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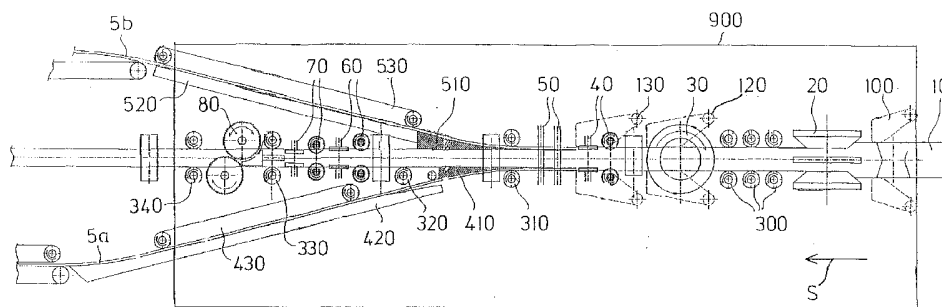
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(54) Title: METHOD AND PLANT FOR SAWING A LOG



(57) Abstract: Method and plant for sawing a log (10). The plant comprises sawing equipment (900), in which the log (10) is fed forwards. A first piece of working equipment (20), with which first parallel planes (1a, 1b) are worked into the log's (10) opposite round surfaces. A second piece of working equipment (30), with which second parallel planes (2a, 2b) are worked into the log's (10) remaining opposite round surfaces, whereby the log (10) has been formed into a cant of a rectangular shape and having round un-worked corner surfaces. A first circular saw (50), with which at least one couple of side boards (5a, 5b) is sawn off the first (1a, 1b) or second (2a, 2b) parallel planes. A second circular saw (80), with which the remaining cant is sawn into timber of the desired kind. The plant also comprises curved guiding elements (410, 510), on which the side boards (5a, 5b) of said at least one couple of side boards are guided obliquely to the side in such a way that the side boards (5a, 5b) move past the opposite sides of the second circular saw (80).

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Method and plant for sawing a log

The invention concerns a method as defined in the preamble to Claim 1.

5 In addition, the invention concerns plant as defined in the preamble to Claim 14.

In state-of-the-art sawing equipment, methods of many kinds have been used. In one state-of-the-art compact sawing equipment, working of the log is carried out as follows. In input equipment preceding the sawing equipment, the log is placed
10 in such a way that the log's warpage is located in a vertical plane. The log is then guided into first working equipment, wherein first parallel planes are formed in the log's opposite round side surfaces. A second piece of working equipment then follows, wherein second parallel planes are formed in the log's remaining opposite round bottom and top surfaces. After the working equipment, the log is guided
15 directly to a division stage, where the cant is divided into timber of the desired size by a circular saw equipped with circular saw blades located in a horizontal direction. Sawing equipment of this kind is very compact when all the pieces of equipment working on the log are located one after the other and the log is not turned over during the sawing. Instead, the low yield constitutes a problem especially with logs having a long diameter. A relatively large part of the log's opposite round surfaces must be removed by the working equipment as chips, so that
20 the shape of the log is directly suitable for sawing in the division stage.

On the other hand, the yield can be increased, if the first side boards are sawn out
25 of the log immediately after the working equipment. Hereby the side boards are sawn by vertically located circular saw blades off the opposite side surfaces of the log. The side board thus sawn off need not hereby be transported through the sawing of the division stage, but in between the working equipment and the sawing of the division stage at least a clearance as long as the length of the longest
30 log to be sawn must be arranged, wherein the first sawn-off side boards can be dropped away from the line and moved to the side. In addition, space is also

required for the input equipment. This again increases considerably the total length of the sawing equipment.

5 The solution according to the invention constitutes an improvement on the state-of-the-art solutions.

In the solution according to the invention, the sawing equipment is very compact without any harmful effect on the yield.

10 The principal characteristic features of the method according to the invention emerge from the characterising part of Claim 1.

As to the principal characteristic features of the plant according to the invention, these emerge from the characterising part of Claim 14.

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The plant for sawing a log comprises sawing equipment, wherein the log is fed forwards in the input direction. At the beginning of the sawing equipment, a first piece of working equipment is located, which is used to work first parallel planes into the log's opposite round surfaces. A second piece of working equipment is

20 located after the first piece of working equipment in the input direction and it is used to work second parallel planes into the log's remaining opposite round surfaces, which second planes are at an angle of 90 degrees in relation to the first planes. By these two successive pieces of working equipment the log has been formed into a cant of a rectangular shape, where the corner surfaces are round.

25 The second piece of working equipment is followed by a first circular saw, which is used to saw at least one side board couple out of the first or second parallel planes forming a couple. The first circular saw is followed by a second circular saw, which is used to carry out division sawing by sawing the remaining cant into timber of the desired kind.

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In addition, the plant comprises curved guiding elements, which are placed in between the first circular saw and the second circular saw and which are used to guide the side boards of said at least one side board couple obliquely to the side in relation to the log's input direction, so that the side boards on the first side of said
5 at least one side board couple will move past one side of the second circular saw and the side boards on the other side of said at least one side board couple will move past the opposite side of the second circular saw.

By guiding to the side the side boards sawn off by the first circular saw it is
10 possible to construct compact sawing equipment, where all pieces of equipment working on the log are located one after the other in the log's input direction and at a short distance from each other. The log is not either turned over during the working, but it is guided directly through the sawing equipment. Sawing equipment of this kind can be constructed to be considerably shorter than such state-of-
15 the-art sawing equipment, wherein the side boards sawn off by the first circular saw are not guided to the side. Thus, with the solution according to the invention considerable saving of space is achieved as well as saving of costs in the construction costs.

20 With the solution according to the invention compact sawing equipment can be constructed, where the yield is also good. In state-of-the-art compact sawing equipment, where the side boards are not released from the log sides before the sawing in the division stage, a larger part must be worked off the log sides as chips by the working equipment, whereby the yield of timber is reduced.

25 In an advantageous embodiment according to the invention, the log is fed into the sawing equipment in such a way that the log's warpage is located in a horizontal plane. In consequence of this, the division sawing can be carried out in a vertical direction by cutting circular saw blades, whereby the finished pile of timber is in a
30 vertical plane. This again is an advantage in the further handling of the timber pile, where it is easier to separate the individual timber pieces from one another.

When the pile of timber is in a vertical plane, the individual pieces of timber will not especially in winter conditions freeze and stick together in the same manner as takes place in a timber pile located in a horizontal plane.

- 5 When the timber pile is in a vertical plane, there is not either any need for releasing knives after the circular saw of the division stage. The timber pieces located in a vertical plane do not remain pressing on the blades in such a way that the blades would overheat. If the pile of timber is in a horizontal plane, then after the circular saw of the division stage releasing knives have to be used, with which the individual pieces of timber are prevented from pressing on the blades of the circular saw.
- 10

In the following, the invention will be described by referring to the figures in the appended drawings, which show an advantageous plant embodying the method according to the invention, but the intention is not to limit the invention only to the details of this embodiment.

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Figure 1 is a cross-sectional view of a log at various stages of sawing.

Figure 2 is a schematic view of sawing equipment implementing the method according to the invention and seen from one side.

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Figure 3 is a view from above of the sawing equipment according to Figure 2.

Figure 4 is a view of how a log 10 is fed into the sawing equipment seen from above.

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Figure 1 shows the shape of the wood 10 to be sawn at various stages of treatment A-G in the sawing equipment. In treatment stage A, the wood (log) 10 is placed in a position suitable for sawing and it is fed into the sawing equipment. In the following stage B, the opposite round side surfaces of the wood 10 are worked into parallel planes 1a, 1b. In the following stage C, the remaining opposite round

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side surfaces of the wood 10 are worked into parallel planes 2a, 2b. In the above-mentioned stages B and C, the log has been formed into a cant of a rectangular shape, which has round un-worked corner surfaces. In stage D, first cuts 3 of an internal angle shape are worked into the wood's 10 remaining round corner surfaces and bordering on the first parallel planes 1a, 1b of the wood 10. In stage E, a first side board couple 5a, 5b is cut off the top and bottom surfaces of the wood 10. In stage F, second and third cuts 4 of an internal angle shape are worked into the wood's 10 remaining round corner surfaces and bordering on the wood's 10 parallel planes 1a, 1b and 2a, 2b. In stage G, the remaining cant is divided into timber of the desired size, for example, in such a way that from the cant's opposite side surfaces second and third side board couples 6a, 6b, 7a, 7b are cut off and the remaining heartwood is divided into planks 8a, 8b, 9a, 9b.

Figure 2 is a schematic view of sawing equipment according to the invention seen from one side. Figure 3 shows the sawing equipment according to Figure 2 seen from above. The input direction of the log is indicated by an arrow S in the figures.

The sawing equipment 900 includes the following pieces of equipment for working on the log 10. At the beginning of the sawing equipment there is a first piece of working equipment working in a horizontal plane, which is a chipping canter 20. The first chipping canter 20 is used to work into the log 10 the parallel planes 1a, 1b of stage B shown in Figure 1 into the log's 10 top and bottom surfaces. The first chipping canter 20 is followed by a second piece of working equipment working in a vertical plane, which is a chipping canter 30. The second chip 30 is used to work the parallel planes 2a, 2b of stage C shown in Figure 1 into the log's 10 side surfaces. Hereby the log 10 has been formed into a cant of a rectangular shape, which has round un-worked corners. The second chipping canter 30 is followed by a first profiling unit 40, which comprises small circular saw blades cutting in a vertical plane and after these milling cutters working in a horizontal plane. The first profiling unit is used to work the cuts 3 of stage D shown in

Figure 1. The first profiling unit 40 is followed by a first circular saw 50 cutting in a horizontal plane, which is used to carry out the cutting off of the first side board couple 5a, 5b of stage E shown in Figure 1 from the log's 10 top and bottom surfaces. The first circular saw 50 is followed by successively located second 60 and third 70 profiling units, each of which comprises circular saw blades and milling cutters following after these and used for working the cuts 4 of stage F in Figure 1. The third profiling unit 70 is followed by a second circular saw 80 located in a vertical plane, which is used to carry out a division of the remaining part of the cant into timber 6a, 6b, 7a, 7b, 8a, 8b, 9a, 9b of the desired kind. The division is carried out in such a way that second and third side board couples 6a, 6b, 7a, 7b are sawn off the cant edges and the heartwood is divided, for example, into planks 8a, 8b, 9a, 9b. These pieces of equipment working on the log 10 are all conventional pieces of equipment, which are in general use in sawing equipment 900 and which are known to the professional in the art.

15 In addition to the above-mentioned equipment working on the log 10, the sawing equipment comprises conventional equipment needed for guiding the log 10 and for feeding it onwards, such as guides 100, 110, 120, 130 and input rolls 200, 210, 220, 230, 240 in a vertical direction as well as input rolls 300, 310, 320, 330, 340 in a horizontal direction. These pieces of equipment for guiding the log and for feeding it inwards are also conventional equipment in general use in sawing equipment 900 and known to the professional in the art.

The first circular saw 50 is used to saw off a first side board couple 5a, 5b from the cant. The first side board 5a of the first side board couple 5a, 5b sawn off the bottom surface 1a of the cant is then guided on a first curved guiding element 410 obliquely downwards on to a first guideway 420 and further in between the first guideway 420 and a first belt conveyor 430 located above the first guideway 420. The first belt conveyor 430 then feeds the first lower side board 5a of the first side board couple 5a, 5b along the first guideway 420 obliquely downwards, so that the first lower side board 5a of the first side board couple 5a, 5b moves past the

second 60 and third 70 profiling units relating to the division stage as well as the second circular saw 80 below these. The first upper side board 5b of the first side board couple 5a, 5b sawn off the log's 10 top surface 1b is then guided by a second guiding element 510 obliquely upwards on to a second guideway 520 and further in between the second guideway 520 and a second belt conveyor 530 located above the second guideway 520. The second belt conveyor 530 then feeds the first upper side board 5b of the first side board couple 5a, 5b along the second guideway 520 obliquely upwards so that the first upper side board 5b of the first side board couple 5a, 5b will move past the second 60 and third 70 profiling units relating to the division stage as well as the second circular saw 80 above these. The first lower 5a and upper 5b side boards of the first side board couple 5a, 5b are then guided forward on conveyors in the sawing line.

Figure 4 shows the log's 10 input to the sawing equipment seen from above. Thus, the log 10 is placed in such a way in the input equipment 910 preceding the sawing equipment 900 that the log's 10 curved direction is in a horizontal plane. Conventional input equipment may be used here, such as equipment measuring the log, or equipment rotating the log, etc. By its nature, the log tends to place itself so that its warpage is located in a horizontal plane. When the log is fed into the sawing equipment in such a way that its warpage is located in a horizontal plane, the sawing of the division stage taking place with the second circular saw can be carried out by circular saw blades placed in a vertical direction, which follow the log's curvature. In the sawing at the division stage a timber package hereby results, which is formed by separate adjacent timber pieces located in a vertical plane. After the circular saw blades of the division stage no separating knives will hereby be needed, because the timber pieces are not pressing on the blades.

The total length of the sawing equipment 900 shown in Figures 2 – 4 is approximately 6,7 m.

In the embodiment shown in the figures, the first circular saw 50 is used to saw one couple of side boards 5a, 5b off the log, but the first circular saw 50 could also be used to saw two or more side board couples. Hereby the side boards sawn off at each side of the log are guided as one package on the curved guiding elements 410, 510 below and correspondingly above the working equipment 60, 70, 80 relating to the division-sawing stage. Of course, the number of side boards to be released by the first circular saw also determines how many profiling units are needed before the first circular saw. The size of the log to be sawn determines to a far extent how many side boards are sawn off the log by the first circular saw.

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In the embodiment shown in the figures, a first profiling unit 40 is used before the first circular saw 50. With this first profiling unit 40 the edges of the side board couple 5a, 5b sawn off by the first circular saw 50 are made straight. In a situation where the edges of the side board couple 5a, 5b need not be straight, the first profiling unit 40 may be left out.

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In the embodiment shown in the figures, the second circular saw 80 is used in the division stage to saw two couples of side boards 6a, 6b, 7a, 7b off the log. It would of course be possible here to saw only one couple of side boards, more than two couples of side boards or no couple of side boards off the log. Of course, the number of side boards to be sawn off by the second circular saw 80 also determines how many profiling units are in use before the second circular saw 80. The size of the log to be sawn determines to a far extent how many side boards will be sawn off the log by the second circular saw in the division stage. In a situation where the edges of the side boards need not be straight, there is no need for profiling units before the second circular saw 80.

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The division of the heartwood may of course be different from the situation shown in Figure 1, where the heartwood is divided by four circular saw blades.

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The equipment for working on the log shown in the figures may work with non-adjustable or adjustable settings. The equipment works with non-adjustable settings when adjusting of settings must be done manually during a machine standstill and it works with adjustable settings when adjusting of the settings can
5 be performed automatically.

In the embodiment shown in the figures, the log is placed in such a way in the input equipment preceding the sawing equipment that the log's curved direction is located in a horizontal plane. The log may of course also be placed in such a way
10 in the input equipment preceding the sawing equipment that the log's curved direction is located in a vertical plane. The first couple of side boards is hereby sawn off from the cant's side surfaces by vertically placed circular saw blades of the first circular saw, and sawing in the division stage is carried out by horizontally placed circular saw blades of the second circular saw, which follow the log's
15 curvature. The sawing in the division stage hereby results in a timber package, which is formed by separate superimposed pieces of timber located in a horizontal plane. Hereby separating knives are needed after the circular saw blades of the division stage, so that the pieces of timber will not press excessively on the circular saw blades. If the pieces of timber located in a horizontal plane remain pressing
20 freely on the blades, the blades will overheat, whereby their useful life will be shorter. Of course, the profiling units must hereby also be adapted in accordance with such a sawing situation.

The log may of course also be fed into the sawing equipment in such a way that
25 the plane in which the log's curved direction is located will form an arbitrary angle with the vertical plane. Hereby the equipment working on the log is placed in a corresponding manner in a position determined by this angle in question.

In the following, claims are presented, which determine the inventive idea, within
30 the scope of which details of the invention can vary from the foregoing presentation, which was given by way of example only.

Claims

1. Method for sawing a log (10), the method comprising the following stages of work:
- 5 - feeding the log (10) forwards in an input direction (S) in the sawing equipment (900),
- working of first parallel planes (1a, 1b) into opposite round surfaces of the log (10) by a first piece of working equipment (20) placed at the beginning of the sawing equipment (900),
- 10 - working of second parallel planes (2a, 2b) into remaining opposite round surfaces of the log (10), which second planes are at an angle of 90 degrees in relation to the first planes (1a, 1b), by a second piece of working equipment (30) following after the first piece of working equipment (20), whereby the log (10) has been formed into a cant of a rectangular shape, the cant having round
- 15 un-worked corner surfaces,
- using a first circular saw (50) for sawing at least one couple of side boards (5a, 5b) off the first (1a, 1b) or second (2a, 2b) parallel planes forming a couple,
- carrying out sawing in a division stage, wherein the remaining cant is sawn by a second circular saw (80), the circular blades of which are at an angle of 90 degrees in relation to the circular blades of the first circular saw (50), into timber
- 20 (6a, 6b, 7a, 7b, 8a, 8b, 9a, 9b) of the desired kind,

characterized in that

- said side boards (5a, 5b) of the at least one couple of side boards (5a, 5b) are guided by curved guiding elements (410, 510) located in between the first circular saw (50) and the second circular saw (80) obliquely to the side in relation to the log's (10) input direction (S) in such a way that the side boards (5a) on one side of said at least one couple of side boards (5a, 5b) will move past one side of the second circular saw (80) and the side boards (5b) on the other side of said at least one couple of side boards (5a, 5b) will move past the opposite side of the second circular saw (80), in consequence of which the first circular saw (50) and the second circular saw (80) can be located close to one another in
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the input direction (S) and the entire sawing equipment (900) is made very compact.

2. Method according to claim 1, **characterized** in that the first circular saw (50) is
5 used for sawing one couple of side boards (5a, 5b) off the first (1a, 1b) or the second (2a, 2b) parallel planes forming a couple, whereby said couple of side boards forms the first couple of side boards (5a, 5b).

3. Method according to claim 2, **characterized** in that the side boards (5a, 5b) of
10 the first couple of side boards (5a, 5b) are guided along guideways (420, 520) past the opposite sides of the second circular saw (80).

4. Method according to claim 3, **characterized** in that the side boards (5a, 5b) of
the first couple of side boards (5a, 5b) are transported on belt conveyors (430,
15 530) along said guideways (420, 520) past the opposite sides of the second circular saw (80).

5. Method according to any claim 2-4, **characterized** in that in the method first
cuts (3) of an internal angle shape are also worked into the round un-worked
20 corner surfaces of the cant by a first profiling unit (40) located in between the working equipment (30) and the first circular saw (50), so that the edges of the side boards (5a, 5b) of the first couple of side boards (5a, 5b) are made straight.

6. Method according to any claim 2-5, **characterized** in that in the method second
25 and third cuts (4) of an internal angle shape are also worked into the round un-worked corner surfaces of the cant by two successive profiling units (60, 70) located in between the first circular saw (50) and the second circular saw (80), so that the edges of the side boards (6a, 6b, 7a, 7b) of the second and third couples of side boards (6a, 6b, 7a, 7b) formed in the sawing in the division stage are straight.

7. Method according to any claim 1-6, **characterized** in that the log (10) is fed by input equipment (910) into the sawing equipment (900) in such a way that the log's (10) curvature is located in a horizontal plane.
- 5 8. Method according to claim 7, **characterized** in that the first opposite parallel planes (1a, 1b) are worked into the bottom and top surfaces of the log (10) and the second opposite parallel planes (2a, 2b), which are at an angle of 90 degrees in relation to the first planes (1a, 1b), are worked into the curved side surfaces of the log (10).
- 10 9. Method according to claim 8, **characterized** in that the first cuts (3) of an internal angle shape are worked in such a way that in the bottom surface (1a) and top surface (1b) of the cant parts of a rectangular shape are formed, of which the first couple of side boards (5a, 5b) is obtained.
- 15 10. Method according to claim 9, **characterized** in that the first couple of side boards (5a, 5b) is sawn off the bottom surface (1a) and the top surface (1b) of the cant by horizontally placed circular saw blades of the first circular saw (50).
- 20 11. Method according to claim 10, **characterized** in that the first side board (5a) of the first couple of side boards (5a, 5b) sawn off the cant's bottom surface (1a) is guided by a first curved guiding element (410) obliquely downwards in such a way that it moves below the working equipment following after the first circular saw (50), and the second side board (5b) of the first couple of side boards (5a, 5b)
25 sawn off the cant's top surface (1b) is guided by a second curved guiding element (510) obliquely upwards in such a way that it moves above the working equipment following after the first circular saw (50).
- 30 12. Method according to claim 11, **characterized** in that the second and third cuts (3) of an internal angle shape are worked in such a way that in each side of the

remaining cant two parts of a rectangular shape are formed, of which the second and third couples of side boards (6a, 6b, 7a, 7b) are obtained.

13. Method according to claim 12, **characterized** in that the division sawing is
5 carried out by vertically placed circular blades of the second circular saw (80), whereby a timber pile located in a vertical plane is obtained as the final result.

14. Plant for sawing a log (10), which plant comprises:

- 10 - sawing equipment (900), wherein the log (10) is fed forwards in an input direction (S),
- a first piece of working equipment (20), which is located at the beginning of the sawing equipment (900) and which is used for working first parallel planes (1a, 1b) into opposite round surfaces of the log (10),
- 15 - a second piece of working equipment (30), which in the input direction (S) is located after the first piece of working equipment (20) and which is used for working second parallel planes (2a, 2b) into the log's (10) remaining opposite round surfaces, the second planes being at an angle of 90 degrees in relation to the first planes (1a, 1b), whereby the log (10) has been formed into a cant of a rectangular shape and having round un-worked corner surfaces,
- 20 - a first circular saw (50), which is used for sawing at least one couple of side boards (5a, 5b) off the first (1a, 1b) or second (2a, 2b) parallel planes forming a couple,
- a second circular saw (80), the circular blades of which are at an angle of 90
25 degrees in relation to the circular blades of the first circular saw (50), whereby the second circular saw (80) is used for carrying out sawing in the division stage, wherein the remaining cant is sawn into timber (6a, 6b, 7a, 7b, 8a, 8b, 9a, 9b) of the desired kind,

characterized in that the plant also comprises:

- 30 - curved guiding elements (410, 510), which are located in between the first circular saw (50) and the second circular saw (80) and which are used for guiding the side boards (5a, 5b) of said at least one couple of side boards (5a, 5b)

obliquely to the side in relation to the log's (10) input direction (S) in such a way that the side boards (5a) on one side of said at least one couple of side boards (5a, 5b) move past one side of the second circular saw (80), and the side boards (5a) on the other side of said at least one couple of side boards (5a, 5b) move past the opposite side of the second circular saw (80), in consequence of which the first circular saw (50) and the second circular saw (80) can be located close to one another in the input direction (S) and the entire sawing equipment (900) can be made very compact.

10 15. Plant according to claim 14, **characterized** in that the first circular saw (50) comprises one pair of circular saw blades, which are used for sawing one couple of side boards (5a, 5b) off the first (1a, 1b) or second (2a, 2b) parallel planes forming a couple, whereby said couple of side boards forms the first couple of side boards (5a, 5b).

15 16. Plant according to claim 15, **characterized** in that it also comprises guideways (420, 520), along which the side boards (5a, 5b) of the first couple of side boards (5a, 5b) are guided past the opposite sides of the second circular saw (80).

20 17. Plant according to claim 16, **characterized** in that it also comprises belt conveyors (430, 530), which convey the side boards (5a, 5b) of the first couple of side boards (5a, 5b) along guideways (420, 520) past the opposite sides of the second circular saw (80).

25 18. Plant according to any claim 15-17, **characterized** in that it also comprises a first profiling unit (40), which is located in between the second piece of working equipment (30) and the first circular saw (50) and which is used for working first cuts (3) of an internal angle shape into the cant's round un-worked corner surfaces in such a way that the edges of the first side boards (5a, 5b) are made straight.

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19. Plant according to claim 18, **characterized** in that it also comprises a second (60) and a third (70) profiling unit, which are located one after the other in between the first circular saw (50) and the second circular saw (80) and which are used for working second and third cuts of an internal angle shape into the cant's
5 round un-worked corner surfaces in such a way that the edges of the side boards (6a, 6b, 7a, 7b) of the second and third couples of side boards (6a, 6b, 7a, 7b) formed in the sawing in the division stage are straight.

20. Plant according to any claim 14-19, **characterized** in that the sawing equip-
10 ment (900) is preceded by input equipment (910), wherein the log (10) is placed in such a way that the log's (10) curvature is located in a horizontal plane.

21. Plant according to claim 20, **characterized** in that the first piece of working
15 equipment (20) comprises working blades cutting in a horizontal direction, whereby the first opposite parallel planes (1a, 1b) are worked into the log's (10) bottom and top surfaces, and the second piece of working equipment (30) comprises blades cutting in a vertical direction, whereby the second opposite parallel planes (2a, 2b), which are at an angle of 90 degrees in relation to the first planes (1a, 1b), are worked into the log's (10) curved side surfaces.

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22. Plant according to claim 21, **characterized** in that the first profiling unit (40)
comprises circular blades cutting in a horizontal direction and milling cutters
working in a vertical direction for working into chips the part of timber cut off by
the circular blades, so that cuts (3) of an internal angle shape are formed, whereby
25 in the cant's bottom surface (1a) and top surface (1b) parts of a rectangular shape
are formed, of which the first couple of side boards (5a, 5b) is formed.

23. Plant according to claim 22, **characterized** in that the first circular saw (50)
comprises circular saw blades cutting in a horizontal direction for sawing the side
30 boards (5a, 5b) of the first couple of side boards (5a, 5b) off the cant's bottom
surface (1a) and top surface (1b).

24. Plant according to claim 23, **characterized** in that the plant comprises a first curved guiding element (410), on which the first side board (5a) of the first couple of side boards (5a, 5b) sawn off the cant's bottom surface (1a) is guided obliquely downwards in such a way that it moves under the working equipment following
5 after the first circular saw (50), and a second curved guiding element (510), on which the second side board (5b) of the first couple of side boards (5a, 5b) sawn off the cant's top surface (1b) is guided obliquely upwards in such a way that it moves above the working equipment following after the first circular saw (50).

10 25. Plant according to claim 24, **characterized** in that the second and third profiling units (60, 70) comprise circular blades cutting in a horizontal direction and milling cutters working in a vertical direction for working into chips the part of timber cut off by the circular blades, so that second and third cuts (4) of an internal angle shape are formed, whereby in the edges of the remaining cant parts of a
15 rectangular shape are formed, of which the following two couples of side boards (6a, 6b, 7a, 7b) are formed.

26. Plant according to claim 25, **characterized** in that the second circular saw (80) comprises circular blades in a vertical direction, which are used for carrying out
20 division sawing of the remaining cant, whereby a pile of timber located in a vertical plane is obtained as the final result.

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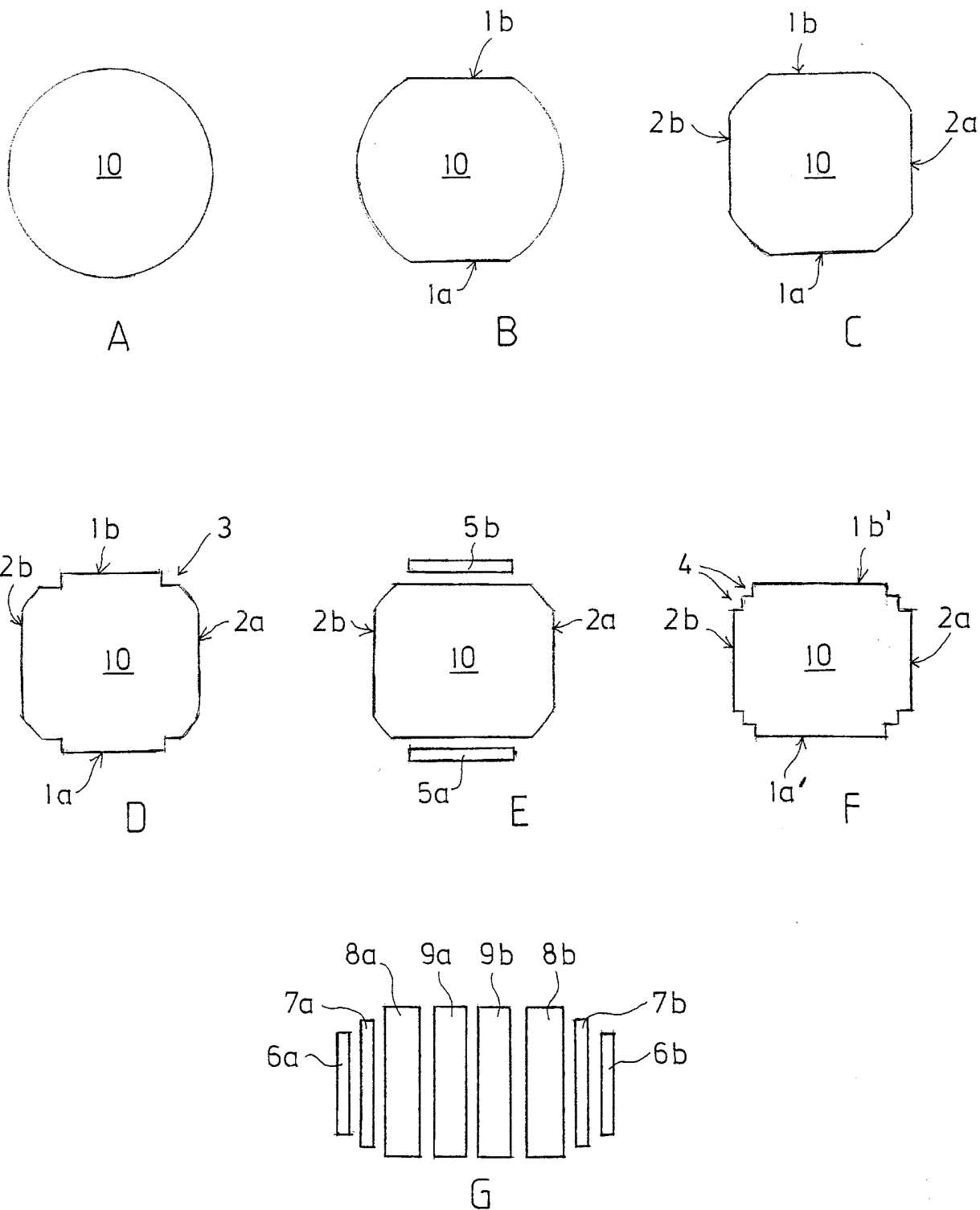


FIG.1

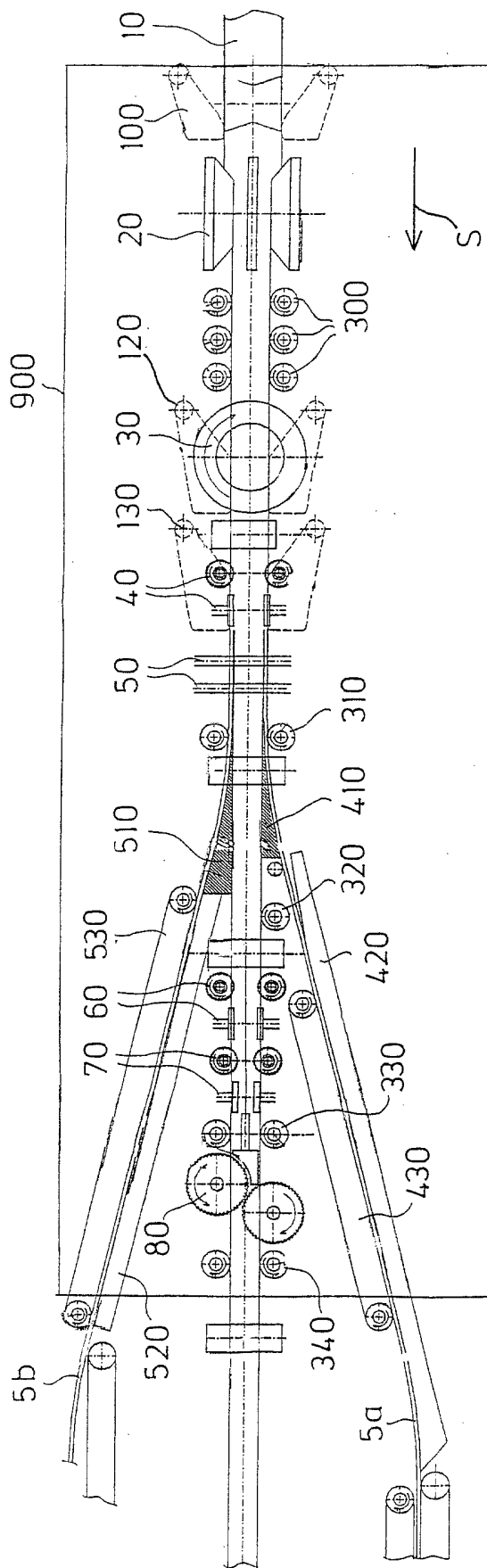


FIG. 2

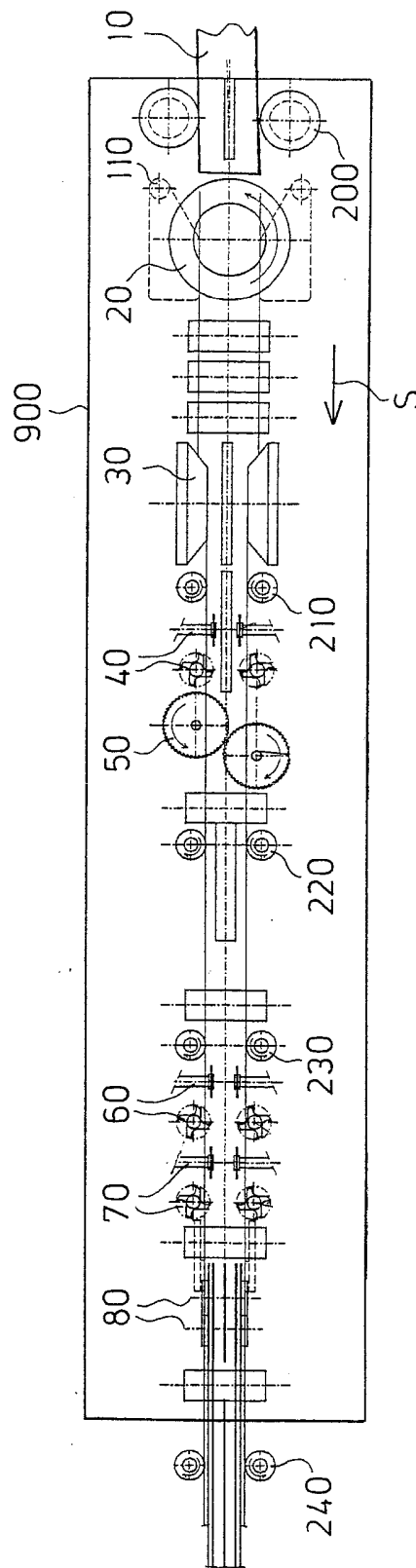


FIG. 3

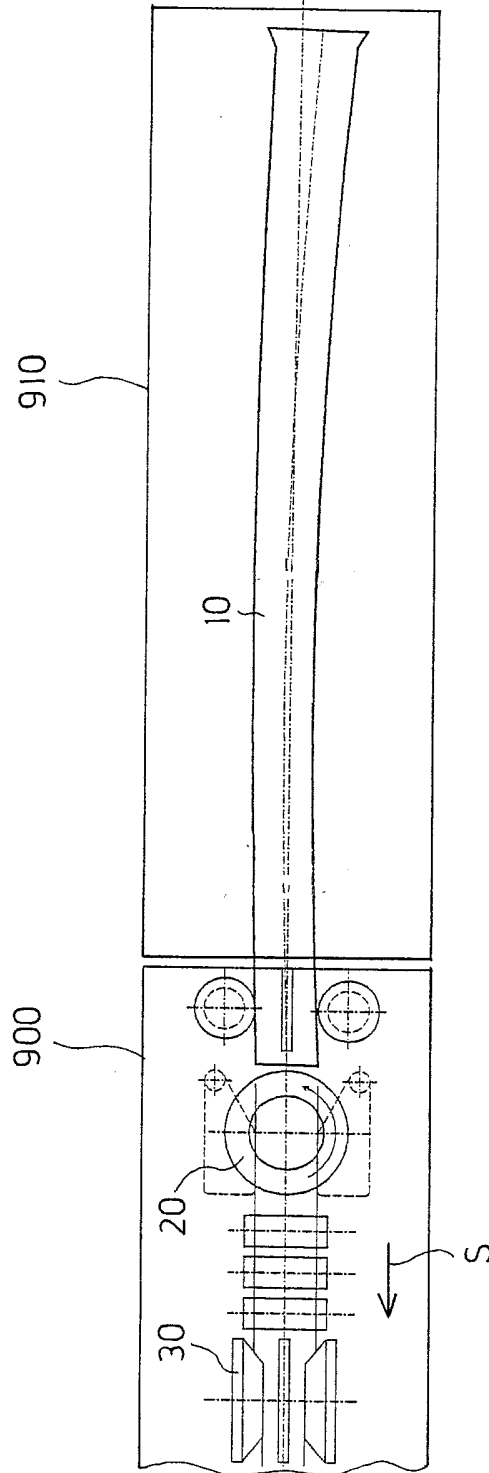


FIG. 4

INTERNATIONAL SEARCH REPORT

International Application No
PCT/FI2005/050068A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B27B1/00 B27B7/00 B27B31/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B27B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
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Date of the actual completion of the international search

20 July 2005

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/FI2005/050068

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