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(54) **SPLITTING MACHINE**

SPALTMASCHINE

MACHINE A FENDRE

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(56) References cited:
SE-B- 462 325
US-A- 4 160 470
US-A- 4 176 696
US-A- 4 284 112

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Description

[0001] The invention relates to a splitting machine, which has a cutting station for cutting a piece of wood of a certain length from a wood to be handled and a splitting station, existing essentially underneath the cutting station, for splitting the piece of wood, being cut and dropped thereto from the cutting station, into two or more parts.

[0002] In a Finnish patent application number 20011653 there has been presented a device for the handling of wood, which comprises a cutting station and a splitting station that exists underneath the above. It is characteristic for the method and arrangement presented in this application that in connection with the cutting stage there has been exploited a steering assembly, whereby lower steering means are placed underneath the piece of wood to be cut, which, after the cutting has taken place, receive the piece of wood that has been cut and thereafter lower it centrically with respect to the steering means into the splitting groove, being placed advantageously essentially vertically underneath the cutting means. The meaning of the method and arrangement in question is to further the splitting of wood in a way that a wood to be split will always get settled in a controlled manner into the splitting groove.

[0003] US-A-4 284 112 discloses a splitting machine in accordance with the preamble of claim 1.

[0004] A problem in practice, regarding which neither the patent application mentioned above nor any other present technical solution give any kind of advice, is that the splitting length of so called chopped wood machines of the type described above has traditionally always been fixed. For example in Central European splitting machines the length of the pieces of wood to be split is usually about 550 mm, whereby the stroke length of the hydraulic cylinder is about 600 mm.

[0005] Correspondingly in Nordic splitting machines, the length of the pieces of wood to be split is usually about 600 mm, whereby a stroke length of approximately 650 mm for the cylinder is requested. However, the length of chopped wood being sawn today is in most cases 250 - 330 mm and in some cases, depending on the dimensions of the boiler furnaces, approximately 400 - 550 mm.

[0006] A consequence of the above is, that in order to make chopped wood machines are usually being acquired, with which also pieces of wood as long as possible, in other words at present being approximately 600 mm, may be cut. Previously this has not been a significant problem as such, when typically traditional circular saw blades or chain saw applications have been used in machines for making chopped wood. With this kind of cutting means, the cutting speed of wood has not been very high, thanks to which the splitting speed has usually been efficient enough by using adequately big hydraulic pumps and other kind of corresponding fast motion arrangements.

[0007] Today, when a circular saw blade is being used, equipped particularly with hard metal teeth, as the cutting means, a remarkable improvement in operating efficency of wood chopping machines is achieved thanks to the fact that the cutting takes place decisively faster than with traditional solutions. However, in this connection, the splitting speed has been found to be a problem particularly when splitting pieces of wood of different lengths, which at present is thus a hinder for making the splitting of wood more efficient in other respects. With the present machinery getting over with this problem would require taking advantage of splitting machines, designed and manufactured particularly for each and every size of chopped wood, which is, however, reasonable neither from the point of view of manufacturing costs of the machine manufacturers nor from the point of view of acquisition costs of the contractors.

[0008] With the present machinery exploitation of bigger and more efficient oil pumps in order to increase the splitting speed has come to an end, because

- The speed of the splitting cylinder may not be increased from the present level, because the sliding speeds of gaskets as well as the durability of the same tend to be at their extreme limits,
- The power demand and the size of the machinery needed for power transmission get disproportionately high and expensive, in which case first of all a sturdier power transmission is needed for tractor driven machines and on the other hand bigger fuse sizes (35-63 A) than before are needed for electrically driven machines used by the contractors. This kind of big electricity connections naturally get more expensive in proportion,
- High oil outputs require big oil coolers, because the chopped wood contractors for example in Central Europe produce firewood all through the year, that is also in the summer time.

[0009] On grounds of the reasoning above, improvement of efficiency simultaneously with production of firewood, having more reasonable prices, is nowadays thus moderately impossible only by increasing the efficiency of machines.

[0010] It is the aim of the splitting machine according to the present invention to achieve a decisive improvement in the problems described above and thus to raise essentially the prior art in the field. In order to achieve this aim, the splitting machine according to the invention is primarily characterized in that it has an adjustment assembly in order to split pieces of wood of essentially deviating lenghts by changing the mutual longitudinal position of the cutting station and the splitting station in respect with each other according to the need at any given time.

[0011] As the most important advantages of the splitting machine according to the invention may be mentioned the simplicity and efficiency of its construction and

use. Particularly when the splitting station of the splitting machine has been arranged as an advantageous embodiment moveable in respect with the cutting station, because in practice very high physical properties are demanded of the shapes of the splitting blade and the splitting groove, the cutting blade and the feed table for wood will stay stationarily in their positions. When the splitting frame and for example the conveyor for chopped wood existing in connection with the above are made moveable as a whole, the characteristics demanded of the splitting environment remain essentially the same as before. Movement of the splitting station may in this context be manual or hydraulic and it can be carried out steplessly or e.g. by four-stepped, e.g. with 300, 350, 550 and 650 mm strokes. In this context it should be noted that the length of the stroke must be approximately 50 mm longer than the piece of wood to be split, so that a piece of wood, being cut, may drop freely into the splitting groove.

[0012] Thanks to the splitting machine according to the invention, the working rotation increases significantly so that in other words it gets at least twice as fast than before. When a circular saw blade is being used, equipped e.g. with hard metal teeth, it is thus possible to take advantage of almost all of the improvement of the operating efficiency being achieved, also for the part of splitting. This kind of improvement in the splitting speed by optimizing the length of the stroke increases significantly the work profitability particularly with hydraulic cylinders with a capacity of e.g. five or six tons or more. Since, thanks to the splitting machine according to the invention, it is possible to split woods of deviating lengths significantly faster than before without the need for increase in the power demand of the machinery, this invention has a big cost saving influence particularly thanks to the fact that the electricity connections need not be increased, either. On the other hand thanks to the invention the stresses for power transmission are also decreased, in addition to which also the thermal problems related to use of hydraulics are being minimized, since the movement paths of the cylinders e.g. when handling short woods get halved. So, the profitability of wood splitting improves significantly, which for its part makes even possible to decrease the price of the sales wood.

[0013] In the following description the invention is being depicted in greater detail with reference to the attached drawing, in which there has been shown an advantageous splitting machine according to the invention as seen from the front (fig. 1), as a side view, when a longer piece of wood is being split with the same (fig. 2), and as a side view, when a shorter piece of wood is being split with the same (fig. 3).

[0014] The invention relates to a splitting machine, which has a cutting station for cutting a piece of wood of a certain length from a wood 13 to be handled and a splitting station, existing essentially underneath the cutting station, for splitting the piece of wood, being cut and dropped thereto from the cutting station, into two or more parts. The splitting machine has an adjustment assembly in order to split pieces of wood of essentially deviating lengths by changing the mutual longitudinal position of the cutting station and the splitting station in respect with each other according to the need at any given time advantageously on the principle shown for example in figures 2 and 3.

[0015] Particularly with reference to the advantageous embodiment shown in figures 1 -, 3, the splitting machine has a frame 1, wherein the cutting station existing in connection with the same has means for supporting the wood to be handled, such as a support surface, a feed conveyor 3 or a like, means for positioning of the wood to be handled, such as a back stopper 9 and a back guard 10 or the like, and means for cutting the wood, such as a circular saw blade equipped with hard metal teeth 11, a chain saw or the like. The splitting station, existing in connection with the frame, has correspondingly a frame part 5 that is equipped with a splitting groove, means for splitting a piece of wood, being cut, such as a pusher 4, being arranged moveable in the longitudinal direction by means of a guide rail 7, and a splitting blade arrangement 8 or a like, and organs for operating the splitting means, such as one or several hydraulic cylinders 2 or like. The adjustment assembly comprises means for attaching the cutting station and the splitting station with each other in mutually adjustable positions in the longitudinal direction by way of mutual coupling arrangements between the same, such as by guide rails 6, existing in connection with the cutting station, and by guides 12, existing in connection with the splitting station.

[0016] As a particularly advantageous embodiment with reference to the drawing, the frame 1 of the splitting machine and at least a part of the cutting station, such as the feed conveyor 3, the back stopper 9, the back guard 10, the guide rails 6 and/or the circular saw blade 11, are arranged as a stationary, non-moveable part of the adjustment assembly, and correspondingly at least a part of the splitting station, such as the frame part 5, the guide rail 7, the pusher 4, the guides 12, the hydraulic cylinder 2 and/or the splitting blade arrangement 8, are arranged as a moveable part of the adjustment assembly.

[0017] When splitting longer pieces of wood, the splitting station is, as shown in figure 2, arranged to be moved further away from the cutting means, such as the circular saw blade 11, in a way that the length of the piece of the wood becomes as desired limited by the positioning means, such as the back stopper 9 or the like.

[0018] When splitting shorter pieces of wood, the splitting station is arranged, as shown in figure 3, to be moved closer to the cutting means, such as the circular saw blade 11, in a way that the length of the piece of the wood becomes as desired limited by the positioning means, such as the back stopper 9 or the like.

[0019] The return movement of the organs, such as the hydraulic cylinder 2 or the like, operating the splitting means, is limited automatically for example by mechanical and/or auxiliary powered, such as by electric or hydraulic stroke limiters in a way that the pusher 4 remains

during the return movement at a certain distance from the cutting means, such as the circular saw blade 11, and from the back guard 10 of the splitting groove, so that the piece of wood, being cut, may drop down freely.

[0020] A back stopper 9 that belongs to the positioning means is as an advantageous embodiment coupled with the frame 1 for example jointedly in a way that, when the cutting means is in its upper position, the back stopper 9 is in its limiting position, and, when the cutting means 11 is being lowered by means of an auxiliary powered, such as by a hydraulic or a manual feed motion, the back stopper 9 yields automatically backwards, wherein the piece of wood, being cut, may drop down freely.

[0021] A back stopper 9 that belongs to the positioning means may on the other hand be fastened stationarily for example to the frame part 5 of the moveable splitting station, whereby it moves automatically to its respective position of use always, when the splitting station is being moved.

[0022] As a further advantageous embodiment, the splitting function of the splitting station is arranged to start automatically by means of mechanical and/or auxiliary powered, such as by electric and/or hydraulic arrangements, guided by an uplifting motion of the cutting means, such as the circular saw blade 11.

[0023] As an advantageous embodiment, a conveyor is arranged in connection with the splitting station in order to transport chopped wood away from the splitting machine, which has not, however, been utilized in the embodiment shown in the drawing.

[0024] The operating principle of the splitting machine according to the invention, when cutting longer wood products, the length of which is e.g. 600 mm, is as follows:

[0025] The splitting station is being moved first of all to the right, away from the cutting blade 11 in a way that the desired cutting length 600 mm of the back stopper 9, being e.g. moveable along with the cutting station, is achieved.

[0026] The wood is being fed with a feed conveyor 3 to the back stopper 9, whereafter the wood is being cut by the saw 11. The wood drops immediately after the cutting into the splitting groove. The splitting starts automatically guided by the uplifting movement of the cutting blade 11 either mechanically or electrically. The splitting cylinder 2 pushes the wood by means of the pusher 4 against the splitting blade, which may be arranged to split wood in two, four or more parts and which may be as usual vertically adjustable. After the splitting, the woods are being transferred e.g. by means of a chopped wood conveyor away from the splitting machine.

[0027] The operating principle of the splitting machine according to the invention, when producing shorter wood products, the length of which being e.g. 300 mm, is as follows:

[0028] The splitting station is being moved towards the cutting blade 11 in a way that the desired cutting length 300 mm limited by the back stopper 9, being e.g. moveable along with the splitting station, is achieved, whereafter the operation proceeds e.g. as explained above.

[0029] It is clear, that the invention is not limited to the applications presented or described above, but it can be modified within the basic idea of the invention as defined in claim 1 according to practical needs and applications at any given time. Thus the length of the pieces of wood to be split may be changed e.g. by moving the cutting blade and the feed conveyor or only by moving the splitting blade. Significantly more power transmission problems, as well as many kind of practical problems related to the structure of the splitting station, in addition to problems related to control engineering, are, however, involved with the arrangements mentioned above, when compared to the solution presented in the drawing.

Claims

1. A splitting machine, which has a cutting station for cutting a piece of wood of a certain length from a wood (13) to be handled, a splitting station, existing essentially underneath the cutting station, for splitting the piece of wood, being cut and dropped thereto from the cutting station, into two or more parts, and an adjustment assembly in order to split pieces of wood of essentially deviating lengths, whereby the splitting machine has a frame (1), wherein the cutting station existing in connection with the same has means for supporting the wood to be handled, such as a support surface or a feed conveyor (3), means for positioning of the wood to be handled, such as a back stopper (9) and a back guard (10), and means for cutting the wood, such as a circular saw blade equipped with hard metal teeth (11) or a chain saw, whereby correspondingly the splitting station, existing in connection with the frame, has a frame part (5) equipped with a splitting groove, means for splitting a piece of wood, being cut, such as a pusher (4), being arranged moveable in a longitudinal direction by means of a guide rail (7), and a splitting blade arrangement (8) or a like, and organs for operating the splitting means, such as one or several hydraulic cylinders (2), **characterized in that** the adjustment assembly comprises means for attaching the cutting station and the splitting station with each other in mutually adjustable positions in the longitudinal direction by way of mutual coupling arrangements between the same, such as by guide rails (6), existing in connection with the cutting station, and by guides (12), existing in connection with the splitting station, in order to change the mutual longitudinal position of the cutting station and the splitting station in respect with each other according to the need at any given time.

2. A splitting machine according to claim 1, **characterized in that** the frame (1) of the splitting machine and at least a part of the cutting station, such as a

feed conveyor (3), a back stopper (9), a back guard (10), guide rails (6) and/or a circular saw blade (11), are arranged as a stationary, non-moveable part of the adjustment assembly, and correspondingly at least a part of the splitting station, such as a frame part (5), a guide rail (7), a pusher (4), guides (12), a hydraulic cylinder (2) and/or a splitting blade arrangement (8), are arranged as a moveable part of the adjustment assembly.

3. A splitting machine according to claim 2, **characterized in that**, when splitting longer pieces of wood, the splitting station is arranged to be moved further away from the cutting means, such as the circular saw blade (11), in a way that the length of the piece of the wood becomes as desired limited by the positioning means, such as the back stopper (9).

4. A splitting machine according to claim 2 or 3, **characterized in that**, when splitting shorter pieces of wood, the splitting station is arranged to be moved closer to the cutting means, such as the circular saw blade (11), in a way that the length of the piece of the wood becomes as desired limited by the positioning means, such as the back stopper (9).

5. A splitting machine according to any of the preceding claims 1 - 4, **characterized in that** a back stopper (9) or a like that belongs to the positioning means is coupled with the frame (1) jointedly in a way that, when the cutting means is in its upper position, the back stopper (9) is in its limiting position, and, when the cutting means (11) is being lowered by means of an auxiliary powered, such as by a hydraulic or a manual feed motion, the back stopper (9) yields automatically backwards, wherein the piece of tree, being cut, may drop down freely.

6. A splitting machine according to any of the preceding claims 2 - 5, **characterized in that** a back stopper (9) or a like that belongs to the positioning means is fastened stationarily to the frame part (5) of the moveable splitting station, whereby it moves automatically to its respective position of use always, when the splitting station is being moved.

7. A splitting machine according to any of the preceding claims 1 - 6, **characterized in that** the return movement of the organs, such as a hydraulic cylinder (2), operating the splitting means, is limited automatically by mechanical and/or auxiliary powered, such as by electric or hydraulic stroke limiters in a way that a pusher (4) or a like remains during the return movement at a certain distance from the cutting means, such as from a circular saw blade (11), and a back guard (10) or a like of a splitting groove, so that the piece of wood, being cut, may drop down freely.

Patentansprüche

1. Eine Spaltmaschine mit einer Schneidestation zum Schneiden eines Holzstücks einer bestimmten Länge von einem zu bearbeitenden Holz (13), einer Spaltstation, die sich im Wesentlichen unterhalb der Schneidestation befindet, zum Spalten des Holzstücks, das von der Schneidestation geschnitten und auf die Spaltstation hinab geworfen wird, in zwei oder mehrere Teile, und einer Einstellvorrichtung, um Holzstücke von im Wesentlichen abweichender Länge zu spalten, wobei die Spaltmaschine einen Rahmen (1) umfasst, in dem die in Verbindung mit derselben existierende Schneidestation Mittel zur Abstützung des zu bearbeitenden Holzes, wie eine Stützfläche oder ein Vorschubförderband (3), Mittel zur Positionierung des zu bearbeitenden Holzes, wie einen Rückstopper (9) und einen Rückschutz (10), und Mittel zum Schneiden des Holzes, wie ein Kreissägeblatt mit Hartmetallzähnen (11) oder eine Kettensäge, besitzt, wobei dementsprechend die im Zusammenhang mit dem Rahmen vorhandene Spaltstation ein Rahmenteil (5) umfasst, das mit einer Spaltnut, Mitteln zum Spalten eines Holzstücks, das geschnitten wird, wie einem in Längsrichtung mittels einer Führungsschiene (7) beweglich angeordneten Schieber (4), und einer Spaltblattvorrichtung (8) oder ähnlichem, und Organen zur Bedienung der Spaltmittel, wie einem oder mehreren Hydraulikzylindern (2), ausgestattet ist, **dadurch gekennzeichnet, dass** die Einstellvorrichtung Mittel umfasst, um die Schneidestation und die Spaltstation in beiderseitig in Längsrichtung verstellbaren Positionen mit Hilfe beiderseitiger Verbindungsvorrichtungen zwischen denselben, wie durch in Verbindung mit der Schneidestation vorhandenen Führungsschienen (6) und durch in Verbindung mit der Spaltstation vorhandenen Führungen (12), aneinander zu befestigen, um die beiderseitig längs gerichtete Position der Schneidestation und der Spaltstation in Bezug aufeinander je nach dem zu einer bestimmten Zeit herrschenden Bedarf zu verändern.

2. Eine Spaltmaschine nach Patentanspruch 1, **dadurch gekennzeichnet, dass** der Rahmen (1) der Spaltmaschine und zumindest ein Teil der Schneidestation, wie ein Vorschubförderband (3), ein Rückstopper (9), ein Rückschutz (10), Führungsschienen (6) und/oder ein Kreissägeblatt (11), als ein stationärer, unbeweglicher Teil der Einstellvorrichtung vorgesehen sind, und dementsprechend zumindest ein Teil der Spaltstation, wie ein Rahmenteil (5), eine Führungsschiene (7), ein Schieber (4), Führungen (12), ein Hydraulikzylinder (12) und/oder eine Spaltblattvorrichtung (8), als ein beweglicher Teil der Einstellvorrichtung vorgesehen sind.

3. Eine Spaltmaschine nach Patentanspruch 2, **da-**

durch gekennzeichnet, dass beim Spalten längerer Holzstücke die Spaltstation so angeordnet ist, dass sie weiter von den Schneidemitteln, wie dem Kreissägeblatt (11), wegbewegt wird, so dass das Holzstück begrenzt durch das Positionierungsmittel, wie den Rückstopper (9), die gewünschte Länge erhält.

4. Eine Spaltmaschine nach Patentanspruch 2 oder 3, **dadurch gekennzeichnet, dass** beim Spalten kürzerer Holzstücke die Spaltstation so angeordnet ist, dass sie näher an die Schneidemittel, wie das Kreissägeblatt (11), heranbewegt wird, so dass das Holzstück begrenzt durch das Positionierungsmittel, wie den Rückstopper (9), die gewünschte Länge erhält.

5. Eine Spaltmaschine nach einem der obigen Patentansprüche 1-4, **dadurch gekennzeichnet, dass** ein zu den Positionierungsmitteln gehörender Rückstopper (9) oder ähnliches mit einem Rahmen (1) gelenkig so verbunden ist, dass, wenn sich die Schneidemittel in ihrer oberen Position befinden, sich der Rückstopper (9) in seiner begrenzenden Position befindet, und, wenn die Schneidemittel (11) mittels einer durch Hilfsantrieb hervorgerufenen, wie einer hydraulischen oder manuellen, Vorschubbewegung abgesenkt werden, der Rückstopper (9) automatisch nach hinten ausweicht, wobei das Holzstück, das geschnitten wird, frei nach unten fallen kann.

6. Eine Spaltmaschine nach einem der obigen Patentansprüche 2-5, **dadurch gekennzeichnet, dass** ein zu den Positionierungsmitteln gehörender Rückstopper (9) oder ähnliches stationär am Rahmenteil (5) der beweglichen Spaltstation befestigt wird, wobei er sich immer automatisch in seine entsprechende Einsatzposition bewegt, wenn die Spaltstation bewegt wird.

7. Eine Spaltmaschine nach einem der obigen Patentansprüche 1-6, **dadurch gekennzeichnet, dass** die Rückwärtsbewegung der die Spaltmittel betreibenden Organe, wie eines Hydraulikzylinders (2), automatisch durch mechanisch und/oder mit Hilfsantrieb betriebene, wie durch elektrische oder hydraulische, Hubbegrenzer, derart eingeschränkt wird, dass ein Schieber (4) oder ähnliches während der Rückwärtsbewegung in einem bestimmten Abstand zu den Schneidemitteln, wie zu einem Kreissägeblatt (11), und einem Rückschutz (10) oder ähnlichem einer Spaltnut verbleibt, so dass das Holzstück, das geschnitten wird, frei nach unten fallen kann.

Revendications

1. Une machine de fendage, équipée d'une station de coupe pour couper une pièce de bois (13) à travailler d'une certaine longueur, une station de fendage, placée principalement sous la station de coupe, en deux parties ou plus et un système d'ajustement de manière à fendre les pièces de bois de longueurs sensiblement variables, moyennant quoi la machine de fendage est équipée d'un châssis (1), dans lequel la station de coupe connectée dispose de moyens de support pour le bois qui doit être travaillé, tels qu'une surface de support ou un convoyeur d'alimentation (3), de moyens pour positionner le bois à travailler, tels qu'une cale arrière (9) et une protection arrière (10) et de moyens de coupe du bois, tels qu'une lame de scie circulaire équipée de dents en métal dur (11) ou une tronçonneuse, moyennant quoi la station de fendage qui est en connexion avec le châssis possède une pièce du châssis (5) équipée d'une rainure de fendage, de moyens de fendage d'un morceau de bois qui est coupé, tels qu'un pousseur (4), placé dans un axe longitudinal au moyen d'un rail de guidage (7) et d'un dispositif de lame de fendage (8) ou équivalent, ainsi que d'instruments pour actionner les moyens de fendage, tels qu'un ou plusieurs cylindres hydrauliques (2), **caractérisée en ce que** le système d'ajustement est équipé de moyens pour attacher la station de coupe et la station de fendage l'une à l'autre dans des positions mutuellement ajustables dans un axe longitudinal par le biais de dispositifs de couplement mutuels, tels que des rails de guidage (6), étant en connexion avec la station de coupe et par des guides (12) étant en connexion avec la station de fendage, de manière à changer la position longitudinale mutuelle de la station de fendage et de la station de découpe, l'une par rapport à l'autre, selon les besoins, à n'importe quel moment.

2. Une machine de fendage selon la revendication 1, **caractérisée en ce que** le châssis (1) de la machine de fendage et au moins une partie de la station de découpe, telle qu'un convoyeur d'alimentation (3), une cale arrière (9), une protection arrière (10), des rails de guidage (6) et/ou une lame de scie circulaire (11) sont disposés en tant qu'une partie fixe, inamovible du système d'ajustement et au moins une partie de la station de fendage telle qu'une pièce du châssis (5), un rail de guidage (7), un pousseur (4), des guides (12), un cylindre hydraulique (2) et/ou un dispositif de lame de fendage (8), sont disposés en tant que partie mobile du système d'ajustement.

3. Une machine de fendage selon la revendication 2, **caractérisée en ce que**, lors du fendage de pièces de bois plus longues, la station de fendage est disposée afin d'être éloignée des moyens de coupe,

tels que la lame de la scie circulaire (11), de telle manière que la longueur de la pièce de bois devient limitée, comme désiré, par les moyens de positionnement, tels que la cale arrière (9).

4. Une machine de fendage selon la revendication 2 ou 3, **caractérisée en ce que**, lors du fendage de pièces de bois plus courtes, la station de fendage est disposée afin d'être rapprochée des moyens de coupe, tels que la lame de la scie circulaire (11), de telle manière que la longueur de la pièce de bois devient limitée, comme désiré, par les moyens de positionnement, tels que la cale arrière (9).

5. Une machine de fendage selon l'une quelconque des revendications précédentes 1-4, **caractérisée en ce qu'**une cale arrière (9) ou équivalent appartenant aux moyens de positionnement est couplée avec le châssis (1) de sorte que, lorsque le moyen de coupe est en position haute, la cale arrière (9) est dans sa position de délimitation et lorsque le moyen de coupe (11) est abaissé au moyen d'une commande auxiliaire actionnée, telle qu'un mouvement d'alimentation hydraulique ou manuel, la cale arrière (9) recule automatiquement, permettant au morceau de bois qui est coupé de tomber librement.

6. Une machine de fendage selon l'une quelconque des revendications précédentes 2-5, **caractérisée en ce qu'**une cale arrière (9) ou équivalent appartenant au moyen de positionnement est fixée à la pièce du châssis (5) de la station de fendage mobile, dans laquelle elle se déplace toujours automatiquement dans sa position respective, lorsque la station de fendage est bougée.

7. Une machine de fendage, selon l'une quelconque des revendications précédentes 1-6, **caractérisée en ce que** le mouvement de retour des éléments, tels que le cylindre hydraulique (2), commandant les moyens de fendage, est limité automatiquement par des systèmes mécaniques et/ou auxiliaires actionnés tels que des limitateurs de choc électriques ou hydrauliques, de sorte qu'un pousseur (4) ou équivalent reste, durant le mouvement de retour, à une certaine distance du moyen de coupe, tel que la lame de la scie circulaire (11) et une protection arrière (10) ou équivalent d'une rainure de fendage, de manière à ce que la pièce de bois qui est coupée puisse tomber librement.

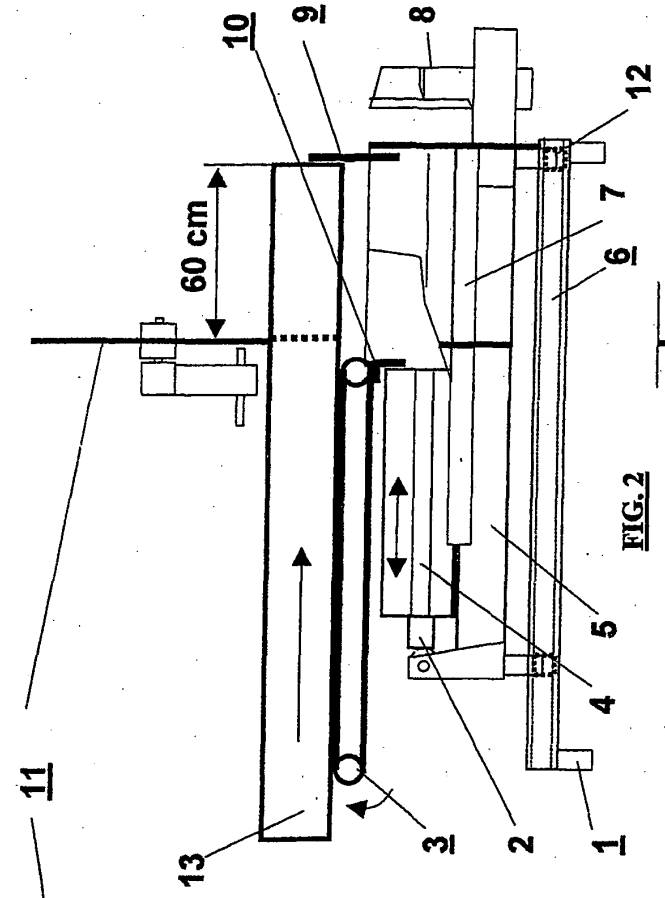

FIG. 2

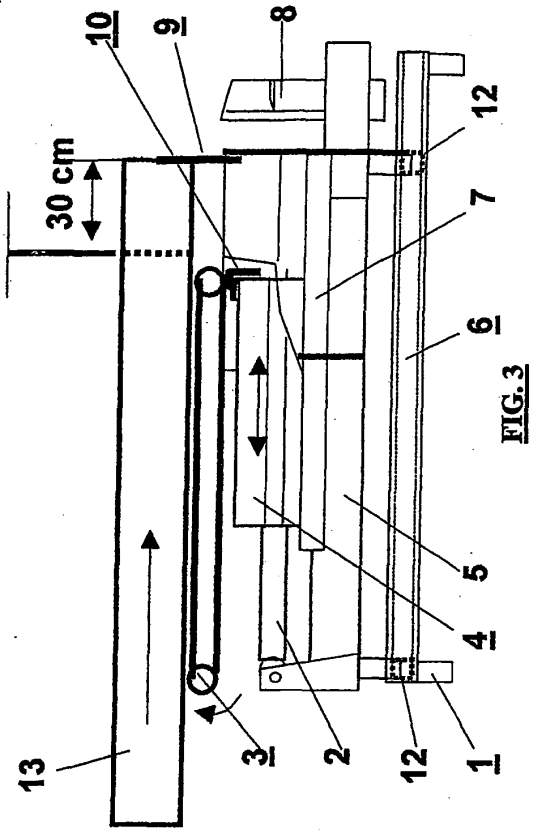

FIG. 3

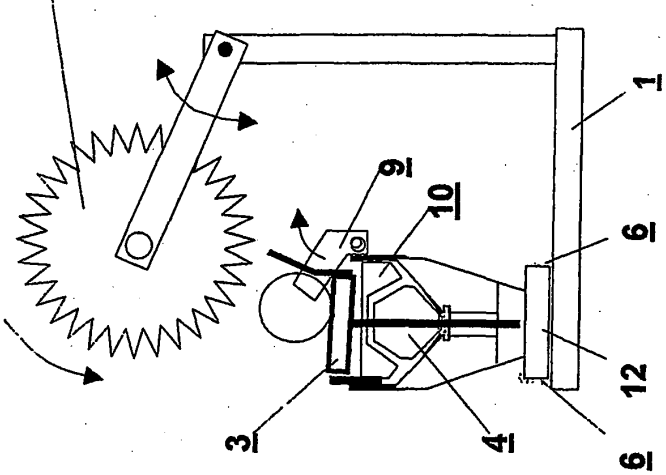

FIG. 1

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- FI 20011653 **[0002]**
- US 4284112 A **[0003]**