Oct. 7, 1952 J. G. BAILEY 2,612,916

SPLITTING MACHINE FOR MAKING SHAKES

Filed Jan. 17, 1951

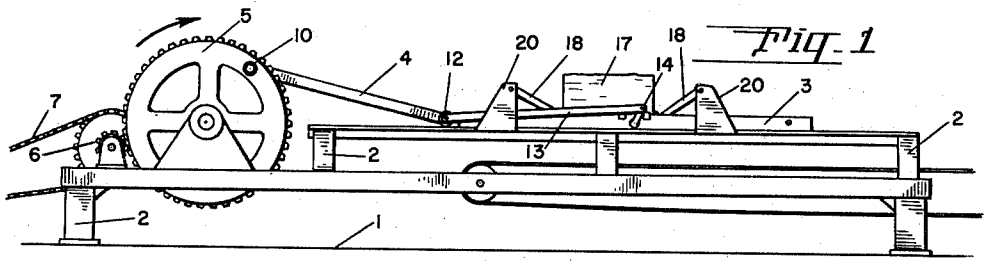


Fig. 1

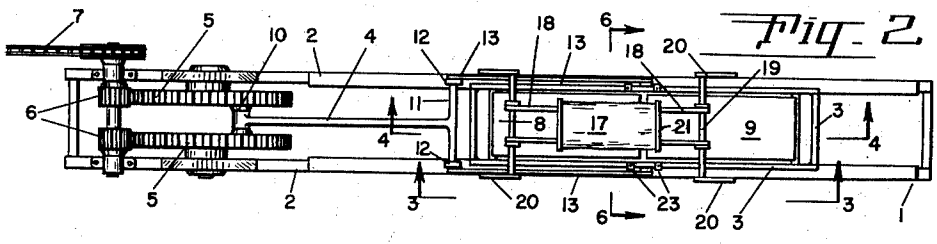


Fig. 2

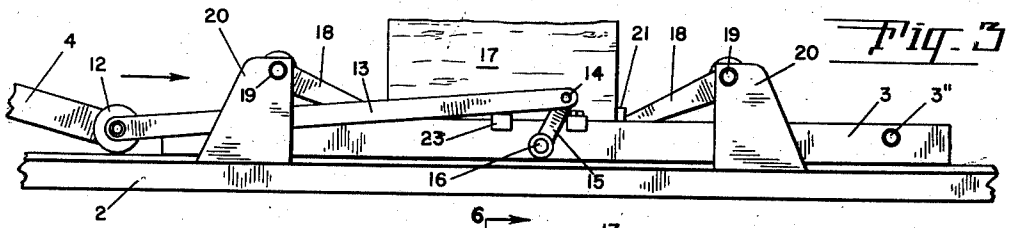


Fig. 3

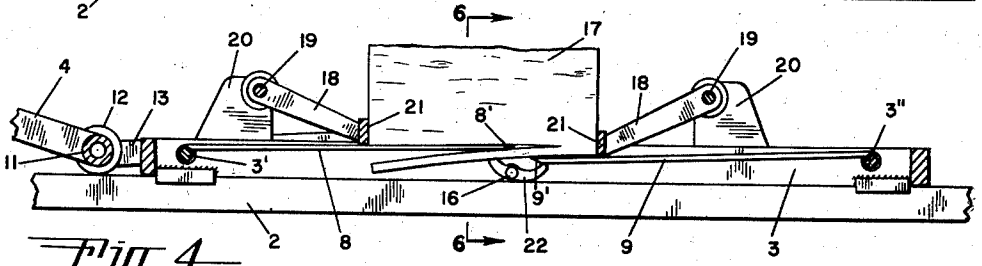


Fig. 4

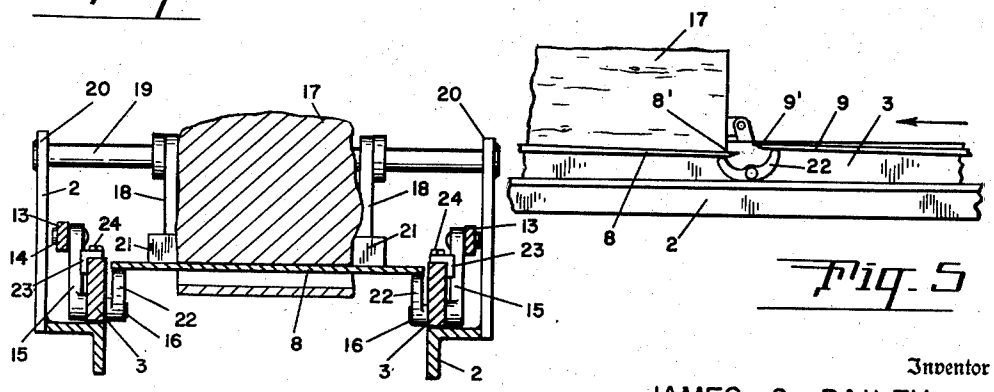


Fig. 5

Fig. 6

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Patented Oct. 7, 1952

2,612,916

UNITED STATES PATENT OFFICE

2,612,916

SPLITTING MACHINE FOR MAKING SHAKES

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Application January 17, 1951, Serial No. 206,435

6 Claims. (Cl. 144—194)

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This invention relates to a splitting machine for making shakes.

The cedar shake is a popular outside finish for beach cottages, cabins and the like, but as ordinarily made, by hand with a frow, it is too expensive and the frow cannot make shakes that are thicker at the butt end than at the tip, which is very desirable but ordinarily impossible.

Since the tapered thickness is desired and the grain of the blockwood is largely determinant of the splitting line, a successful machine must alternately split shakes by starting the split at opposite ends of a block. The provision of a machine to successfully and uniformly do this is a principal object of the invention.

It has been found that to successfully achieve the necessary uniform splitting, the block must be held rigidly against endwise motion, and a carriage, within which splitter knives are movably mounted with respect to their splitting edges so that each splitting edge will be held in unvarying splitting position while it is removing a shake from the underside of the block, and when that particular shake is split clean, the knife will drop with the block, raising the opposed knife into block engaging position against the opposite end of the block. Then the opposed splitter knife, raised to proper position by dropping the first knife, will start splitting a succeeding shake, as only that way, as I believe and as the machine has proved, can shakes having a taper be split without fighting the tendency of the grain of the wood all of the time. To accomplish these ends is the overall problem that my invention has successfully solved. The taper is largely achieved by putting a chisel edge on the splitting knife with the bevel on the under side and keeping the edge reasonably keen, to lead into the wood, and in other part by adjusting the limit stops.

A drawing accompanies and forms a part of this disclosure, in which,

Fig. 1 is a side elevation of the general organization;

Fig. 2 is a plan view of the structure shown in Fig. 1;

Fig. 3 is an enlarged sectional view taken from the region 3—3, Fig. 2;

Fig. 4 is a section taken on the plane 4—4, Fig. 3, enlarged to the scale of Fig. 5;

Fig. 5 is an enlarged side view illustrating the position of a splitter knife after the crank-pin passes over dead center on the outer stroke, to shift position of the splitter knives; and

Fig. 6 is a section of Fig. 4, taken on the plane 6—6 of Fig. 4 with the base omitted.

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Explaining the drawings in greater detail, numeral 1 represents a base member which will usually be mounted on a truck or trailer vehicle; 2 points out a relatively fixed frame that incorporates a carriage guide, within which is reciprocably mounted the splitter knife operating carriage 3, which is reciprocated by the connecting rod 4, which is in turn operated by the gear 5, pinion 6 and drive belt 7, which latter will be connected to a suitable motor of requisite horsepower. The drive is shown schematically, not necessarily being as shown.

Made rigid with the frame 2, which is made rigid with the base 1, are two upstanding supports 20 on each side of the machine, four in all, to which are pivotally attached the arms 18, by pivot pins 19 and each pair of arms includes an integral shoe 21 to bear against the block 17, as shown. It will be noted that the arms 18 are so pitched that they resist upward thrust against the block 17, while normally resting on top of the carriage 3 which reciprocates beneath the block 17.

I will now describe the splitter knives 8 and 9, which are mounted in opposite ends of the carriage by cross-rods 3' and 3''.

The knives 8 and 9 must be shifted by power by a lost motion device that operates upon reversal of the stroke of the connecting rod 4 at each end of its stroke, by reason of its driving connection, the crankpin 10.

The connecting rod 4 is joined to a heavy cross-shaft 11, equipped with wheels 12, which are preferably ball bearing, outside of which are carriage connecting rods 13, pivoted by pivots 14, to the rocker arms 15, mounted on the rock shafts 16, on the inside ends of which are made rigid the crescent shaped knife shifters 22, of which there are two that operate the knives 8 and 9.

As each splitting stroke is completed and the crankpin 10 reverses the stroke, there is a slight pause that is implicit in all crankpin driven apparatus. It will be observed that the sole driving connection between the connecting rod 4, here regarded as the source of reciprocating power for the carriage 3, and the carriage, is connecting rods 13 pivoted to the rocker arms 15 upon contact thereby with the limit stops 23, which are shown to be and necessarily are adjustable as by capscrews 24 or other suitable means.

The mode of operation is this. As the crankpin 10 reverses the stroke of the connecting rod 4, the first thing is to reverse the position of the splitting knives 8 and 9, an opposite reversal tak-

ing place at the end of each opposite stroke; which positions the appropriate splitter knife to enter the block 17 when the lost motion is taken up between the limit stops and the carriage when the splitter knives begin the operative stroke.

The knives 8 and 9 are beveled on their under surfaces by bevels 8' and 9', to present a chisel edge that tends to lead into the wood, which overcomes the tendency of the wood by its grain to run out to zero thickness before a 24 inch shake is completely split off. The point of entrance of the splitter knife determines the thick end of the shake and careful adjustment of the limit stops 23 will result in a proper proportion of thickness at the opposite ends of the shake, by "trial and error."

No provision is made to prevent too deep penetration as it is not needed, the grain of the wood being sufficient protection and freedom of the knife to run around a hard knot is a valuable feature.

Having fully disclosed my built, tried and commercially tested operating shake splitter having a large productive capacity of shakes of superior quality, what I claim as new and desire to secure by Letters Patent, is:

1. A shake splitting machine for removing shakes alternatively from the bottom of a relatively stationary block of wood, comprising a reciprocable carriage, knives mounted therein to be alternately raised into engagement with said block of wood from opposite ends, a reciprocating means for said carriage indirectly connected thereto, a knife shifter, said reciprocating means operatively connected to said knife shifter, and a lost motion device positioned between said knife shifter and said carriage.

2. A shake splitter as claimed in claim 1, in which the knives are sharpened with beveled edges with the bevel tending to lead the knife into a held block.

3. A shake splitter comprising a relatively stationary frame, a splitter knife carriage reciprocably mounted on said frame, a block holder mounted to effectively hold a block above said carriage, splitter knives rockably mounted in said carriage, said knives formed with splitting edges in spaced position at the median portion of said carriage, rockable mountings for said knives near to opposite ends of said carriage, a common operative means for said knives and said carriage to shift alternate knives into position to start splits at respective opposite ends of a held block, a lost motion device, and a carriage reciprocating device, said lost motion device effective to delay reciprocation of said carriage with the knives until the knives have been shifted.

4. A shake splitter machine comprising a frame, a splitter knife carriage reciprocably mounted therein, a block holding means centrally mounted above the traverse zone of said carriage, splitter knives rockably mounted with their splitting ends spaced apart in the median zone of said carriage, a knife lifter means under the splitting end of each knife and a reciprocating device for operating said knife lifter at the beginning of each stroke of reciprocation and a lost motion device incorporated therewith to begin a stroke of reciprocation after the proper knife has been lifted.

5. The combination as claimed in claim 4 in which the knife lifter includes a double arm lever that lifts one knife while dropping the knife opposite the one that is lifted.

6. The combination as claimed in claim 4 in which the splitter knives are sharpened with bevel edges with the bevel tending to lead the knife into a held block, and in which there is no provision of structure tending to prevent too deep penetrations.

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