Jan. 1, 1935. J. A. DENTON 1,986,427

LUMBER SORTER

Filed Oct. 21, 1931

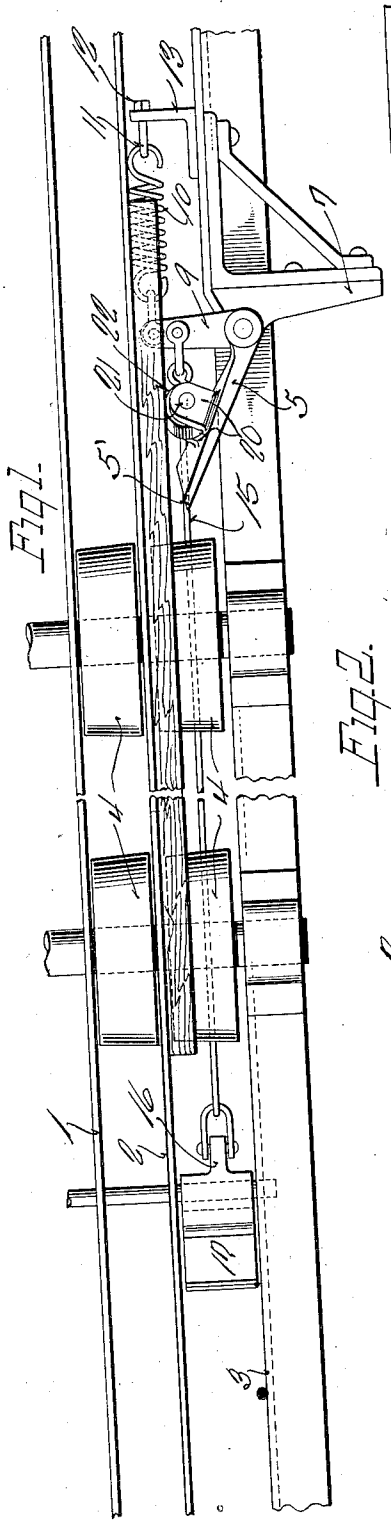


Fig. 1.

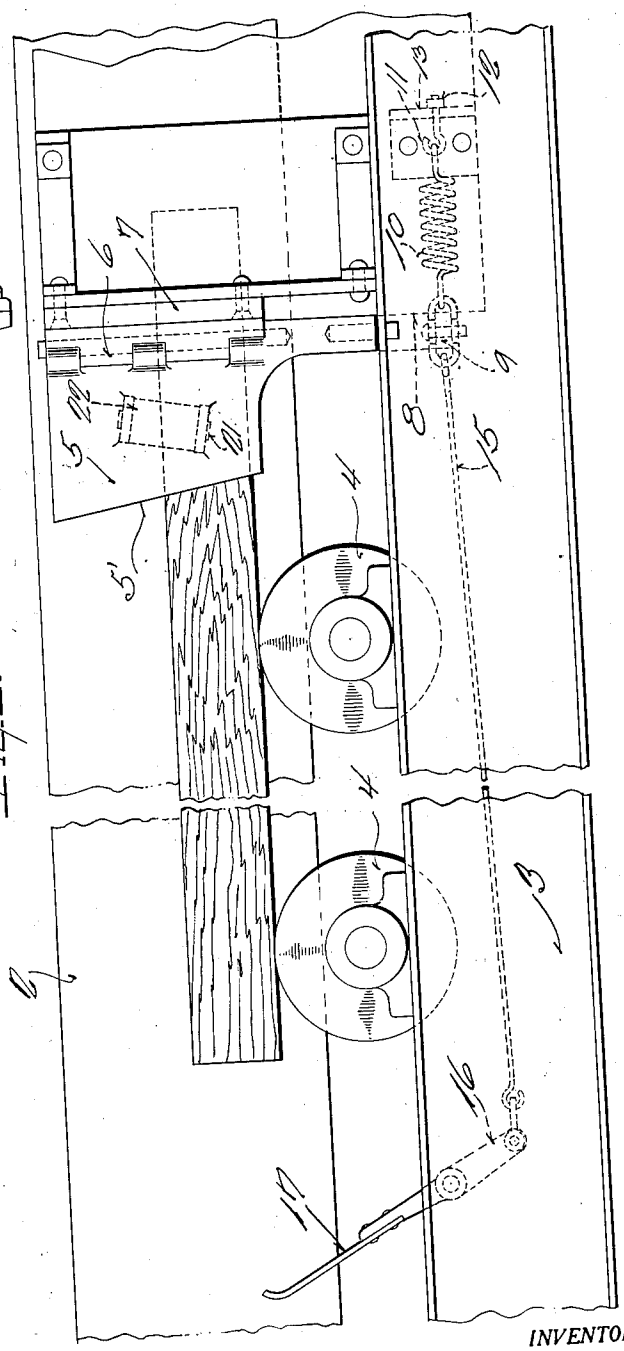


Fig. 2.

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Patented Jan. 1, 1935 BEST AVAILABLE COPY 1,986,427

UNITED STATES PATENT OFFICE

1,986,427

LUMBER SORTER

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Application October 21, 1931, Serial No. 570,073

2 Claims. (Cl. 209—90)

This invention relates to lumber sorting mechanism and is in the nature of an improvement in the knock-out or ejecting means of the type forming the subject matter of Patent 1,220,779, granted March 27, 1917, to D. R. Tanner.

In the patent referred to, the knock-out or ejecting device comprises generally a board ejecting plate or member pivoted to one of the channel forming members and biased to swing toward and into engagement with the other to block the channel and to be positioned to eject a board therefrom. The position of the ejecting plate is controlled by a trigger member which projects up into the channel and is connected by suitable transmission means to the knock-out plate. The trigger member is designed to be engaged by a board passing through the channel and when so engaged swings the knock-out plate to open or inactive position. If the board is of such lengths that one end thereof passes the knock-out plate before the other end thereof rides off the trigger member, then after the other end does ride off the trigger member the knock-out plate will simply bear against a side face of the board as it travels through the channel and will not be effective to eject the board. However, with rough stock, that is, with lumber having knots, large splinters, or similar imperfections, it has been found that the knock-out plate, when released by the trigger member and swinging against the side of the board, will catch on the knots or splinters whereupon the lumber will be jammed in the channel and the operation of the device impaired.

Of recent years the difficulties above mentioned have been more pronounced for the reason that up until a few years ago only the better grades of lumber, that is, lumber generally free from loose knots, splinters, or similar deformities, were sorted for drying in dry kilns. However, at the present time, due to the improved features of present lumber dryers, it is possible to obtain good results from the lower grades of lumber and these lower grades of lumber usually contain loose knots, splinters, and the like. The difficulty has been further aggravated by the desirability with the present metallic construction of lumber sorters of this character of employing a beveled or sharp steel edge on the knock-out plates and this edge, under certain conditions, not only has undesirable gripping engagement with the knots or other obstructions but tends to deface the lumber to a serious extent.

One of the principal objects of the present invention is to provide a knock-out or ejector of this character which is capable of effective use with rough, knotted or splintery lumber or boards, which will not bind or jam such boards in the channel or deface the lumber or boards and yet is effective to automatically eject the proper size boards at the proper discharge or ejecting points along the channel.

A further object of the invention is to provide a knock-out or ejector device for a lumber sorter having these advantages and capacities, which is of simple and durable construction, reliable and effective in operation and comparatively easy and inexpensive to manufacture.

Other objects and advantages reside in certain novel features of the construction, arrangement and combination of parts which will be hereinafter more fully described and particularly pointed out in the appended claims, reference being had to the accompanying drawing, forming a part of this specification, and in which:

Figure 1 is a fragmentary plan view showing a portion of a lumber sorter equipped with a knock-out or ejecting device embodying the present invention; and

Figure 2 is a fragmentary view in side elevation further illustrating the structure shown in Figure 1.

The general construction of the lumber sorter is substantially the same as that shown in the Tanner Patent 1,220,779 and reference is made to such patent for a full disclosure of the general construction.

As shown in the drawing, the sorter embodies channel forming members 1, 2 and 3, through which the boards are fed on edge by suitably driven feed rollers 4. At each discharge point a knock-out or ejector plate 5 is provided and is hingedly supported as indicated at 6 on a bracket 7 secured to the channel structure. The knock-out plate 5 is provided with a downwardly extending axial extension 8 to which a crank arm 9 is fixed. To the outer end of the crank arm, one end of a retractile coil spring 10 is attached, the other end of the coil spring being engaged with a hook 11 adjustably interconnected by means of a nut 12 with a bracket 13 whereby the spring 10 may be put under appropriate tension to bias the ejector or knock-out plate 5 to a position where it blocks the channel with which it is associated. The crank arm 9 is also connected to one end of an elongated link 15 and the opposite end of the link 15 is connected to one arm of a lever 16. The other arm of the lever 16 has a trigger 17 fastened thereto with the trigger projecting up into the channel in the path of the

lumber and disposed, of course, in advance of the knock-out or ejector plate with respect to the passage of boards through the channel.

As the boards travel through the channel they ride on and depress the trigger 17 thereby swinging the knock-out plate 5 to open or inactive position. If the length of the board is longer than the size to be ejected the forward end of the board will pass the knock-out plate before the rearward end thereof rides off the trigger. Consequently the knock-out plate will merely swing over toward the board but will not close the channel. Of course, if the board is of a length that should be ejected it will ride off the trigger before the forward end reaches the field of action of the knock-out plate thereby giving the knock-out plate opportunity to close or assume ejecting position. With the lengths of board longer than those that are to be ejected at the station shown in the drawing, the knock-out plate in previous constructions would swing over under the influence of the spring 10 until its edge 5' bore against the side face of the board. With the rough knotted or splintery lumber this would, in many instances, cause the board to be jammed in the channel and with the present desirable beveled edge of the plate, would, in some instances, mar the face of the board.

The present invention avoids this disadvantage by providing anti-friction means on the knock-out plate engageable with the side face of the board to hold the edge of the knock-out plate in spaced relation to the board or in a position wherein it will not bind or jam the board in the channel. This means may consist of a pair of apertured lugs 20 projecting rearwardly from the back-side of the knock-out plate and supporting a pin 21 on which a roller 22 is rotatably mounted. With this construction, when the trigger releases the knock-out plate and swings toward the board the roller 22 will come into engagement with the board and will hold the edge 5' spaced from the adjacent side face of the board. The roller will ride easily over splinters and knots and any possibility of the board becoming jammed in the channel will be avoided.

It will be understood from the foregoing that the invention consists not only in the mere provision of a roller but in the particular organization of the roller or other equivalent anti-friction means with the knock-out plate. The organization is characterized principally by the mounting of the roller rearwardly or spaced from the edge of the knock-out plate whereby interfering engagement between the roller and channel precluding closing of the knock-out plate is prevented and also in the offsetting of the roller or other anti-friction means toward the inner face of the channel so that the roller or other anti-friction means may be positioned to engage the board and yet hold the edge of the knock-out plate in spaced relation to the board.

Another advantage resides in the action of the roller in increasing the traction between the boards and the feed rollers 4. By having the rollers inclined they tend to urge the boards down against the rollers 4 thereby enhancing the driving effect of these rollers on the board. The same result could be obtained by employing a tapered roller, that is, a roller which was of gradually decreasing cross sectional area from its upper end toward its lower end.

While one embodiment of the invention has been shown for the sake of illustration, obviously various changes in the size, shape and arrangement of the matters may be made without departing from the spirit of the invention and the scope of the subjoined claims.

The invention claimed is:

1. A lumber sorting device of the type having a channel and feed rollers for advancing boards along the channels and comprising a trigger controlled knock-out plate having anti-friction means offset from the edge of the knock-out plate and positioned to engage with the side faces of boards traveling past the knock-out plate to space the knock-out plate from said board, said anti-friction means having inclined board engaging surfaces tending to urge the boards down against the feed rollers to enhance the driving effect of these rollers on the boards.

2. A lumber sorting device of the type having feed rollers for advancing boards and comprising a lumber controlled knock-out plate having anti-friction means carried thereby and positioned to engage the side faces of the board and traveling past the same to space the knock-out plate from such boards, said anti-friction means having its board engaging surface angled to urge the boards down against the feed rollers whereby to enhance the driving effect of these rollers on the boards.

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