Dec. 13, 1932. L. F. KOSS, JR 1,890,582

VENEER MACHINE KNIFE CLAMP

Filed March 28, 1932

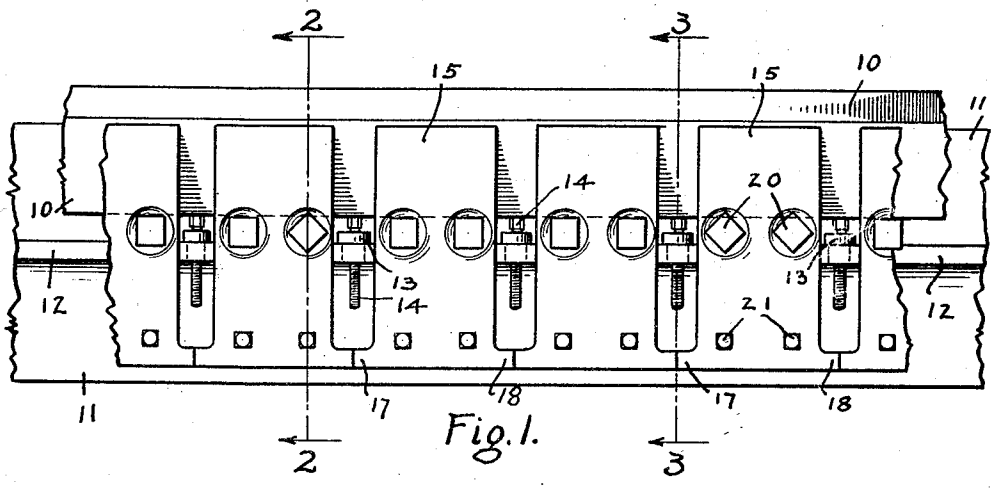


Fig. 1.

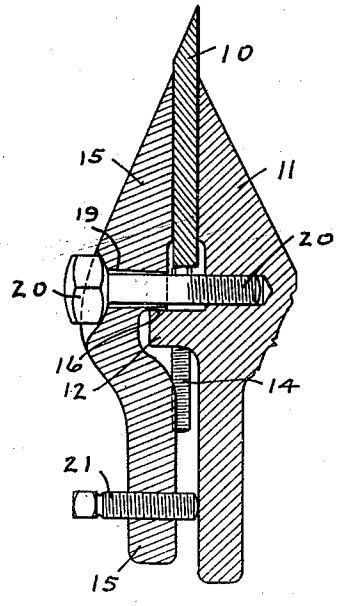


Fig. 2.

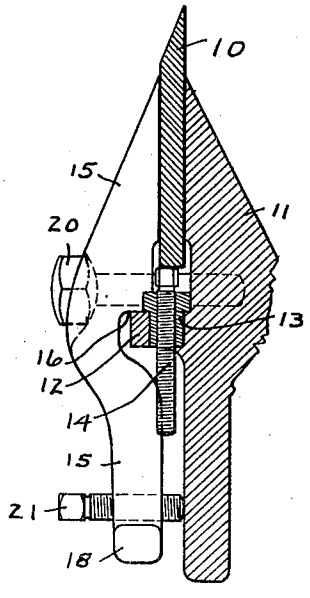


Fig. 3.

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Patented Dec. 13, 1932 1,890,582

UNITED STATES PATENT OFFICE

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VENEER MACHINE KNIFE CLAMP

Application filed March 28, 1932. Serial No. 601,473.

This invention relates to the art of veneer cutting machine knives and particularly to means for attaching and supporting the knife. The cutting knife on a veneer machine assumes considerable length and unless it is rigidly supported throughout its entire length and width there is an inclination for it to chatter and thus give a poor quality of veneer. Also the knife being of considerable size represents a large initial investment in cost and it is therefore desirable to use the knife until its width is practically ground away under repeated sharpening of the cutting edge. Where the knife itself has been slotted below the cutting edge to receive retaining bolts therethrough, the usefulness of the knife is at an end by the time the cutting edge has been ground back to these slots, and it is one object of my invention to provide clamping means for retaining the knife whereby a solid knife without slots may be employed thus rendering much more of the knife blade available for use.

Another important object of my invention is to provide a combination of lateral clamping and vertical adjustment and support of the knife whereby engaging clamps may be loosely brought up initially against the knife to support it laterally and the knife raised or lowered as may be required to properly locate the line of the cutting edge and finally to have the clamps tightened snugly against the knife to force the knife rigidly against the knife holding bar in such a manner that feeler gages may be employed to detect clearances if any exist between the upper and lower parts of the clamps and the knife to the end that the clamp showing a clearance may be quickly detected and further adjusted to eliminate such clearance and be brought against the knife with a uniform pressure from top to bottom of its knife engaging face.

A further important object of my invention is to provide knife retaining clamps of such character that upon removing or replacing a knife, the clamps do not have to be removed but merely loosened, and that access may be had to the knife so that it may readily be grasped from under its lower edge to be lifted from between the clamps and knife bar or let down therebetween.

These and other objects and advantages such as the particular method of retaining the knife clamps in the loosened position will become apparent in the following description of the invention, in which

Fig. 1 is a front elevation of a fragmentary length of a knife assembly embodying my invention;

Fig. 2, a vertical transverse section on the line 2—2 in Fig. 1; and

Fig. 3, a vertical transverse section on the line 3—3 in Fig. 1.

Like characters of reference indicate like parts throughout the several views in the drawing.

I employ a cutting knife 10 having a substantial vertical width and provide a mounting bar 11 with a vertical surface against which the back face of the knife may be placed. Below this surface, I provide a forwardly extending ledge 12 along which, in uniform spaced relation, are a number of sleeves 13 vertically positioned within the ledge and each screw-threadedly carrying a vertically disposed set screw 14, on which the bottom edge of the knife 10 may rest.

I form a plurality of knife clamps 15 each to have a rear face of considerable area adapted to bear against the front side of the knife 10 and to have a horizontal shoulder 16 below that face to rest on the ledge 12 in front of the sleeves 13. The inner side of each clamp is recessed below the shoulder 16 to give substantial clearance therebelow about the ledge 12, and the clamp is carried on down below the ledge a substantial distance. At the lower end of each clamp 15, a foot 17 extends laterally from one side and a foot 18 from the other side so that as the clamps are placed along the ledge 12 and brought laterally toward each other, an extending foot from the lower end of one clamp contacts with the corresponding foot of the adjacent clamp and thus spaces the clamps apart one from another a distance equal to the length of two feet.

Each clamp 15 is provided with two horizontally spaced apart, horizontally disposed

holes 19 just above the shoulder 16 and bolts 20 are loosely passed through these holes, under the knife 10 and screw-threadedly entered into the bar 11 therebehind. The outer ends of the holes 19 are spherically enlarged and the under sides of the heads of the bolts 20 are spherically formed to seat in the sockets thus formed in the outer ends of the holes. Toward the lower ends of the clamps 15, two spaced apart set screws 21 are screw-threadedly passed through the clamp to have their inner ends abut the bar 11 which extends downwardly below the ledge 12.

In operating my invention, the bolts 20 and set screws 21 are loosened to allow the upper portions of the clamps 15 to swing outwardly away from the knife holding bar 11. The knife 10 is let down between the clamps 15 and the bar 11 to have its lower edge rest across the heads of the set screws 14. These screws 14 are adjusted to bring the top cutting edge of the knife to the desired elevation. By reason of the clamps 15 being spaced apart by the feet 17 and 18, sufficient clearance between the clamps is maintained to give access to the set screws 14, the spacing of these screws along the ledge 12 being determined by the location of the spaces between clamps. Thus without having to remove the clamps 15, the vertical elevation of the knife 10 may be adjustably maintained, and furthermore, access to the lower edge of the knife 10 is permitted whereby the knife may be engaged in lifting it out from and in returning it to between the clamps 15 and the bar 11. The clamps 15 rest on the top side of the ledge 12 and their upper knife contacting surfaces are brought around against the knife by turning the screws 20 to travel through the lower ends of the clamps to bear compressively against the bar 11 thus rocking the upper ends of the clamps backwardly with the undersides of the heads of the bolts 20 serving as fulcrums.

Now by a suitable combination of adjusting the bolts 20 and the screws 21, the clamps may be brought against the knife 10 into a uniform contact therewith throughout the entire area from top to bottom of the faces of the clamps. The uniformity of this contact is readily determined by employing feeler gages within the spaces between clamps and attempting to slip the gages between the knife and each clamp. If a clamp engages the knife along its top edge only, the knife is thus not pressed by its lower edge against the bar 11 and the knife may tend to rock over the top edge of the bar 11 since the lower edge of the knife may spring toward the clamp, and likewise; if the clamp presses against the lower part only of the knife then the top part of the knife may spring toward the clamp. Either of these conditions is positively detected by a feeler-gage, and the bolts 20 and screws 21 may accordingly be adjusted.

Thus by, in effect, slotting the knife clamps and employing a solid knife without slots, I am able to determine and correct any inaccuracy of adjustment of individual clamps; to make vertical adjustments of the knife and to grasp the knife between clamps upon removing and replacing it; and to use a knife until ground away beyond a supportable width, all without having to remove the clamps from the knife bar. While I have here shown and described my invention in its preferred form, it is obvious that structural changes may be made therefrom without departing from the spirit of the invention, and I, therefore, do not desire to be limited to that precise form beyond the limitations as may be imposed by the following claims.

I claim:

1. In a veneer cutting machine knife holding device, a knife and means for holding the knife in a vertical operating position comprising a knife bar, a ledge extending from the bar, a plurality of knife contacting clamps, shoulders on the clamps adapted to rest on said ledge, bolts slidably passed through the clamps and screw-threadedly engaged in said bar below the under edge of said knife, said clamps extending to below said ledge forwardly of said bar, means for making the clamps rockable on the bolts and set screws screw-threadedly passing through the clamps below said ledge and abutting said bar, said knife being carried between said bar and said clamps above said ledge, and said clamps being spaced along said ledge to have a space between adjacent clamps whereby access may be had between adjacent clamps to the face and lower edge of said knife.

2. In a veneer cutting machine knife holding device, a knife and means for holding the knife in a vertical operating position comprising a knife bar, a ledge extending from the bar, a plurality of knife contacting clamps, shoulders on the clamps adapted to rest on said ledge, bolts slidaby passed through the clamps and screw-threadedly engaged in said bar below the under edge of said knife, said clamps extending to below said ledge forwardly of said bar, means for making the clamps rockable on the bolts, and set screws screw-threadedly passing through the clamps below said ledge and abutting said bar, said knife being carried between said bar and said clamps above said ledge, and said clamps being spaced along said ledge to have a space between adjacent clamps whereby access may be had between adjacent clamps to the face and lower edge of said knife, each of said clamps having a foot extending laterally from one edge to space that clamp from the next adjacent clamp.

3. In a veneer cutting machine knife hold-

ing device, a knife and means for holding the knife in a vertical operating position comprising a knife bar, a ledge extending from the bar, a plurality of knife contacting clamps, shoulders on the clamps adapted to rest on said ledge, bolts slidaby passed through the clamps and screw-threadedly engaged in said bar below the under edge of said knife, said clamps extending to below said ledge forwardly of said bar, means for making the clamps rockable on the bolts and set screws screw-threadedly passing through the clamps below said ledge and abutting said bar, said knife being carried between said bar and said clamps above said ledge, set screws through the ledge against the lower edge of the knife to adjust the knife and said clamps being spaced along said ledge to have a space between adjacent clamps whereby access may be had between adjacent clamps to the last named set screws and to the face and lower edge of said knife, and a plurality of set screws carried by said ledge vertically disposed in line with the under edge of said knife, each of said last screws being located opposite a space between adjacent clamps whereby the screws may be raised or lowered to adjust said knife without having to remove said clamps.

4. In a veneer cutting machine knife holding device, a knife, a knife bar, a ledge extending from the bar, a plurality of knife contacting clamps, shoulders on the clamps adapted to rest on said ledge, bolts slidably passed through the clamps and screw-threadedly engaged in said bar below the under edge of said knife, said clamps extending to below said ledge forwardly of said bar, and set screws screw-threadedly passing through the clamps below said ledge and abutting said bar, said knife being carried vertically between said bar and said clamps above said ledge, set screws through the ledge against the lower edge of the knife to adjust the knife and said clamps being spaced along said ledge to have a space between adjacent clamps whereby access may be had between adjacent clamps to the last named set screws and to the face and lower edge of said knife, said clamps being recessed about the forward and under sides of said ledge to give clearance thereabout, and said bolts having heads engaging the clamps with substantially spherical surfaces.

In testimony whereof I affix my signature.

LOUIS F. KOSS, JR.