Feb. 23, 1937. J. GRAGG 2,071,519

POCKET ROUTING MACHINE

Filed April 23, 1935

Fig. 1

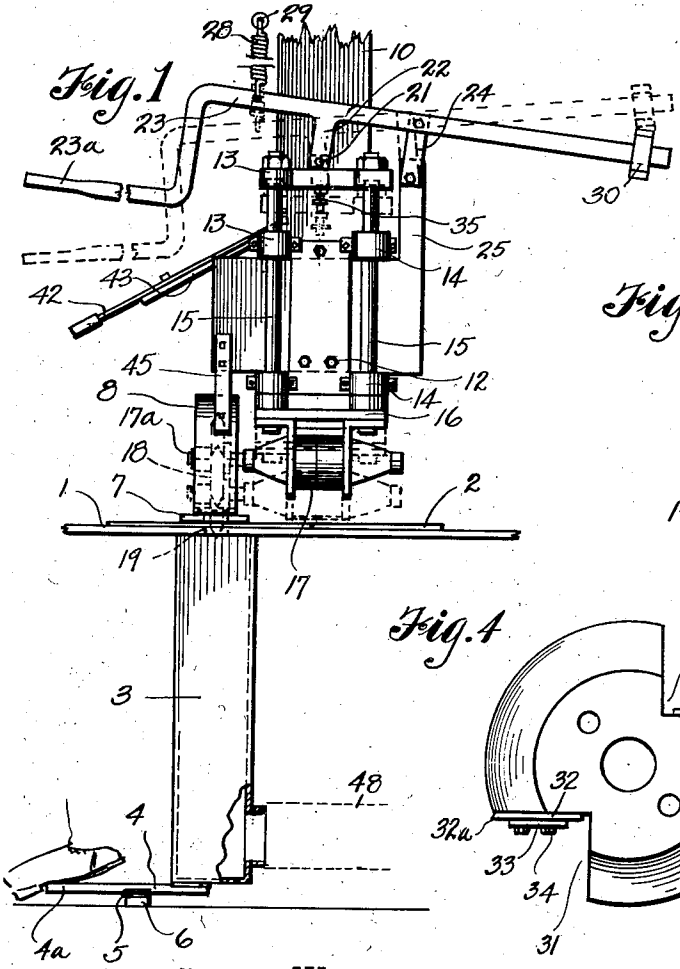


Fig. 2

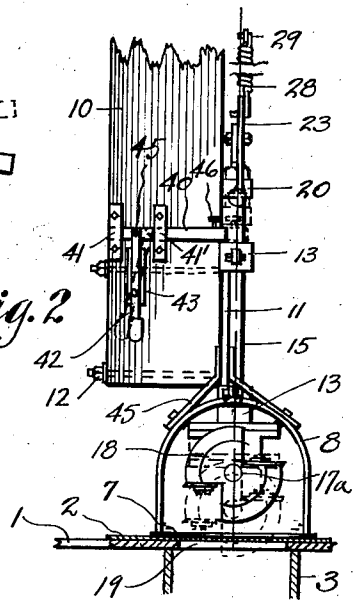


Fig. 4

Fig. 5

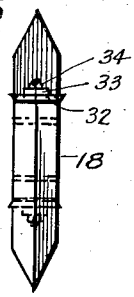


Fig. 3

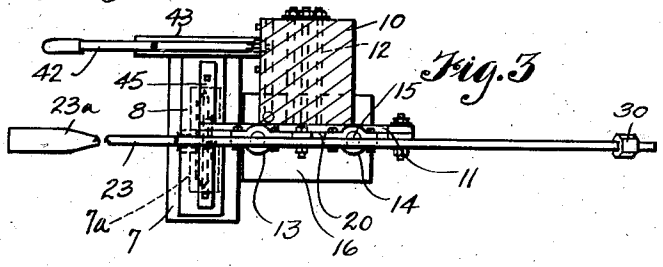


Fig. 7

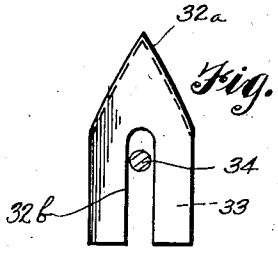
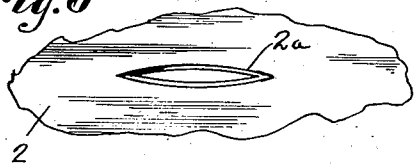


Fig. 6



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POCKET ROUTING MACHINE

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2 Claims. (Cl. 144—2)

This invention relates to improvements in routing machines and it has reference more particularly to the construction of machines especially designed for cutting out pitch pockets, stains, knots, and other flaws from wood veneer sheets in a manner to permit of an easy application of patch pieces thereto; it being the principal object of this invention to provide a machine for the above stated purpose whereby the operation of removing a flaw or defect may be easily, quickly and accurately accomplished and the manufacture of veneer greatly facilitated.

It is also an object of the invention to provide a machine having an electrically driven knife holder, or head, on a support that is manually shifted from a position raised above the veneer sheet to a lowered position thereby to cause the knives of the head to pass into the sheet for removal of the flaw and to form a pocket of predetermined dimensions for reception of a patch of an identical shape; the invention also making provision for the formation of pockets of different, definite sizes.

Another object of the invention resides in the provision of a machine including a table upon which the veneer sheet is placed for the removal of flaws and which table may be slightly elevated through the mediacy of a foot pedal mechanism toward a fixed abutment above the table, thereby to clamp the sheet thereon at a set position relative to the line of travel of the knife head, and thus insure accuracy in the formation of the pocket.

Other objects of the invention reside in the details of construction and in the combination of parts and in their mode of operation, as will hereinafter be described.

In accomplishing these objects, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawing, wherein—

Fig. 1 is an elevation of a machine embodying the present invention.

Fig. 2 is an elevation of the same as seen from the left hand side of Fig. 1.

Fig. 3 is a plan view of the machine.

Fig. 4 is a face view of the knife head.

Fig. 5 is an edge view of the same.

Fig. 6 is a view illustrating the shape of pocket routed by the knife head.

Fig. 7 is a face view of one of the knives.

Referring more in detail to the drawing—

1 designates what may be a part of a horizontal table across which the veneer sheets are passed to the machine and by which they are supported for the removal of defects or flaws therefrom; a veneer sheet being designated at 2 in Fig. 1 in position for being operated on by the knife head.

In Fig. 1 of the drawing, the table section 1 is shown as being supported by a hollow post 3 which, in turn, is supported on one end of a foot lever 4. The lever has a hinged connection at 5 with a base block 6 and this provides that downward pressure on the forwardly extended end 4a of the lever will effect a lifting movement of the post and will thereby raise the table section 1, thus to clamp the veneer sheet 2 against the horizontal base plate 7 of a frame structure 8 fixed in spaced relation to the table top and serving in the capacity of a guard for the knife head, as will presently be described. Clamping of these parts together holds the sheet 2 against movement while being operated on.

10 designates a beam, or stud, that is rigidly fixed in any suitable manner above the table; the lower end of the beam being spaced vertically from the table, as seen in Fig. 2. Fixed to the lower end portion of the beam 10 on the forward face thereof, as seen in Fig. 1, is a vertically disposed plate 11, held rigidly in place on the stud by a plurality of bolts 12. On this plate are two sets of vertically alined bearing guides 13—13 and 14—14 in which a pair of parallel shafts 15—15, respectively, are slidably mounted for vertical travel. Fixed to the lower ends of the shafts 15—15 is a plate 16 which mounts on its under side, an electric motor 17 with its shaft 17a extended horizontally and equipped at one end with a knife head 18 which is located directly above the upper end of post 3 and is adapted to operate through a slot 19 in the table top when cutting through the veneer sheet, as shown in dotted lines in Fig. 2.

Rigidly joining the shafts 15—15, across their upper ends, is a bar 20, and to this is pivotally connected, at 21, the depending arm 22 of a shift lever 23 that is pivotally supported at its rearward end, through the mediacy of a connecting link 24, from an upwardly directed leg 25 at one end of plate 11. This shift lever 23 extends forwardly to the operator's side of the machine and is there equipped with a handle portion 23a. A coiled spring 28 is attached to the forward portion of the lever and to a fixed pin 29, and this spring operates to normally hold the the lever in raised position, as seen in Fig. 1, and thereby holds the motor and knife head at a position clear of and above the veneer sheet. A counter weight 30 on the rear end of the lever 23 supplements the spring. When it is desired to lower

the motor to cause the knife head, to route out a pocket, as at 2a in Fig. 6, through the veneer sheet, the operator pulls the handle of lever 23 down to the dotted line position of Fig. 1. On release of the lever, the spring 28 and counter weight 30 cause the motor to be moved back to raised position.

The cutter head 18 consists of a circular disk with its edge beveled in V-shape, and having two diametrically opposite pockets 31 cut therein forming flat base surfaces on which blades 32 are flatly disposed and fixed by overlying plates 33 held by bolts 34; the bolts being extended through longitudinal slots 32b in the blades and threaded into the head. The ends of the blades are V-shaped and have beveled sharpened edges 32a extended slightly beyond the periphery of the head, as seen in Fig. 4.

In order that the size of the pocket that is cut in the sheet may be definitely limited in size, a stop member is mounted in the cross bar 20 in position to engage with the upper edge of the plate 11. This stop member comprises a bolt 35 and it is adjustably threaded into the bar 20. By threading it farther into or from the bar, the extent of downward travel of the knife head is limited accordingly and thus the size of the pocket formed thereby is definitely determined by limiting the extent to which the knife enters the veneer sheet.

Assuming that the stop bolt 35 is set to provide a pocket of a definite size, and that it should be desired occasionally to cut a pocket of a definite, smaller size, this may be accomplished by the following means: Slidably mounted on one side of the beam, as seen in Fig. 2, is a horizontal bar 40 movable beneath guides 41 and 41'. A hand lever 42 is pivotally supported from a bracket 43 fixed to the beam 10, and the lever, at its inner end has a pin and slot connection at 45 with the bar 40. On the end of the bar 40 is an adjustably mounted stud 46. By a lateral shifting of the handle of lever 42, the bar 40 will be shifted to a position as indicated in dotted lines in Fig. 2, at which the stud 46 will be disposed in position to limit the downward travel of the cross bar 20 and thereby limit the extent of lowering of the knife head to a lesser extent than is provided by stop bolt 35 and will cause formation of the smaller size pocket.

The frame 8, previously mentioned which encases the knife head, is suspended rigidly from the plate 11 by stops 45. The base plate 7 has an opening 7a for reception of the knife head and this aids in locating the flaw of the sheet in proper location to receive the knives.

This machine enables an operator to hold a veneer sheet securely in position after a flaw has been located beneath the plate 7 and makes possible an easy, quick and satisfactory cutting of the pocket to a definite size.

Dust and chips from the routing operations drop through the opening 19 and are carried away by suction through a suction tube 48 connected with the lower end of the hollow post 3.

Having thus described my invention, what I claim as new therein and desire to secure by Letters Patent is—

1. A machine for removing defects from veneer sheets comprising a horizontal table across which the veneer sheets may be passed, an abutment plate fixed above the table slightly spaced therefrom; said plate having an opening for registration therein of a defect in the veneer sheet, a support for the table, means for actuating the support upwardly thereby to clamp the sheet against movement between the table and abutment plate, a cutter mechanism located above the table and comprising a cutter head revolubly driven on a horizontal axis, a vertically guided support for said mechanism, a pivotally mounted lever operatively connected with said support, yieldable means for normally sustaining said support in a raised position at which the cutter head is held clear of the veneer sheet, a handle portion for said lever whereby it may be actuated to move the cutter mechanism downwardly thereby to cause the cutter head to pass through the opening of the abutment plate and to rout out a pocket in the veneer sheet, and a stop bar movable into and from the path of travel of the vertically guided support to limit its travel downwardly, thereby to definitely limit the extent of travel of the cutter head into the veneer sheet.

2. A machine for removing defects from veneer sheets comprising a table across which the veneer sheets may be passed, an abutment plate fixed above the table, means for actuating the table upwardly thereby to clamp the sheet against movement between the table and abutment plate, a cutter mechanism located above the table and comprising a cutter head revolubly driven on a horizontal axis, a vertically guided support for said mechanism, means for actuating the said support downwardly to cause the cutter mechanism to engage with the veneer sheet, a fixed abutment member, and an adjustable stop on the vertically guided support adapted to contact said fixed abutment to limit the travel of the cutter head into the veneer sheet for making one size of pocket, and a normally inactive slide movable into position to stop the downward travel of the vertically guided support to provide for making a pocket of a smaller, definite size.

JOHN GRAGG.