Sept. 24, 1946. W. J. MILLER 2,408,330

RESILIENT HOLD-DOWN DEVICE

Filed Sept. 30, 1944

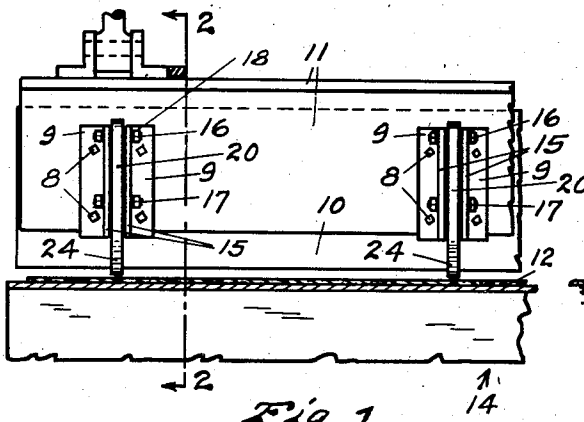

Fig. 1

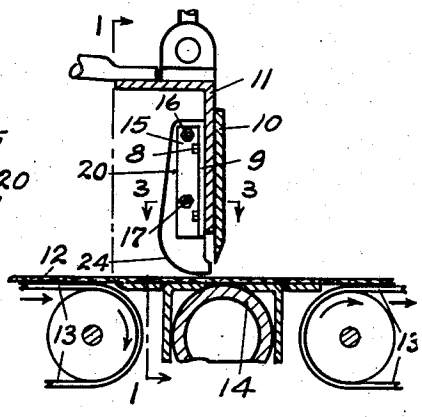

Fig. 2

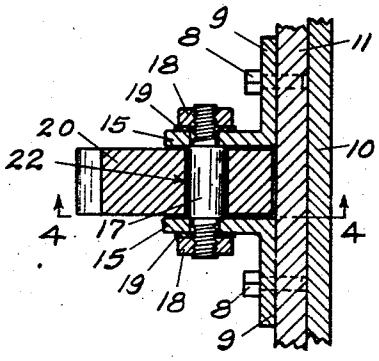

Fig. 3

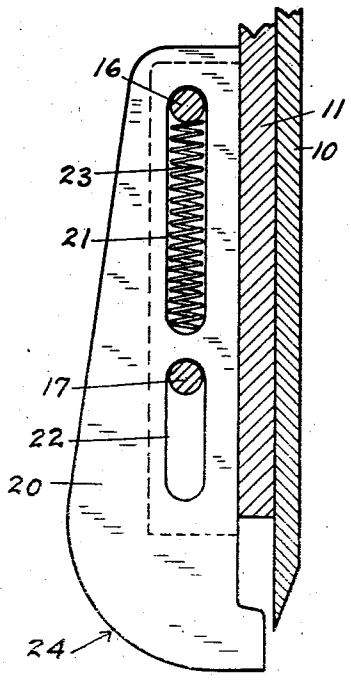

Fig. 4

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RESILIENT HOLD-DOWN DEVICE

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2 Claims. (Cl. 164—51)

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This invention relates to a resilient hold down device for use in connection with the reciprocating knife of a veneer clipper.

This invention is particularly well adapted for use in connection with the knife of a veneer clipper of the type disclosed in my prior patent No. 2,394,324, issued Feb. 5, 1946, and in which a reciprocating knife cuts a sheet of moving veneer that is traveling between the knife and a die member. In veneer clippers of this type the sheet of veneer is moving when the knife strikes it but will be stopped momentarily by the knife and the advancing end of the veneer that has been severed by the knife is liable to be pressed against the knife and to be lifted by the knife as the knife is retracted. This would result in the veneer piling up against the knife, in which instance the machine would have to be stopped and the piled up veneer cleaned out with a resulting loss of both time and material.

It is an object of this invention to provide an efficient hold down device that is carried by the veneer clipper knife and moves with the knife and that has a resiliently supported veneer engaging member which will engage with the veneer that is passing under the knife and will hold down the advancing forward edge of the clipped veneer and prevent this advancing edge from catching on the knife and being lifted by the knife as the knife is retracted after clipping the veneer.

Another object is to provide a veneer hold down device for use on a veneer knife, said hold down device being light in weight so that it will not add needlessly to the weight of the knife and thus objectionably increase the inertia of these moving parts and said hold down device being simple in construction and efficient in operation.

Another object of the invention is to provide a veneer hold down device of this nature that is adapted to be carried by the clipper knife and that has a veneer engaging shoe or member of strong light-weight material, such as fiber, which has a low coefficient of friction.

Other objects of the invention will be apparent from the following description taken in connection with the accompanying drawing.

In the drawing

Fig. 1 is a fragmentary view, partly in section and partly in elevation, taken substantially on broken line 1—1 of Fig. 2, showing a veneer clipper knife in operative relation to a die member and showing a plurality of these hold down devices installed on the veneer clipper knife.

Fig. 2 is a view partly in cross section and partly in elevation taken substantially on broken line 2—2 of Fig. 1.

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Fig. 3 is a cross section on a larger scale than Fig. 2 taken substantially on broken line 3—3 of Fig. 2.

Fig. 4 is a view partly in cross section and partly in elevation taken substantially on broken line 4—4 of Fig. 3.

Like reference numerals designate like parts throughout the several views:

In the drawing 10 designates a veneer clipper knife secured to and carried by a knife carrying member 11 and reciprocably movable to clip veneer 12 that is fed by continuously moving veneer feeding means 13 over a die member 14 with which the knife 10 cooperates to clip the veneer.

In clipper means of this type there is a tendency for the advancing end portion of the veneer which has just been severed to cling to the knife as the knife is retracted and to pile up against the knife. To prevent this piling up of the veneer against the knife hold down units are secured at frequent intervals to the knife carrying member 11.

Each hold down unit includes two frame members, preferably angle bars, having base flanges 9 and having parallel spaced apart flanges 15. Cross bolts 16 and 17 extend through the flanges 15 and cooperate in supporting these flanges in parallel spaced apart relation.

The cross bolts 16 and 17 are threaded at both ends for the reception of nuts 18 and also have lock washers 19 thereon. The medial portions of the cross bolts 16 and 17 are larger than the threaded end portions thereof to cooperate in holding the flanges 15 in spaced apart relation.

A veneer engaging member 20 is movably disposed between the parallel flange members 15. The bolts 16 and 17 pass through longitudinal slots 21 and 22 in this veneer hold down member 20. At least one of these slots, such as slot 21, is long enough to provide operating clearance for a compression spring 23 and still allow ample movement of the hold down member 20. One end of spring 23 reacts against the bolt 16 and the other end thereof reacts against the end wall of slot 21.

The member 20 has a curved bottom edge portion 24 that is adapted to engage with the veneer 12 which is passing between the knife 10 and the die member 14.

The veneer hold down units are secured to the knife carrying member 11 and are positioned at the side from which the veneer approaches the knife 10. Cap screws 8 may be inserted through

base flanges 9 to secure these units to the member 11. When the veneer hold down units are thus installed the curved edge portions 24 of the members 20 will extend below the cutting edge of the knife 10 and be in close proximity to the veneer 12 but preferably just clear of such veneer 12 when the knife 10 is fully retracted. As the knife 10 is moved toward the die member 14 on the cutting stroke these curved edges 24 engage with the veneer and press it against the die member 14 before the knife severs such veneer and said curved edges 24 will maintain their downward pressure on the advancing end portion of the veneer while the knife 10 is being retracted and until after said knife is clear of the advancing edge of the veneer and the bolts 16 and 17 engage the upper ends of the slots 21 and 22 and neutralize the pressure of the spring 23.

This prevents the front edge portion of the advancing veneer from piling up against the knife 10, thus obviating jamming of the veneer in the veneer clipper and the stoppage of possibly an entire line of machines.

The hold down member 20 has enough clearance so that it moves freely between the flanges 15 within the limits of its movement. The slots 21 and 22 limit the movement of this member in both directions. The spring 23 is strong enough to hold down the advancing edge portion of the veneer without producing undesirable friction between the curved edge 24 and the veneer or undesirable resistance to the cutting stroke of the knife. The tip of the curved edge portion 24 is positioned close to the knife and always holds the advancing edge of the veneer 12 free from the withdrawing knife.

The member 20 is made of light weight wear resistant material which preferably has a low coefficient of friction as there is some sliding movement of the veneer under this member 20. One fibrous material that has been found suitable to make this member 20 out of is known on the market as "Micarta." Other materials are known to be satisfactory.

The veneer knife is movable at relaitvely high speed and its direction of movement must be reversed at each stroke. For this reason it is desirable not to add any more weight than is necessary to the knife. These hold down units are of relatively light weight, do not needlessly increase the weight of the reciprocating knife assembly and operate efficiently to prevent piling up of the veneer.

The foregoing description and accompanying drawing clearly disclose a preferred embodiment of this invention but it will be understood that changes in this hold down device may be made within the scope and spirit of the following claims.

I claim:

1. A resilient veneer hold down unit for attachment to a high speed reciprocable veneer clipping knife, comprising frame means adapted to be carried by the knife; a veneer hold down member of relatively light weight fibrous material movably supported by said frame means and having a curved veneer engaging portion extending beyond an end portion of said frame means and normally extending beyond the cutting edge of the knife; and resilient means yieldingly urging said veneer hold down member into veneer engaging position.

2. A resilent veneer hold down unit for attachment to a reciprocable veneer clipping knife comprising two spaced apart frame plates adapted to be carried by the knife; a hold down member movably disposed between said plates, said hold down member having longitudinal slots and having a rounded end portion extending beyond said frame plates adapted to engage veneer that is to be clipped by the knife; transverse bolts passing through said plates and through the slots in said hold down member; and helical spring means disposed in one of said slots engaging one of said transverse bolts and one end of one of said slots and yieldingly urging said veneer engaging member into veneer engaging position.

WILLIAM J. MILLER.