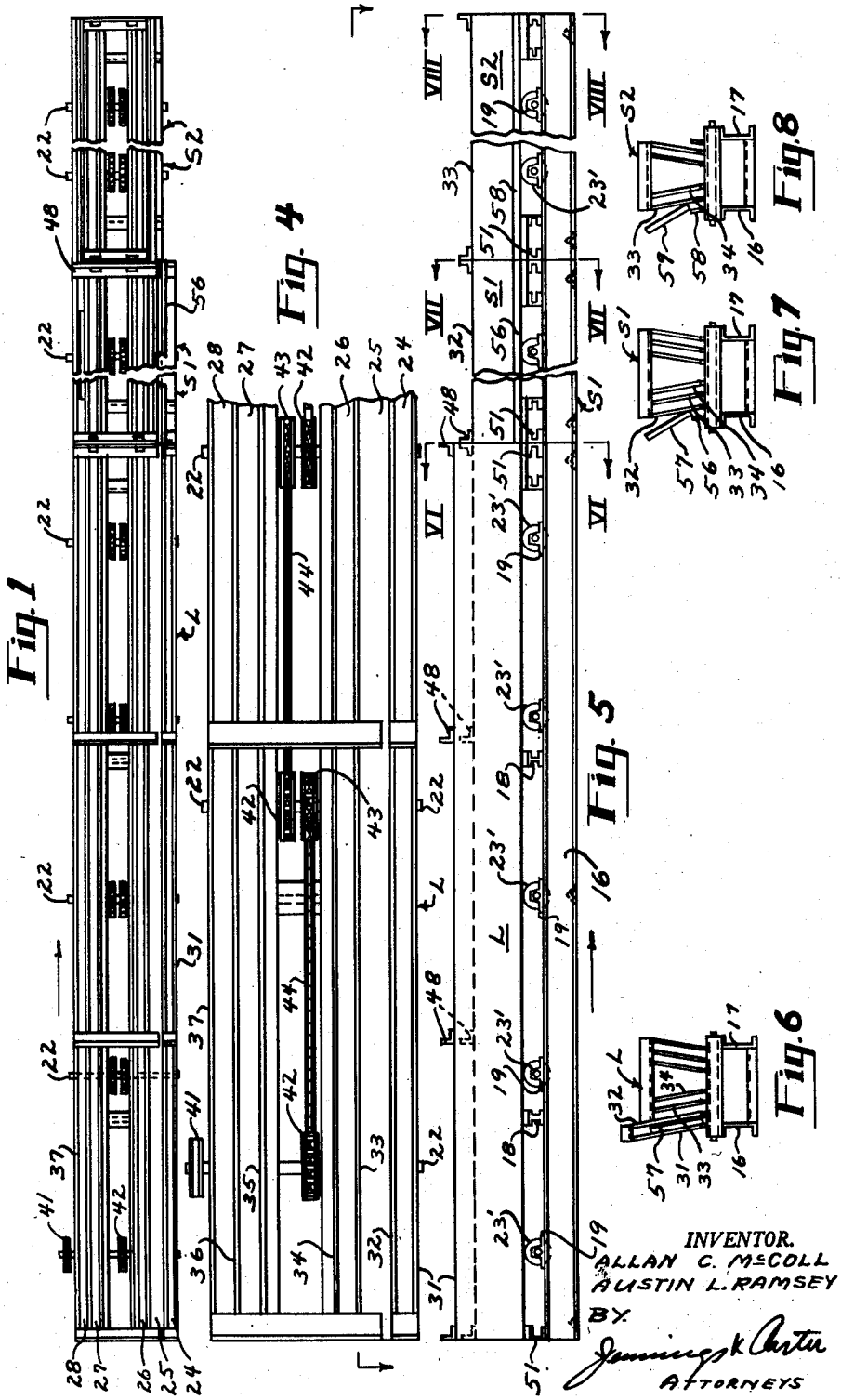
July 23, 1957 A. C. McCOLL ET AL 2,800,225

LUMBER SORTER

Filed Jan. 18, 1954 3 Sheets-Sheet 1



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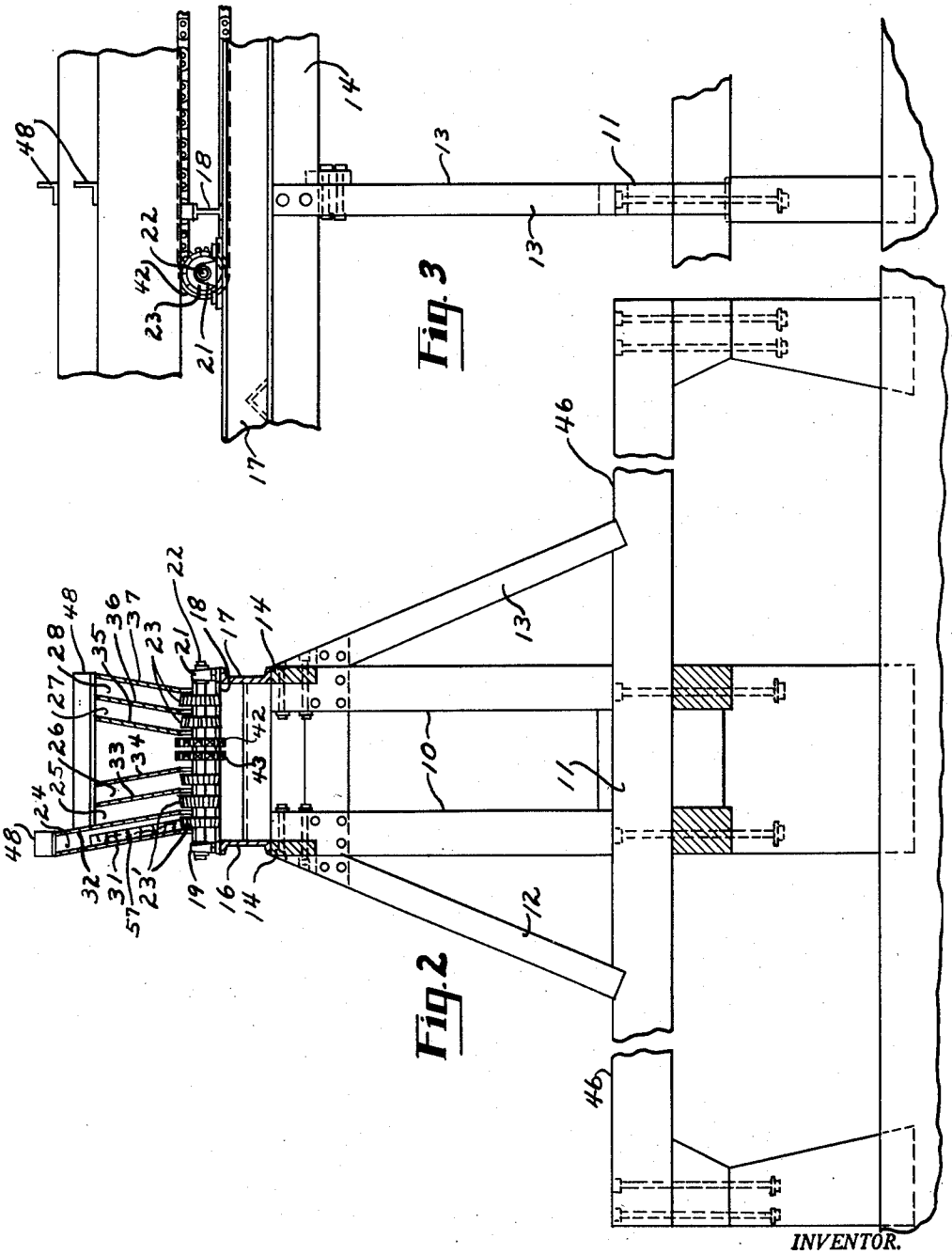


Fig. 3

Fig. 2

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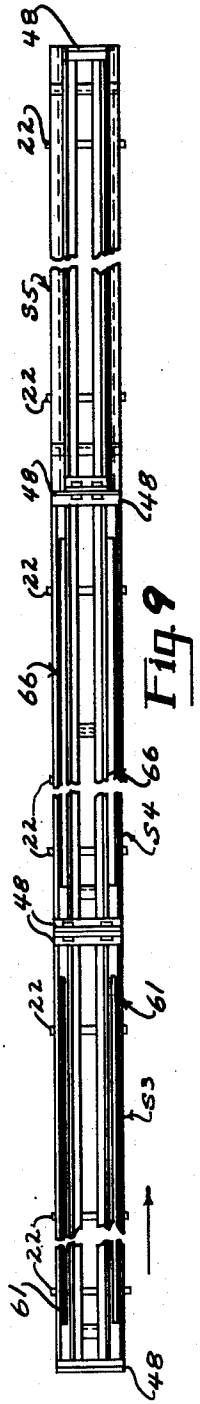


Fig. 9

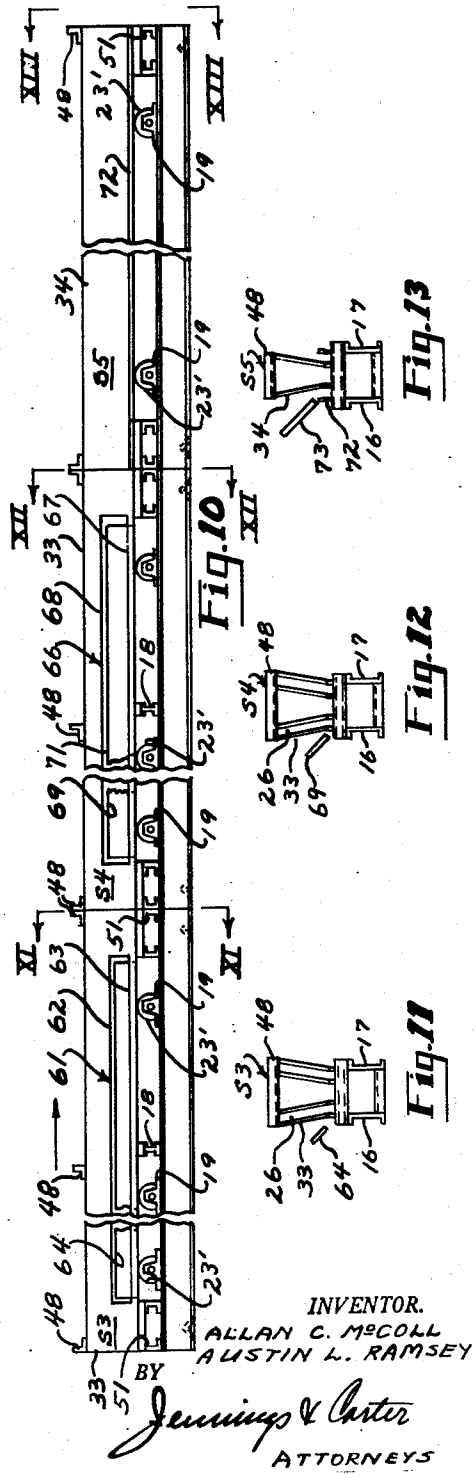


Fig. 10

Fig. 13

Fig. 12

Fig. 11

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LUMBER SORTER

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3 Claims. (Cl. 209—90)

This invention relates to apparatus for sorting lumber in accordance with its width, grade or other characteristic and has for an object the provision of apparatus of the character designated which shall be simple of design, reliable in operation and which shall have a greater capacity per sorting unit than apparatus for this purpose heretofore known to me.

A further object of our invention is to provide apparatus for sorting lumber in which the lumber is conveyed endwise and edgewise through outwardly leaning compartments to several sorting stations together with means whereby when a piece of lumber reaches a selected, predetermined station it will fall out of its compartment.

A still further object of our invention is to provide lumber sorting apparatus embodying one or more sorting compartments formed by parallel outwardly leaning walls and in which the outermost wall is provided with elongated openings through which boards of selected widths fall out by gravity as they are conveyed lengthwise and edgewise through the compartments.

Another object of our invention is to provide a lumber sorter embodying a plurality of narrow elongated compartments formed by outwardly leaning walls together with improved means for conveying lumber edgewise and lengthwise through the compartments to a plurality of sorting stations, and providing means whereby boards of selected widths are discharged at common sorting stations.

Briefly, our invention comprises an elongated frame having a loading station at one end and a plurality of lumber sorting stations at intervals along the opposite sides thereof. On the frame we provide a plurality of narrow, elongated compartments formed by outwardly leaning walls, the compartments on opposite sides leaning toward their respective sides, and with the outer walls terminating progressively from the end of the frame in which the lumber is loaded to points alongside the sorting stations. Improved conveying means is provided for conveying pieces of lumber endwise and edgewise through the compartments. By providing outwardly leaning compartments, the pieces of lumber fall by gravity at selected places outo suitable platforms provided at the sorting stations. In addition, we provide narrow, elongated openings in the outer walls of the outer compartments, alongside some of the sorting stations, each of the openings being of a length to permit a piece of lumber being sorted to fall out of the opening and of a width slightly greater than the width to be delivered at such selected sorting station. Another, wider opening is provided in the same wall at a sorting station further removed from the loading station at which wider pieces of lumber may be discharged. The outer wall terminates at a sorting station still further removed and at which still wider pieces of lumber are discharged.

Apparatus embodying features of our invention is illustrated in the accompanying drawings, forming a part of this application, in which:

Fig. 1 is a partial plan view of the apparatus, with the driving means and sorting platform removed and showing the loading section and the first and second sorting stations;

Fig. 2 is a transverse sectional view of the loading section drawn to a larger scale, and showing the supporting frame, and one of the sorting platforms;

Fig. 3 is a detail side elevational view illustrating other features of the framework;

Fig. 4 is a partial plan view drawn to a larger scale than Fig. 1 showing the loading section of the apparatus;

Fig. 5 is a side elevational view of Fig. 1;

Fig. 6 is an end elevational view of the delivery end of the loading section taken along the line VI—VI of Fig. 5;

Fig. 7 is an end view of the first sorting station looking in the direction of VII—VII of Fig. 5;

Fig. 8 is an end view of the second sorting station looking in the direction VIII—VIII of Fig. 5;

Fig. 9 is a partial plan view with parts omitted showing the third, fourth and fifth sorting stations;

Fig. 10 is a side elevational view of Fig. 9;

Fig. 11 is an end elevational view of the third sorting section looking in the direction of XI—XI of Fig. 10;

Fig. 12 is an end elevational view of the fourth sorting section looking in the direction XII—XII of Fig. 10; and,

Fig. 13 is an end elevational view of the fifth sorting section looking in the direction XIII—XIII of Fig. 10.

Referring now to the drawings for a better understanding of our invention we show an elongated frame comprised of upright members **10** mounted upon transverse base members **11** and reinforced by lateral braces **12** and **13**. Longitudinal members **14** are joined to the upright members **10**. Mounted on the longitudinal members **14** are outwardly facing channels **16** and **17** which are joined at intervals by transverse members **18**.

Mounted in bearings **19** and **21** at intervals along the frame are a plurality of shafts **22** on each of which are mounted a plurality of knurled rollers **23** and **23'**. The rollers **23** are mounted toward one end of the shaft on one side of the elongated frame and are beveled with their edges sloping downwardly toward that side of the frame, and the rollers **23'** are similarly beveled to slope downwardly toward the opposite side of the frame for a purpose to be apparent later.

Extending lengthwise of the frame we show five elongated compartments **24**, **25**, **26**, **27** and **28**, which are formed by outwardly leaning metal plates **31**, **32**, **33**, **34**, **35**, **36**, and **37**. The plates **31**, **32**, **33** and **34** lean toward one side of the frame while the plates **35**, **36** and **37** lean toward the opposite side of the frame. As will be seen from Fig. 2 of the drawing, the compartments **24**, **25** and **26** are directly over the beveled conveying rollers **23'** while the compartments **27** and **28** are directly over the beveled conveying rollers **23**.

The shafts **22** upon which the beveled rollers **23** and **23'** are mounted are driven from any suitable source of power, as through a sprocket **41**. The first shaft **22** has mounted thereon, between the compartments **26** and **27**, a sprocket **42** which drives the next succeeding shaft **22** through a sprocket **43** and chain **44**. Each succeeding shaft has mounted thereon a similar driven sprocket **43** and a driving sprocket **42**. Thus the rollers from end to end of the elongated frame are driven in unison to convey pieces of lumber lengthwise and edgewise through the several compartments, the lumber traveling through the several sections from left to right as viewed in the drawings. Pieces of lumber are loaded into the compartments **24**, **25**, **26**, **27** and **28** of the loading section of the apparatus, designated L in the drawing, and are delivered at a plurality of sorting stations designated S1, S2, S3, S4 and S5 in the drawings, the several compartments being designed, as hereinafter explained, to deliver the pieces of lumber selectively at the several sorting stations.

Each section of our improved apparatus and each sorting station is somewhat longer than the pieces of lumber to be sorted. At each sorting station, there is provided a platform 46 (Fig. 2) for receiving the pieces of lumber at that station.

The plates forming the several compartments are joined at the top by means of angle members 48. The abutting angle members 48 at the ends of the sections being joined together to form a unitary structure. Likewise, the channels 16 and 17 are joined at intervals by cross members 18 and at the ends by cross members 51, the abutting members 51 at the ends of the sections being joined together to form a unitary structure. The plates forming the compartments are supported on the cross members 18 and 51 in any suitable manner.

In describing the further construction and operation of the apparatus, only that side comprising the compartments 24, 25 and 26 will be described, it being understood that the opposite side operates and is constructed in a similar manner. It will also be understood that the various sorting stations and means for discharging pieces of lumber at the sorting stations may be varied considerably in accordance with our invention. As shown in Figs. 5 and 6, the outside wall 31 of the loading section L terminates at the beginning of the first sorting section and is followed by a low guide strip 56 which extends along the outer edge of the first sorting section S1. Thus a piece of lumber such as 57 loaded into the compartment 24 is conveyed from left to right along the outwardly leaning compartment 24 through the loading section L until it passes the end of the outer wall 31 when it falls by gravity over the guide strip 56 out of the compartment onto the first platform 46, as shown in Fig. 7.

It will also be seen by reference to Figs. 5 and 8 of the drawing that the wall 32, defining the outer leaning wall of the compartment 25, terminates at the end of the sorting section S1 and is there succeeded by a low guide strip 58. When a piece of lumber such as 59 passes the end of the wall 32 and comes opposite the guide strip 58, it falls by gravity out of the compartment at the sorting station S2, onto the platform 46 at that station.

The wall 33 forming the outer wall of the sorting stations S3 and S4, is provided with an elongated opening 61 extending substantially from end to end of sorting station S3 and is provided with upper and lower horizontal edges 62 and 63.

The opening 61 is of a length slightly greater than the length of the pieces of lumber to be sorted. The lower edge of the opening 61 is of a height corresponding to that of the guide strips 56 and 58, heretofore described, while the upper edge 62 is of a height slightly higher than the upper edge of a piece of lumber of a width to be discharged at that sorting station. For example, with a piece of lumber 64 in the compartment 26 four inches wide, the top edge 62 of the opening 61 would be some 5 inches above the top of the conveying rollers 23 so that when the piece of lumber 64 passes the rear edge of the opening 61, it falls out of the compartment 26 and is delivered at sorting station S3, as shown in Fig. 11.

The wall 33 continues through sorting station S4 and is provided at that station with an elongated opening 66 having a lower edge 67 of a height corresponding to the lower edge 63 of the opening 61 and an upper edge 68 considerably higher than the upper edge 62 of the opening 61. Thus, when a piece of lumber such as 69, wider than the piece 64, is placed in the compartment 26, it is conveyed past the opening 61, but if its upper edge 71 is below the upper edge 68 of the opening 66, it will fall out of the opening as soon as it passes the rear edge of the opening 66 and will be discharged at the sorting station S4, as indicated in Fig. 12 of the drawing.

The wall 33 may terminate at the end of sorting station S4 and be followed by a guide strip 72, similar to the guide strips 56 and 58 already described, which extends along the sorting station S5. Thus when pieces of lumber still wider than the pieces 64 and 69 are loaded into the compartment 26, they will be conveyed in the compartment 26 behind the wall 33 until they pass the end of the wall whereupon such pieces of lumber, such as 73, will fall by gravity out of the compartment and be delivered at sorting station S5, as shown in Fig. 13.

It will be understood that various changes and modifications may be made in the arrangement of the various compartments and the delivery openings in the outer walls of the compartments whereby to sort lumber according to various widths, lengths, and grades. It will also be understood that various means may be employed for conveying pieces of lumber through the compartments and that while we prefer the knurled rollers shown and described, we do not wish to be limited to that form of conveyor. It will also be apparent from the foregoing that we have devised an improved apparatus for sorting lumber which is simple of design and operation and one which is capable of wide variations in order to obtain the objects hereinbefore set forth.

While we have shown our invention in but one form, it will be obvious to those skilled in the art that it is not so limited but is susceptible of various changes and modifications without departing from the spirit thereof, and we desire, therefore, that only such limitations shall be placed thereupon as are specifically set forth in the appended claims.

What we claim is:

1. In a lumber sorter, an elongated narrow compartment, formed by outwardly leaning walls, a loading section at one end of said compartment, a plurality of sorting stations spaced at intervals alongside said compartment, means for conveying lumber edgewise and lengthwise in said compartments from the loading section to the several sorting stations comprising driven rollers having edges beveled at angles corresponding to the leaning of the compartment walls whereby to contact the lumber across the faces of the rollers, and means to discharge the lumber selectively at the several sorting stations.

2. Apparatus as defined in claim 1 in which the means to discharge lumber intermediate the ends of said compartment comprises an elongated opening formed in the outer wall of said compartment, longer than a piece of lumber to be discharged and slightly wider than said piece of lumber whereby it will fall by gravity out of said opening.

3. Apparatus as defined in claim 2 in which there are provided a plurality of parallel compartments leaning respectively toward opposite sides with a plurality of sorting stations alongside said compartments and in which more than one elongated opening is provided in the outer wall of a compartment, said openings being of different widths whereby to discharge pieces of lumber of progressively greater widths and in which still wider pieces of lumber are discharged at the ends of said compartment.

References Cited in the file of this patent

UNITED STATES PATENTS

663,681	Nichols	Dec. 11, 1900
769,567	Rice	Sept. 6, 1904
1,191,403	Crocker	July 18, 1916
2,600,147	Wilson	June 10, 1952