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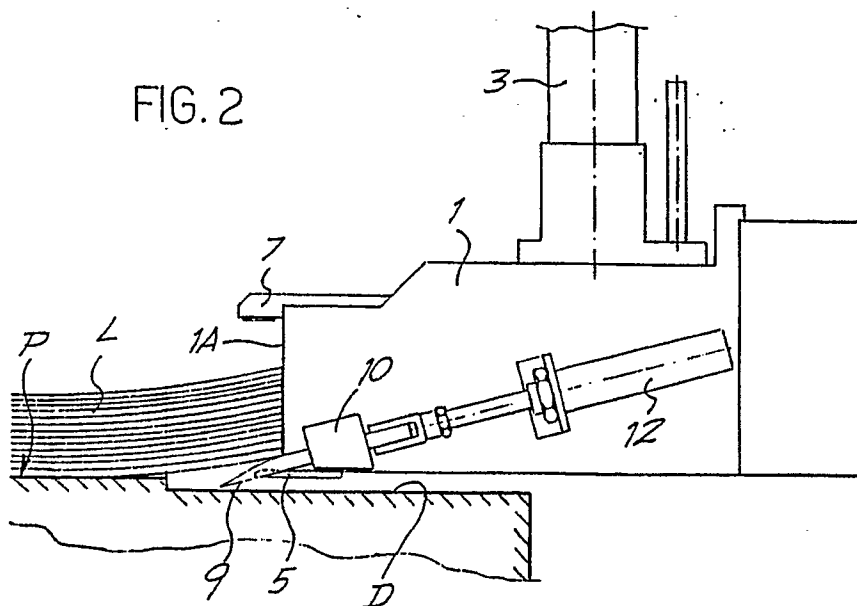
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I-50123 Firenze(IT)(54) **Apparatus for handling packs of flexible laminar materials in wood-working tool-machines and the like.**

(57) An apparatus for handling wood or other laminar material comprises a pusher (1-3) having gripping clamp means (5, 7). In order to clamp and handle laminar wood panels or similar material which may bend due to its own weight, there is provided an

element (9) shaped as an inclined lamina and designed to be wedged under the pack of laminar material in order to lift it against the pusher (1-3) before clamping it. The apparatus is particularly suitable for use in wood-working machine-tools.

FIG. 2



EP 0 396 509 A2

The invention relates to an apparatus allowing the handling of packs of wood or other laminar material which tend to bend, in wood-working tool-machines such as cutting-off machines and the like. This apparatus allows the laminar pack to be worked like a rigid panel, that is to say with a displacement similar to that obtained by a pusher in a panel, for this purpose and others which will be apparent from the reading of the following description.

The apparatus according to the invention comprises in combination: a component having the function of a pusher and operating along a depressed edge of a support plane; on said component a vertically gripping clamp member; and an element shaped as an inclined lamina, said element able to move forward and downward to be wedged under the laminar material and make it rest normally against the supporting wall of the pusher for gripping thereof by the clamp, and move backward.

Said inclined-lamina element may have the shape of a chisel and it may be driven by a fluid-operated cylinder-piston actuator.

The drawing shows a possible embodiment of the invention, and in particular:

Figs. 1 to 4 show the apparatus in side view on four operating cycle steps; and

Fig. 5 shows an ensemble perspective view.

According to what is illustrated in the attached drawing, numeral 1 generally indicates the body of a pusher, carried by an operating column 3, and developed with a bearing edge 1A and with a clamp consisting of a lower fixed appendix 5 and of an upper mobile jaw 7 which may be moved close to or away from the appendix 5 by a means known per se. The above component, which has the function of a pusher, operates in correspondence of a support plane P provided with a depression D; the plane P is intended to receive a panel or a pack of laminar material L, as shown in the drawing, which may undergo deflections with a slight mutual slipping of the various laminae which it is made up of. Just because of its flexibility, this laminar material cannot be handled likewise a rigid panel and, accordingly, there is provided the apparatus which is herein illustrated and is the object of the invention. Sideways of body 1 there is provided a laminar element shaped as a chisel, generally indicated by 9 and forming a front sharp edge; it develops inclined downwards and towards the plane P, and is guided both by a block 10 and a support 12A of an actuator 12 which is most likely made up of a cylinder-piston or equivalent system for the linear control in the two directions and in the inclined direction is indicated by the double arrow F in the drawing.

Said chisel-like element 9 is made to advance

and lower into the depression D in such a way that when the pusher assembly is advanced towards the pack of laminae L, this element 9 fits itself under the laminae and tends to lift them up as it moves forwards until it brings them into abutment against the thrusting surface 1A (compare Figs 1 and 2). At this point, the element 9 is moved backwards until it takes up the position shown in Fig. 3, and the pack of laminae L goes into abutment onto the lower appendix 5 of the clamp (see Fig. 3) to be thus engaged between this appendix 5 and the jaw 7 which goes down (cfr. Figs. 3 and 4) onto the pack of laminae L for the engagement thereof. The pack of laminae L may thus be handled similarly to a thick panel.

The chisel-like element 9 is kept retracted and inoperative when handling thick panels, or it may be removed when the apparatus to which it is applied is not used for handling flexible laminae.

By means of the described apparatus and with the aid of depression D, it is thus possible to handle flexible laminae which might otherwise rest on the plane P and prevent a correct engagement thereof by the clamp.

Claims

1) An apparatus for handling wood or other laminar material in packs which tend to bend, for wood-working tool-machines such as cutting-off machines and the like, characterized in that it comprises - in combination with a component (1-3) acting as a pusher along a depressed edge (D) of a support plane (P) - a vertically gripping clamp means (5, 7) and an element (9) shaped as an inclined lamina, able to move forward downwardly inclined to be wedged under the laminar material (L) and make it to rest normally against the support wall (1A) of the pusher for the grip thereof by the clamp (5, 7), and move backward.

2) Apparatus according to the preceding claim, wherein said element (9) shaped as an inclined lamina has the form of a chisel.

3) Apparatus according to the preceding claims, wherein said element in form of a chisel is driven by a fluid-operated cylinder-piston actuator (12).

4) Apparatus for handling flexible laminar material in wood-working tool-machines and the like; all as described and represented.

FIG. 1

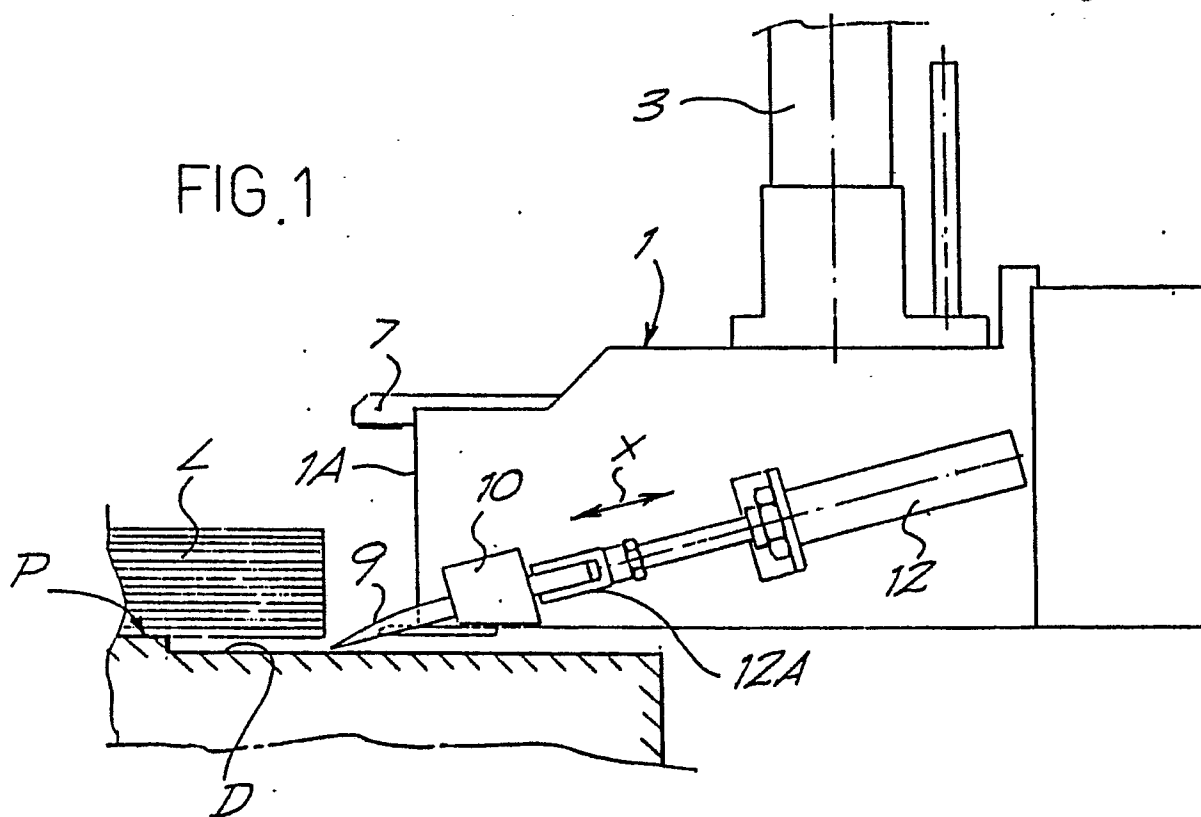


FIG. 2

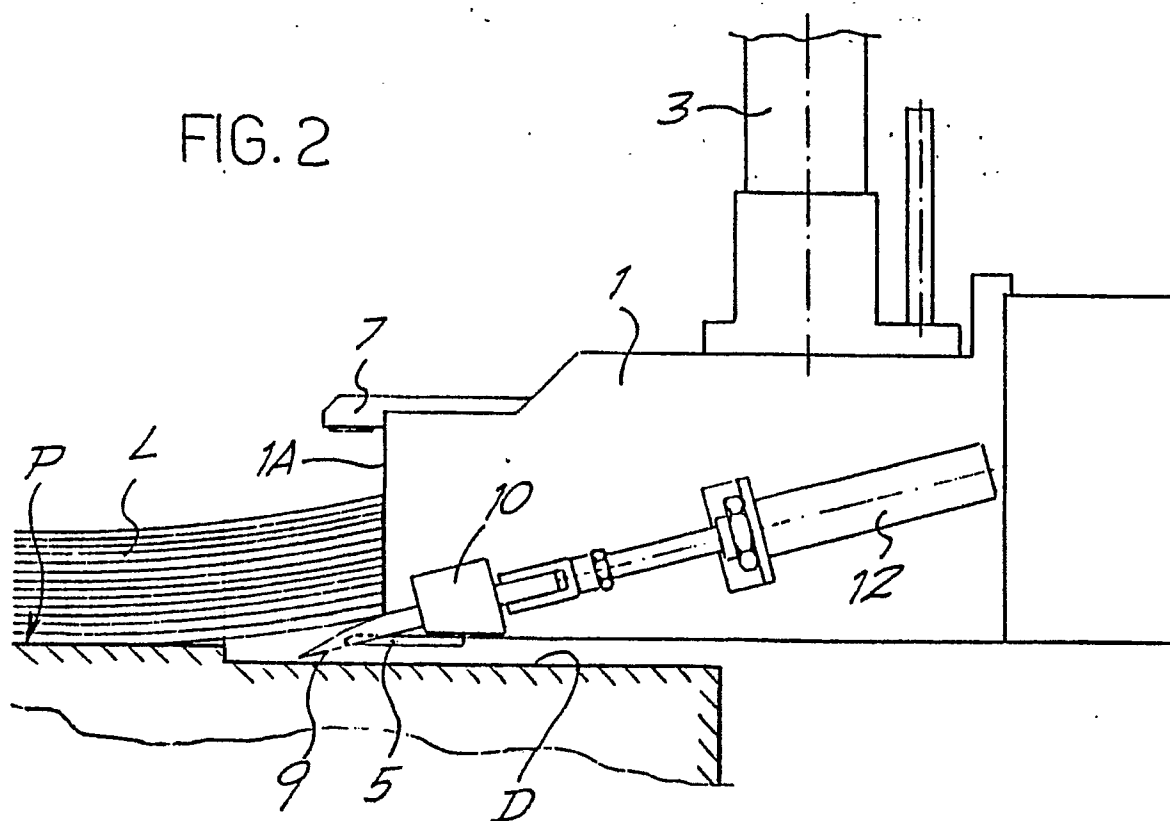


FIG. 3

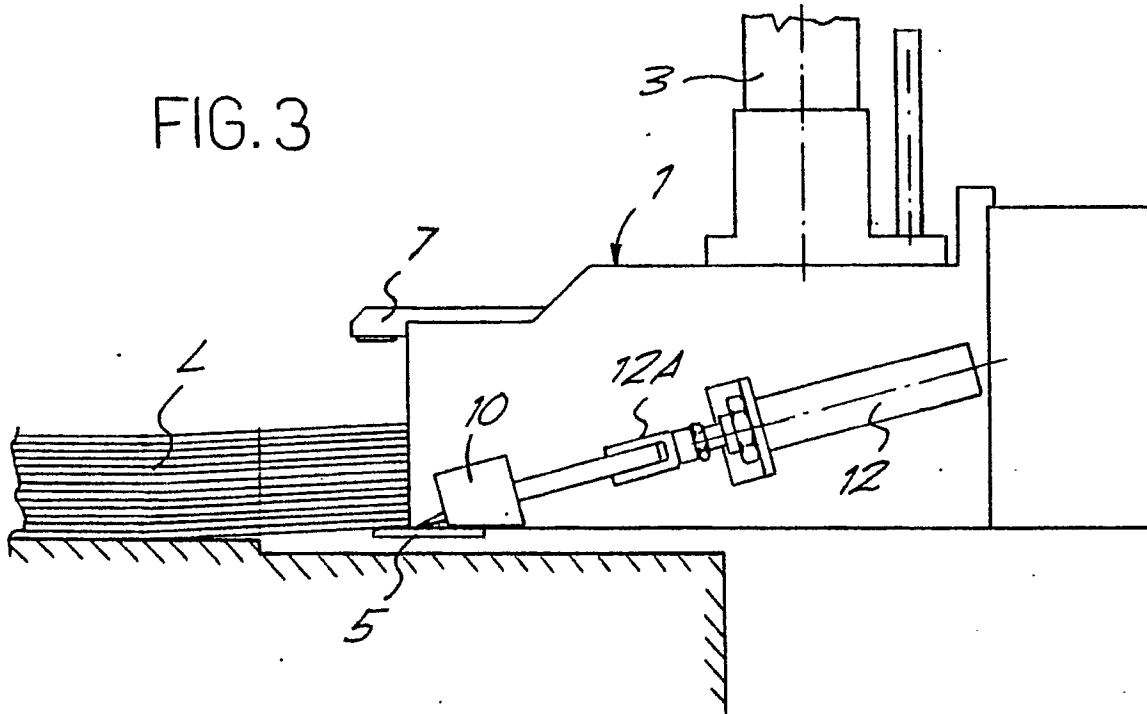


FIG. 4

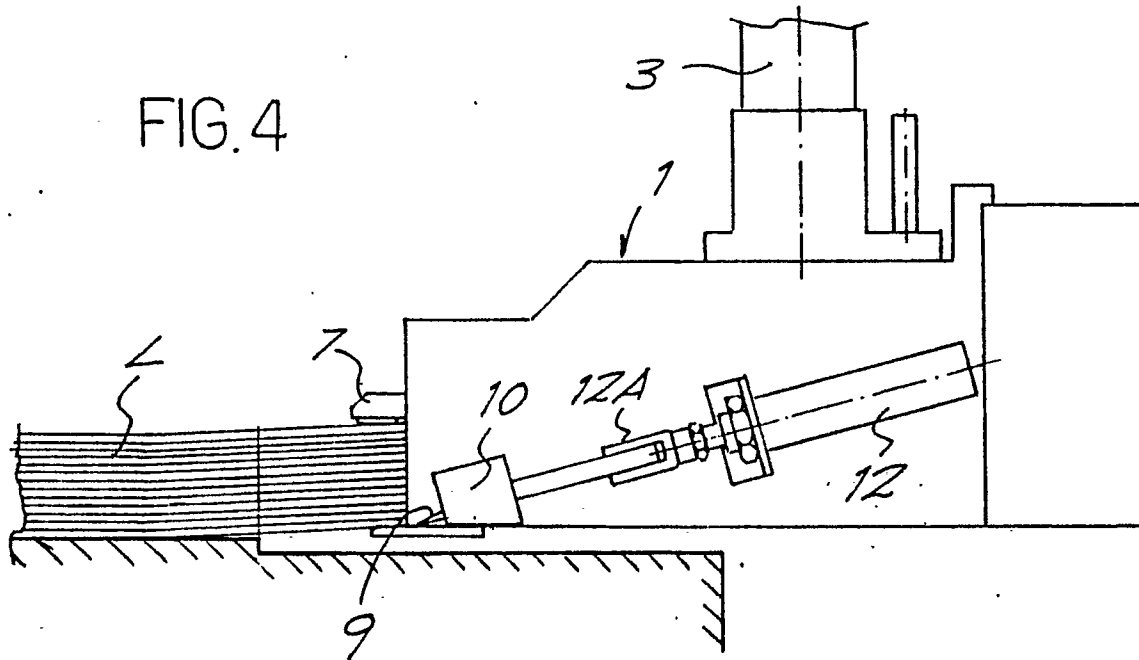


FIG.5

