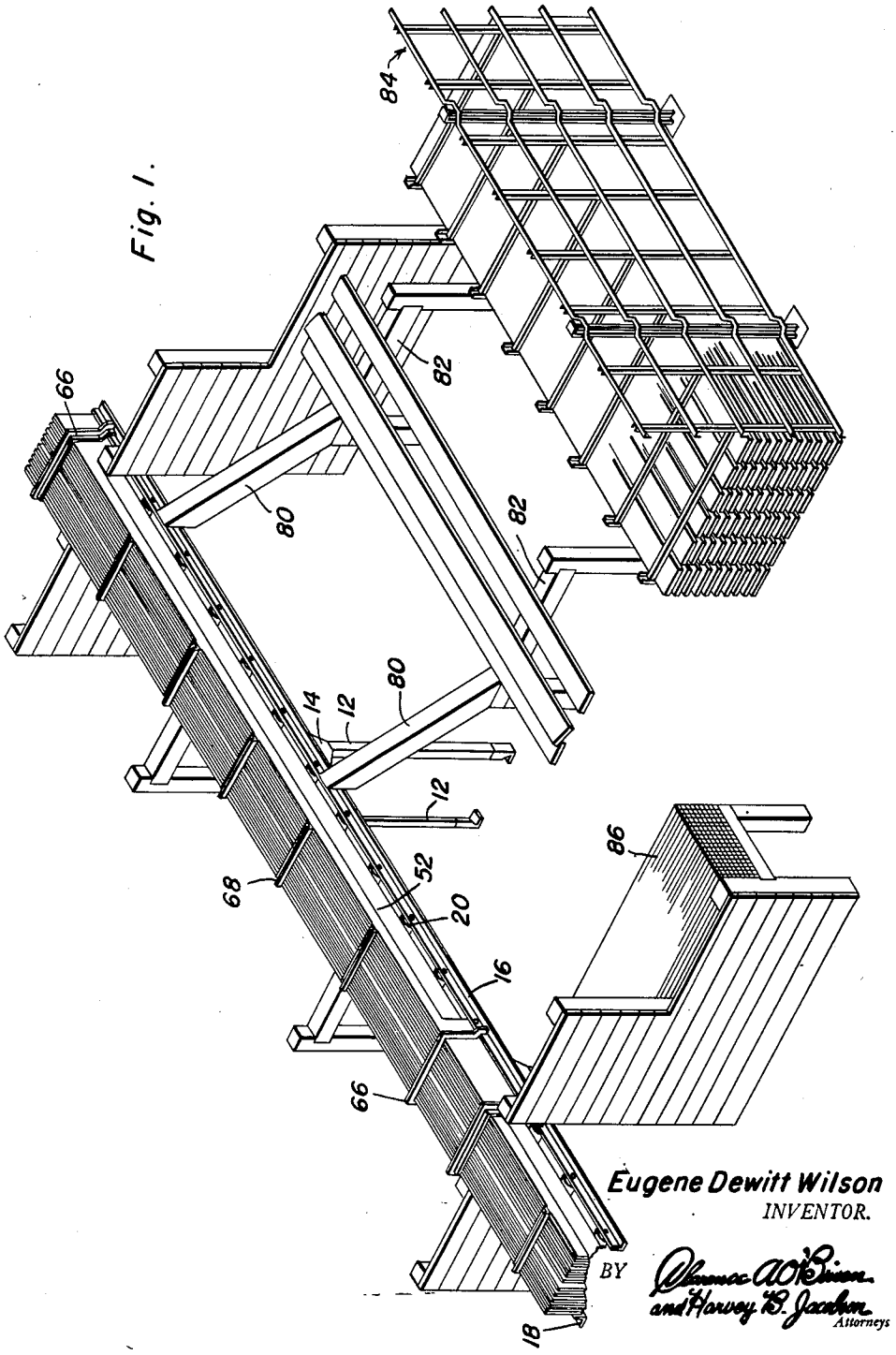
June 10, 1952 E. D. WILSON 2,600,147

VERTICAL LUMBER SEPARATOR

Filed April 12, 1948 3 Sheets-Sheet 1

Fig. 1.




Eugene Dewitt Wilson
INVENTOR.

BY Thomas A. Robinson and Harvey B. Jackson
Attorneys

June 10, 1952 E. D. WILSON 2,600,147

VERTICAL LUMBER SEPARATOR

Filed April 12, 1948 3 Sheets-Sheet 2

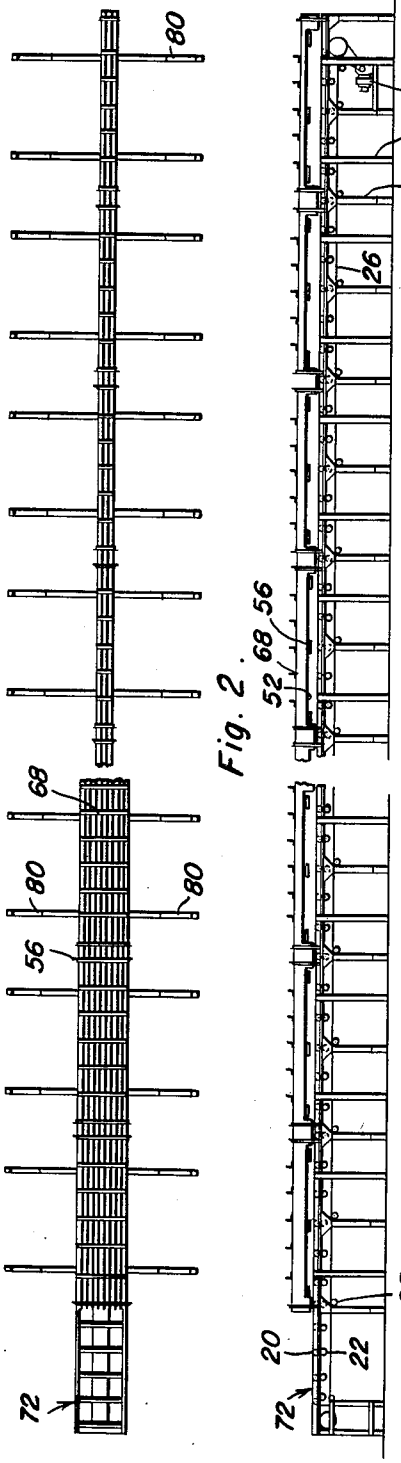



Fig. 2.




Fig. 3.

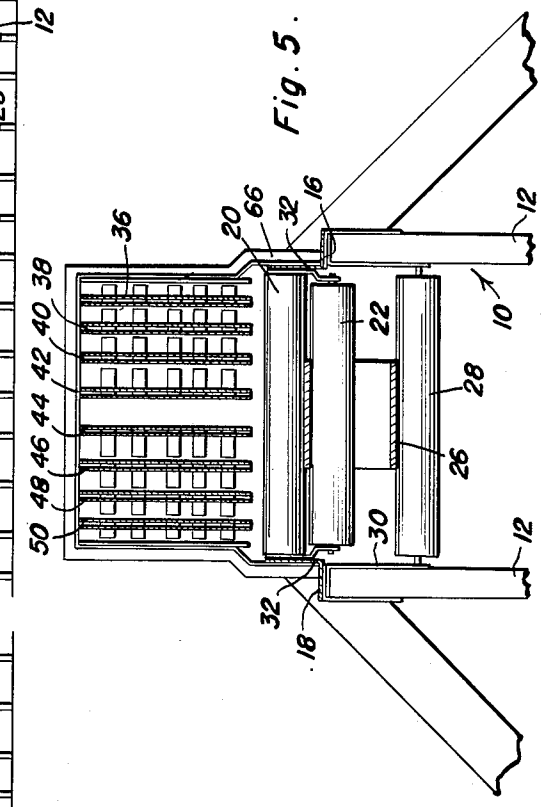



Fig. 5.

Eugene Dewitt Wilson
INVENTOR.

BY Clarence O'Brien and Harvey B. Jacobson
Attorneys

June 10, 1952 E. D. WILSON 2,600,147

VERTICAL LUMBER SEPARATOR

Filed April 12, 1948 3 Sheets-Sheet 3

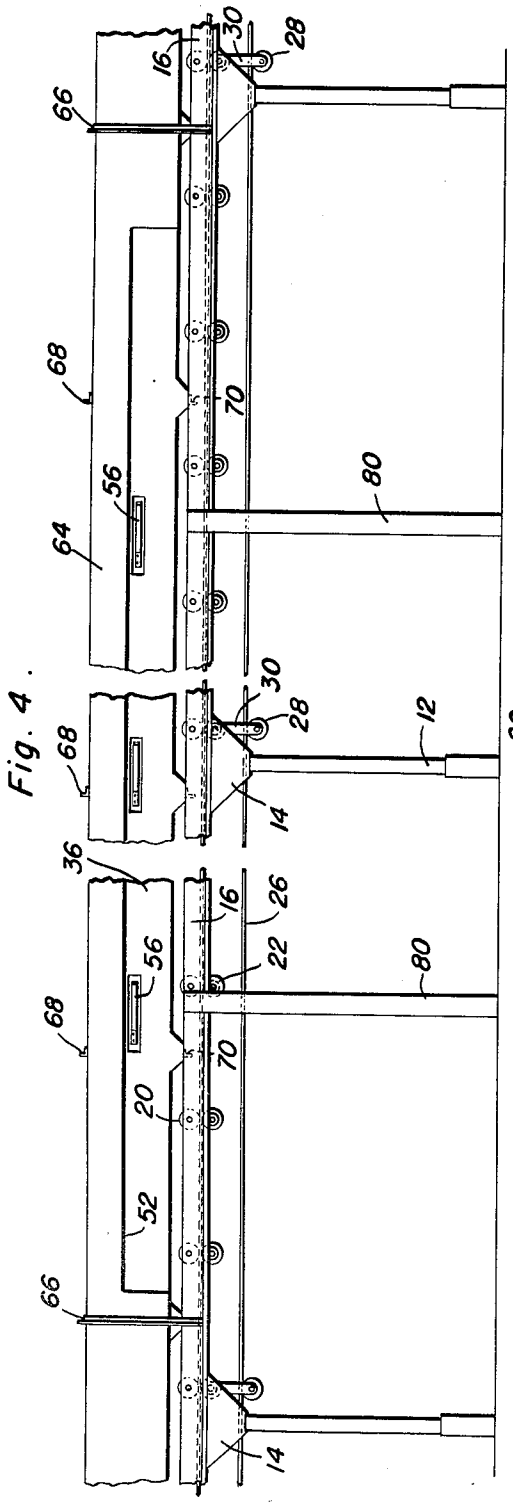



Fig. 4.

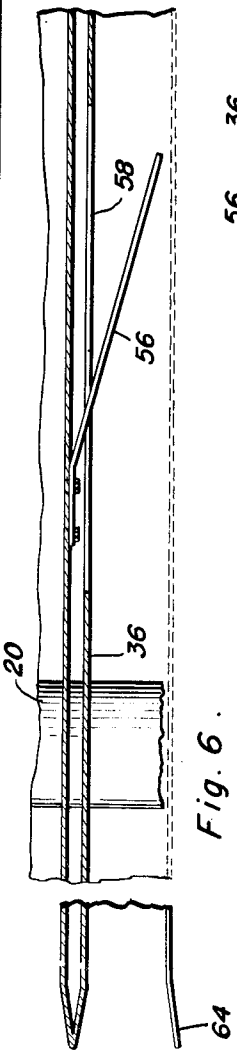



Fig. 6.

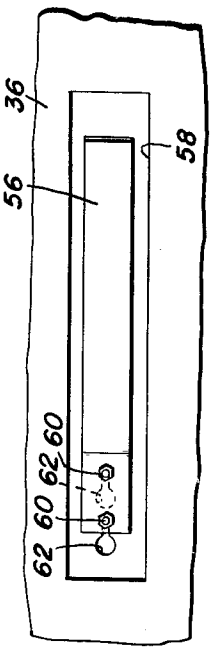



Fig. 7.

Eugene Dewitt Wilson
INVENTOR.

BY Thomas A. O'Brien and Harvey B. Jackson
Attorneys

Patented June 10, 1952

2,600,147

# UNITED STATES PATENT OFFICE

2,600,147

## VERTICAL LUMBER SEPARATOR

Eugene Dewitt Wilson, Memphis, Tenn.

Application April 12, 1948, Serial No. 20,518

2 Claims. (Cl. 209—90)

1

This invention appertains to novel and useful improvements in separators for use in association with segregating lumber.

An object of this invention is to separate lumber automatically in accordance with the width of the lumber.

Another object of this invention is to separate lumber automatically in accordance with the width and the height of the lumber.

A still further object of this invention is to convey lumber between a plurality of vertically spaced partitions, eject certain size lumber through specially provided discharge openings in the conveying of the lumber and to receive the discharged lumber in sorted stacks.

A still further object of this invention is to provide a generally improved device of the character described for separating lumber.

Ancillary objects and features of novelty will become apparent to those skilled in the art, in following the description of the preferred form of the invention, illustrated in the accompanying drawings, wherein:

Figure 1 is a perspective view of a portion of the invention;

Figure 2 is a fragmentary plan view of the invention;

Figure 3 is a side view of the device shown in Figure 2;

Figure 4 is an enlarged fragmentary elevational view illustrating relative positions of elements;

Figure 5 is a sectional view of the invention;

Figure 6 is an enlarged fragmentary view illustrating details of construction, and;

Figure 7 is an enlarged side view of the ejector means.

This invention has been developed to provide a device for segregating or separating lumber after it has been cut roughly by a mill or other conventional means. The separation takes place by feeding lumber into appropriate slots formed by the space between partitions and then ejecting various sized lumber to predetermined positions during the conveying thereof.

Referring first primarily to Figures 4 and 5, it will be seen that a support generally indicated at 10 and including a plurality of posts 12 is provided. Of course, suitable gusset plates 14 or other equivalent mechanical supporting means may be utilized in association with the support 10 for additional rigidity.

Seated on the post is a pair of substantially parallel rails 16 and 18 respectively for accommodating sets of rollers 20 and 22 respectively. The rollers 20 are adapted to receive various sized lumber and convey the same.

2

Any suitable means may be utilized in association with driving the rollers 20 and consequently the rollers 22, the preferable means being seen in Figure 3 as including any type of conventional prime mover 24 operatively driving a conveyor belt 26. The said conveyor belt extends between the sets of rollers 20 and 22 respectively operatively driving the same. Support rolls 28 depend from the suitable brackets 30 provided therefor and maintain the endless conveyor belt 26 in its proper travel. As is readily apparent from an inspection of Figure 5, suitable brackets may be utilized in association with the rollers 20 and 22, as those brackets 32 which support the said secondary rollers 22. Any type of bearing may be used in this connection, preferably bearings of conventional make.

A plurality of partitions 36, 38, 40 and 42 as well as partitions 44, 46, 48 and 50 respectively are juxtaposed relative to the set of rollers 20. These partitions are spaced a predetermined amount in order to accommodate the reception of selected thicknesses of lumber. The spaces between the said partitions are actually reception chambers whereon lumber is placed on edge and maintained in that relative position during its conveyance by means of the set of rollers 20 and the endless conveyor belt.

However, during the travel of the lumber between the partitions, certain of the lumber is ejected through discharge openings 52 (see Figure 4) which are of a selected size. The proper size is of material importance since only the correct width lumber should be ejected through the discharge opening in a particular partition. Means for resiliently biasing or ejecting the lumber is provided. The preferable means may be seen best in Figures 6 and 7 wherein a leaf spring 56 is illustrated as being attached to the partition 36. It will be noted at this point that the preferable materials of construction of the said partitions is a suitable metal. It is proposed that a cut-out 58 be provided in one of the walls of the partition in order to attach the leaf spring 56 to the opposite wall thereof by suitable means such as the bolts, countersunk grooves, rivets or the like which are common in many arts. Keyways 62 may be provided in association with this connection for facility in assembly. End plate baffles 64 may flank the partitions, these baffles having simply discharge openings therein without the ejector means. Means for supporting the partitions in the proper position relative to each other is provided, the preferable means consisting of a plurality of substantially U-shaped straps 66 which extend around all of the partitions and

which are ultimately secured to the said rails 16 and 18. Further, cross-straps 68 and 70 may be supplied on the upper portions of all of the partitions and also on the lower portions thereof for additional strength.

The various partitions (Figure 2) of the device terminate at progressively larger distances from the feed so that the sizing openings start beyond the terminal of the next adjacent partition. The longest partitions are in the center of the group of partitions and become progressively shorter toward the sides of the device.

Viewing Figure 5, it will be seen that the space between the partitions 42 and 44 is devoid of ejector springs 56. The thickest lumber is placed in this zone and conveyed to the very end of the conveyor, where it is received and stacked.

Inspection of Figure 5 also clearly discloses the varied spacing of the partitions for accommodation of various thicknesses of lumber. The cut lumber is placed on the feed portion of the conveyor 72 and guided into the opening (formed by the partitions) wherein it fits. The thinner lumber is received in the end zones while the thicker lumber is received appropriately toward the center of the device. As it is conveyed, the thin lumber of a selected height is ejected through the proper width discharge opening 52 and stacked. The next thicker lumber is received between the partitions 36 and 38, whence it is ejected by means of the resilient ejector means 56 upon reaching the appropriately sized discharge openings 52 relative to this operation. Of course, this process is repeated for each lumber stock thereby effecting properly segregated piles of lumber.

It will be noted that a plurality of inclined ramp members 80 are supplied along the length of the said conveyor adjacent the discharge opening 52 for guiding the ejected lumber to a support structure 82. Since this support structure accommodates only segregated lumber, it may be piled directly in a suitable metallic or other lumber stacking device generally indicated at 84.

In operation of the invention, conveniently located stacking strips 86 are utilized in association with the lumber stacking structure 84 as is conventional in the art.

From the foregoing, a clear understanding of the operation of the invention is deemed apparent. However, it is understood that variations as to size, shape, rearrangement of elements, the omission of certain elements may be made without departing from the spirit of the invention.

Having described the invention what is claimed as new is:

1. A lumber separator comprising a support, a horizontal conveyor carried by said support, a plurality of vertical and parallel partitions disposed above said conveyor and which partitions, commencing with the innermost pair thereof, are spaced progressively decreasing distances apart from each other thereby forming groups of lumber chambers, said chambers being of various widths with the larger width chambers being at the center of the group and the smaller width chambers being at the sides of the group to accommodate lumber of various thicknesses, lateral lumber sizing openings in said partitions which are horizontally staggered with respect to each other and which open into and interconnect said chambers, said openings being of predetermined heights to accommodate predetermined widths of lumber, the center partitions being longer than the side partitions so that the sizing openings of the center chambers start beyond the terminal of the next adjacent partition, and lumber ejectors carried by said partitions directly opposite said openings to urge the lumber through the openings.

2. A lumber separator comprising a support, a horizontal conveyor carried by said support, a plurality of vertical substantially parallel partitions fixed to said support and disposed above said horizontal conveyor, said partitions being spaced from each other and thereby forming a group of lumber chambers adapted for accommodation of lumber standing on longitudinal edge, said chambers being of various predetermined widths with the larger widths being at the center of the group and the smaller widths at the sides of the group to accommodate lumber of various thicknesses, said partitions having lateral discharge openings which are staggered with respect to each other for passage of lumber therethrough from one chamber to another, said openings being of predetermined heights to accommodate predetermined widths of lumber, and lumber ejectors which include leaf springs fixed to said partitions directly opposite said openings to press the lumber from the horizontal conveyor through said openings, and a part of said conveyor extending in front of said partitions to form a live inlet member for the lumber prior to and during entry between the partitions.

EUGENE DEWITT WILSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

| Number | Name | Date |
|---|---|---|
| 769,567 | Rice | Sept. 6, 1904 |
| 775,015 | Strain | Nov. 15, 1904 |
| 1,202,838 | Hefferman | Oct. 31, 1916 |
| 1,220,799 | Tanner | Mar. 27, 1917 |
| 1,258,958 | Starcher | Mar. 17, 1918 |
| 1,624,389 | Bratton | Apr. 12, 1927 |
| 1,906,331 | Phelps | May 2, 1933 |
| 2,060,153 | Whipple | Nov. 10, 1936 |
| 2,369,557 | Gettelman | Feb. 13, 1945 |