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FIG. 5 shows another exemplary magnet block securing jig. The jig includes a pair of block pressing segments 31, 31 disposed on opposite sides of three magnet blocks M in parallel arrangement. The pair of jig segments 31, 31 are adapted to press the magnet blocks M in the machining direction (transverse direction) for fixedly securing the magnet block M to the support plate 32 while they are retained utilizing screws, clamps, pneumatic or hydraulic cylinders, or wax (not shown). Although three magnet blocks M are shown in FIG. 5, the number of magnet blocks is not limited thereto. The jig segments 31, 31 are provided on their surfaces adjacent to the magnet block with a plurality of guide grooves 31a corresponding to cutoff abrasive blades 11 of multiple blade assembly 1. Note that the number of guide grooves 31a is not particularly limited, although eleven grooves are illustrated in the example of FIG. 5. In the embodiment of FIG. 5, the guide grooves 31a vertically penetrate throughout the segment 31. The jig of this construction has the advantage that the jig with the magnet blocks secured therein may be turned upside down without a need to remove the magnet blocks from the jig, and machining operation may be soon restarted on the magnet blocks in the jig.

During machining operation, an outer peripheral portion of each cutoff abrasive blade 11 is inserted into the corresponding guide groove 31a in the jig segment 31. Then the grooves 31a are arranged at a spacing which corresponds to the spacing between cutoff abrasive blades 11, and the grooves 31a extend straight and parallel to each other. The spacing between guide grooves 31a is equal to or less than the thickness of magnet pieces cut from the magnet block M.

The width of each guide groove should be greater than the width of each cutoff abrasive blade (i.e., the width of the peripheral cutting part). Provided that the peripheral

CLAIMS:

1. A method for multiple cutoff machining a sintered rare earth magnet block using a multiple blade assembly comprising a plurality of cutoff abrasive blades coaxially mounted on a rotating shaft at axially spaced apart positions, each said blade comprising a core in the form of a thin disk or thin doughnut disk and a peripheral cutting part on an outer peripheral rim of the core, said method comprising the step of rotating the cutoff abrasive blades to cutoff machine the magnet block into pieces,

said method further comprising the steps of:

starting the machining operation from the upper surface of the magnet block downward to form cutoff grooves in the magnet block,

interrupting the machining operation before the magnet block is cut into pieces,

turning the magnet block upside down,

placing the magnet block such that the cutoff grooves formed before and after the upside-down turning may be vertically aligned with each other, and

restarting the machining operation from the upper surface of the upside-down magnet block downward to form cutoff grooves in the magnet block until the cutoff grooves formed before and after the upside-down turning merge with each other, thereby cutting the magnet block into pieces.

2. The method of claim 1 wherein the side surface of the magnet block which is not subject to the machining operation is a reference plane, the magnet block is turned upside down and placed such that the reference planes may be aligned with each other before and after the upside-down turning whereby the cutoff grooves formed before and after the upside-down turning are vertically aligned with each other.

3. The method of claim 1 wherein a jig for securing the magnet block in place is disposed such that a side surface of the jig is parallel to the cutting plane of the magnet block, the side surface is a reference plane,

the jig together with the magnet block secured thereby is turned upside down and placed such that the reference planes may be aligned with each other before and after the upside-down turning whereby the magnet block is turned upside down and the cutoff grooves formed before and after the upside-down turning are vertically aligned with each other.

4. The method of claim 3 wherein the jig is designed to secure a plurality of magnet blocks, and the jig together with the plurality of magnet blocks secured thereby is turned upside down such that the cutoff grooves formed in the plurality of magnet blocks before and after the upside-down turning may be aligned with each other at the same time.

5. The method of claim 1 wherein

said magnet block to be cut has a height of 5 to 100 mm, and
in both of said machining operations from the upper surface of
the magnet block and from the upper surface of the upside-down
magnet block, said magnet block is machined by using the multiple
blade assembly comprising the cores having an outer diameter of 80
to 250 mm, and having an effective diameter of up to 200 mm.