March 17, 1931. H. E. MORGAN 1,796,575

STICKER DISCHARGE MECHANISM

Filed Feb. 18, 1930 3 Sheets-Sheet 1

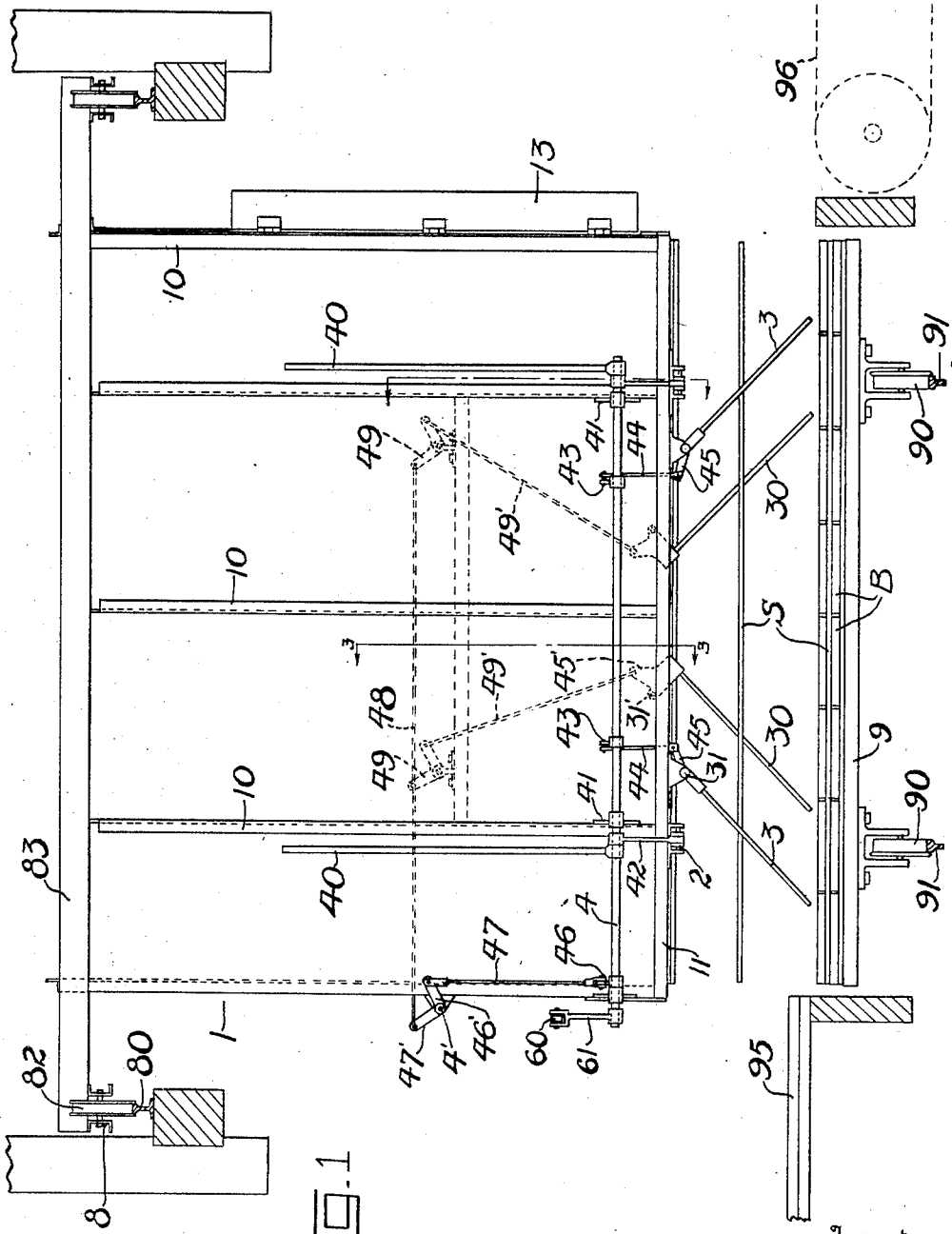


FIG. 1

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STICKER DISCHARGE MECHANISM

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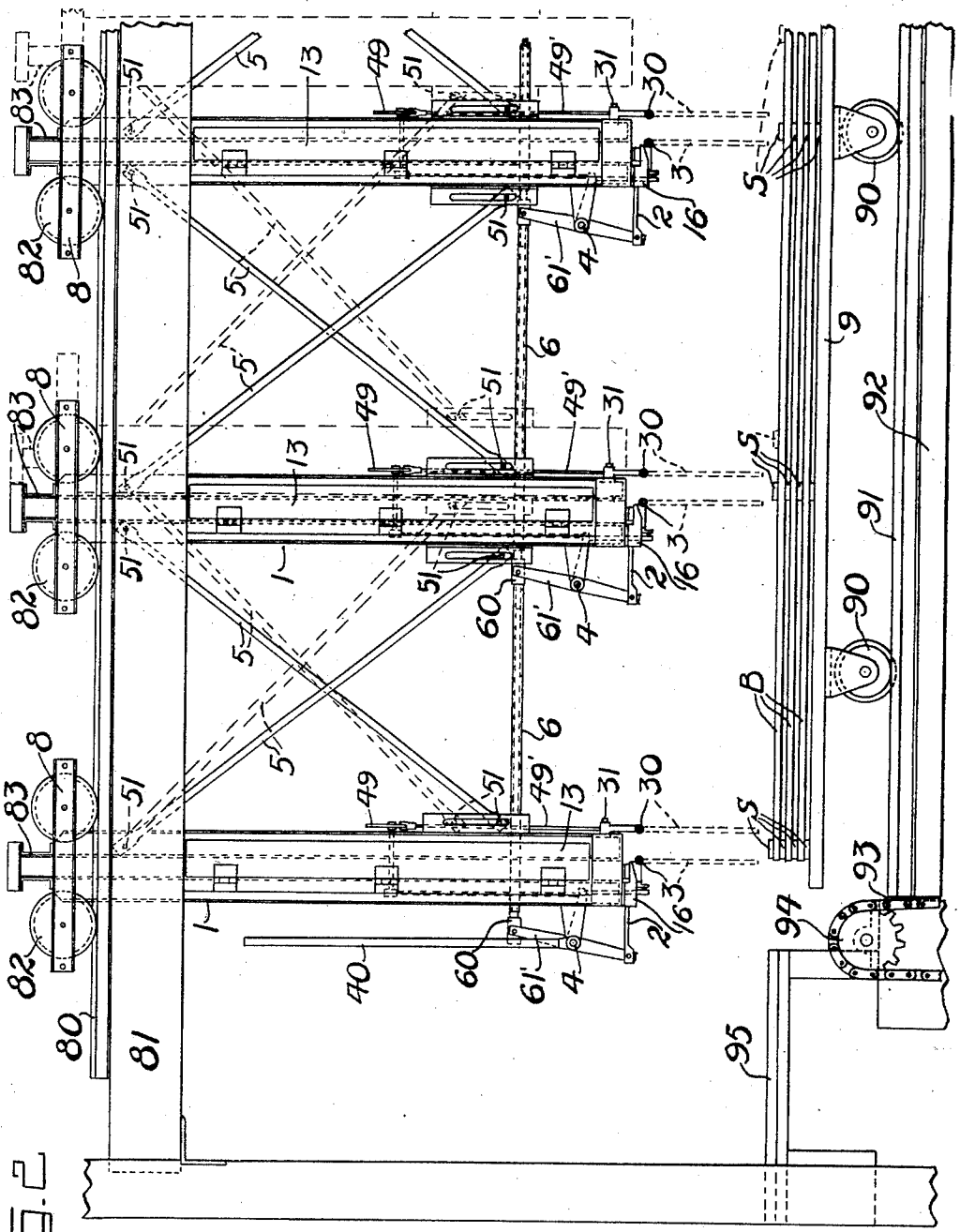


FIG. 2

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STICKER DISCHARGE MECHANISM

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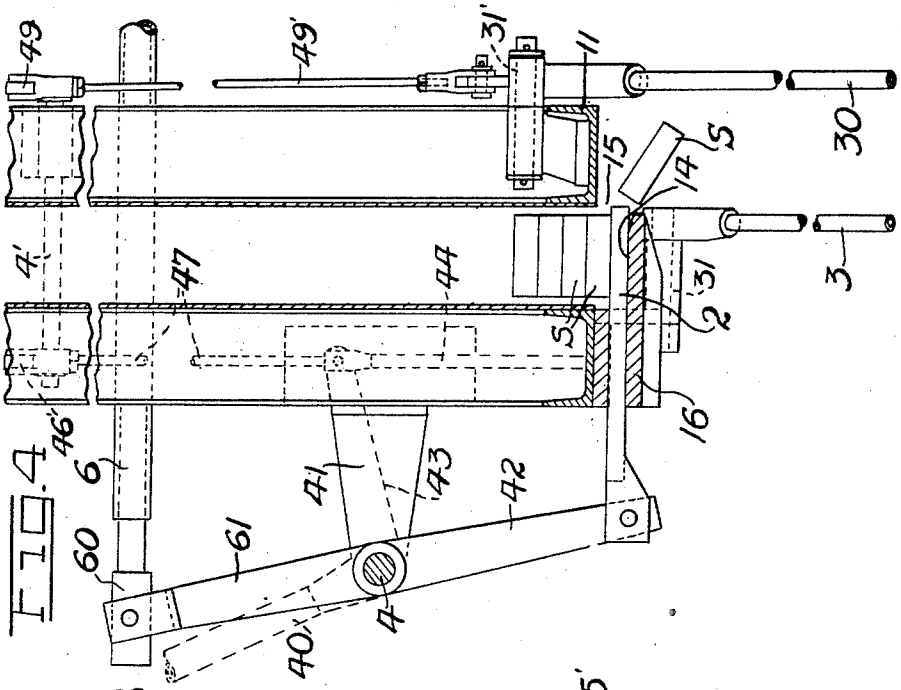


FIG. 4.

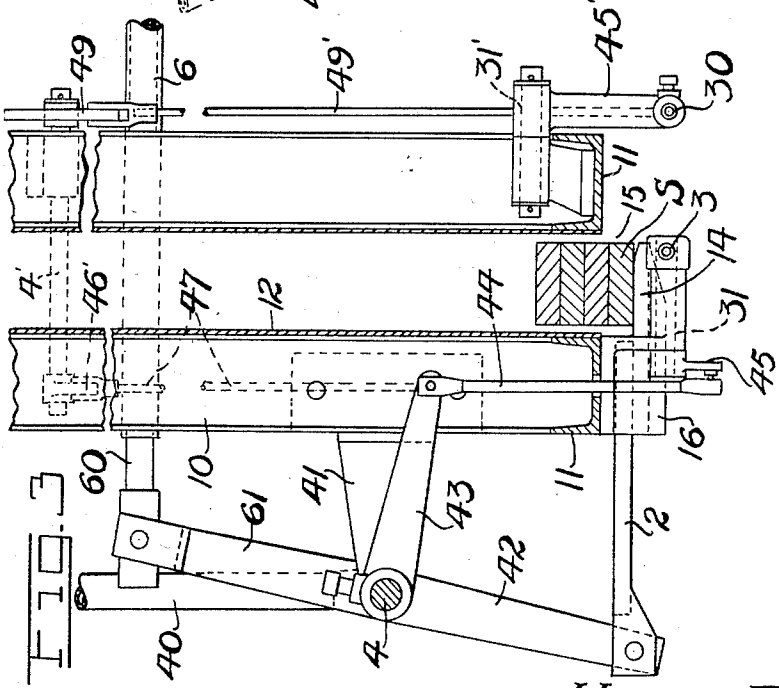


FIG. 3.

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UNITED STATES PATENT OFFICE

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STICKER-DISCHARGE MECHANISM

Application filed February 18, 1930. Serial No. 429,274.

My invention relates generically to lumber-mill machinery, and more particularly to a device for discharging the stickers which are used to space the courses of lumber in a pile from each other, semi-automatically upon the pile as the courses are piled.

This is a preliminary to the kiln-drying or stacking of lumber, and since in the course of curing or drying the lumber it is most subject to warping, cracking and the like if it is subjected to undue or uneven stresses, it is particularly important that the stickers be evenly spaced and that each sticker lie immediately above the sticker supporting the course below throughout their lengths. It is the object of my invention to provide a feed or discharge means, whereby the placing of the stickers in exact position is accomplished semi-automatically and with great ease, thus eliminating considerable labor and the uncertainties of the human element.

It is a further object to provide a device of the general character indicated above which may be easily adjusted to accommodate different lengths of lumber,—that is, to deposit the stickers at such different spacings as may be desired.

A further object is the provision of a piling system, including such a sticker-depositing mechanism, wherein the pile may be kept always in such position relative to the sticker magazines that its upper course is at a predetermined level therebelow.

Other objects, and more especially such as pertain to the more strictly mechanical details of my invention, will be discovered from a study of the attached drawings, of this specification, and of the claims which terminate the same.

My invention comprises the novel parts of a novel combination and arrangement thereof.

In the accompanying drawings I have shown my invention in a form which is now preferred by me.

Figure 1 is a view of a sticker magazine, looking toward the end of the lumber which is being piled, and showing parts in the positions they would assume as a sticker is being discharged.

Figure 2 is a general view of the sticker-depositing mechanism, taken at right angles to Figure 1, and showing the parts in their normal position.

Figure 3 is a transverse section on line 3—3 of Figure 1 through a sticker magazine, parts being shown in the normal position, and Figure 4 is a similar view, showing parts in operative position.

As the device would normally be incorporated in a mill, the lumber would be piled upon a truck or car 9, mounted upon rollers or supporting wheels 90, by which it may be run along rails 91, carried upon an elevator platform 92. The elevator platform 92 may be supported and elevated in any suitable way, and merely as illustrative of one means which may serve the purpose, I have shown a chain 93, connected to the platform 92, and passing over a sprocket wheel 94, which may itself be connected to a suitable source of power (not shown) to raise the elevator, or which may be merely a guide sprocket wheel, the opposite end of the chain 93 passing to some other source of power. Adjacent the elevator platform is the working platform 95 and a feed table 96, by means of which the lumber may be brought for piling upon the car platform 9. The individual boards B are illustrated in the drawings with the transversely extending sticker S between them, adjacent their ends, and at intermediate locations.

Above the elevator platform 92, I prefer that overhead rails 80 be supported, as upon the beams 81, these rails 80 supporting the track rollers 82 carried in trucks 8, whereon, by means of transverse bars or beams 83, the sticker magazine 1 is suspended in position transversely of the pile of lumber on the platform 9. By thus supporting the sticker magazines, they may be moved into and out of position as and when required, and their use may be dispensed with whenever it is not deemed necessary or convenient to employ them. Also, as will appear hereafter, it is possible more easily to adjust them in position with respect to the pile of lumber and with respect to each other.

The precise construction of the sticker

magazines is immaterial, so far as concerns their relationship to the complete system. They are shown herein as consisting of upright ribs 10 in the form of channel irons, secured at their upper end to the beams 83 and connected at their lower end by a channel 11. A plate 12, supported from the structure thus formed, may be employed if desired, and two such walls, spaced by suitable means at one end by an amount corresponding to the width of the sticker, constitute the two retaining means for the stickers. The front end of the sticker magazine may be open, but closed by a door 13, or like means, which, when opened, permits the insertion endwise of a supply of stickers.

The magazine need not be closed at the bottom, but the stickers are supported upon fingers or ledges 14, spaced below the channels 11 sufficiently to provide a lateral discharge opening 15 about equal to the thickness of a single sticker. Guided in the casting 16 (see Figures 3 and 4) which forms the ledge 14, is a plunger 2, normally held retracted in the position shown in Figure 3, but capable upon projection of discharging a single sticker through the lateral discharge opening 15, and upon its subsequent withdrawal permitting the pile of stickers to drop upon the ledge 14, where the sticker now on the bottom of the pile may be discharged upon a second projection of the plunger.

It is not feasible to position the discharge opening 15 close enough to the top course of the pile of lumber to permit the discharged sticker to drop thereon without any guide or positioning means, for if it were so close to the pile of lumber it would interfere with the piling of lumber. It is not feasible to permit the sticker to drop from any height upon the pile, for it would then be displaced, would be askew, and the stickers would fall in varying positions upon the pile and would never be aligned with each other. Accordingly, it is necessary to provide guide means, which are normally upraised so as to permit free access to the pile of lumber, but which are dropped down to guide the discharged sticker during such time as it is dropping upon the pile and to position it upon the pile so that it aligns with previously discharged stickers. Such guides may take various forms, but as shown herein, they consist of a pair or pairs of arms 3 and 30, which are pivoted upon the respective axes 31 and 31′. Normally, they lie horizontally alongside of the magazine 1 about at its lower level, and in the form shown they extend outwardly toward its respective ends. Two such pairs of arms are employed, one at either end of the magazine. When in operative position they extend downwardly to a selected distance below the magazine, and it is to maintain the top course of the pile always at or about this level that the elevating means 93 is provided. The use of two oppositely inclined pairs of arms neutralizes any tendency of one pair to move the sticker in the direction of its length as it falls.

It is necessary that the guide means 3 and 30 be operable at the same time as the plunger 2 is operated, and as a convenient means of accomplishing this, I connect the several means to be operated simultaneously to a rock shaft 4, which can be operated by the attendant by means of an operating arm 40 secured thereon, and positioned conveniently to be operated by an attendant upon the working platform 95 (see Figure 2). The connections from the rock shaft 4 to the several mechanisms may be any which are found suitable. As shown herein, the rock shaft 4 is supported in brackets 41 upon the magazine 1 and extends longitudinally of the magazine, that is, transversely of the pile of lumber. An arm 42, secured upon the rock shaft, is directly connected to an end of the plunger 2. A similar arm 43 is connected by means of a link 44, and arm 45, to the guide arm 3. To connect with the guide arm 30, which is on the opposite side of the magazine, I may provide an arm 46 upon the rock shaft 4 near one end of the magazine, which connects by a link 47 to an arm 46′ upon a transverse shaft 4′, and thence by an arm 47′ and a rod 48 to bell-crank lever 49, pivotally supported at the opposite side of the magazine and connected by links 49′ to arms 45′ which carry the guide arms 30. It will be noted that the pairs of guide-arms 3 and 30 are not in the same plane longitudinally of the pile of lumber, but are spaced somewhat so that they engage the opposite side of the sticker at spaced points, and thus more perfectly guide the sticker into position upon the pile.

As has been noted, the several magazines 1 are supported on wheels 82, which permit them to be moved with respect to the other magazines. While in operation, of course, it is essential that they be fixed with respect to each other, and consequently, I provide spacer means, which, in the form shown, consist of crossed brace rods 5. These are pivotally supported at 51 to the upper portion of each magazine, and extend to the lower portion of each adjoining magazine. There they are connected by a pin and slot connection, indicated at 51, to the adjoining magazine, and means are provided whereby the lower ends of these brace-rods or spacers can be secured in either of two positions to the adjoining magazine; thus, they may be brought close together or may be spread apart, in the one case to deliver the stickers upon the pile at intervals of four feet, and in the other case to deliver them at intervals of four and one-half feet. It is also possible to secure them in an intermediate position, if it be found desirable, but this spacing, with either four or five magazines, will take care of

all commercial lengths from twelve to twenty feet.

It is desirable that the sticker-delivering plungers 2 on the several magazines all operate simultaneously, and this, of course, entails that the several guide means 3 and 30 be simultaneously operable. To accomplish this, and yet to permit the adjustment already spoken of in the spacing between the magazines, I provide a rod 6, adjustable in length, which connects from one magazine to another. This may conveniently consist of a pipe, of which different lengths are provided, the ends of the sections being secured to a fitting 60, pivotally supported upon an arm 61, secured upon the primary rock shaft 4, and similar fittings 60 and arms 61′, by means of which the connection is made to the several rock shafts 4, on succeeding magazines. To adjust the spacing of the magazines, then, it is only necessary to take out the section of pipe 6, and to bring the magazines together or to spread them apart and then to connect another appropriate length of rod or pipe 6. A telescoping rod might be employed to advantage.

It is believed the operation of the device and its advantages will now be obvious, and that no detailed description thereof will be necessary at this point. Obviously, changes may be made, within the scope of the claims, and still be within my invention.

What I claim as my invention is:

1. The combination with a support for a pile of lumber, a plurality of longitudinally spaced sticker magazines extending transversely above the pile, sticker guide means movable from a normal inoperative position to an operative position, extending downward from each of the sticker magazines, sticker discharge means, and means to move said guide means into operative position.

2. The combination of claim 1, including means for adjusting the spacing of adjoining magazines relative to each other.

3. The combination of claim 1, the sticker guiding means comprising two pairs of spaced arms normally elevated above the upper course of the pile, and means cooperable with the sticker discharge means for moving an end of said arms downward to the level of the upper course of the pile, their upper ends lying at opposite sides of the sticker as the latter is finally discharged.

4. The combination of claim 1, including means for adjusting the spacing between adjoining magazines, and means operable at all spacings to operate simultaneously the sticker discharge means of all of the magazines.

5. The combination of claim 1, each magazine having its sticker discharge means and sticker guiding means, means to move the sticker guide means into operative position from an inoperative position, and means connecting said discharge and guide-operating means for simultaneous operation.

6. The combination of claim 1, each magazine having its sticker discharge means and sticker guiding means, means to move the sticker guide means into operative position from an inoperative position, and means connecting said discharge and guide-operating means, and connecting like means on the several magazines, for simultaneous operation from a distant point.

7. A sticker magazine comprising retaining means, means for discharging a single sticker from the bottom of the magazine, a pair of guides positioned in operation one to engage each side of the discharged sticker, said guides being movable to extend downwardly from the point of discharge, and means connecting the guides for operation simultaneously with operation of the sticker discharge means.

8. The combination of claim 7, the guide means comprising arms pivotally supported upon the magazine, and normally lying in horizontal position, and swinging downward upon actuation of the operating means.

9. The combination of claim 7, the pair of guides being duplicated at opposite ends of the magazine, and all being connected for simultaneous operation.

10. The combination of claim 7, the guide means comprising pairs of pivoted arms normally lying in horizontal position alongside the magazine, one pair at each end and extending outwardly from their pivot supports, and swinging downward into operative position, the several arms being connected to the operating means for simultaneous operation.

11. A sticker magazine comprising upright retaining means having a lateral discharge opening at the bottom, a plunger supported for movement across the bottom of said magazine to discharge the lowermost sticker therein through said opening, a pair of guides, one at each side of the position of the discharged sticker, and normally in inoperative position, but movable into operative position, extending downwardly from the just-discharged sticker position, a rock shaft extending alongside the magazine, and arms on said rock shaft and operatively connected to each of said guides and to said plunger, to move the guides into operative position as the plunger discharges a sticker.

12. In combination with a sticker magazine as in claim 11, a series of like magazines, means maintaining said magazines in adjustably spaced relationship, and a rod adjustable in length operatively connecting the rock shafts of the several magazines for simultaneous operation.

13. In combination with an overhead track, a plurality of sticker magazines suspended upon said track for movement therealong,

adjustable spacer means for maintaining said magazines in definitely spaced relationship, a lumber pile support below the series of magazines, means to maintain the upper course of the pile on said support at a level a given distance below the said track, spaced sticker guide means upon each magazine movable from inoperative position into operative position, extending downward to the pile, to engage opposite sides of a discharged sticker, and means to discharge a sticker from each magazine.

14. The combination of claim 13, each magazine opening at an end for the insertion of a supply of stickers.

15. The combination with a support for a pile of lumber, a sticker magazine extending transversely of and disposed at a distance above the pile, sticker guiding means which, in operative position, extend downward from the magazine to a predetermined distance therebelow, and sticker discharge means engageable with the side of the lowermost sticker in the magazine, and movable transversely of the sticker, and means for moving said sticker discharge means to discharge such lowermost sticker by a single bodily lateral movement.

16. The combination with a support for a pile of lumber, a sticker magazine extending transversely of and disposed at a distance above the pile, and sticker discharge means engageable with the side of the lowermost sticker in the magazine, and movable transversely of the sticker, and means for moving said sticker discharge means to discharge such lowermost sticker by a single bodily lateral movement.

17. A sticker magazine comprising retaining means, means for discharging a single sticker from the magazine, means at each end of the magazine movable from a normal inoperative position to a downwardly extending operative position, to receive and guide a discharged sticker, and means for simultaneously moving the guide means at each end of the magazine into operative position.

18. A sticker magazine comprising retaining means, means for discharging a single sticker from the magazine, means at each end of the magazine movable from an inoperative position to a downwardly extending operative position, to receive and guide a discharged sticker, and means for moving the sticker guide means at each end of the magazine into operative position simultaneously with the operation of the sticker discharge means.

19. The combination of claim 7, the connecting and operating means comprising a rock shaft extending lengthwise of the magazine, the sticker guides comprising levers pivoted near one end upon axes transverse to the magazine, arms upon said rock shaft and links connecting each arm to the short arm of a corresponding guide lever, a sticker discharge lever upon said rock shaft connected to the sticker discharge means, and means for rocking said rock shaft.

20. The combination of claim 7, the connecting and operating means comprising a rock shaft extending lengthwise of and at one side of the magazine, the sticker guides comprising pairs of levers pivotally supported near one end, one at each side of the magazine, upon axes transverse to the magazine, arms upon said rock shaft and links connecting each arm to the short end of a guide lever at the same side of the magazine, means operable from the rock shaft and passing about an end of the magazine for operatively engaging the short end of the guide levers at the opposite side of the magazine, means upon the rock shaft operatively connected to the sticker discharge means, and means for rocking said rock shaft to operate simultaneously the several guide levers and the discharge means.

21. In combination, a sticker magazine, means for discharging a sticker therefrom to drop by gravity, and a pair of sticker guide arms at each end of the magazine, the arms of each pair being disposed at opposite sides of the path through which the sticker drops, and the two pairs of arms being inclined downward in opposite directions, when in operative position.

22. In combination, a sticker magazine opening to the side at its bottom, means to push a sticker bodily laterally through such opening to drop freely by gravity, and a pair of sticker guide arms at each end of the magazine, the arms of each pair being disposed at opposite sides of the path through which the sticker drops, and the two pairs of arms being inclined downwardly and outwardly towards the opposite ends of the magazine, when in operative position.

23. In combination, a sticker magazine opening to the side at its bottom, means to push a sticker bodily laterally through such opening to drop freely by gravity, and a pair of sticker guide arms at each end of the magazine, the arms of each pair being disposed at opposite sides of the path through which the sticker drops, and the two pairs of arms being inclined downwardly and outwardly towards the opposite ends of the magazine, when in operative position, and the arms of each pair being offset from each other longitudinally of the magazine.

Signed at Longview, county of Cowlitz, State of Washington, this 11th day of February, 1930.

HARRY E. MORGAN.