(No Model.)

T. B. HYMAN.

MECHANISM FOR CONVEYING AND DISTRIBUTING LUMBER.

No. 395,978. Patented Jan. 8, 1889.

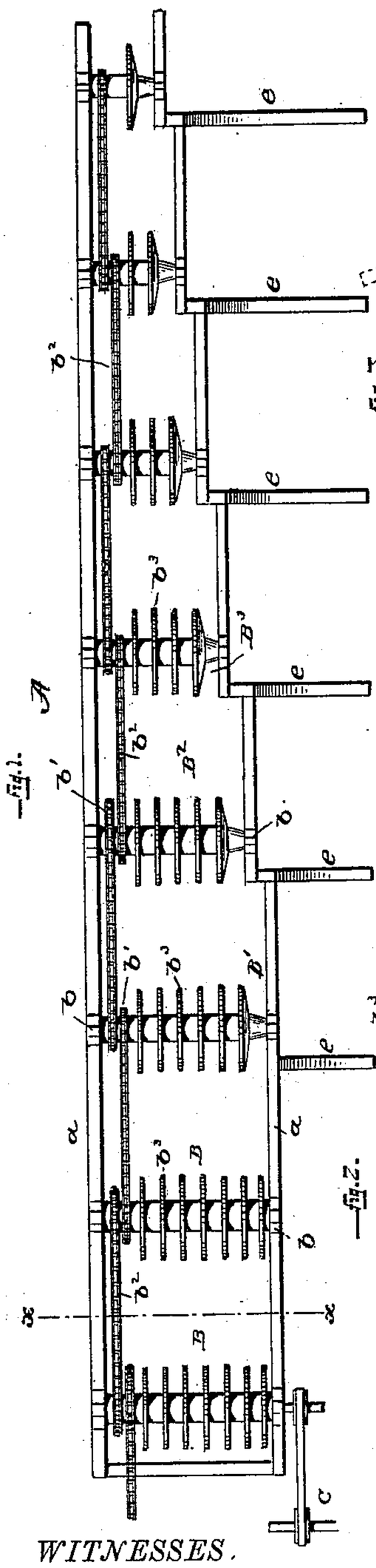

Fig. 1.

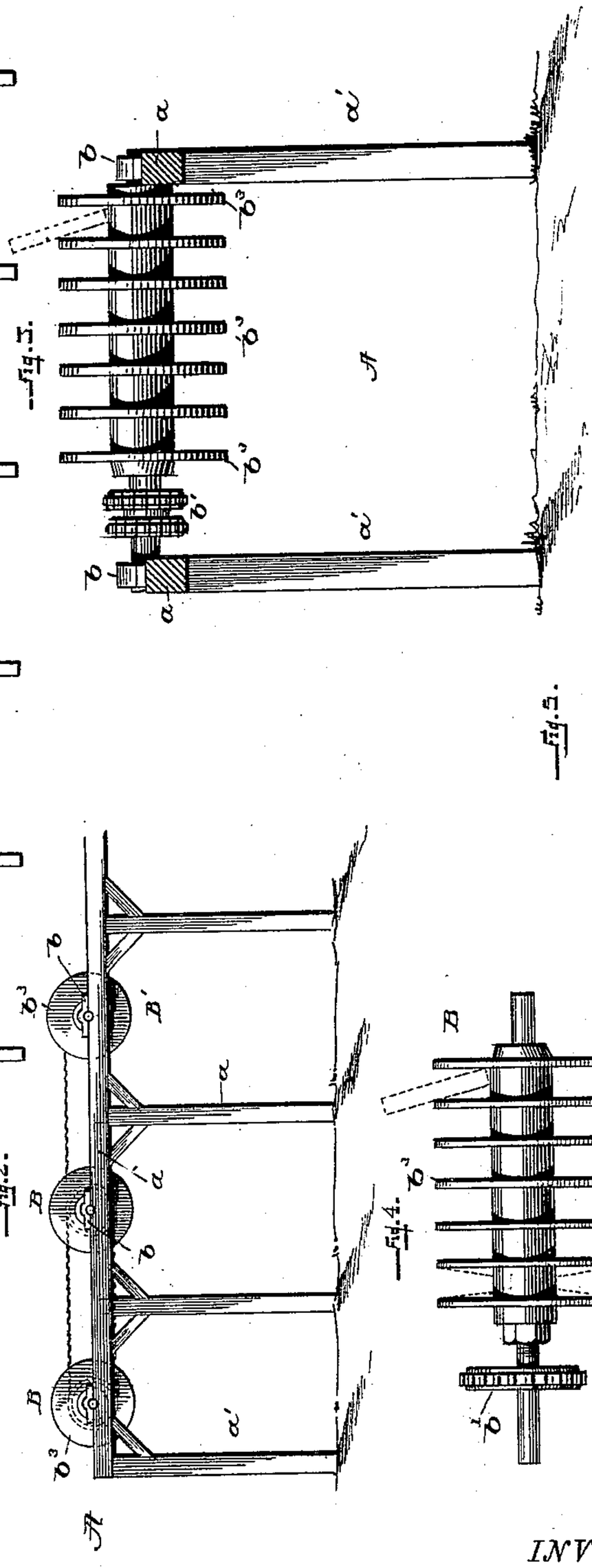

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

WITNESSES.

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MECHANISM FOR CONVEYING AND DISTRIBUTING LUMBER.

SPECIFICATION forming part of Letters Patent No. 395,978, dated January 8, 1889.

Application filed June 16, 1888. Serial No. 277,284. (No model.)

To all whom it may concern:

Be it known that I, THEODORE B. HYMAN, of Goldsborough, in the county of Wayne and State of North Carolina, have invented certain Improvements in Mechanism for Conveying and Distributing Lumber, of which the following is a specification.

This invention relates to apparatus for conveying lumber, and particularly boards or plank, which commonly have a width much greater that their thickness, from a saw-mill or other place of delivery to a distant point or points, and more particularly to apparatus in which the boards, starting from a common point, may be delivered at predetermined and different points, according to variation in size or quality.

The invention consists, essentially, in a series of parallel power-driven rolls, each provided with a series of wide annular flanges and intermediate grooves which are narrow or of slight width in the direction of the length of the roll, but of relatively great depth—that is to say, grooves the depth of which is much greater than the width—whereby they are enabled to receive thin wide boards or planks and maintain the same on edge, and at the same time carry them forward with a minimum expenditure of power and without the assistance of stationary guides or conductors.

It also consists in a series of these rolls, certain of which are made shorter than the others and suitably grouped to effect the automatic delivery of the advancing boards at different points.

In the accompanying drawings, Figure 1 represents a top plan view of a system of conveying and distributing rolls constructed according to my plan. Fig. 2 is a side elevation of a portion of the same. Fig. 3 is a cross-section of the same on the line *x x*, Fig. 1. Fig. 4 is a side view of one of the conveying-rolls. Fig. 5 is a side view of one of the conveying and delivering rolls.

Referring to the drawings, A represents a rigid frame-work extending from the saw-mill or other point where the lumber is received to the point or points at which it is to be delivered. This frame-work, which may be of any suitable construction, consists in the present instance of two side rails, *a a*, suitably braced and sustained on legs or posts *a'*. In this frame I mount a series of horizontal transverse rolls, B B', having their ends seated in journal boxes or bearings *b*, in which they turn freely. The rolls throughout the series are provided at one end with wheels or pulleys *b'* and connected by chains or belts b^2 in such manner that they are compelled to turn simultaneously in one direction. The series of rolls receives motion primarily through a shaft, C, connected with an engine or other motor. I prefer to drive each roll in the series positively, as shown; but when they are ranged in very close proximity it may be sufficient to drive the alternate rolls throughout the series.

While I prefer to use the chains and sprocket-pulleys, as shown, I may substitute therefor any equivalent mechanism such as is now used in the art for driving a series of rolls. Each roll in the series is provided with two or more wide circumferential flanges, b^3, which are constructed of such width and diameter and arranged at such distance apart that when a board is inserted edgewise between them it will be maintained in an upright position thereby, its lower edge resting on the top of the roll and its side face bearing against one or both of the flanges, as shown in Fig. 3.

I prefer to make the spaces between the flanges somewhat greater than the thickness of the lumber to be handled, first, because such construction admits of the lumber being more readily inserted, and, second, because it permits the lumber to incline slightly to one side, as shown in Fig. 3, in which position the friction of the lumber against the flanges is greatly reduced. It will be observed that when thus supported the lumber rests both at its side and at its lower edge against the roll or the moving surfaces of the roll. Owing to this fact the friction is much less than it would be if the lumber fitted closely between the flanges, and much less than it would be in an apparatus where the lumber is advanced between stationary guides.

The rolls B are constructed with an equal number of flanges and are continued from the receiving end of the apparatus to the point at which the lumber is first to be dis-

charged. When this point is reached, the next succeeding rolls B′ B′ are made with one less flange, or, in other words, have the flange at one end omitted, so that the lumber advancing thereon is left without support on the outer side, and thus set free, so that it may fall from the carrier to the ground or to inclined skids *e*, platforms, or other suitable supports. Beyond the rolls B′, at the point where the second delivery of lumber is to occur, the succeeding rolls, B^2, are formed with one flange less than the preceding rolls, that they may deliver in like manner the lumber received at their ends. The next succeeding rolls, B^3, have their flanges again reduced in number, and so on repeatedly throughout the series, each group of rolls having one flange less than those which preceded to secure the delivery of the lumber received at one end.

The operator introduces the lumber into one or another of the groups of rolls at the receiving end of the system according to the point at which it is to be delivered. If received in the first group to the right, it is discharged at the first point of delivery, if in the second group, at the second point of delivery, and so on successively. To facilitate the passage of the lumber, each delivery-roll is preferably constructed with the flange at the delivery end rounded or beveled on the outer side and with the hub or body of conical form at the delivery end, as shown in Fig. 5. To facilitate the introduction of the lumber, the grooves may be made of increasing width toward the periphery of the rolls, as shown in dotted lines in Fig. 4.

The very essence of my invention resides in making the circumferential grooves or channels of a depth materially exceeding their width—preferably of a depth two or three times the width—so that the boards or planks inserted in the adjacent grooves will be maintained on edge and separated from each other.

I am aware that in iron-rolling mills it is common to employ so-called "tables" to carry wide heated slabs or plates in a horizontal position, said tables consisting of power-driven rolls having narrow annular flanges with wide shallow grooves between them, the flanges serving to support and carry the plates, which lie upon them without entering the intermediate grooves, which latter permit the circulation of air, so as to prevent the overheating of the rolls.

It will be observed that by the employment of narrow and deep grooves I am enabled to construct my apparatus of moderate width at the receiving end, so that the attendant assorting the material as it leaves the saw may by moving it a short distance start it for any one of many delivery-points. This reduction in the width of the apparatus is of importance not only in greatly reducing the labor of handling the lumber, but also in that it permits the apparatus to be introduced into the mill where the employment of a wide conveyer to carry the boards on their side faces would be inadmissible.

I am aware that cylindrical carrying-rolls having no flanges whatever have been arranged beneath stationary parallel channels or raceways to carry lumber, the lumber being carried in frictional contact with the fixed walls of the race, and the latter being so proportioned and obliquely arranged that the lumber entering the different channels is delivered at different points, and to such structure I lay no claim.

I am also aware that rolls having circumferential grooves have been combined with stationary parallel walls or guides seated permanently in the grooves, so that lumber could be placed upon and carried by the outer circumference of the rolls while sustained on edge by and between the guides.

Having thus described my invention, what I claim is—

1. In an apparatus for conveying boards or planks in different parallel paths, a series of succeeding power-driven rolls, each provided with a series of narrow circumferential grooves having a depth much greater than the width, said grooves open or unobstructed at the top to permit the insertion of the boards therein, whereby the rolls are adapted to receive and maintain the boards on edge and carry them endwise in their respective grooves.

2. In an apparatus for conveying and distributing lumber, a series of parallel or substantially parallel power-driven rolls, each having deep and relatively narrow circumferential grooves open or unobstructed at the top, the rolls at the receiving end of the system having a greater number of grooves than the remainder, the rolls at an intermediate point in the system having a less number of grooves than those of the receiving end, and the rolls at the terminal end of the system having a less number of grooves than those at intermediate points, whereby the lumber inserted in the different grooves at the receiving end is carried forward and delivered automatically at different points in the length of the apparatus.

3. In an apparatus for conveying and distributing lumber, the combination of a series of parallel power-driven rolls provided with open unobstructed narrow and relatively deep circumferential grooves, the grooves of the successive rolls diminishing in number toward the delivery end of the system.

4. In an apparatus for conveying and distributing lumber, two or more parallel power-driven rolls having narrow and relatively deep grooves to sustain and carry the lumber on edge therein and a succeeding roll having a beveled flange or hub to effect the lateral delivery of the lumber as it passes thereto.

5. In an apparatus for conveying and distributing lumber, a conveyer-roll provided with a series of narrow and relatively deep grooves to sustain and carry the boards on

edge therein, and having also at one end a beveled flange or hub to effect the lateral delivery of boards received at that point.

6. In an apparatus for conveying and distributing lumber, a series of horizontal grooved rolls mounted in suitable bearings, successive rolls at the delivery end of the series, with diminishing number of grooves and conical ends, and the receiving ways or platforms located at different points in the length of the system.

In testimony whereof I hereunto set my hand, this 14th day of May, 1888, in the presence of two attesting witnesses.

THEODORE B. HYMAN.

Witnesses:

Z. T. BROWN,

G. W. RICHARDSON.