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(54) **MACHINING TOOL.**

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Description

The present invention relates to a machining tool for sawing off a body, preferable a wooden body and destroying the edge outside the cut. Such disintegration may be carried out in a milling process, for instance, grooves being milled or surface layers removed. Machining tools other than millers are also feasible.

As background art can be mentioned US—A—3 198 227 disclosing a sawing tool with a saw blade divided by radial segments and DE—B—1 148 061 disclosing a saw blade for cutting and a secondary blade for destroying the edge outside the cut.

The tool is subjected to wear during use and it must therefore be ground at regular intervals. Grinding is generally time-consuming and expensive.

The object of the present invention is to simplify the grinding process for a machining tool and thus reduce costs for sharpening said tool. A further object of this invention is to provide a sawing tool that pulverizes the sawn off material instead of leaving it in the form of strips or the like.

This is enabled according to the present invention by a tool with at least one flat continuous circular saw blade and one or several circular saw blades, each blade being divided in to two or more consecutively arranged arc-shaped circumferential sections by radial slits, adjacent ends of such two consecutive portions being maintained axially displaced in relation to each other by a body arranged between said adjacent ends. The adjacent ends are located in two parallel planes such that each alternate end lies in the same plane and the slit saw blades are arranged on one side of the flat continuous circular saw blade. All circular saw blades are coaxial with respect to a central drive shaft and are arranged in such a way that the distance between the saw blades is such that the sawn off material is completely pulverized.

The displacement at each slit can be maintained with the aid of a single body with portions extending from a centre coinciding with the centre of the saw blade. Each portion is provided at its periphery with two flat surfaces, parallel to each other and perpendicular to the axis of the saw blade. The ends at a slit abut these surfaces. Abutment may be such that adjacent parts of the saw blade are completely parallel with a cooperating surface.

Two or more machining tools may be placed adjacent each other and such a package can, if desired, be provided with a cutting saw blade on one or both sides.

Additional characteristics of the present invention are revealed in the following claims.

The present invention will be more fully described with reference to the accompanying two sheets of drawings in which

Figures 1 and 2 show one and the same machining tool in two positions, one position being turned 90° with respect to the other position,

Figure 3 shows the machining tool according to Fig. 1 seen from the side, and

Figure 4 shows the machining tool according to Fig. 2 seen from the side.

In the drawings 1 is a flat saw blade with teeth 2, each provided with a hard-metal layer or hard-metal cutting edge. The saw blade 1 is provided with an intermediate ring 3. On the intermediate 3 is a second saw blade 7, provided with teeth 8 having a hard-metal coating or hard-metal cutting edge. The saw blade 7 is provided with two recesses 9 and 10 so that, along most of its periphery it has the form of a ring or band. Due to said recesses the saw blade acquires a transverse portion 11 which per se includes a diameter of the saw blade. Two slits are arranged close to the ends of the part 11. Two halves of a ring, designated 15 and 16, are obtained due to said slits. The ends by the slits 13 and 14 are parted in axial direction. Between the parted ends is inserted a body 4 having two flat surfaces 5 and 6 parallel to each other. Parted ends abut against the flat surfaces in the ends of the body 4 as shown in the drawings. Thus, according to Figure 1, the upper end part of the ring-half 16 abuts the flat surface 5 of the body 4 while the upper end of the ring-half 15 abuts the flat surface 6 of the body 4. The lower end of the ring-half 16 according to Figure 1 abuts the flat surface 6 of the body 4 and the lower end of the ring half 15 abuts the flat surface 5 of the body 4. Adjacent ends are substantially parallel to the abutting surfaces and firmly connected to the body 4 by screw joints. The saw blade 7 has a central aperture 12 and the body 4 is also provided with a corresponding central aperture. There are fewer teeth on the saw blade 7 than on the saw blade 1.

The machining tool described above is intended for use in sawing off the outer edge of a slab of wood or chipboard; the width of the sawn-off edge being less than the distance between two ends of two ring-halves 15 and 16. The machining tool shown in the drawings is placed on a shaft and the saw blade 1 is then located nearest the surface which shall remain when the edge is sawn off. The saw blade 7 is located at the edge. If the shaft on which the machining tool according to the drawings is placed is now moved towards the slab to be cut clean, the saw blade 1 will effect the actual cutting and the blade 7 will destroy the edge formed outside said cut. It is therefore an advantage if the number of teeth is greater on the part carrying out the actual cutting. The procedure described here gives the advantage that material sawn off is pulverized instead of remaining in the form of a strip or the like. This facilitates the removal of excess material. Furthermore, it is obtained in a form suitable for use a fuel.

If material of considerable width is to be destroyed, two or more saw blades 7 may be arranged one after the other with a body 4. A package of saw blades is thus obtained for the destruction of material, the quantity of material

destroyed being dependent on the size of the blade package.

According to the invention, thus a package consisting only of a number of bodies 4 with saw blades 7. SUch packages can also be provided with flat saw blades 1 at either one or both ends.

A means according to the invention is useful not only for removing edges from panels but also for producing grooves or recesses in timber products, such as poles, posts and the like.

Claims

1. Machining tool for sawing off a body, preferably a wooden body and destroying the portion remaining outside the cut, the tool having at least one flat continuous circular saw blade (1) for sawing off and axially extending arc-shaped saw blade sections for destroying the portion remaining outside the cut characterized in that the arc shaped portions are derived from one or several circular saw blades (7), each blade being divided into two or more consecutively arranged arc-shaped circumferential sections (15, 16) by radial slits (13, 14), adjacent ends of such two consecutive portions being maintained axially displaced in relation to each other by a body (4) arranged between said adjacent ends and said ends being located in two parallel planes such that each alternate end lies in the same plane, that the slit saw blades (7) are arranged on one side of the flat continuous circular saw blade (1), and that all circular saw blades (1, 7) are coaxial with respect to a central drive shaft and are arranged in such a way that the distance between the saw blades (1, 7) is such that the sawn off material is completely pulverized.

2. Machining tool according to claim 1, characterised in that the position of the sections (15, 16) in the radial direction is maintained by a spacer (11) and that all spacers (11) are formed by a body having a central portion common with the saw blade (7) and with peripheral parts in the form of spacers (11).

3. Machining tool according to one or more of the preceding claims, characterised in that every spacer (11) has two external surfaces parallel to each other and perpendicular to an axis through the centre of the saw blade (7).

4. Machining tool according to one or more of the preceding claims, characterised in that the arc-shaped circumferential portions (15 and 16) are in the form of part of a band or ring.

5. Machining tool according to one or more of the preceding claims, characterised in that two or more slit saw blades (7) are located beside each other and that outside said slit saw blades (7), on one or both sides thereof a flat, unslit saw blade (1) is arranged.

Revendications

1. Outil d'usinage prévu pour scier un corps de préférence en bois et pour détruire la portion de ce corps située au-delà de la surface de coupe, l'outil possédant au moins une lame de scie circulaire continue plane (1) prévue pour scier et détacher ainsi que des sections de lame de scie en forme d'arc s'étendant axialement, prévues pour détruire la portion de corps restant au-delà de la surface de coupe, caractérisé en ce que les secteurs en forme d'arc proviennent d'une ou de plusieurs lames de scie circulaire (7), chaque lame étant divisée par les fentes radiales (13, 14) en deux ou plusieurs sections circonférentielles en forme d'arc agencées à la suite l'une de l'autre (15, 16), les extrémités adjacentes de deux telles sections consécutives étant maintenues axialement décalées l'une par rapport à l'autre au moyen d'un organe (4) disposé entre lesdites extrémités adjacentes, ces extrémités adjacentes étant situées dans deux plans parallèles de telle manière qu'une extrémité sur deux soit situé dans le même plan, et en ce que les lames de scie fendues (7) sont agencées sur un côté de la lame de scie circulaire continue (1) et que les lames de scie circulaire (1, 7) sont coaxiales par rapport à un moyeu central et disposées de manière que la distance entre les lames de scie est telle que le matériau détaché par sciage soit totalement désintégré.

2. Outil d'usinage selon la revendication 1, caractérisé en ce que la partie des sections (15, 16) est maintenue, en direction radiale, par une pièce d'écartement (11) et que toutes ces pièces d'écartement (11) sont constituées par un organe ayant une partie centrale commune à la lame de scie (7) et des parties périphériques en forme de pièces d'écartement.

3. Outil d'usinage selon une ou deux des revendications précédentes, caractérisé en ce que chaque pièce d'écartement (11) possède deux surfaces extérieures parallèles entre elles et perpendiculaires à un axe passant par le centre de la lame de scie (7).

4. Outil d'usinage selon une ou plusieurs des revendications précédentes, caractérisé en ce que les sections circonférentielles en forme d'arc (15 et 16) se présentent sous l'aspect d'une partie de bande ou d'une partie d'anneau.

5. Outil d'usinage selon une ou plusieurs des revendications précédentes, caractérisé en ce qu'une ou plusieurs lames de scie fendues (7) sont situées côte et qu'une lame de scie non fendue (1) est agencée à l'extérieur desdites lames de scie fendues (7), soit d'un côté soit des deux côtés de celles-ci.

Patentansprüche

1. Werkzeug zum Absägen eines Körpers, vorzugsweise eines Holzkörpers, und zum Zerstören des außerhalb des Schnittes verbleibenden Teils, wobei das Werkzeug mindestens ein flaches, ununterbrochen kreisförmiges Sägeblatt (1) zum Absägen sowie axial abstehende bogenförmige Sägeblattsegmente zum Zerstören des außerhalb des Schnittes verbleibenden Teils aufweist, dadurch gekennzeichnet, daß die bogenförmigen Teile ausgehend von einem oder mehreren kreis-

förmigen Sägeblättern (7) gebildet sind, wobei jedes Blatt durch radiale Schlitze (13, 14) in zwei oder mehr aufeinanderfolgend angeordnete bogenförmige Umfangssegmente (15, 16) geteilt ist und die benachbarten Enden je zweier aufeinanderfolgender Segmente mittels eines zwischen ihnen angeordneten Körpers (4) gegeneinander axialversetzt gehalten sind und diese Enden derart in zwei zueinander parallelen Ebenen liegen, daß abwechselnd jedes zweite Ende in derselben Ebene liegt, und daß die geschlitzten Sägeblätter (7) auf einer Seite des flachen ununterbrochenen Sägeblattes (1) angeordnet sind und alle kreisförmigen Sägeblätter (1, 7) koaxial zu einer zentralen Welle und so angeordnet sind, daß der Abstand zwischen den Sägeblattern (1, 7) derart ist, daß das abgesägte Material vollständig pulverisiert wird.

2. Werkzeug gemäß Anspruch 1, dadurch gekennzeichnet, daß die Lage der Segmente (15, 16) in der radialen Richtung von einem Distanzstück (11) aufrechterhalten wird und daß alle distanzstücke (11) durch einen Körper gebildet sind, der ein mit dem Sägeblatt (7) gemeinsames Mittelteil und Umfangsteile in Form der Distanzstücke (11) aufweist.

3. Werkzeug gemäß einem oder mehreren der obigen Ansprüche, dadurch gekennzeichnet, daß jedes Distanzstück (11) zwei einander parallele und rechtwinklig zu einer Achse durch das Zentrum des Sägeblattes (7) verlaufende äußere Oberflächen hat.

4. Werkzeug gemäß einem oder mehreren der obigen Ansprüche, dadurch gekennzeichnet, daß die bogenförmigen Umfangsteile (15, 16) als Teile eines Bandes oder Rings geformt sind.

5. Werkzeug gemäß einem oder mehreren der obigen Ansprüche, dadurch gekennzeichnet, daß zwei oder mehrere geschlitzte Sägeblatter (7) nebeneinander angeordnet sind und daß außerhalb dieser geschlitzten Sägeblätter (7) auf einer oder beiden Seiten davon ein flaches ungeschlitztes Sägeblatt (1) angeordnet ist.

FIG. 3

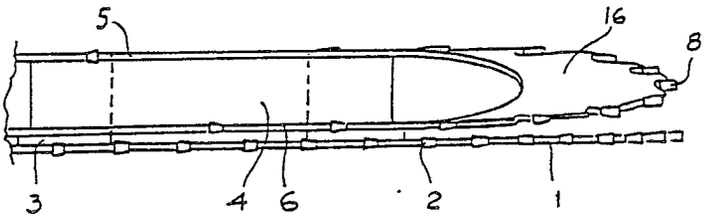

FIG. 1

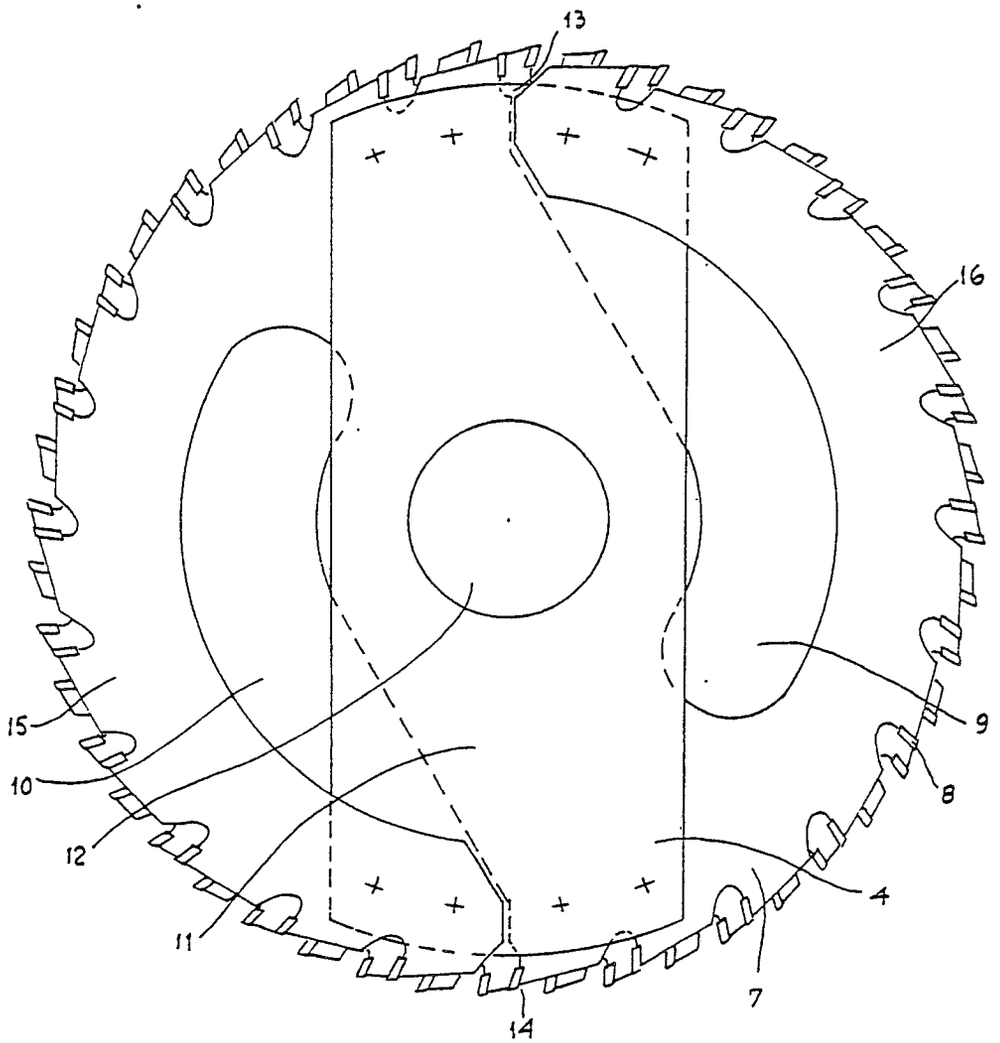

FIG. 4

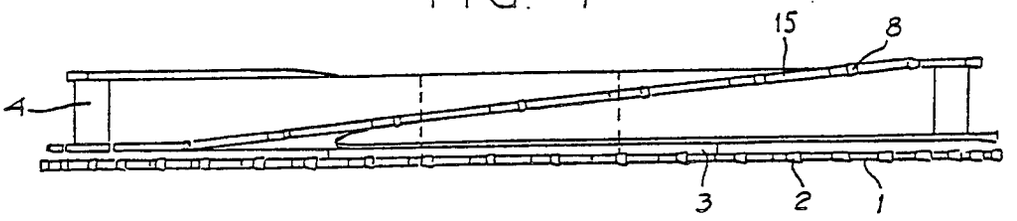

FIG. 2