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CLAIMS:

1. ~~A cutting insert for use in a rotary cutting tool having an axis of rotation, the insert being a substantially prismoidal body having top, base and side surfaces and cutting edges formed at intersections of the top and side surfaces;~~
- 5 ~~the insert, when mounted in the tool, having at least one inoperative side surface, said side surface having at least one depression formed symmetrically with respect to a center of the side surface length, an upper portion of the depression being disposed substantially in the vicinity of said top surface;~~
- 10 ~~the depression having a bottom wall oriented substantially co-directionally with said side surface and a pair of side walls oriented substantially transversely to said side surface, the depression being designed so that, when the insert is mounted in the tool, at least one wall of the depression constitutes an axial support portion of the cutting insert.~~
- 15 2. A cutting insert according to Claim 1, wherein the cutting insert is an indexable cutting insert, each side surface of the insert being formed with said at least one depression.
3. A cutting insert according to Claim 2, wherein the cutting insert is
- 20 of a basic square shape and has four indexable cutting edges.
4. A rotary cutting tool assembly comprising a tool holder having an axis of rotation; and formed with at least one insert receiving pocket and at least one replaceable cutting insert releasably mounted therein by clamping means;
- 25 said cutting insert being a substantially prismoidal body having insert top, base and side surfaces, the top and side surfaces defining therebetween cutting edges;
- 30 said insert receiving pocket comprising pocket base and side surfaces such that the base surface of the pocket supports the insert base surface and the side surfaces of the insert and the pocket bear against each other at their portions oriented substantially co-directionally with said axis of rotation, providing thereby a radial support of the cutting insert, and at their

portions oriented substantially transversely to said axis of rotation, providing thereby an axial support of the insert;

the insert side surface involved in said axial support being formed with at least one depression having a bottom wall substantially co-directional with said insert side surface and side walls substantially transverse thereto, characterised in that

the pocket side surface involved in said axial support of the insert is formed with at least one protrusion mating with said at least one depression, the protrusion having face and side walls and being received within said depression so that at least one wall of the depression abuts the respective wall of the protrusion, whereby said axial support of the insert in the tool is achieved.

5. A rotary cutting tool assembly according to Claim 4, wherein the insert receiving pocket has a single pocket side surface oriented substantially co-directionally with the axis of rotation of the tool, said axial support being achieved by at least one side wall of the depression of the insert bearing against a corresponding side wall of the protrusion of the pocket, said radial support being achieved by the non-recessed portions of said insert side surface bearing against respective non-protruding portions of the pocket side surface.

6. A rotary cutting tool assembly according to Claim 5, wherein said protrusion has a flexible design.

7. A rotary cutting tool assembly according to Claim 4, wherein said insert receiving pocket has two pocket side surfaces of which one is disposed substantially co-directionally with the rotary axis of the tool and provides for the insert support in the radial direction, while the other pocket side surface is disposed substantially transversely to the rotary axis of the tool and comprises said protrusion, the protrusion being of such dimensions as to ensure that the face wall thereof abuts the bottom wall of said depression, providing thereby said insert support in the axial direction.

8. A rotary cutting tool assembly according to Claim 4, wherein said axial support of the insert occurs substantially adjacent the top surface thereof.

9. A rotary cutting tool assembly according to Claim 4, adapted for full side and face milling operations.
10. A rotary cutting tool assembly according to Claim 9, wherein the tool holder is of a disk-like shape and has an integral tool holder body.
- 5 11. A rotary cutting tool assembly according to Claim 9, wherein the tool holder is of a disk-like shape and has a tandem tool holder body.
12. A rotary cutting tool assembly according to Claim 4, wherein said cutting tool is an endmill and said cutting insert is a frontal-cutting insert mounted at a leading end of the endmill.
- 10 13. A tool holder for a rotary cutting tool, the tool holder having an axis of rotation and being formed with at least one insert receiving pocket adapted to releasably receive a cutting insert having base and side surfaces, in such a manner as to provide the insert support in radial and axial directions, at least the side surface of the insert which is supported in the axial direction being formed with at least one depression:
- 15 said pocket comprising a base surface adapted to support the insert base surface and at least one side, which side surface is adapted to provide the insert support in the axial direction;
- said side surface of the pocket being formed with at least one protrusion mating with said at least one depression, the protrusion having face and side walls, at least one of said face and side walls being oriented substantially transversely to said axis of rotation;
- 20 the protrusion being adapted for being received within said depression so that said wall oriented substantially transversely to said axis abuts a corresponding wall of the depression, providing thereby said support of the insert in the axial direction.
- 25 14. A tool holder according to Claim 13, wherein the insert receiving pocket has a single side surface oriented substantially co-directionally with the axis of rotation of the tool, at least one of said side walls of the protrusion providing said support of the insert in the axial direction.
- 30 15. A tool holder according to Claim 14, wherein said protrusion has a flexible design.

16. A tool holder according to Claim 13, wherein said insert receiving pocket has two pocket side surfaces of which one is disposed substantially co-directionally with the rotary axis of the tool and provides for the insert support in the radial direction, while the other pocket side surface is disposed substantially transversely to the rotary axis of the tool and comprises said protrusion, said face wall of the protrusion providing said axial support of the insert in the tool holder.
17. A tool holder according to Claim 13, wherein said protrusion has such a height as to ensure that said axial support of the insert occurs substantially adjacent a top surface thereof.
18. A tool holder according to Claim 13, wherein said cutting tool is a full side and face milling cutter assembly.
19. A tool holder according to Claim 18, wherein the tool holder is of a disk-like shape and has an integral tool holder body.
20. A tool holder according to Claim 18, wherein the tool holder is of a disk-like shape and has a tandem tool holder body.
21. A tool holder according to Claim 13, wherein said cutting tool is an endmill and said insert receiving pocket is a frontal pocket at a leading end of the endmill.