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(54) **A device and a method for working a timber log**

Vorrichtung und Verfahren zu Bearbeitung eines Baustammes

Dispositif et procédé de traitement de troncs d'arbres

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Description

THE BACKGROUND OF THE INVENTION AND PRIOR ART

[0001] The present invention refers to a device for working a timber log.

[0002] The invention also refers to a method of working a timber log.

[0003] Devices for working a timber log are previously known from, inter alia, the U.S. patent US-A-4 015 648. This document discloses how to remove waness of a log by chip cutting knives in order to enable sawing of sideboards having an essentially rectangular cross-section. The cutting knives are provided on and project from discs provided in pairs to rotate about a common axis. The edges of the cutting knives are provided at the outer periphery of the disc in such a distance from each other that the width of the sideboard to be sawn is defined therebetween. Thus, the cutting edges are arranged to provide two plane parallel recesses in a log which is brought to pass the knives, whereafter a saw blade is provided to saw along a limiting surface of these recesses in such a manner that a sideboard is removed from the rest of the log.

[0004] A method and a device for chip cutting dividing of timber logs is also suggested in the document SE 438 110. In this document edges of a log, which is rectangularly shaped by saw cuts, are milled perpendicularly by means of cutting heads, which comprise cutting knives and a circular saw blade. One of the surfaces of the milled portion is thereby evenly sawn. During the successive separation of the sideboard from the log, the saw cuts are applied in essentially the planes of the second of the surfaces of the milled portion, which due to the influence of the cutting knives gets a wave-shaped appearance. Hereby, the waves are removed and all the sides of the product are evenly sawn. The material milled away is to a large part chip, which is desirable since it may be used for the production of cellulose.

[0005] Both of these known methods and devices result in the fact that the surface which is produced by the cutting knives along the longitudinal direction of the log is wave shaped. First by the successive sawing, i. e. the separation of a sideboard, the wave-shaped surface may be removed or evened by an accurate guiding of the saw blade along this wave-shaped surface. If, for any reason, the saw blade does not run exactly along said surface but leave it untouched along a portion of the log, this wave-shaped surface will appear on the board adjacent to the sideboard, on which a surface is defined by the sawing separation of the sideboard. Since the logs which are sawn frequently are curved or somewhat bent, the exact adjustment of the saw blade or the saw blades is made more difficult, which in turn may result in said surface defect on the board adjacent to the separated sideboard. One solution to the problem would be to provide the saw blade or blades very closely

after the milling tools seen in the log transport direction. For construction reasons, such a solution may, however, be difficult to obtain.

[0006] EP-A-775 558 discloses working of a timber log by means of a band saw, which has a saw band extending transversally through the log, i.e. the band saw is arranged to separate a sideboard from the log. After the separation of the sideboard, the sideboard is maintained in its original position by supporting elements, whereby the chipping out of the wane portion of the sideboard is performed on this separated sideboard.

[0007] US-A-4,848,427 discloses another method and apparatus for chipping out the wane portion of a timber log. The chipping out takes place in two steps, which are performed with a respective combination working tool. Each of these working tools comprises a saw blade and a chipping tool arranged around a common axis of rotation. Consequently, the solution presented in US 4,848,427 differs from the solution of the present invention in that no simple saw groove is obtained in the first working step. Furthermore, US-A-4,848,427 describes a working method operating in an order differing from the working order of the present invention. The first working step according to this prior art includes simultaneous chipping out and sawing a groove. The remaining part of said groove extends in a plane perpendicular to the saw plane for separating a sideboard, but not in a plane being parallel to and substantially coinciding with the following sawing step for separating the sideboard.

SUMMARY OF THE INVENTION

[0008] An object of the invention is to provide a device for chip cutting separation of timber logs, wherein the device enables the achievement of a maximum quantity of chip in connection with the separation of portions comprising waness, at the same time as the working tool used is prevented from causing the unwanted surface defect of the boards defined by the chip cutting working. Thus, the chip cutting working tools must not leave any wave-shaped surface which in turn is to be finished by means of an successive saw blade or any further working member.

[0009] This object is obtained by means of the device defined in claim 1.

[0010] According to a preferred embodiment of the device according to the invention the rotation axis of the working tool is arranged to extend in a plane being essentially parallel to the extension planes of said first and second surfaces and a rotation axis of the working tool is arranged to extend essentially perpendicular to said transport direction. This permits a simple and rotation symmetric design of the working tool proper, and facilitates a simple and accurate positioning thereof in relation to the log to be worked.

[0011] According to a further preferred embodiment, the device comprises a finishing tool, arranged to finish

a third surface of the log, which surface forms an angle to said second surface and together therewith defines the portion which has been removed from the log. Thanks to the finishing tool, it is prevented that the third surface, which in this case is intended to form a narrow side surface of a sideboard, becomes rough in connection with the chip cutting working.

[0012] According to a further preferred embodiment of the device, the finishing tool is provided on the working tool and comprises a cutting edge extending in a plane being essentially perpendicular to said rotation surface. Thereby, orthogonality between said first and third surfaces of the log is obtained, which is advantageous when a production of boards having an essentially rectangular cross-section is desired.

[0013] According to a further preferred embodiment of the device, the saw tool comprises a rotary saw blade, and the saw blade and the working tool are arranged in such a manner that their outer peripheries overlap each other in said log transport direction. Thereby, the difficulty of positioning the working tool accurately is reduced in such a manner that the working tool will not engage said second surface, in particular when the logs to be worked are curved.

[0014] According to a further preferred embodiment of the device, it comprises four working tools and saw tools, arranged to remove four separate portions of the log, which each comprises a respective wane. In such a manner, it is possible to remove all four waness of the log in parallel and at a location along a path along which the log is transported.

[0015] A further object of the invention is to provide a method, which enables the removal of a portion of a log comprising a wane without causing, by the chip cutting working tool, any wave-shaped surface of the log, which later on need to be finished by means of any further working tool, such as a saw blade, for instance.

[0016] This object is obtained by the method defined in claim 11.

[0017] According to a preferred embodiment of the method, a third surface of the log is finished by means of a finishing tool, wherein said third surface forms an angle to said second surface and together therewith form a limitation of the log to the portion being removed. Thereby, an even narrow side surface of a sideboard, which thereafter is removed from the log by sawing, is obtained at the same time as the most adjacent board material is given an even surface portion.

[0018] According to a further preferred embodiment of the method, four separate portions of the log are removed, which each comprises a respective wane, by said sawing and chip cutting working. Thereby, an optimal use of the log is obtained for the production of boards.

[0019] Further advantages and features of the device and method, respectively, according to the invention will appear from the following, detailed description, as well as from the further, independent claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] The present invention is now to be described in more detail and with reference to the embodiments, disclosed by way of example in the drawings attached hereto. In these disclose:

Fig 1 an embodiment of the device according to the invention in a view from above,

Fig 2 the device according to Fig 1 seen from the side,

Fig 3 an embodiment of a working tool of the device in Fig 1,

Fig 4 the working tool according to Fig 3 in a view perpendicular to the one in Fig 3,

Fig 5-8 cross-sectional views disclosing how a timber log is intended to be worked stepwise by means of the device according to the invention.

DETAILED DESCRIPTION OF AN EMBODIMENT

[0021] Fig 1 and 2 are schematical views of an embodiment of the device according to the invention, which comprises a combination tool 1, having six cutting knives and a saw blade of a type known per se, by which side portions having a curved outer surface of the log is removed in a conventional manner. Preferably, the device comprises four such combination tools 1, arranged to work the log in such a manner that it receives an essentially rectangular cross-section with the exception that the curved corners, containing waness, are left. This also appears from Fig 5 which schematically discloses how the log is worked initially.

[0022] The device also comprises a number of saw tools 2, one of which is disclosed in Fig 1 and which are arranged to saw grooves in the log along the longitudinal direction thereof when it is transported passing the saw tools 2 in a transport direction x. The saw tool 2 comprises a blade 16. The blades 16 of the saw tools 2 are displaced towards the centre of the log in relation to a respective adjacent, plane parallel saw blade of the combination tools 1 by such a distance that the wane or a portion comprising the respective wane is comprised therebetween. Preferably, the saw blade of the combination tool 1 and/or the saw tool 2 is displaceable in a direction 4 which is perpendicular to said transport direction x in such a manner that the distance therebetween maybe adjusted dependent on the thickness of the log. Furthermore, the saw tools 2 are provided in pairs, the blades 16 of which are arranged in essentially the same plane. One such pair is disclosed in Fig 2, and at least one of, preferably both the saw tools 2 is displaceably provided in a direction x which is perpendicular to the transport direction z and to the transverse direction y. Thereby, the depth of the groove sawn by the saw tool 2 may be adapted to different log dimensions.

[0023] Thus, the saw tool 16 is arranged to provide a

groove 10, or a channel, having a first surface 7, a second surface 8, which is essentially parallel to the first surface 7, and a bottom 17 which extends between and connects the first surface 7 and the second surface 8 to each other.

[0024] Immediately after the saw tools 2, seen in the transport direction x, the device comprises a working tool 3. The working tool 3, positioned most adjacent to a preceding saw tool 2, is as well as the saw tool 2 provided to rotate about a rotation axis r. The rotation axis r of the working tool 3 forms an angle to the rotation axis r of the saw tool 2. In the embodiment disclose said angle is essentially perpendicular. Thereby, the rotation axis r of the working tool 3 extends essentially in the previously defined direction z.

[0025] The working tool 3 comprises an element defining an essentially plane disc 4 on which chip cutting knives 5 are provided. The knives 5 are provided to project from the outer periphery of the disc 4. They comprise an edge 6 which, during the rotation of the tool 3, is arranged to define an imaginary rotation surface touching a plane being essentially parallel to the first and second surfaces 7, 8 respectively, formed at a log 9 when the saw tool 2 produces the groove 10. The extension of said rotation surface appears by the dashed line 11 in Fig 3. The working tool 3 is arranged to be positioned in such a manner that said rotation surface 11 extends right to the first surface 7 but not to the second surface 8. Thereby, it is avoided that the cutting edge 6 engages the second surface 8 and produces a wave formation thereat. Furthermore, the sideboard 9', which later on is to be separated from the log 9, will form a fixed part of the log 9 during the whole chip cutting working.

[0026] Furthermore, the device comprises finishing tools 12, which are provided on the working tool 3 and comprise a respective cutting edge 13 extending in a plane being essential perpendicular to said rotation surface 11, i.e. parallel to the extension plane of the disc 3. The finishing tool 12 is arranged to work a third surface 15 of the log 9, which is perpendicular to the second surface 8 of the latter and together therewith encloses and defines the portion 14 having the wane. The third surface 15 is indicated in Fig 5 and 6 and appears more clearly from Fig 8. The working tool 3, including the finishing tool 12, is of a known type per se. In particular, it is the positioning thereof in relation to the saw tool 2 which is the interest of the invention.

[0027] Figs 5-7 disclose how a log is stepwise worked when it is forced to pass combination tools 1, saw tools 2 and working tools 3 along a path. For reasons of clarity, only the combination tools 1, which are plane parallel to the most adjacent saw tool 2, have been disclosed in Fig 1 and 2. In addition, combination tools 1, provided perpendicularly thereto, are provided preferably upstream in the transport direction x.

[0028] It is a matter of course that a number of variants and alternative embodiments of the device according to

the invention will be obvious to the person skilled in the art within the scope of the invention. The scope of protection of the invention is determined merely by the independent claims attached, supported by the description and the drawings attached.

Claims

1. A device for working a timber log (9), comprising
 - a chip cutting, rotating working tool (3) adapted to remove a wane portion (14) of the log (9) by chip cutting working, and
 - a saw tool (2) arranged to be located before the working tool (3) seen in a log transport direction (x),
 wherein said saw tool (2) is arranged to saw a groove (10) along the longitudinal direction of the log (9), with said groove having a first surface (7) of said portion, a corresponding opposite second surface (8) of the log (9) and a bottom (17) extending between the first surface (7) and the second surface (8), and
 wherein said working tool (3) comprises an edge (6), arranged to define during the rotation of the tool (3) an imaginary rotation surface (11) touching a plane which is essentially parallel to the extension planes of said first (7) and second (8) surfaces, and arranged to remove said wane portion (14) by chip cutting without engaging said second surface (8).
2. A device according to claim 1, **characterized in that** the rotation axis of the working tool (3) is arranged to extend in a plane being essentially parallel to the extension planes of said first (7) and second (8) surfaces.
3. A device according to any one of claims 1 and 2, **characterized in that** the rotation axis of the working tool (3) is arranged to extend essentially perpendicular to said transport direction (x).
4. A device according to any one of claims 1 to 3, **characterized in that** the saw tool (2) is provided to rotate about a rotational axis and that the rotation axis of the working tool (3) forms an angle to the rotation axis of the saw tool (2).
5. A device according to claim 4, **characterized in that** the rotation axis of the working tool (3) is essentially perpendicular to the rotation axis of the saw tool (2).
6. A device according to any one of claims 1 to 5, **characterized in that** it comprises a finishing tool (5), arranged to finish a third surface (15) of the log (9),

which surface (15) forms an angle to said second surface (8) and together therewith defines the portion (14) which is removed from the log (9).

7. A device according to claim 6, **characterized in that** the finishing tool (12) is provided on the working tool (3) and that it defines a cutting edge (13) extending in a plane being essentially perpendicular to said rotation surface (11).

8. A device according to claims 6 or 7, **characterized in that** the working tool (3) comprises an element defining an essentially plane disc (4), that the extension planes of the imaginary rotation surface (11) are essentially perpendicular to the extension plane of the disc (4), and that the cutting edge (13) of the finishing tool (12) extends in a plane being essentially parallel to the extension plane of the disc (4).

9. A device according to any one of claims 1 to 8, **characterized in that** the saw tool (2) comprises a rotating saw blade (16) and that the saw blade (16) and the working tool (3) are arranged in such a manner that their outer peripheries are overlapping each other seen in said log transport direction (x).

10. A device according to claim 1, **characterized in that** it comprises four working tools (3) and saw tools (2), arranged to remove four separate portions (14) of the log (9), which each comprises a respective wane.

11. A method for working a timber log (9), in which a chip cutting, rotating working tool (3) is used for removing a wane portion (14) of the log by chip cutting working and that before the chip cutting working performed by said working tool (3),

- a saw tool (2) is used to saw a groove (10) along the longitudinal direction of the log (9), with said groove having a first surface (7) of said portion (14), a corresponding, opposite second surface (8) of the log (9) and a bottom (17) extending between the first surface (7) and the second surface (8), and that
- said working tool (3) comprises an edge (6) which is brought to define, during the rotation of the tool, an imaginary rotation surface (11) which touches a plane which is essentially parallel to the extension planes of said first (7) and second (8) surfaces,

so that said wane portion (14) is removed by chip cutting without engaging said second surface (8).

12. A method according to claim 11, **characterized in that** a third surface (15) of the log (9) is finished by means of a finishing tool (12), wherein said third sur-

face (15) forms an angle to said second surface (8) and together therewith form a limitation of the log (9) against the portion (14) being removed.

13. A method according to any one of claims 11 and 12, **characterized in that** a cutting edge (13) of the finishing tool (12) is positioned in such a manner that it extends in a plane which is essentially perpendicular to the extension planes of said rotational surface (11), and is displaced for providing said finishing.

14. A method according to any one of claims 11 to 13, **characterized in that** four separate portions of the log (9), which each comprises a respective wane are removed essentially simultaneously by said sawing and chip cutting working.

15. A method according to any one of claims 11 to 14, **characterized in that** comprises an essentially continuous feed of the log (9) along a path passing said saw tool (2) and working tool (3).

25 Patentansprüche

1. Vorrichtung zur Bearbeitung eines Baumstammes (9), mit

- einem spanabhebenden, rotierenden Arbeitswerkzeug (3), das zur Entfernung eines Randbereiches (4) des Stammes (9) durch spanabhebende Bearbeitung geeignet ist,
- einem Sägewerkzeug (2), das in einer Stammförderrichtung (x) gesehen vor dem Arbeitswerkzeug (3) angeordnet ist,

wobei das genannte Sägewerkzeug (2) zum Sägen einer Nut (10) mit einer ersten Fläche (7), einer korrespondierend zweiten gegenüberliegenden Fläche (8) und einem sich zwischen der ersten Fläche (7) und der zweiten Fläche (8) erstreckenden Nutgrund (17) entlang einer Längsrichtung des Stammes angeordnet ist, und

wobei das genannte Arbeitswerkzeug (3) eine Kante (6) aufweist, die während der Rotation des Werkzeuges (3) eine imaginäre Rotationsoberfläche (11) definiert, die eine sich im wesentlichen zur Verlängerung der ersten (7) und zweiten (8) Oberfläche parallel erstreckende Ebene berührt und die den genannten Randbereich (4) durch spanabhebendes Schneiden entfernt, ohne mit der zweiten Fläche (8) in Eingriff zu kommen.

2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, daß** sich die Drehachse des Arbeitswerkzeuges (3) in eine Ebene erstreckt, die im wesentlichen parallel zu den verlängerten Ebenen der ge-

nannten ersten (7) und zweiten (8) Oberfläche liegt.

3. Vorrichtung nach einem der Ansprüche 1 oder 2, **dadurch gekennzeichnet, daß** die Drehachse des Arbeitswerkzeuges (3) im wesentlichen senkrecht zu genannten Förderrichtung (x) liegt. 5
4. Vorrichtung nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, daß** das Sägewerkzeug (2) um eine Drehachse rotiert und daß die Drehachse des Arbeitswerkzeuges (3) mit der Drehachse des Sägewerkzeuges (2) einen Winkel bildet. 10
5. Vorrichtung nach Anspruch 4, **dadurch gekennzeichnet, daß** die Drehachse des Arbeitswerkzeuges (3) im wesentlichen senkrecht zu der Rotationsachse des Sägewerkzeuges (2) angeordnet ist. 15
6. Vorrichtung nach einem der Ansprüche 1 bis 5, **gekennzeichnet durch** ein Schlichtwerkzeug (5) zur Endbearbeitung einer dritten Oberfläche (15) des Stammes (9), die einen Winkel mit der genannten zweiten Oberfläche (8) bildet und mit dieser den vom Stamm (9) entfernten Teil (14) bildet. 20
7. Vorrichtung nach Anspruch 6, **dadurch gekennzeichnet, daß** das Schlichtwerkzeug (12) auf dem Arbeitswerkzeug (3) angeordnet ist und eine Schneidkante (13) besitzt, die sich in eine im wesentlichen senkrecht zu der genannten Rotationsoberfläche (11) liegenden Ebene erstreckt. 25
8. Vorrichtung nach Anspruch 6 oder 7, **dadurch gekennzeichnet, daß** das Arbeitswerkzeug (3) eine im wesentlichen ebene Scheibe (4) aufweist, daß die Erstreckungsebene der imaginären Rotationsoberfläche (11) im wesentlichen senkrecht zu der Erstreckungsebene der ebenen Scheibe (4) liegt, und daß sich die Schneidkante (13) des Schlichtwerkzeuges (12) in eine Ebene erstreckt, die im wesentlichen parallel zur Erstreckungsebene der Scheibe (4) liegt. 30
9. Vorrichtung nach einem der Ansprüche 1 bis 8, **dadurch gekennzeichnet, daß** das Sägewerkzeug (2) ein rotierendes Sägeblatt (16) besitzt und daß das Sägeblatt (16) und das Arbeitswerkzeug (3) so angeordnet sind, daß sich ihre äußeren Peripherien in Transportrichtung (x) des Stammes betrachtet überlappen. 35
10. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, daß** vier Arbeitswerkzeuge (3) und Sägewerkzeuge (2) zur Entfernung von vier separaten Teilen (14) des Stammes (9) vorgesehen sind, die jeweils einen betreffenden Rand bilden. 40

11. Verfahren zur Bearbeitung eines Baumstammes 45

(9), bei dem ein spanabhebend schneidendes, rotierendes Arbeitswerkzeug (3) zur Entfernung eines Randbereiches (14) des Stammes mittels spanabhebender Bearbeitung benutzt wird, und wobei vor der spanabhebenden Bearbeitung durch das genannte Arbeitswerkzeug (3)

- ein Sägewerkzeug (2) zum Sägen einer Nut (10) mit einer ersten Fläche (7), einer korrespondierenden zweiten gegenüberliegenden Fläche (8) des Stammes (9) und einem sich zwischen der ersten Fläche (7) und der zweiten Fläche (8) erstreckenden Nutgrund (17) entlang der Längsrichtung des Stammes (9) benutzt wird, und daß
- das genannte Arbeitswerkzeug (3) eine Kante (6) besitzt, die während der Rotation des Werkzeuges eine imaginäre Rotationsoberfläche (11) definiert, die eine sich im wesentlichen zur Verlängerung der ersten (7) und der zweiten (8) Fläche parallel erstreckende Ebene berührt,

so daß der genannte Randbereich (14) durch spanabhebendes Schneiden entfernt wird, ohne mit der zweiten Oberfläche (8) in Eingriff zu kommen.

12. Verfahren nach Anspruch 11, **dadurch gekennzeichnet, daß** eine dritte Oberfläche (15) des Stammes (9) mittels eines Schlichtwerkzeuges (12) endbearbeitet wird, wobei die genannte Oberfläche (15) einen Winkel mit der zweiten Oberfläche (8) bildet und hiermit zusammen eine Grenze am Stamm (9) bildet, bis zu der der Teil (14) entfernt wird. 50
13. Verfahren nach einem der Ansprüche 11 und 12, **dadurch gekennzeichnet, daß** die Schneidkante (13) des Schlichtwerkzeuges (12) derart angeordnet ist, daß sie sich in eine Ebene erstreckt, die im wesentlichen senkrecht zu der Erstreckungsebene der Rotationsoberfläche (11) und zur Endbearbeitung verschoben ausgerichtet liegt.
14. Verfahren nach einem der Ansprüche 11 bis 13, **dadurch gekennzeichnet, daß** vier separate Teile des Stammes (9), die jeweils einen Randbereich bilden, im wesentlichen gleichzeitig durch Sägen und spanabhebendes Bearbeiten entfernt werden.
15. Verfahren nach einem der Ansprüche 11 bis 14, **dadurch gekennzeichnet, daß** der Stamm (9) im wesentlichen kontinuierlich entlang eines Weges geführt wird, auf dem er an dem genannten Sägewerkzeug (2) und dem Arbeitswerkzeug (3) vorbeiläuft.

Revendications

1. Dispositif pour traiter un tronc d'arbre (9), comprenant

- un outil de traitement rotatif, d'ébrèchement (3) adapté pour enlever une partie flache (14) d'un tronc (9) par traitement par ébrèchement, et
- un outil de type scie (2) disposé pour être situé avant l'outil de traitement (3) observé dans la direction de transport de tronc (x),

dans lequel ledit outil de type scie (2) est disposé pour scier une rainure (10) le long de la direction longitudinale du tronc (9), avec ladite rainure présentant une première surface (7) de ladite partie, une seconde surface (8) correspondante opposée du tronc (9) et un fond (17) s'étendant entre la première surface (7) et la seconde surface (8), et dans lequel ledit outil de traitement (3) comprend un rebord (6), disposé pour définir durant la rotation de l'outil (3) une surface de rotation imaginaire (11) touchant un plan qui est essentiellement parallèle aux plans d'extension desdites première (7) et seconde (8) surfaces, et disposé pour enlever ladite partie flache (14) en ébréchant sans engager ladite seconde surface (8).

2. Dispositif selon la revendication 1, **caractérisé en ce que** l'axe rotation de l'axe de l'outil de traitement (3) est disposé pour s'étendre dans un plan qui est essentiellement parallèle aux plans d'extension de desdites première (7) et seconde (8) surfaces.

3. Dispositif selon l'une quelconque des revendications 1 et 2, **caractérisé en ce que** l'axe de rotation de l'outil de traitement (3) est disposé pour s'étendre essentiellement perpendiculairement à ladite direction de transport (x).

4. Dispositif selon l'une quelconque des revendications 1 à 3, **caractérisé en ce que** ledit outil de type scie (2) est prévu pour tourner autour d'un axe de rotation et **en ce que** l'axe de rotation de l'outil de traitement (3) forme un angle avec l'axe de rotation de l'outil de type scie (2).

5. Dispositif selon la revendication 4, **caractérisé en ce que** l'axe de rotation de l'outil de traitement (3) est essentiellement perpendiculaire à l'axe de rotation de l'outil de type scie (2).

6. Dispositif selon l'une quelconque des revendications 1 à 5, **caractérisé en ce qu'il** comprend un outil de finition (5), disposer pour achever une troisième surface (15) du tronc (9), cette surface (15) forme un angle avec ladite seconde surface (8) et ensemble définissent la partie (14) qui est enlevée

du tronc (9).

7. Dispositif selon la revendication 6, **caractérisé en ce que** l'outil de finition (12) est prévu sur l'outil de traitement (3) et **en ce qu'il** définit un rebord de coupe (13) s'étendant dans un plan qui est essentiellement perpendiculaire à ladite surface de rotation (11).

8. Dispositif selon les revendications 6 ou 7, **caractérisé en ce que** l'outil de traitement (3) comprend un élément définissant un disque essentiellement plan (4), afin que les plans d'extension de la surface de rotation imaginaire (11) soient essentiellement perpendiculaires au plan d'extension du disque (4), et **en ce que** le rebord de coupe (13) de l'outil de finition (12) s'étend dans un plan qui est essentiellement parallèle au plan d'extension du disque (4).

9. Dispositif selon l'une quelconque des revendications 1 à 8, **caractérisé en ce que** ledit outil de type scie (2) comprend une lame de type scie en rotation (16) et **en ce que** cette lame de type scie (16) et l'outil de traitement (3) sont disposés de telle manière que leurs périphéries externes se chevauchent lorsque observé selon la direction de transport de tronc (x).

10. Dispositif selon la revendication 1, **caractérisé en ce qu'il** comprend quatre outils de traitement (3) et outils de type scie (2), disposés pour enlever quatre parties séparées (14) du tronc (9), chacune comprenant une flache respective.

11. Procédé pour traiter un tronc d'arbre (9), dans lequel un outil de traitement rotatif, d'ébrèchement (3) est utilisé pour enlever une partie flache (14) du tronc en ébréchant et en ce qu'avant que l'ébrèchement soit effectué par ledit outil de traitement (3),

- un outil de type scie (2) est utilisé pour scier une rainure (10) le long de la direction longitudinale du tronc (9), avec ladite rainure présentant une première surface (7) de ladite partie (14), une seconde surface (8) correspondante, opposée du tronc (9) et un fond (17) s'étendant entre la première surface (7) et la seconde surface (8), et en ce que
- ledit outil de traitement (3) comprend un rebord (6) qui définit, durant la rotation de l'outil, une surface de rotation imaginaire (11) qui touche un plan qui est essentiellement parallèle aux plans d'extension desdites première (7) et seconde (8) surfaces,

afin que la partie flache (14) soit enlevée par ébrèchement sans engager ladite seconde surface (8).

12. Procédé selon la revendication 11, **caractérisé en ce qu'une** troisième surface (15) du tronc (9) est achevée au moyen d'un outil de finition (12), dans lequel ladite troisième surface (15) forme un angle avec ladite seconde surface (8) et ensemble formeront une limite du tronc (9) contre la partie (14) qui est enlevée. 5
13. Procédé selon l'une quelconque des revendications 11 et 12, **caractérisé en ce que** le rebord de coupe (13) de l'outil de finition (12) est positionné de telle manière qu'il s'étend dans un plan qui est essentiellement perpendiculaire aux plans d'extension de ladite surface de rotation (11), et est déplacé pour fournir ladite finition. 10 15
14. Procédé selon l'une quelconque des revendications 11 à 13, **caractérisé en ce que** quatre parties séparées du tronc (9), chacune comprenant une flache respective qui est essentiellement et de manière simultanée enlevée ledit dit traitement par ébrèchement et sciage. 20
15. Procédé selon l'une quelconque des revendications 11 à 14, **caractérisé en ce qu'il** comprend une alimentation essentiellement continue de tronc (9) le long d'un chemin de passage desdits outil de type scie (2) et outil de traitement (3). 25

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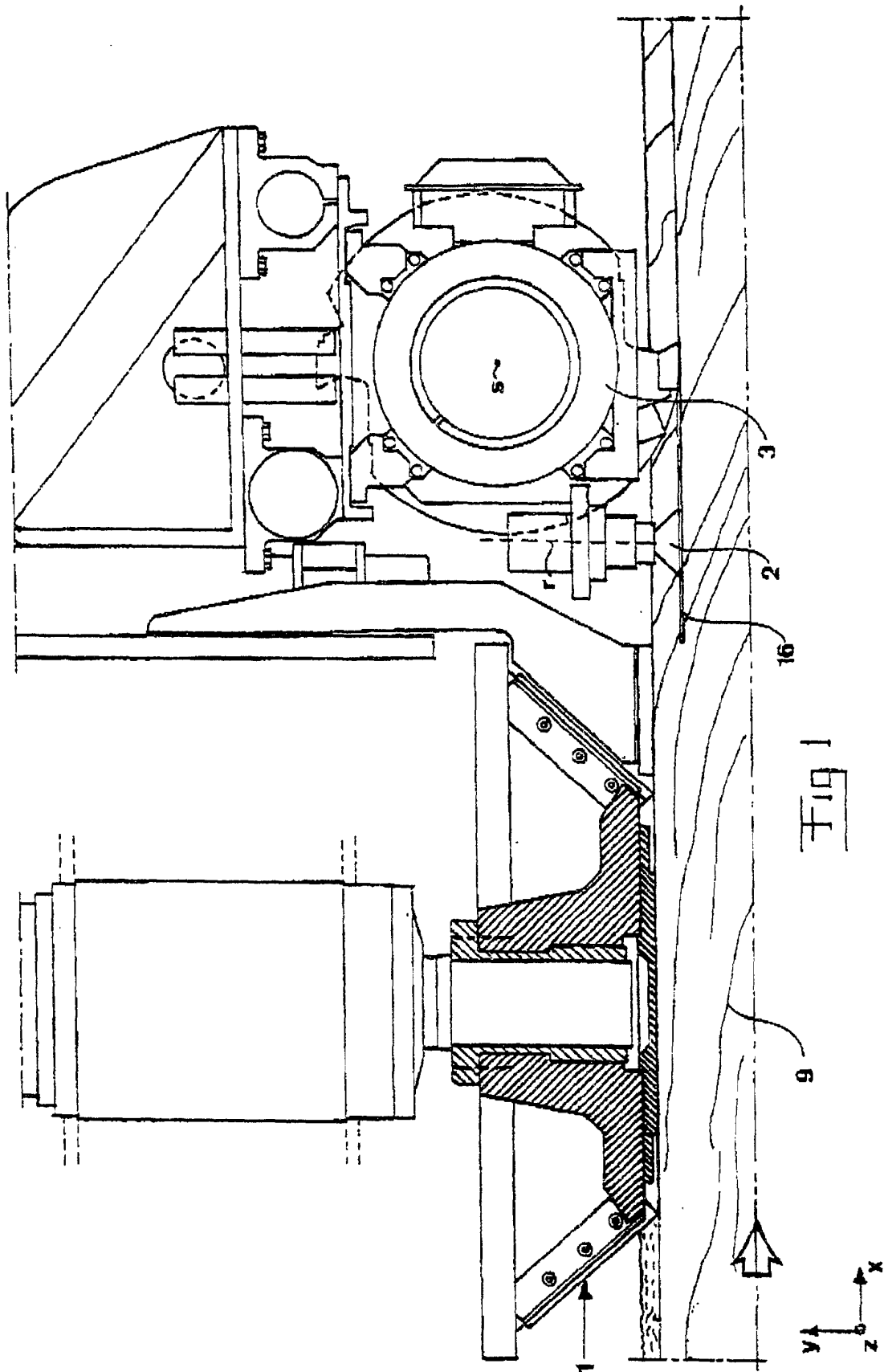
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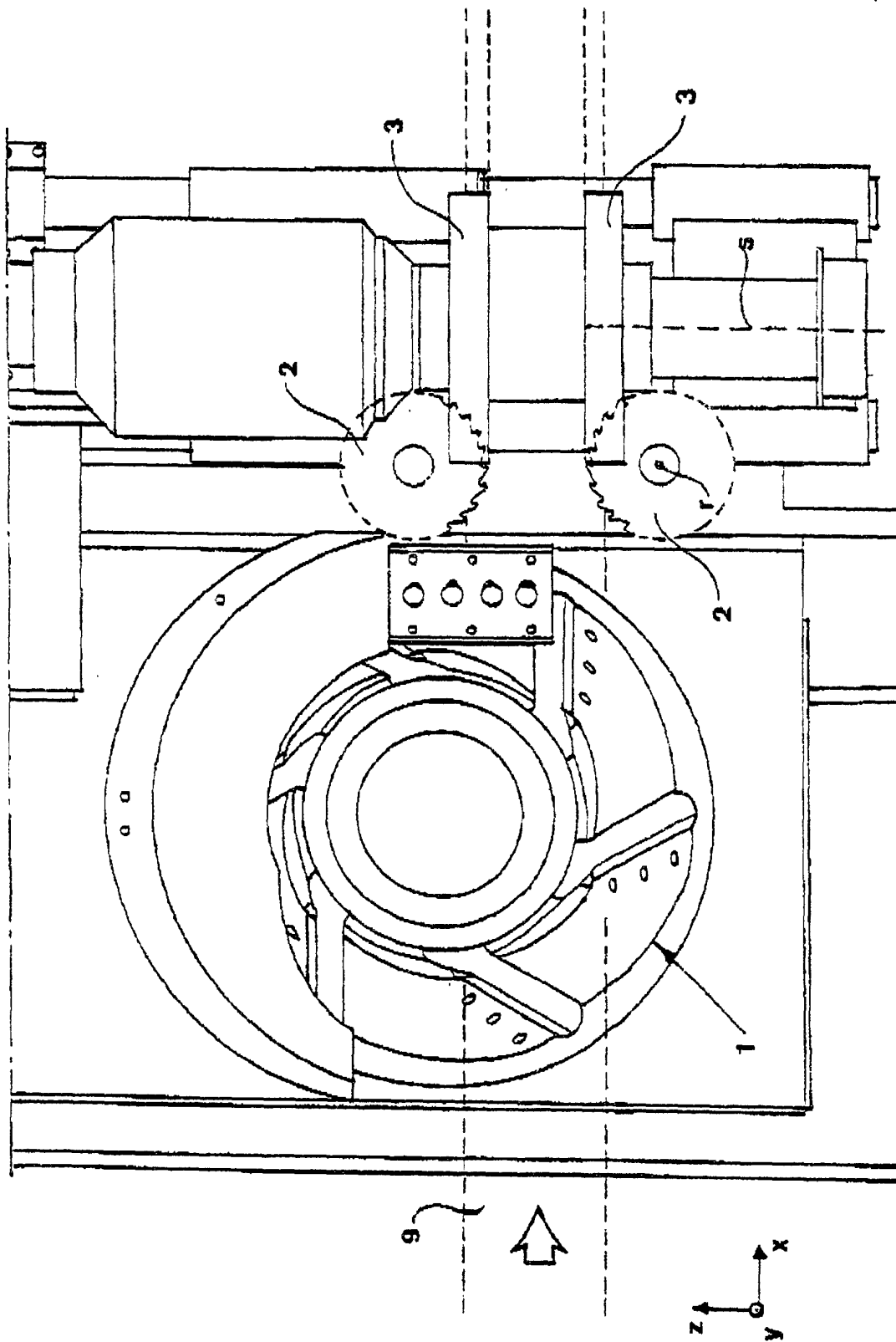
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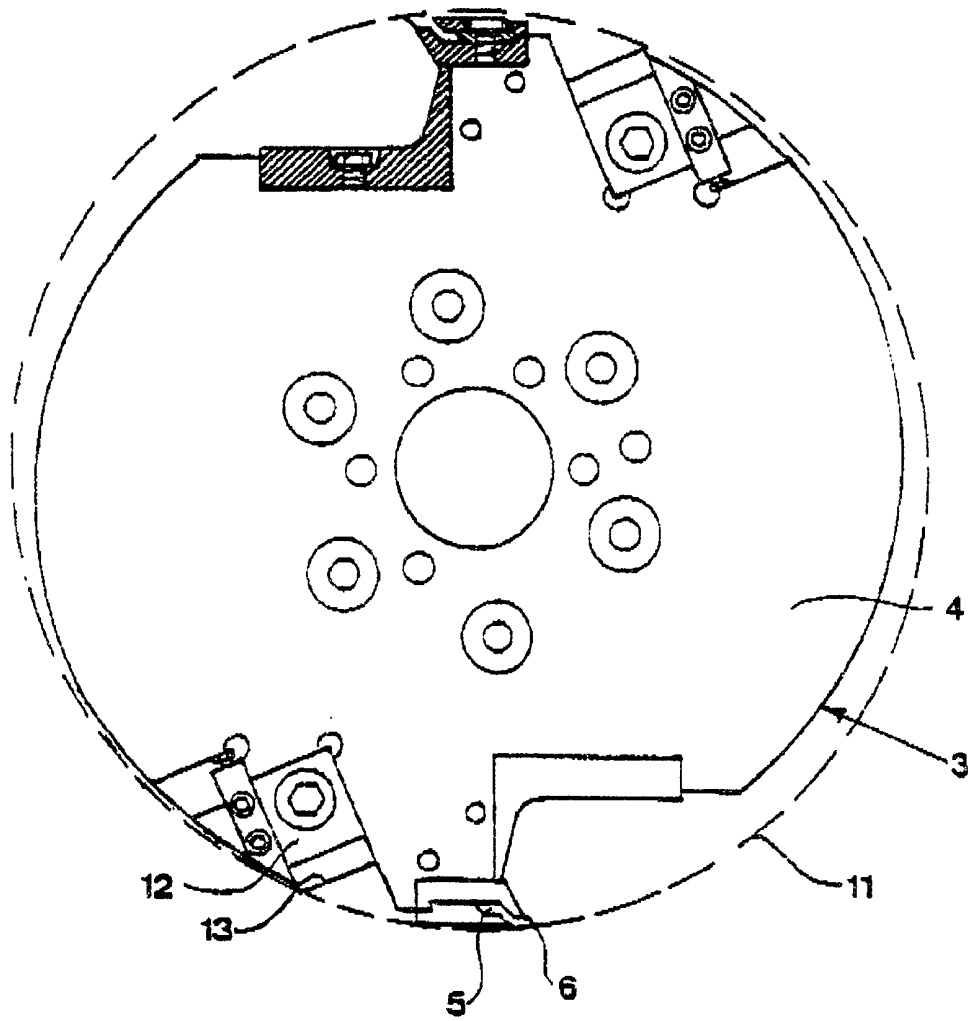


Fig 3

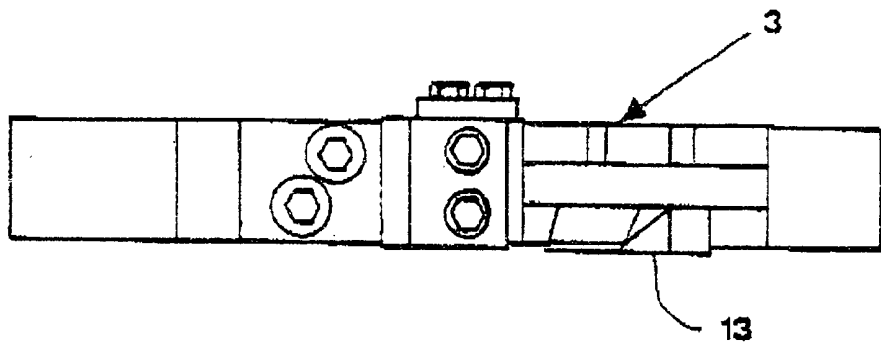


Fig 4

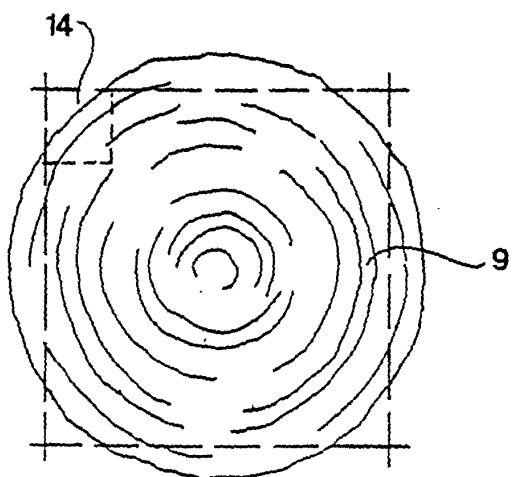


Fig 5

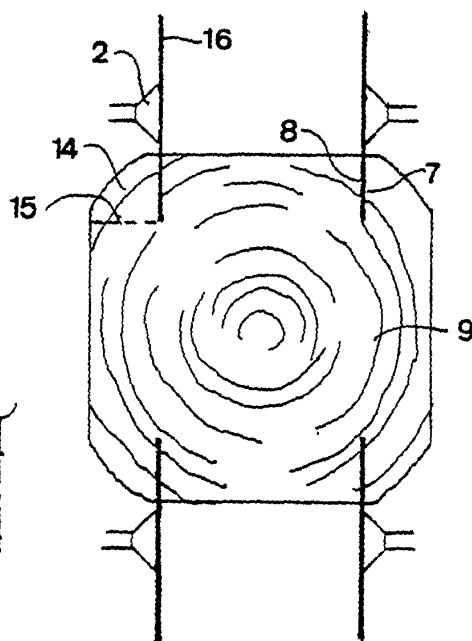


Fig 6

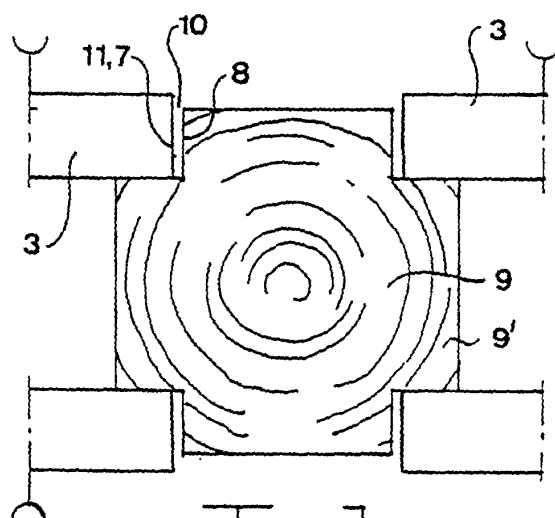


Fig 7

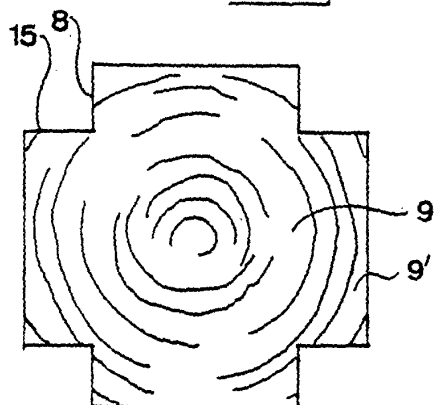


Fig 8

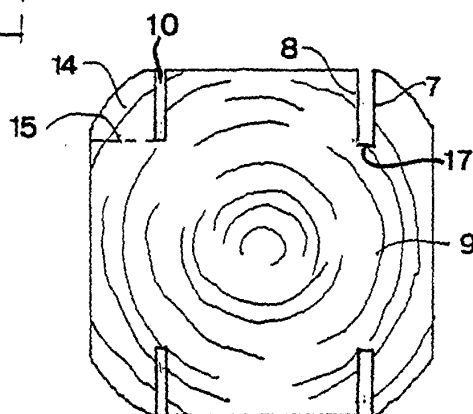


Fig 6A