(No Model.) 2 Sheets—Sheet 1.

H. B. PHILLIPS & W. M. WHALEY.

LUMBER ASSORTER.

No. 369,550. Patented Sept. 6, 1887.

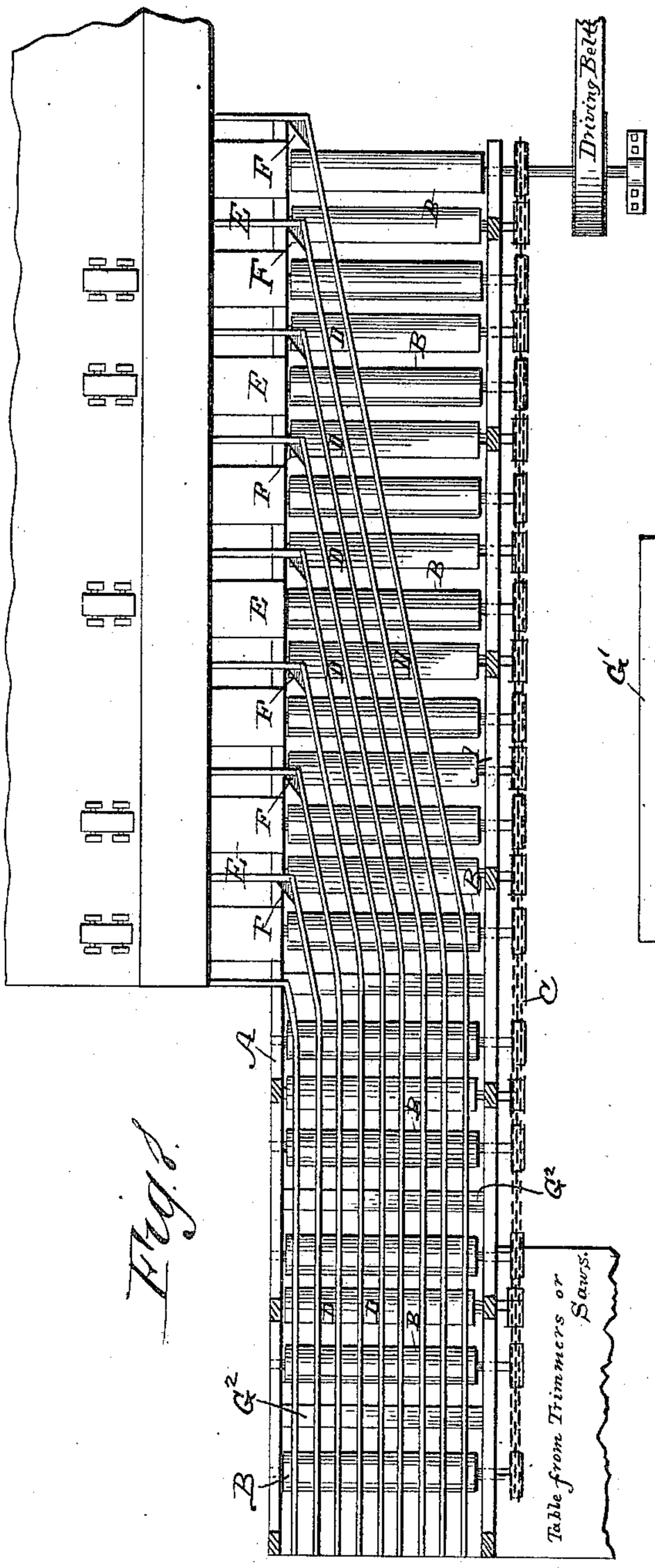

Fig. 1.

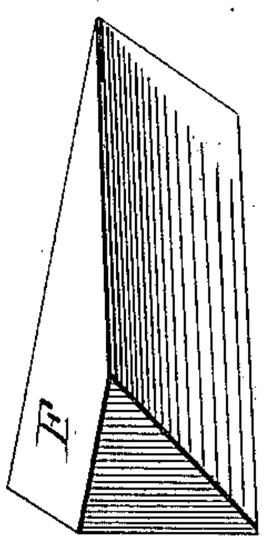

Fig. 3.

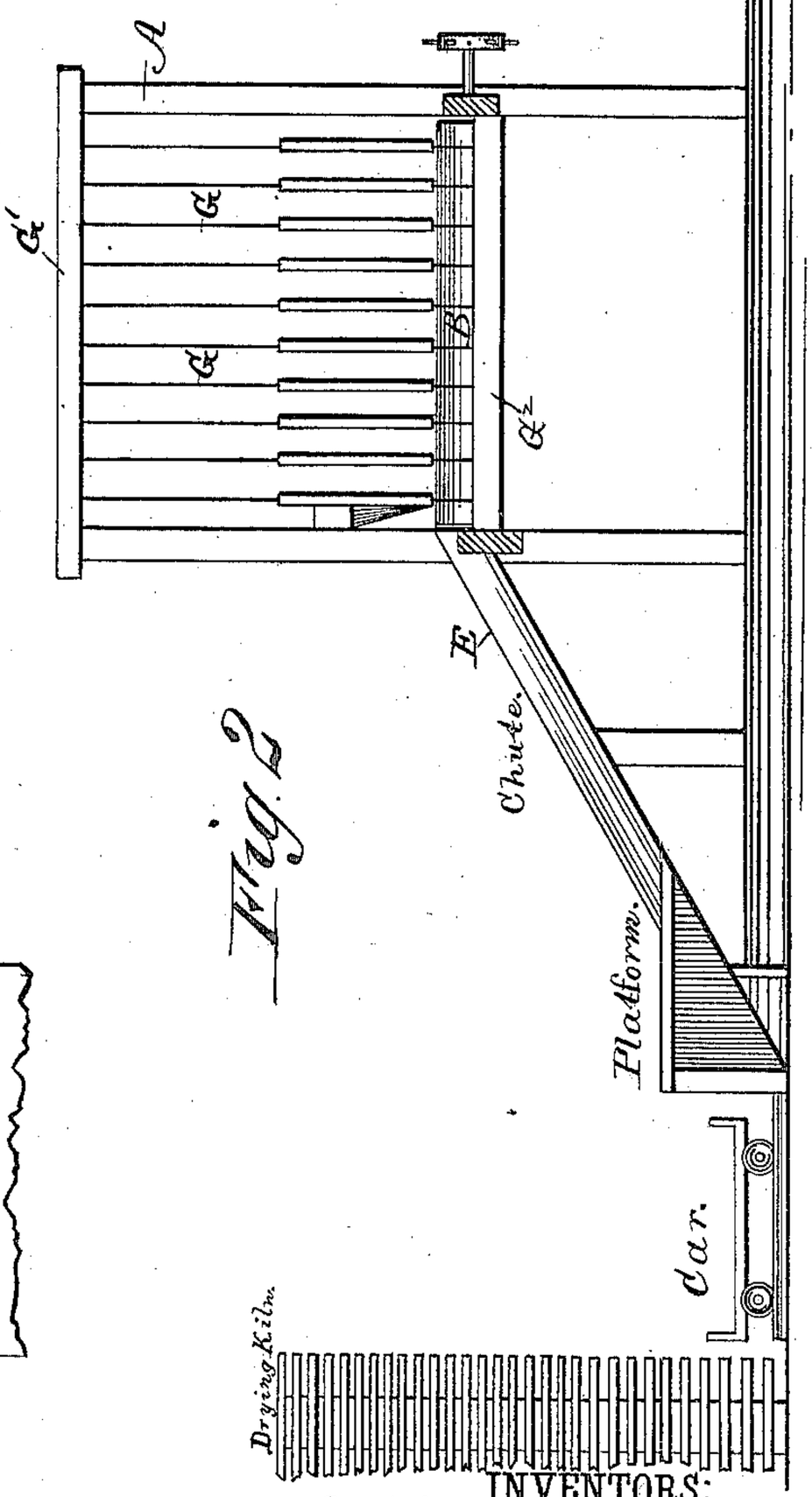

Fig. 2.

WITNESSES:

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INVENTORS:

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(No Model.) 2 Sheets—Sheet 2.

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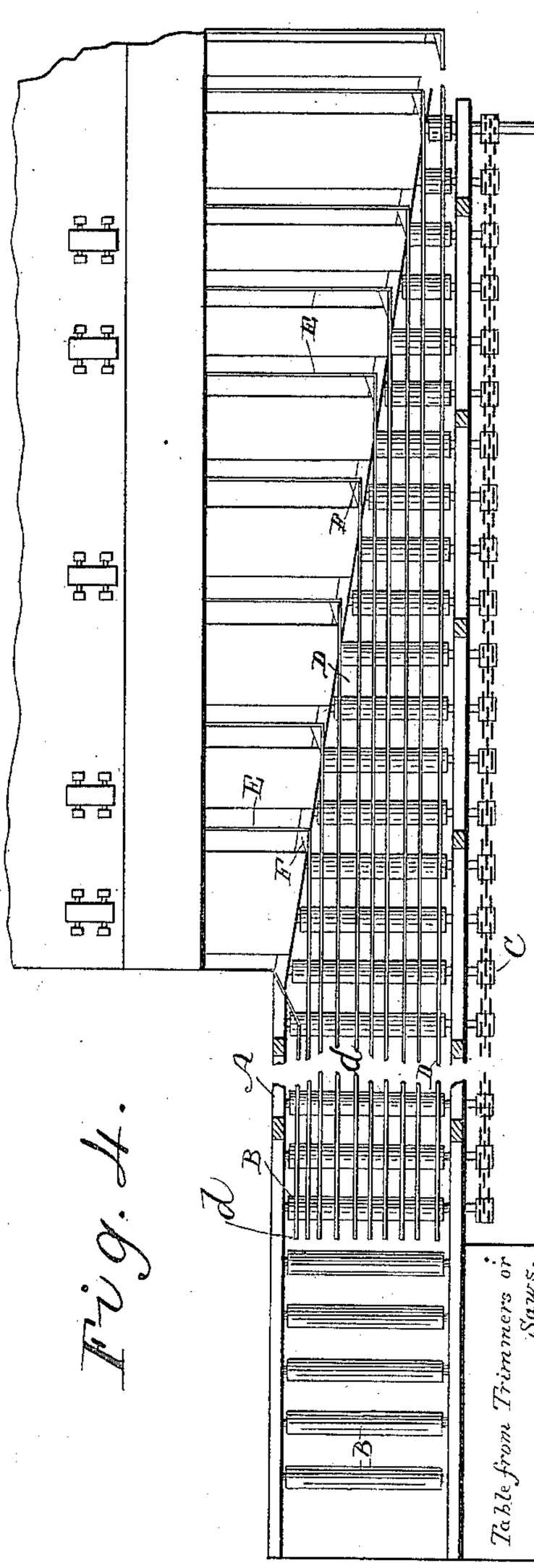

Fig. 4.

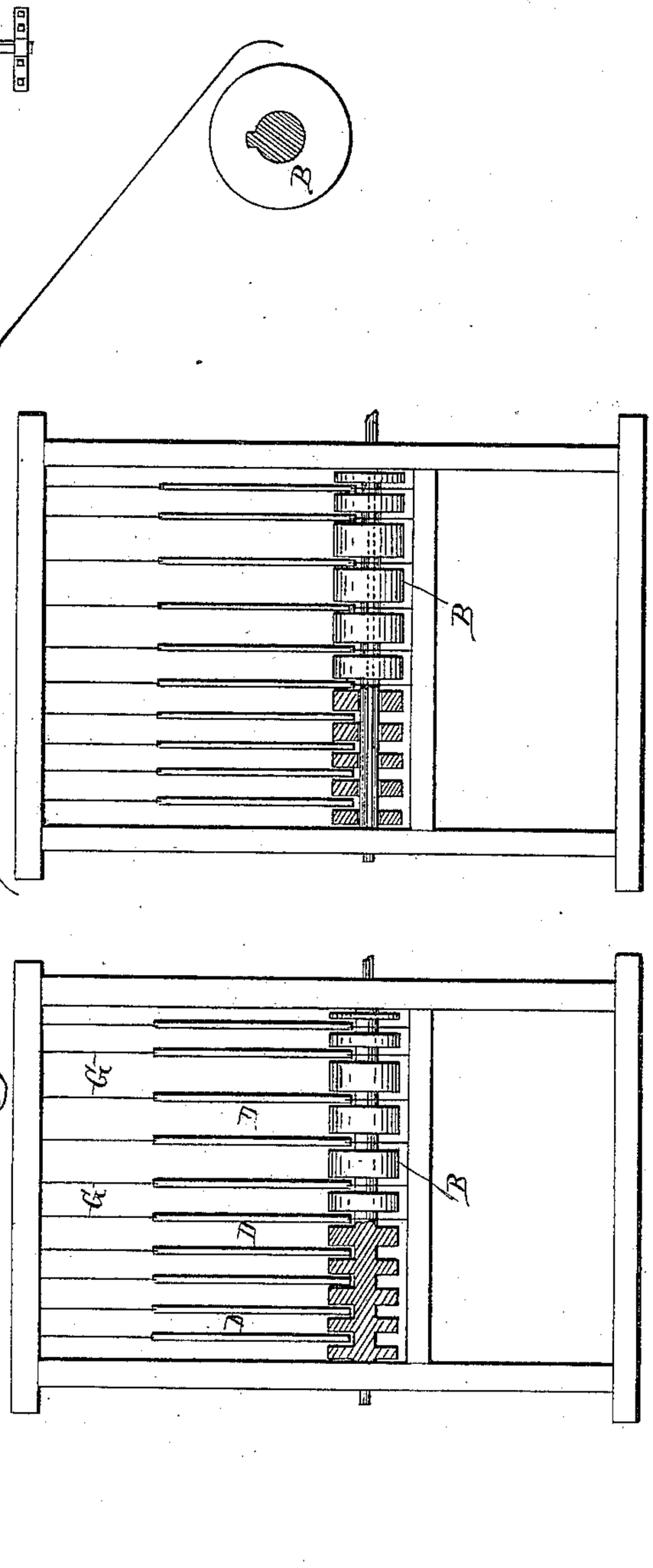

Fig. 6.

Fig. 5

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UNITED STATES PATENT OFFICE.

HORACE B. PHILLIPS AND WILLIAM M. WHALEY, OF SUFFOLK, VIRGINIA, ASSIGNORS TO CURRAN & WOLFF, OF CHICAGO, ILLINOIS.

LUMBER-ASSORTER.

SPECIFICATION forming part of Letters Patent No. 369,550, dated September 6, 1887.

Application filed October 24, 1885. Serial No. 180,866. (No model.)

To all whom it may concern:

Be it known that we, HORACE B. PHILLIPS and WILLIAM M. WHALEY, citizens of the United States, residing at Suffolk, in the county of Nansemond and State of Virginia, have invented a new and useful Improvement in Lumber-Sorters, of which the following is a description.

This invention relates to an assorter and multiplex conveyer for receiving and carrying away sawed planks or boards of different lengths and grades as they come from the trimming-saws or other mechanism of a saw-mill. The apparatus is of a kind into the separate carriers of which operatives, standing at the trimmer or other machine, distribute the trimmed lumber, assorting the stuff with respect to the varying length or with respect to the "grade" or quality of the boards, or both. In other words, the operatives, in fact, do the assorting of the sawed lumber as they place it in the several carrying-troughs of the machine, and the latter distribute the stuff at different points of delivery without necessary aid from operatives at such points of delivery. The machine is therefore to be distinguished, at the outset, from so-called "assorters" in which the stuff is automatically distributed with respect only to the varying length of the stuff, such stuff being graded at the delivery ends of the carriers by operatives standing there for this purpose. Some of our improvements are, however, manifestly applicable to such automatic machines.

The machine here described comprises a series of guideways or troughs having their receiving ends located in the vicinity of the trimming-saws or other apparatus and extending away from said point to separate but adjacent points of delivery, the guideways being preferably and usually provided with actuated rollers at the bottom, upon which the lumber rests and by which it is moved away.

One object of the invention is to contract the space occupied by the assorter at its receiving end, whereby more numerous troughs may be employed in convenient reach of the operatives, or whereby all the troughs may be made conveniently accessible at their receiving ends to the said operatives.

To this end the invention consists in constructing the several guideways in such form as to receive the sawed boards on their edges only and to sustain them in this attitude while being carried away.

Another object of the invention is to deliver the stock automatically or without the aid of operatives at the delivery end of the machine and in separate piles located end to end and in line or in parallel lines with each other.

To this end the invention consists in making the guideways of unequal length and terminating one beyond another at their delivery ends a distance equal to or greater than the length of the boards to be carried severally thereby. The receptacle for the lumber to which it will be delivered from the guideways will commonly be below the level of the delivery ends of the guideways, and may consist of a portion of the yard, which will be preferably reached by means of a chute or chutes, down which the lumber may easily slide sidewise without injury.

Another object of the invention is to deliver the stock from the guideways laterally or sidewise instead of endwise.

To this end the invention consists in making one wall of each guideway longer than the other and each guideway (after the first or shortest) opening beyond another adjacent thereto.

Still another object of the invention is to provide means for turning the boards from their position on edge to a position on their broad sides as they laterally leave the guideways, as above described, and descend therefrom to the yard or receptacle.

To this end the invention consists in providing deflectors at the discharging ends of the guideways suitable to turn the boards over from their edgewise position upon their sides.

In coming to an understanding of the character and advantages of the present improvements it is to be remarked that heretofore, first, no lumber-assorter has been known in which the sawed boards are received and carried upon their edges, and, second, that no multiplex assorter has been known in which the assorting could be accomplished with respect to the different grades or qualities of the stuff as it is first delivered to the apparatus, but only with respect to the lengths of

the stuff, and that in this case such distribution as to lengths was done automatically and not by operatives. In this case, also, the grading has been done, if at all, by the operatives standing at the discharging ends of the guideways.

In the accompanying drawings, Figure 1 is a plan view, and Fig. 2 is a cross-sectional view, of our improved assorter. Fig. 3 is a detail view of a suitable deflecting device; and Figs. 4, 5, and 6 show modifications of our improvements.

In carrying out our invention we provide a framing, A, in which are journaled the carrier-rollers B, having wheels or pulleys *b*, engaged by the band C or otherwise suitably driven at a uniform speed. One of the rollers is geared in a suitable manner with an engine or other suitable motor, so that the rollers will be properly driven.

It will be understood that the rollers B may be cylindrical, with their upper sides close to the lower edges of the guideway-partitions, as shown in Fig. 2, or that they may be formed of a series of pulleys fitting closely between said partitions and formed integral with or keyed upon a shaft, as will be understood from Figs. 5 and 6. On this framing A are formed the longitudinal guideways D, arranged side by side and extending longitudinally or diagonally to the line of motion of the carrier. The receiving ends of the guideways are all in the vicinity of the trimming-table or of the discharge from the saws or planing-mills with which the apparatus is employed. The guideways terminate one beyond another at their discharge ends and by preference severally open laterally, as shown, so as to deliver the boards sidewise instead of lengthwise. To give the latter effect the guideway-partitions *d d* are extended unequally at the discharge ends of said ways, the distance between the end of one of said partitions and that of the adjacent one (terminating beyond it) being equal to or greater than the length of the boards to be delivered, so that the rear end of a board will be clear of the shorter wall or partition *d* when its forward end has reached the end of the longer wall or partition. By this means the boards may fall sidewise into the receptacle in piles arranged end to end, but clear of each other.

The diagonal arrangement of the guideways is preferred, because by it said ways are caused to terminate and discharge one in the rear of the other and all in a common straight line parallel with the line of motion of the carrier, as illustrated in Fig. 1.

It is a distinctive feature of our invention that each of the guideways D is made of only sufficient width to easily receive a board of the thickness it is intended to convey when set on edge, and that the partitions and vertical walls *d* of said guideways are made of suitable height to bear at or so near the upper edge of the boards as to retain them in their edgewise position while being carried forward from the point of their insertion. The said guideways are preferably made open at their receiving ends, so that the boards may be thrust endwise into them, as clearly shown. By thus making the guideways so narrow as to require the boards to be inserted edgewise, manifestly a large number of such guideways may be employed in the assorter, while all of them may have their receiving ends located in a much narrower space than would be required if the boards were to ride flatwise, so that all of the guideways are in effect equally convenient to the operative or operatives by whom the boards are taken from the trimmer or other machine and delivered to the assorter.

To turn the boards over from their edgewise position when discharged, there is placed a deflector, as F, at the rear end of each guideway-partition (except the shortest) and on the side thereof adjacent to the next and shorter partition. This deflector, upon being struck by a board, tilts the same over upon one side, in which position it is discharged and may slide or fall into the yard or receptacle. Each of these deflectors, as here shown, has its working-face inclined outwardly and forwardly, and also inclined inwardly and downwardly, as more clearly seen in Fig. 3. The precise construction shown is, however, not essential.

E is an inclined chute located alongside the elevated framing A at the delivery ends of the guideways and leading downwardly into a receiver, which, as already stated, may be simply a portion of the yard into which it is desired that the lumber shall be discharged by the assorter. Said inclined chute may of course be omitted; but it is desirable, for the reason that it eases the descent of the lumber, and consequently delivers the latter in better condition.

From the foregoing description it will be seen that all manual labor involved in the assorting, distribution, and separate delivery of the lumber is performed at the receiving end of the assorter. It will also be seen that the assorting, either with reference to the dimensions of the stuff or with reference to its grade or quality, or both, may be conveniently effected by a less number of operatives by reason of the relatively narrow and deep construction of the guideways by which the lumber is received on edge, because this construction enables the said receiving ends of all the guideways to be located in a relatively narrow compass adjacent to the position of the operative, and that the lumber is automatically delivered at the discharge end in separate and distinct piles, according to grade and dimensions and without the aid of operatives at that point.

It will be understood that the lateral discharge of the lumber may be equally well effected if the guideways are continued in line with the direction of motion of the carrier and the general discharge line is made oblique, as shown in Fig. 4. It will also be understood that, for some purposes of our invention, instead of a receiver located laterally to the set

of guideways and having the latter adapted to discharge sidewise, said guideways may be arranged to discharge forwardly from their ends in piles parallel with each other, but one beyond another.

Manifestly, instead of the many rollers here shown, other carriers of suitable construction may be employed, or a carrier may be omitted and the operator at the receiving end of the carrier may push the boards forward in the guideways as each following board is placed therein.

The guideway walls or partitions *d* are desirably secured by means of metallic rods G, extending vertically through the partitions and secured at their upper and lower ends in cross-bars G′ G².

We claim as our invention—

1. A lumber-assorter comprising a series of relatively narrow and deep guideways or troughs formed and separated by vertical walls or partitions located sufficiently near each other—less than the width of the boards to be carried thereby—and of suitable height to receive and sustain single sawed planks or boards upon their edges between them, whereby the receiving ends of all the guideways may be located in a narrower space than when constructed to receive the boards flatwise, in order to facilitate the delivery of the boards to the several guideways.

2. A lumber-assorter comprising a plurality of guideways or troughs arranged side by side and having their discharging ends arranged in line with and adjacent to each other and one beyond another, and having their side walls of unequal length, whereby the troughs have an increased width at their discharging ends, substantially as and for the purpose set forth.

3. A lumber-assorter comprising a plurality of guideways or troughs arranged side by side and terminating one beyond another, each guideway having its wall adjacent to its longer neighbor of length greater than its opposite wall by a distance equal to or greater than the length of the boards to be carried thereby, and having its bottom support for the boards continued beyond the shorter wall, whereby the boards may be discharged sidewise and laterally to the direction of the way, substantially as described.

4. A lumber-assorter comprising a plurality of guideways or troughs formed and separated by relatively high vertical walls located at a suitable distance apart to receive and sustain sawed planks upon their edges, one of the walls of each guideway being longer than the other at the discharging end of the way by a distance equal to or greater than the length of the boards to be carried in said guideway, and having its bottom longer than the short wall, whereby the boards may be discharged laterally or sidewise and in separate piles, substantially as described.

5. The combination, with a guideway of a lumber-assorter constructed, substantially as described, to carry boards on their edges, and having a laterally-open discharging end of a width equal to or greater than the length of the boards to be carried thereby, of a deflector at the discharging end of the guideway, arranged to bear sidewise against the boards at or near their edges to tilt them from an edgewise to a flatwise position as they severally leave the guideway, substantially as described.

6. The combination, with the relatively deep and narrow guideway of a lumber-assorter, adapted to receive and convey a board upon its edge, and having one of its vertical walls longer than the other at its discharging end, whereby the board may be discharged broadside, of a deflector located a suitable distance beyond the shorter wall of the guideway, whereby, when the board shall have passed said shorter wall, it may be tilted over from its edgewise position, substantially as described.

7. In a lumber assorter and conveyer, a guideway constructed to discharge sidewise, as shown, and provided at its delivery end with a deflector having its acting face inclined forwardly and outwardly, and located in position to tilt the boards over from an edgewise to a flatwise position as they severally leave the guideway, substantially as described.

8. In a lumber assorter and conveyer, the combination, with a carrier forming a moving support for the boards, of a series of guideways which proceed for a part of their length from their receiving ends in the line of motion of the carrier and for the remainder of their length at an inclination to said line and parallel with each other, but over the carrier, and terminating one beyond another, each of said ways having its discharging end of increased width equal to or greater than the length of the boards carried thereby, by which means the boards are discharged sidewise or laterally to the course of the guideways, substantially as described.

9. In a lumber assorter and conveyer, the combination, with a series of elevated guideways constructed to discharge the boards sidewise, and having their discharging ends arranged one beyond the other with reference to the direction of motion, of an inclined chute arranged to receive the lumber from the several guideways and deposit the same in piles end to end at the bottom of the chute, substantially as described.

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A. W. ELEY.