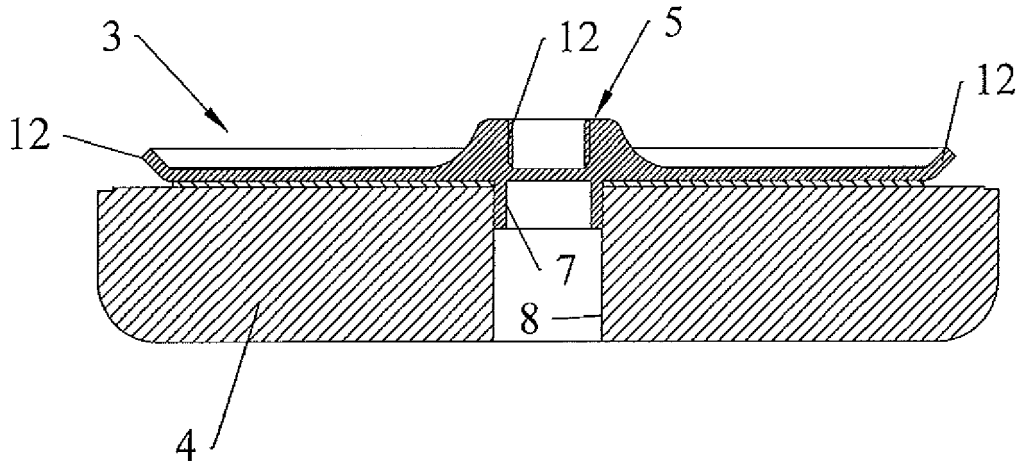

FIG.3