Jan. 14, 1958

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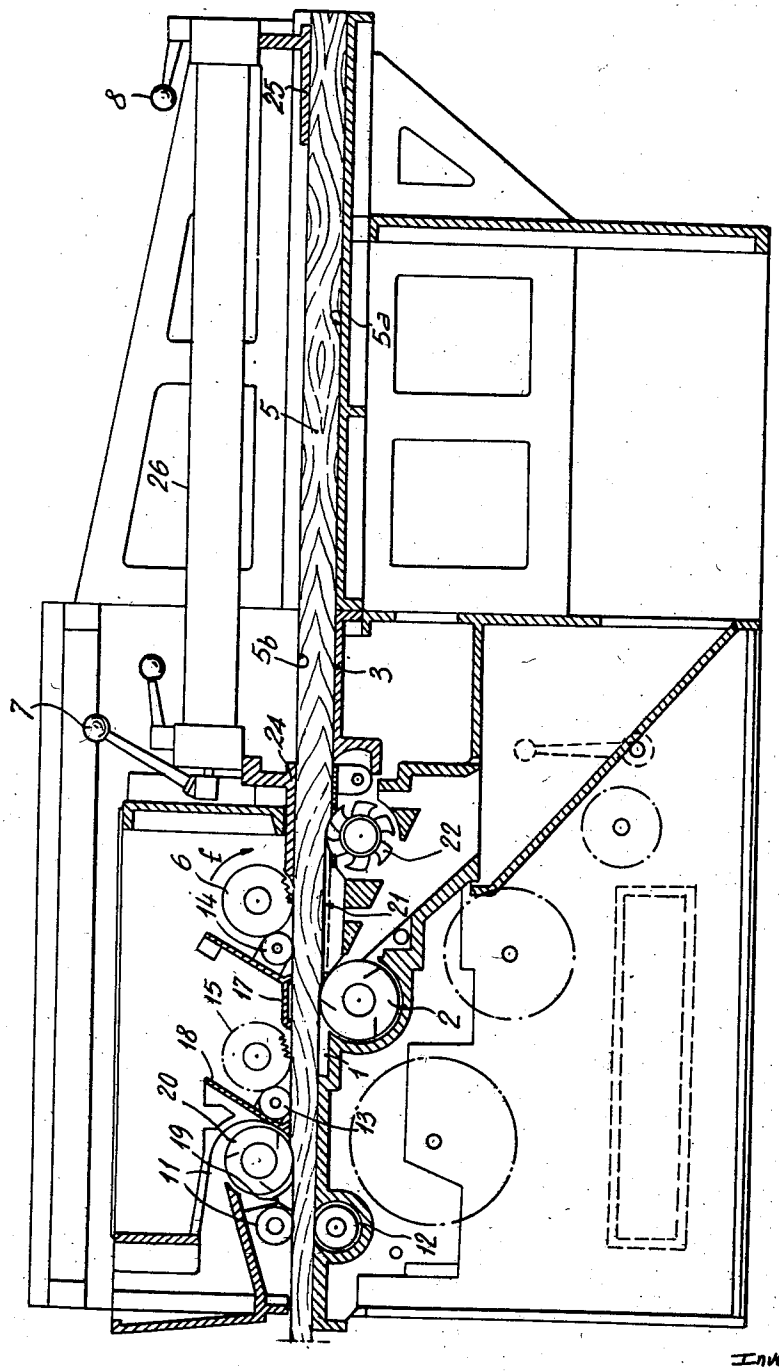
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METHOD OF AND MACHINE FOR ROUGH-PLANING OF WOODEN MATERIALS OR THE LIKE

Filed May 17, 1955

2 Sheets-Sheet 1

Fig 1




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Fig. 2

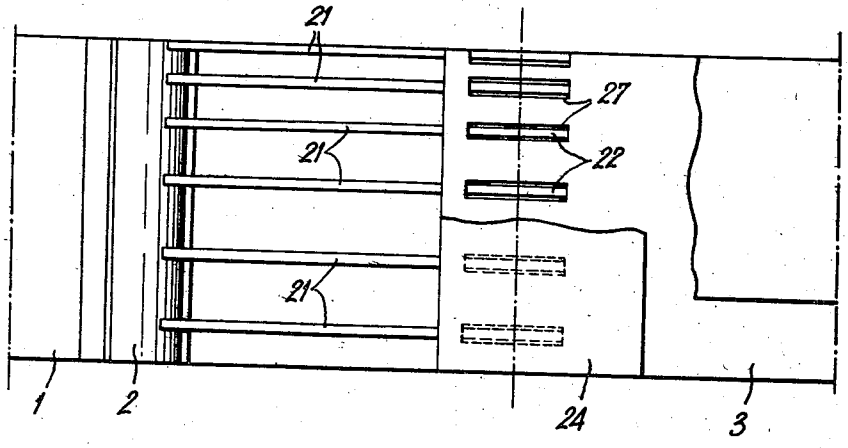
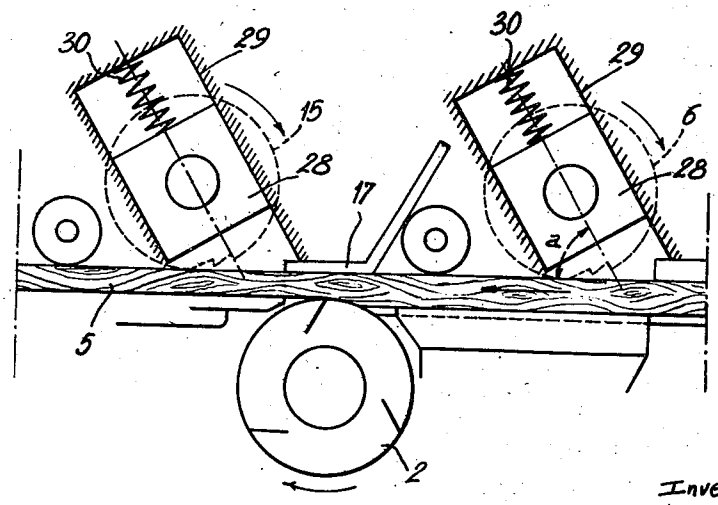



Fig. 3




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United States Patent Office 2,819,744 Patented Jan. 14, 1958



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# METHOD OF AND MACHINE FOR ROUGH-PLANING OF WOODEN MATERIALS OR THE LIKE

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Application May 17, 1955, Serial No. 509,018

Claims priority, application France May 18, 1954

9 Claims. (Cl. 144—253)

Wood boards are very frequently deformed and cannot be used in that condition without a preliminary rough-planing followed by a fine-planing.

The rough and fine planings are intended for removing the portions of the board which are outside two parallel planes.

This rough planing is generally obtained by passing a first face of the board several times over a planing tool which removes the excess portions of the board. In general, the board is laid on a table, a so-called entrance table and it is pushed on that table towards the planing tool which cuts the board along a plane which is slightly higher than that of the entrance table. This plane is at the level of the cutting edge of the tool and the board then advances to another table, a so-called outlet table, which table is placed close to the tool and serves as a bearing surface for the rough planed portion of the board.

Such an operation is delicate and requires skilled labour. Thus the operator must make sure:

(*a*) to lay the board without any constraints on the entrance table in such a position that the amount of wood to be removed be as small as possible. This position is generally determined by the workman who decides, after examining each board, the position it should be given according to his personal experience;

(*b*) to hold the board parallel to itself, at least at the beginning of the operation, during which the board rests on the entrance table at an isolated point, while the pressure of the planing tool tends to tilt the board before it advances to the outlet table;

(*c*) to repeat this operation once or twice using the reference surface obtained by the previous operation as a support, and taking care that the main support for the board be on the outlet table.

The main object of the present invention is to obviate these drawbacks.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings, in which:

Figure 1 is a longitudinal, axial section of a machine in accordance with the present invention,

Figure 2 is a plan view of the middle portion of this machine, and

Figure 3 is a detail of said machine.

The machine represented comprises an apparatus for positioning a board, consisting of an entrance table 3 and plates 24 and 25 placed above the table 3. These plates are mounted on a frame 26 and their lower faces determine a plane parallel with the table 3. The height of the plates may be adjusted by any means and the plates may be locked in their adjusted position. By displacing these plates 24 and 25 vertically, the latter are brought in contact with the upper face 5*b* of the board 5 which rests



with its lower face 5*a* on the table 3. By displacing the plates 24 and 25 slightly, the board 5 is made to swing about the resting points of its face 5*a* on the table 3, but care should be taken to stop the downward motion of the plates 24 and 25 as soon as a further lowering of the same could lead to an elastic deformation of the board 5. The latter then effectively assumes a position which is substantially the position which a skilled workman would give it manually on the table 3 for reducing to a minimum the amount of wood to be removed for rough-planing the board 5.

In the entrance table 3 and under the plate 24, apertures 27 have been cut out, in which trimming tools 22 are arranged. The latter are intended to cut grooves into the board, the bottoms of which are in a common plane. The board 5, thus grooved, then passes on tongues 21 acting as guides. The tongues 21 are in line with the tools 22. Their upper faces are at the same level as the bottom of the grooves cut into the board 5. The widths of the tongues 21 are slightly less than those of the grooves. When passing over these tongues 21, the bottoms of the grooves rest on the tongues 21, without any change in the orientation of the board 5 given to it by the plates 24 and 25 and by the table 3. The board 5 thus continues its displacement parallel with itself. The board is advanced on the tongues 21 by a toothed roller 6 acting on the upper face of the board 5. The roller 6 is driven by a motor, not shown in the drawing.

The board, thus guided, then passes between a rough-planing tool 2 and a pressure element 17. The tool 2 completes the planing of the lower face 5*a* of the board 5 by removing the portions of the latter which are below a plane located slightly under that formed by the bottoms of the grooves. The board 5, upon leaving the rough planing tool 2 passes on an outlet table 1.

The board 5, thus rough-planed on its lower face 5*a* and supported by the table 1, passes successively under a second driving roller 15, a smooth roller 13, a pressure element 18, an upper planing tool 20, a last pressure element 19 and a smooth roller 11. For facilitating the displacement of the board 5 on the outlet table 1, the latter comprises a roller 12 which engages the bottom face of the board 5. During this displacement, the upper surface 5*b* of the board 5 is also finish planed.

As may be noted, the board 5 is placed on the entrance table 3 in a position of minimum planing by the plates 24 and 25 and it is held by the latter in that position at the beginning of the operation effected by the tools 22 and until the tongues 21 are reached. As soon as the bottoms of the grooves cut by the tools 22 bear on the tongues 21, the board 5 is held in its initial position by these tongues and grooves until it reaches the outlet table 1 toothed rollers 6, 15 hold it in the same position. Thus the board 5 runs no risk of tilting during work thereon.

In practice it will be sufficient, most of the time, to secure once and for all the plates 24 and 25 in a predetermined position, and the various boards 5 to be rough-planed will be introduced successively between the table 3 and the plates 24 and 25. The boards 5 which might be too much deformed for passing between the table 3 and the plates 24 and 25 are then rejected and will be rough planed later, after a new height adjustment of the plates 24 and 25 is made.

In present machines, the splined driving rollers are generally pushed against the board by resilient devices and are guided by slides which are perpendicular to the direction of feed of the wood. It frequently happens that the teeth of the roller catch the rear end of the board and tend to lift it and to cause a bump or a depression at the point which, at that time, is facing the rough planing tool. The use of pressure elements does not always make it possible to obviate this drawback.

In the present machine, as may be seen in Figure 3, the ends of the axles of the driving rollers **6** and **15** are mounted on bearings **28**, which can move inside slides **29** and each is subjected to the action of a spring **30**. These slides **29** are inclined and make with the direction of feed of the board **5** an angle *a*, which is less than 90°. In these conditions, when the rear end of the board **5** moves beyond one of the rollers **6** or **15**, the latter moves down, being no longer supported by the board **5**, and moves away from the board, so that the teeth of the roller **6** which would have a tendency to catch the rear end of the board are moved away from it due to the inclination of the slides **29**.

What is claimed is:

1. A method of planing a plank of wood or the like, comprising, in combination, the steps of supporting said plank in a working plane while continuously advancing it in feed direction for planing; cutting into a face of said advancing plank a grooved surface having a bottom in a plane parallel to said working plane; utilizing said grooved surface in said advancing plank to maintain the advancing plank in said working plane; and planing at least one face of said advancing plank while thus utilizing the grooved surface.

2. A method of planing a plank of wood or the like, comprising, in combination, the steps of supporting said plank with one face thereof in a working plane while continuously advancing it in feed direction for planing; cutting into said face of said advancing plank a grooved surface having a bottom in a plane parallel to said working plane; utilizing said grooved surface in said advancing plank to maintain said face of the advancing plank in said working plane; and planing said one face of said advancing plank while thus utilizing the grooved surface.

3. A method of planing a plank of wood or the like, comprising, in combination, the steps of supporting said plank with one face thereof in a working plane while continuously advancing it in feed direction for planing said one face and an opposite face thereof; cutting into said face of said advancing plank a grooved surface having a bottom in a plane parallel to said working plane; utilizing said grooved surface in said advancing plank to maintain said face of the advancing plank in said working plane; and planing first said one face and then said opposite face of said advancing plank while thus utilizing the grooved surface.

4. Apparatus for planing a plank of wood or the like, comprising, in combination, support means for supporting a plank for travel between entry and exit points of said apparatus; transporting means for continuously advancing said plank between said points; pressure means located above said support means at said entry point and cooperating therewith to place said plank in a working plane, without elastic deformation thereof; cutting means located intermediate said pressure means and said exit point for cutting in said plank at least one groove having a bottom in a plane parallel to said working plane; guide means engaging said bottom of said groove and located intermediate said cutting means and said exit point for maintaining said plank in said working plane; and planing means for planing said plank while the same is being guided by said guide means in said working plane during advance thereof in said apparatus.

5. Apparatus for planing a plank of wood or the like, comprising, in combination, support means including an entry table for supporting a plank for travel between entry and exit points of said apparatus; transporting means for continuously advancing said plank between said points; first pressure means located above said entry table and cooperating therewith to place said plank in a working plane, without elastic deformation thereof; cutting means located intermediate said pressure means and said exit point for cutting in said plank at least one groove having a bottom in a plane parallel to said working plane; guide means engaging said bottom of said groove and located intermediate said cutting means and said exit point; second pressure means located above said cutting means and said guide means and cooperating therewith for maintaining said plank in said working plane; and planing means for planing said plank while the same is being guided by said guide means in said working plane during advance thereof in said apparatus.



6. Apparatus for planing a plank of wood or the like, comprising, in combination, support means for supporting a plank having a first face and a second face for travel between entry and exit points of said apparatus; transporting means for continuously advancing said plank between said points; pressure means located above said support means at said entry point and cooperating therewith to place said plank in a working plane, without elastic deformation thereof; cutting means located intermediate said pressure means and said exit point for cutting in said first face of said plank at least one groove having a bottom in a plane parallel to said working plane; guide means engaging said bottom of said groove and located intermediate said cutting means and said exit point of maintaining said plank in said working plane; and planing means located in advance of said guide means for planing said first face of said plank while the same is being guided by said guide means in said working plane during advance thereof in said apparatus.

7. Apparatus for planing a plank of wood or the like, comprising, in combination, support means for supporting a plank having a first face and a second face for travel between entry and exit points of said apparatus; transporting means for continuously advancing said plank between said points; pressure means located above said support means at said entry point and cooperating therewith to place said plank in a working plane, without elastic deformation thereof; cutting means located intermediate said pressure means and said exit point for cutting in said first face of said plank at least one groove having a bottom in a plane parallel to said working plane; guide means engaging said bottom of said groove and located intermediate said cutting means and said exit point for maintaining said plank in said working plane; and first planing means located in advance of said guide means for planing said first face of said plank while the same is being guided by said guide means in said working plane during advance thereof in said apparatus; and second planing means located above said first planing means for subsequently planing said second face of said plank while the same is being maintained in a working plane during advance thereof in said apparatus.

8. Apparatus for planing a plank of wood or the like, comprising, in combination, support means including an entry table for supporting a plank having a first face and a second face for travel between entry and exit points of said apparatus; transporting means including roller means gripping said second face of said plank for continuously advancing said plank between said points; first pressure means located above said entry table and cooperating therewith to place said plank in a working plane, without elastic deformation thereof; cutting means located intermediate said pressure means and said exit point for cutting in said first face of said plank at least one groove having a bottom in a plane parallel to said working plane; guide means engaging said bottom of said groove and located intermediate said cutting means and said exit point; second pressure means located above said cutting means and said guide means and cooperating therewith for maintaining said plank in said working plane; first planing means located in advance of said guide means and intermediate said roller means for planing said first face of said plank while the same is being guided by said guide means in said working plane during advance thereof in said apparatus; and second planing means located above said first planing means and in advance of said roller means for subsequently

planing said second face of said plank while the same is being maintained in a working plane during advance thereof in said apparatus.

9. Apparatus for planing a plank of wood or the like, comprising, in combination, support means including an entry table and an outlet table for supporting a plank having a first face and a second face for travel between entry and exit points of said apparatus; transporting means including a pair of rollers gripping said second face of said plank for continuously advancing said plank between said points; first pressure means located above said entry table and cooperating therewith to place said plank in a working plane, without elastic deformation thereof; cutting means located intermediate said pressure means and said exit point for cutting in said first face of said plank at least one groove having a bottom in a plane parallel to said working plane; guide means engaging said bottom of said groove and located intermediate said cutting means and said exit point; second pressure means located above said cutting means and said guide means and cooperating therewith for maintaining said plank in said working plane; first planing



means located in advance of said guide means for planing said first face of said plank while the same is being guided by said guide means in said working plane during advance thereof in said apparatus; and second planing means located above said outlet table and in advance of said pair of rollers for subsequently planing said second face of said plank to be parallel to said planed first face while the plank is being advanced in said working plane.

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