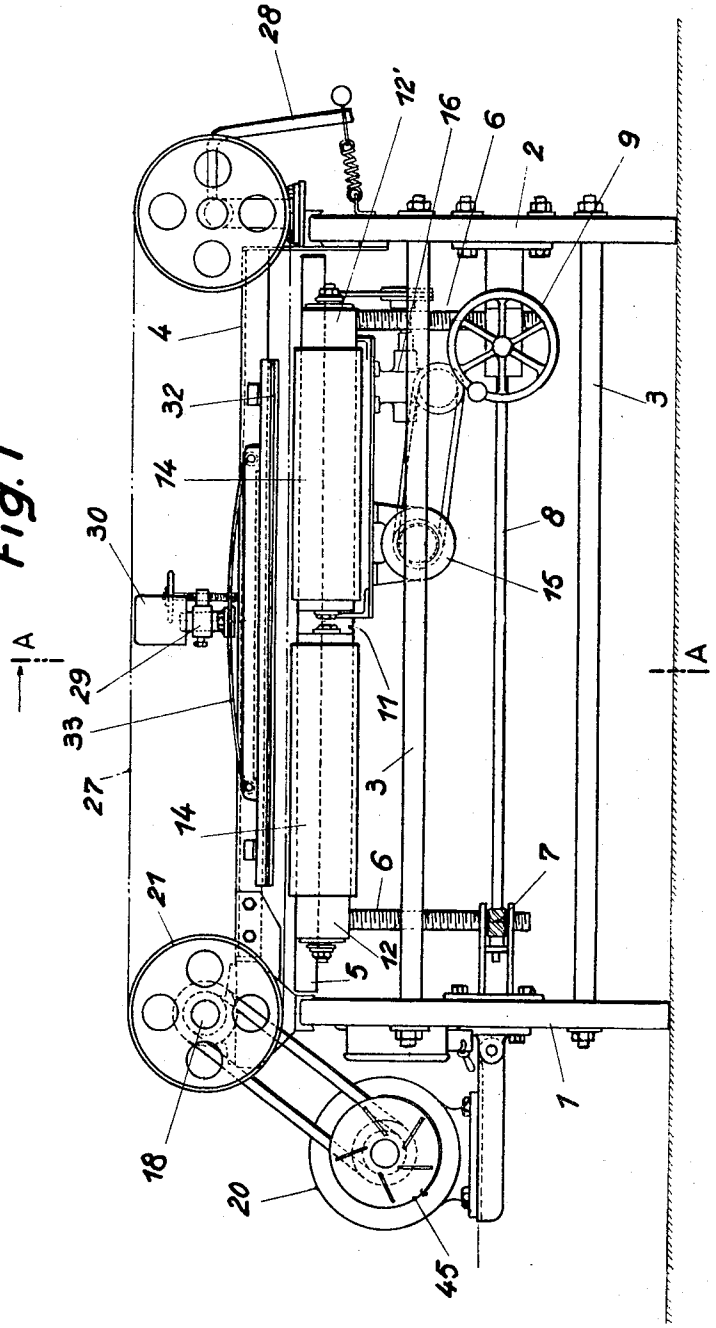
March 22, 1960 M. G. J. BERGERON 2,929,173

MACHINES FOR SMOOTHING WOOD

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Fig. 1



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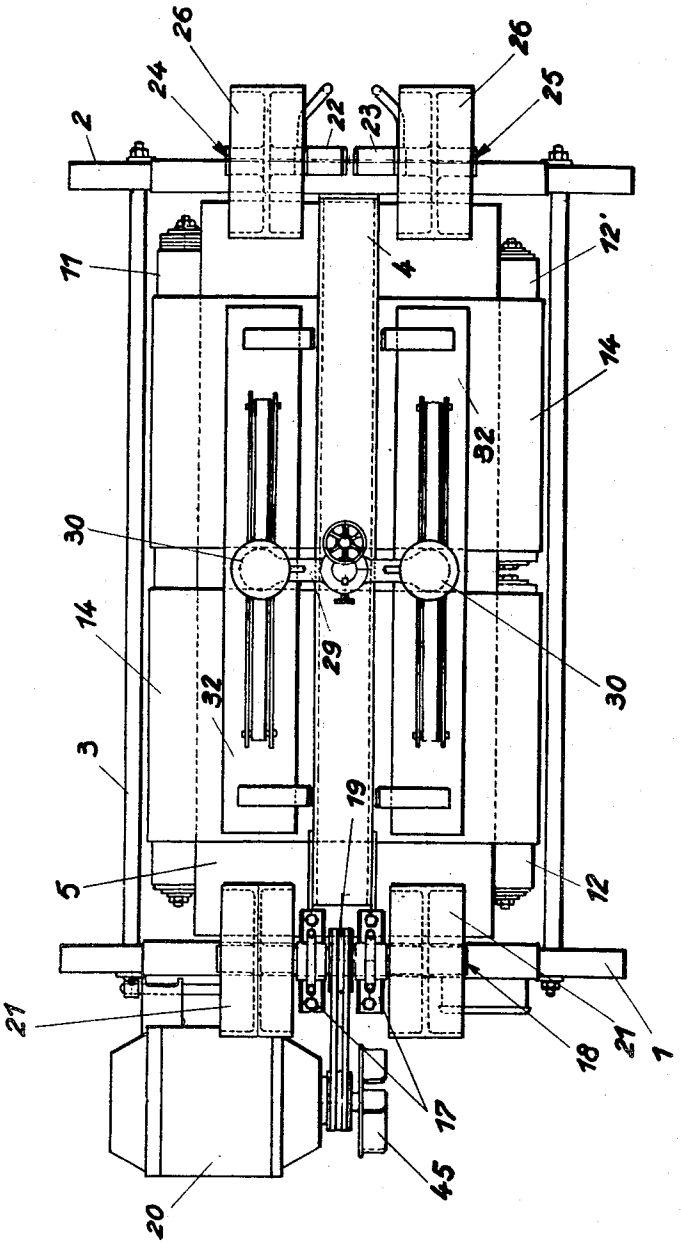
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Fig. 2



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Fig. 3

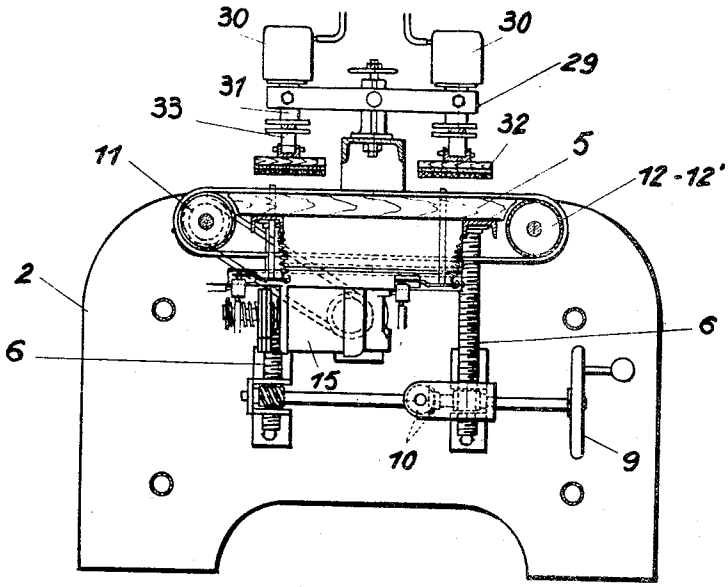
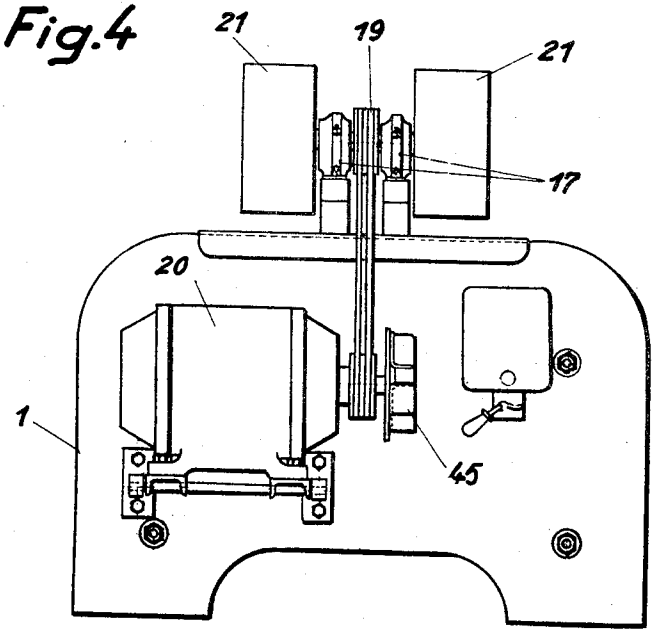


Fig. 4



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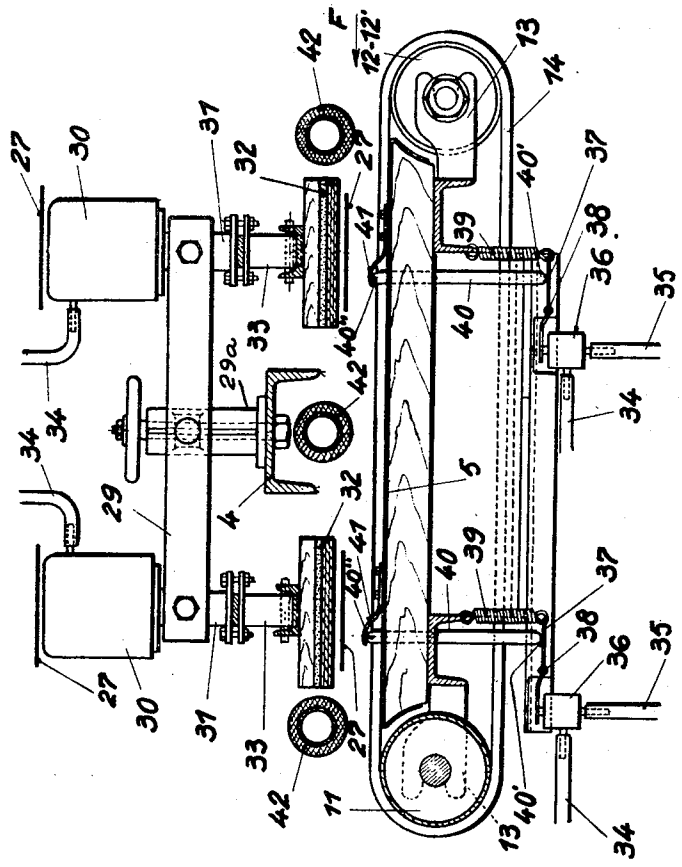


Fig. 5

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Fig.7

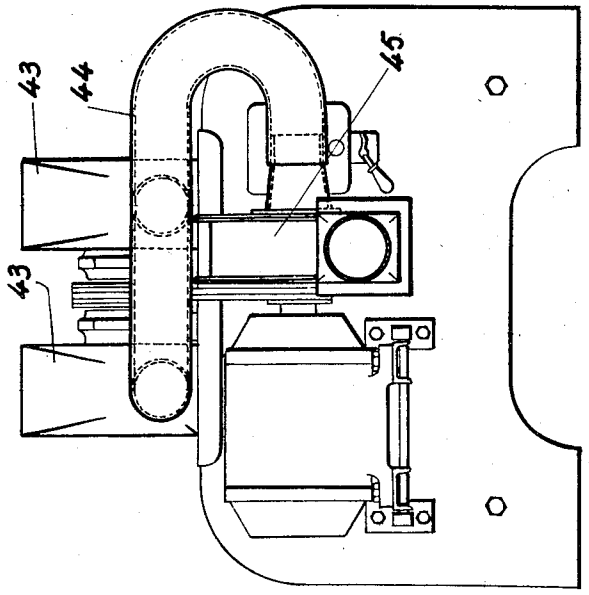
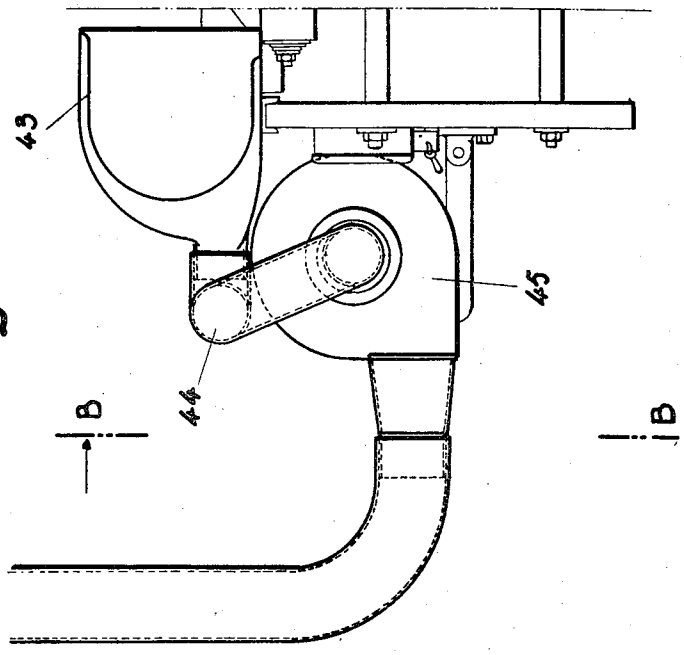


Fig.6



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MACHINES FOR SMOOTHING WOOD

Maurice Georges Joseph Bergeron, La Rochelle, France

Application November 22, 1957, Serial No. 698,140

2 Claims. (Cl. 51—138)

The present invention relates to improvements in machines for smoothing wood and especially boards with substantially parallel faces.

The principal object of the invention is to provide an improvement in a strip type board smoothing machines in which the boards are moved at right angles to the smoothing strip and which machine includes a pair of smoothing strips parallel to each other moving in the same direction while the boards progress automatically below said smoothing strips.

A further important object of the invention is to provide a board smoothing machine having smoothing strips which are pressed onto the boards being smoothed by pneumatically operated pressers which are controlled by the passage of the boards below said strips.

Another and equally important object is to provide pressers for board smoothing strips which pressers are controlled by signal lamps arranged on a cover which conceals said smoothing strips.

Further objects of the invention will be in part obvious and in part pointed out in the following detailed description of the invention.

In order that the invention may be clearly understood reference is made to the accompanying drawings which illustrate by way of example only two embodiments of the invention.

Fig. 1 is a front view of the machine with cover and suction device removed.

Fig. 2 is a top view of the device of Fig. 1.

Fig. 3 is a vertical cross section taken along line A—A of Fig. 1.

Fig. 4 is a view from the left hand side of Fig. 1.

Fig. 5 is a diagrammatical partial cross section on a larger scale of the mechanism for controlling the pressers.

Fig. 6 is a front elevation of the suction device.

Fig. 7 is a view from the left hand side taken along line B—B of Fig. 6.

Referring to the drawings, the frame of the machine comprises two lateral webs 1 and 2 connected by spacing members 3 suitably distributed and by an upper cross-piece 4 arranged in the middle longitudinal plane of the machine.

A horizontal table 5 is movable up and down between the webs 1 and 2. It is supported and adjustable by helical screws 6 and worm screws 7 rigidly secured on a shaft 8 controlled by a fly wheel 9 through bevel gears 10.

The table 5 supports on one side a roller 11 and on the other side two rollers 12 and 12'.

Said rollers 11, 12 and 12' are supported by bearings 13 integral with the table and each of them is located so as to be tangent with the upper plane of the table.

Two endless belts 14 are supported by the roller 11 and by rollers 12 and 12' respectively.

The three rollers are adjustable in their bearings in order to secure the necessary tension of belts 14.

Both rollers 12 and 12' are freely rotatable whereas roller 11 is driven by an electrical motor 15 secured under

table 5 through a speed reducer 16 and the conventional pulleys and driving belts.

Webs 1 and 2 have bearings 17 and 22 and 23 respectively mounted thereon which support the smoothing device.

On the left hand side (Fig. 1) two bearings 17 support a shaft 18 on which are fixedly secured, in the middle, a pulley 19 connected to an electrical motor 20 and at each end a pulley 21 of larger diameter (300 mm. for instance).

On the right hand side (Fig. 1) two bearings 22 and 23 respectively support shafts 24 and 25 on which are fixedly secured pulleys 26 similar to pulleys 21.

Each pair of pulleys 21 and 26 is provided with a conventional abrasive strip 27.

Each shaft 24, 25 is mounted on an eccentric driven by a lever 28 for securing the necessary tension of the strips 27.

The size of the abrasive particles of one of the strips is preferably different from that of the other so that, on smoothing, the board is firstly roughened and subsequently finished.

In the center of cross-piece 4 and integral therewith is a horizontal support 29 extending on either side for receiving at each end the pressing device of each smoothing strip.

Each end of support 29 supports in the middle plane of the smoothing strip 27, a cylinder 30 for compressed air in which slides a piston (not shown) having a piston rod 31 on the end of which is arranged a presser 32 through a leaf spring 33.

The support 29 is adjustable in height relative to the cross-piece 4 by means of a conventional screw and nut device 29*a* (Fig. 5).

Each unit, which comprises a cylinder 30, its piston, the leaf spring 33 and the presser 32, is arranged between the two edges of the abrasive strip 27. Said presser is always adjacent the lower edge of said strip for acting thereon by pressure as soon as compressed air is let into said cylinder.

Each cylinder is connected by a pipe 34 to the inlet of compressed air 35 through a valve 36 which is maintained in closed location by means of a lever 37 pivotally supported at 38 and subjected to the action of a spring 39.

The opening of each valve 36 is secured by a pushrod 40 which passes at right angles through table 5 and the lower end of which 40' rests on lever 37 whereas the upper end 40'' protrudes from said table between the two endless belts 14 and is slightly above the upper plane of said belts.

On table 5 is secured a leaf spring 41 the free end of which extends on the end 40'' of each push rod for making its operation easier on the passage of the board (arrow F, Fig. 5).

With such a device, the board resting on said belts while being driven is pressed on the latter by the conventional pressing rollers 42 and is driven under the first smoothing strip.

As soon as the leading end of the board lowers the pushing rod 40, the presser rests on said strip. It is the same for the second strip.

The pressure producing the smoothing remains as long as the board keeps the pushing rods lowered.

As soon as the trailing end of the board overruns the first strip, the corresponding presser is raised to waiting position and similarly the other presser is raised on the end of the passage of the board over the second strip.

It is well understood that the control of the valves could be obtained for instance by an electro mechanical device by means of photo-electric cells for replacing the aforesaid pushing rods.

Said smoothing strips are concealed under a cover (not shown) one of the ends of which corresponding to the electrical motor 20 is provided with the suction device.

Said device consists of two funnels 43 connected through a piping 44 to a suction device rigidly secured on the shaft of the electrical motor 20.

Finally the machine is provided with two signal lamps (not shown) on the circuit in which are inserted switches which are controlled by the up and down movements of the pressers, which allows of controlling their correct operation.

It is well understood that the present invention is not limited to the embodiment as described and shown and that the scope of the invention is not to be limited thereby but is to be determined from the appended claims.

Among others the machine may comprise four smoothing strips instead of two for increasing the performance of the machine.

Having thus described my invention what I claim is:

1. An improvement in machines of the strip type, for smoothing wood and especially boards with parallel sides, comprising a pair of lateral webs, a rigid cross-piece connecting said webs at their upper portion and in their middle plane, a horizontal table adjustable in height and arranged between said webs, a pair of rollers rotatably mounted at one side of said table and a driven roller rotatably mounted at the other side of said table, a pair of endless driving carpets mounted on said rollers, a pair of bearings mounted above each of said lateral webs, a shaft mounted through a pair of said bearings, a pair of pulleys keyed on said shaft, a driven pulley keyed on the center of said shaft, a pair of shafts each adjustably and loosely mounted in one of said bearings of the other web, a pair of pulleys each keyed on one of said pair of shafts and a pair of endless abrasive strips each respectively mounted on a pulley of said driving shaft and on a pulley of one of said pair of shafts, a horizontal support mounted on said upper cross-piece, said support being positioned at right angles to said cross-piece and extending between the two faces of said smoothing strips, a pair of pneumatic pressing devices each arranged at an end of said horizontal support, a valve interconnected in the pneumatic circuit of each presser for controlling the upward or downward motion thereof, means operable by the board being smoothed for separately and automatically operating each control valve.

2. An improvement in machines for smoothing wood, comprising a fixed frame, a table adjustably mounted on said frame, a pair of endless driving carpets operatively supported on said table, a pair of endless smoothing strips operatively supported over said table for moving at right angles relatively to said driving carpets, a pair of pneumatically controlled pressing devices each positioned between the two faces of each smoothing strip, a pair of valves each interconnected in the circuit of one of said pressers, said valves being located under the table and moveable therewith, a pair of levers each pivotally supported for operating one of said valves, a pair of recoil springs each tending to hold one of said levers in its valve closing position, a pair of pushing rods slidably extending at right angles to and through said table between said driving carpets and under each smoothing strip each for acting on one of said levers, a small extension of the upper part of each pushing rod extending above the upper plane of said driving carpets and a pair of leaf springs secured to said table and each covering one of said protruding ends of said pushing rods for lowering the one of said rods therebeneath upon the passage thereover of the board to be smoothed.

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