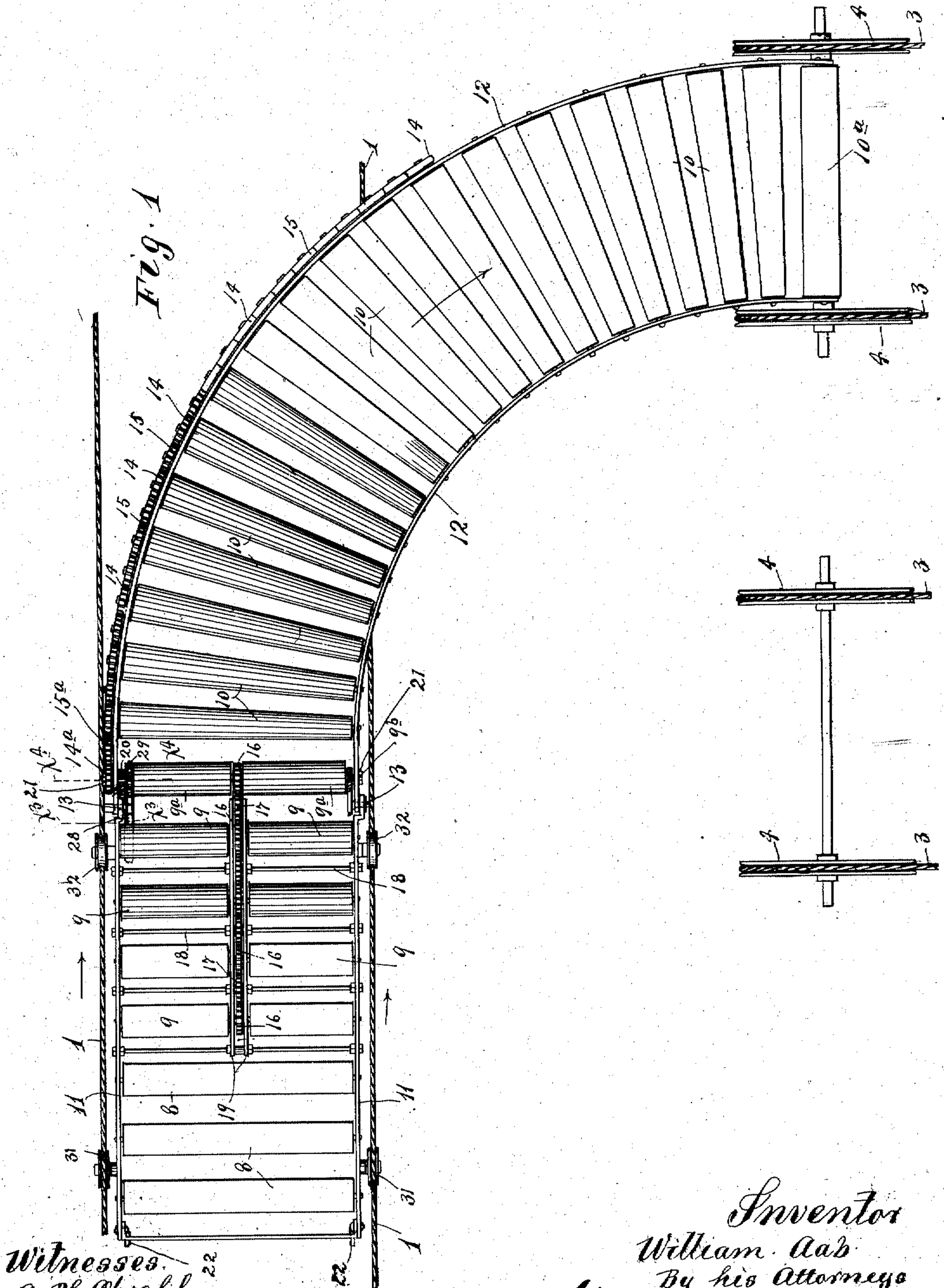


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CARRIER SYSTEM.  
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982,920.

Patented Jan. 31, 1911.

2 SHEETS—SHEET 1.

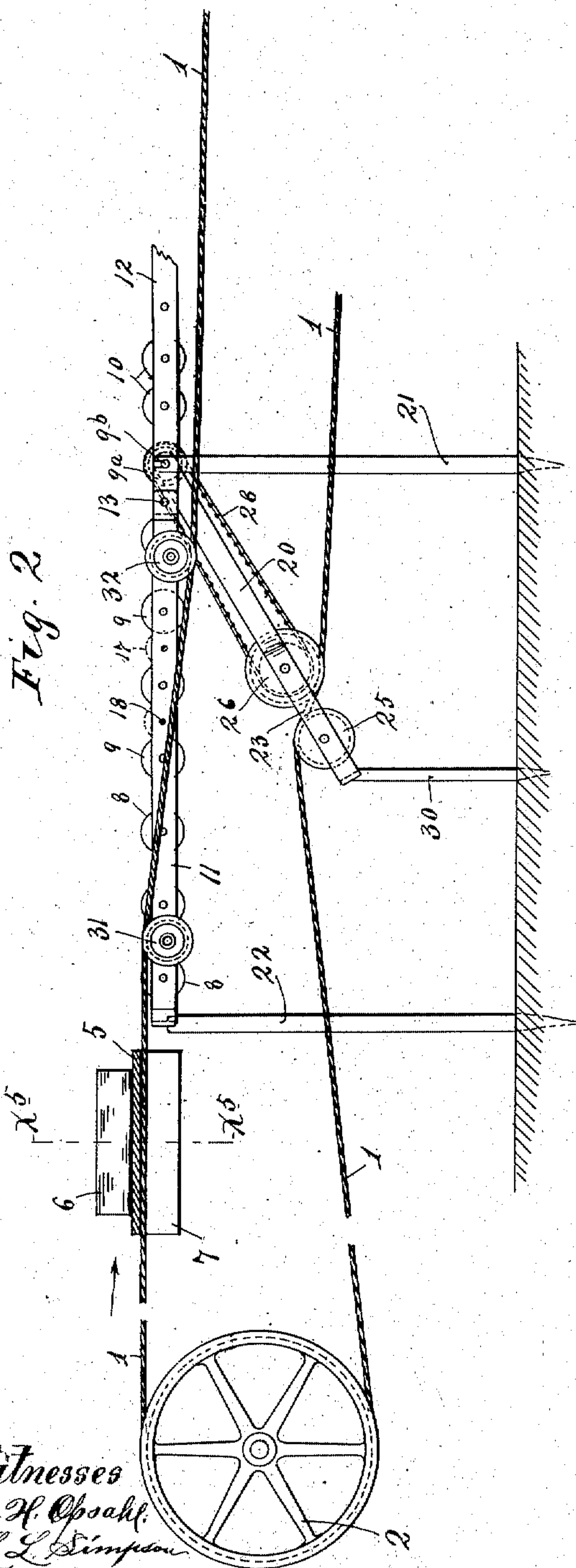


Witnesses.  
A. H. Opsahl.  
L. L. Simpson.

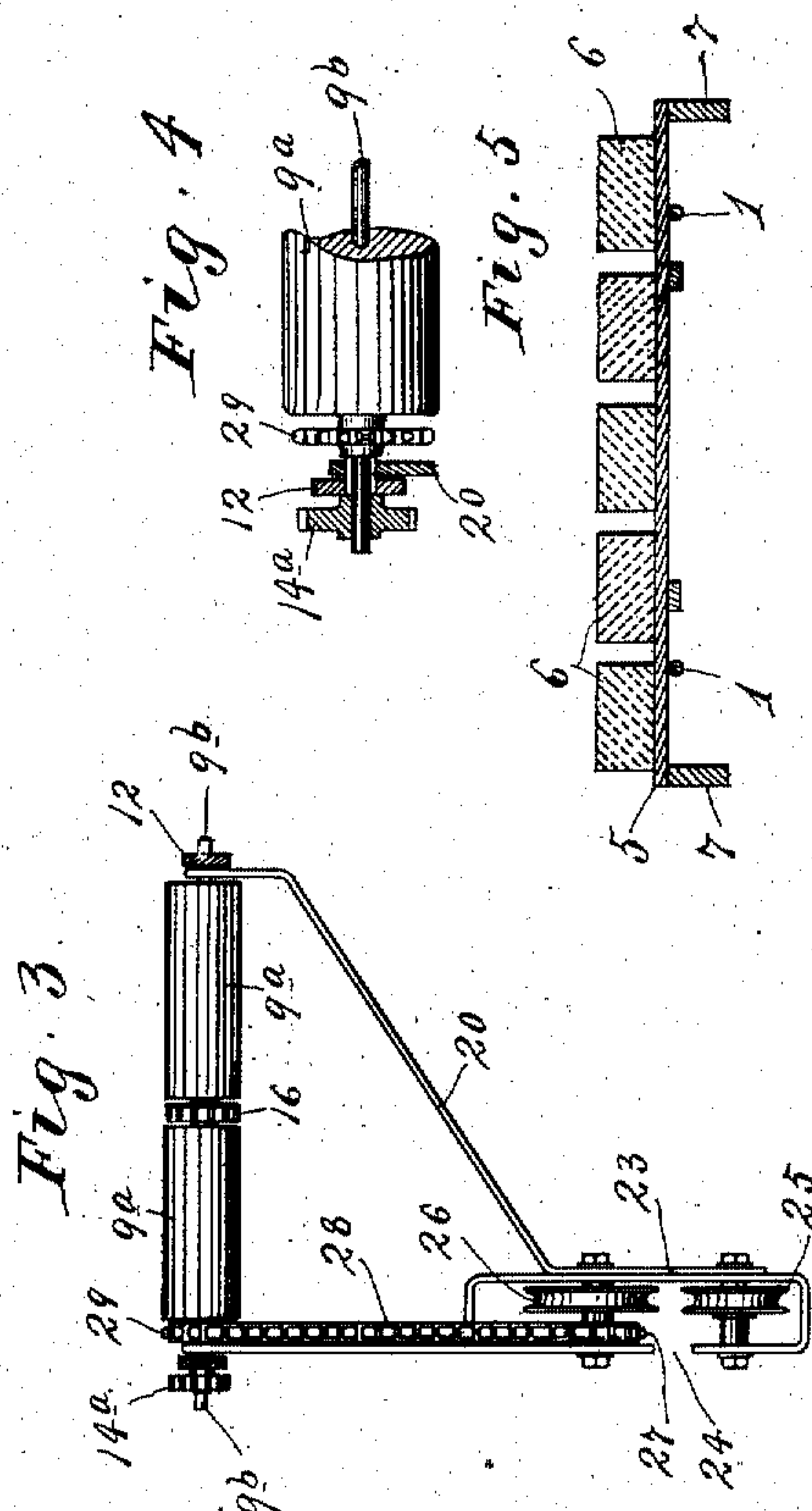
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# UNITED STATES PATENT OFFICE.

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## CARRIER SYSTEM.

982,920.

Specification of Letters Patent.

Patented Jan. 31, 1911.

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*To all whom it may concern:*

Be it known that I, WILLIAM AAB, a citizen of the United States, residing at New Ulm, in the county of Brown and State of Minnesota, have invented certain new and useful Improvements in Carrier Systems; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to carrier systems, and has for its especial object to provide an improved transfer mechanism for transferring parcels from one carrier to another, which runs at an angle thereto.

To the above ends, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

This improved transfer mechanism is especially adapted for use in connection with carrier systems wherein there is a main or primary carrier, and one or more branch or secondary carriers running approximately at a right angle thereto, and where the said carriers are made up of laterally spaced endless carrier belts or cables and cooperating guiding and driving wheels. Carrier systems of this character are capable of a very wide range of use, and they are found very serviceable, for example in brickyards, for the purpose of conveying pallet boards loaded with bricks from the press along the main or primary carrier to one or the other of the several branch or secondary carriers, by which latter the loaded pallet boards are carried to suitable places of deposit.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings: Figure 1 is a plan view showing the improved transfer mechanism; Fig. 2 is a side elevation of the transfer mechanism, some parts being broken away and some parts being removed; Fig. 3 is a detail in transverse vertical section, taken approximately on the line  $x^3 x^3$  of Fig. 1; Fig. 4 is a detail partly in elevation and partly in section on the line  $x^4 x^4$  of Fig. 1, some parts being broken away; and Fig. 5 is a detail in section, taken on the line  $x^5 x^5$  of Fig. 2.

Of the parts of the carrier system proper, the numeral 1 indicates the parallel endless

cables of the main or primary carrier, which run over suitable guiding or driving wheels or sheaves, one of which driving wheels is shown in Fig. 2, and is indicated by the numeral 2.

The numeral 3 indicates the endless cables or belts of the secondary or branch carriers, which as shown, run at right angles to the cables 1, and over suitable driving and guiding sheaves 4, several of which are shown diagrammatically in Fig. 1.

Pallet boards 5, see Figs. 2 and 5, adapted to support bricks 6, are provided at their ends with depending flanges 7, and are adapted to be placed loosely upon the upper horizontally extended portions of the carrier cables 1, and to be carried to or past any of the secondary or branch carriers 3. My improved mechanism, which will now be described, is portable, and is adapted to be set so that it will deliver the pallet boards from the main carrier cables onto any pair of branch carrier cables 3, and in the act of transferring the pallet boards, it will turn the same so that they will be delivered onto the said cables 3 at a right angle thereto.

The transfer device comprises a multiplicity of rollers 8, 9, 9<sup>a</sup>, 10 and 10<sup>a</sup>. The rollers 8 and 9 are journaled in parallel straight bars 11, and the rollers 9<sup>a</sup>, 10 and 10<sup>a</sup> are journaled in concentric curved bars 12, which bars 11 and 12 are suitably tied together and rigidly connected to afford a suitable roller supporting frame work. The bars 11 and 12 are pivotally connected at 13, so that the bars 11 with the rollers supported thereby may be raised and lowered, for a purpose which will presently appear, while the bars 12 and the rollers supported thereby are supported in a fixed adjustment.

The rollers 8, 9, 9<sup>a</sup> and 10<sup>a</sup> are cylindrical, while the rollers 10 are tapered or conical, so that they will properly convey the pallet board or other article on the curved line of the bars 12. The shafts of the rollers 10 project at their large ends and are provided with gears 14 that mesh with intermediate gears 15 loosely journaled on the outer face of the outer bar 12. If desired, the gears 14 may be left off from some of the rollers 10 at the delivery end of the transfer device, because the acquired momentum of the loaded pallet board or other article being conveyed, will carry it over quite a number of said rollers and onto the cooperating receive-



ing or branch carrier cables. The gear 14 on the receiving member of the tapered rollers 10, is connected by an intermediate gear 15<sup>a</sup> to a gear 14<sup>a</sup>, secured on the projecting shaft 9<sup>b</sup> of the roller 9<sup>a</sup>. The rollers 9 and 9<sup>a</sup> are bifurcated or formed of longitudinally spaced sections, and their shafts between the roller sections, are provided with spur gears 16 that mesh with intermediate gears 17, shown as journaled on tie rods 18 that connect the bars 11. These gears 16 and 17 and the gears 14, 15, 14<sup>a</sup> and 15<sup>a</sup>, connect the rollers 9, 9<sup>a</sup> and 10 for rotation in the same direction. As shown in Fig. 1, metal straps 19 connect the intermediate portions of the tie rods 18 on opposite sides of the gears 16 and 17.

The prongs or side bars of the U-shaped frame 20 are pivotally connected at their upper ends to the shaft 9<sup>b</sup> of the roller 9<sup>a</sup>, and the ends of said shaft 9<sup>b</sup> in the construction illustrated, project for engagement with notched upper ends of supporting posts 21. Similar supporting posts 22 support the receiving end of the frame made up in part of the bars 11. The lower portion of the frame 20 carries a bearing bracket 23, which in one side has a cable passage 24. In the lower portion of the bracket 23, a guide sheave 25 is loosely journaled, and in the upper portion of said bracket 23, a driving sheave 26 which carries a driving sprocket 27 is loosely journaled. A sprocket chain 28 runs over the sprocket 27 and over a small sprocket 29 secured on the shaft 9<sup>b</sup> at one extremity of the roller 9<sup>a</sup>.

The numeral 30 indicates a post used to support the depending free end of the frame 20.

Loosely journaled on the receiving end of the bars 11, are idle guide sheaves 31, and on the delivery end portions of said bars, are loosely journaled similar idle guide sheaves 32.

When this transfer device is properly set for delivery from the main carriers 1 to the branch carriers 3, the frame thereof will be secured by the posts 21 and 22 and any other suitable supporting devices; the upper portions of the main carriers 1 are run over the cooperating guide sheaves 31 and under the cooperating guide sheaves 32; the lower portion of one of the carriers 1 will then move laterally through the opening 24 in the bracket 23, and is passed under the driving sheave 26 and over the idle sheave 25, and by an upward adjustment of the frame 20, the two sheaves are caused to kink the said carrier until it is given the required driving friction. When the cables 1 are then driven in the direction marked by the arrow thereon in Fig. 2, the driven rollers 9, 9<sup>a</sup> and 10 will be rotated in the direction to convey the pallet boards or other articles from the main cables onto the aligned branch or secondary

cables. By reference to Fig. 2, it will be noted that the guide sheaves 31 cause the cables 1 to deliver the pallet boards onto the upper surfaces of the rollers 8, and that the sheaves 32 direct the cables downward under the frame and rollers of the transfer device. It will also be noted by reference to Fig. 1, that the roller 10<sup>a</sup> is arranged to deliver pallet boards onto the cooperating branch cables 3.

Obviously this transfer device may be easily moved and set for delivery at any of the several pairs of branch cables 3. In moving the same from one position to another, it is not necessary to disturb the connections between the main cables 1 and the cooperating driving and guiding sheaves of the transfer device.

From the above description, it is evident that the transfer device is reversible,—that is, it can be turned either side up so as to be used either as a right or left hand delivery device and the pivotal connection between the frame 20 and the bars 12 of the transfer device is such that the frame 20 may be swung from one side to the other of the transfer device, so as to always extend downward therefrom and, of course, the driving connection will operate just the same in either position of the frame 20.

The term cable has been used herein synonymously with belt. The term sheave has been used as an equal of a wheel. The term parcel has been used to include any article which may be moved by the carrier.

What I claim is:—

1. In a carrier system, the combination with a pair of cables and means for guiding and driving the same, of a parcel transferring mechanism comprising straight and curved frame sections pivotally connected together, cylindrical rollers on the straight frame section, tapered rollers on the curved frame section, gears connecting certain of the straight and tapered rollers for rotation in the same direction, an oscillatory frame pivotally supported at its upper end, a pair of sheaves on the lower portion of said oscillatory frame engageable with one of said cables, and a sprocket and chain drive connecting one of said sheaves to said gear connected rollers, substantially as described.

2. In a carrier system, the combination with a pair of cables, and means for guiding and driving the same, of a parcel transferring mechanism comprising a frame, rollers on said frame arranged to receive the parcels from said cables, gears connecting certain of said rollers for rotation in the same direction, an oscillatory frame pivotally connected at its upper end to said roller supporting frame, a pair of sheaves on a swinging portion of said oscillatory frame engageable in the lower portion of one of said cables, the said frame adjacent to the said



sheaves having a passage permitting the lateral application and removal of said cable, and a driving connection between one of said sheaves and the said gear connected  
5 rollers, substantially as described.

3. In a carrier system the combination with an endless primary carrier and means for guiding and driving the same, of a parcel transferring mechanism comprising a  
10 curved frame and diverging rollers mounted thereon, an oscillatory frame pivotally connected to the frame of said transferring mechanism wheel on said oscillatory frame

engaged and driven by said primary carrier, and driving connection between said wheel 15 and certain of the rollers of said transfer mechanism, the said oscillatory frame adapting said transfer mechanism to be used either right or left.

In testimony whereof I affix my signature 20 in presence of two witnesses.

WILLIAM AAB.

Witnesses:

HELEN H. SCHAEFER,  
ALBERT STEINHAUSER.