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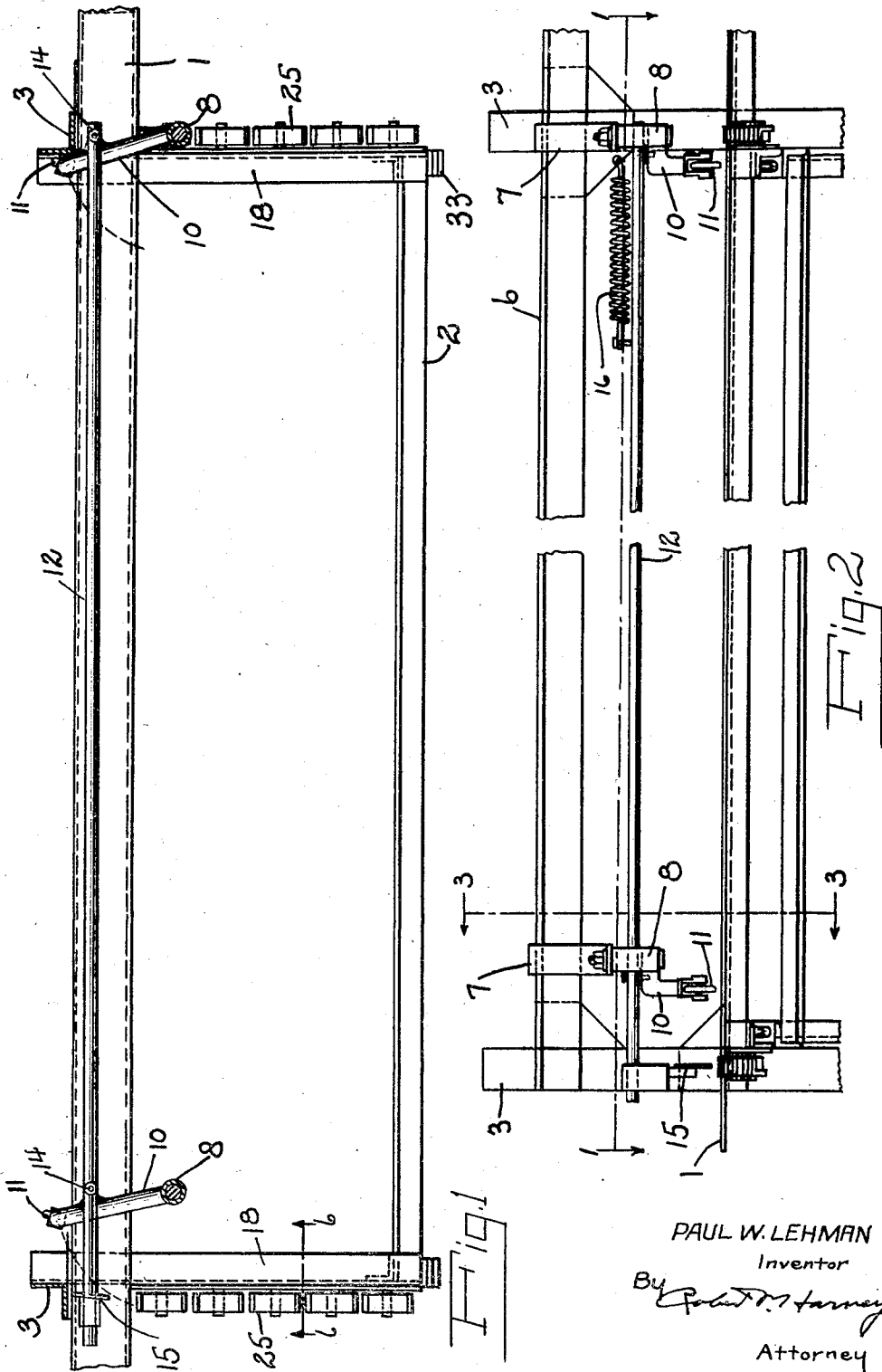
P. W. LEHMAN

1,819,032

MANUFACTURE OF INNER TUBES

Filed Nov. 1, 1926

2 Sheets-Sheet 1



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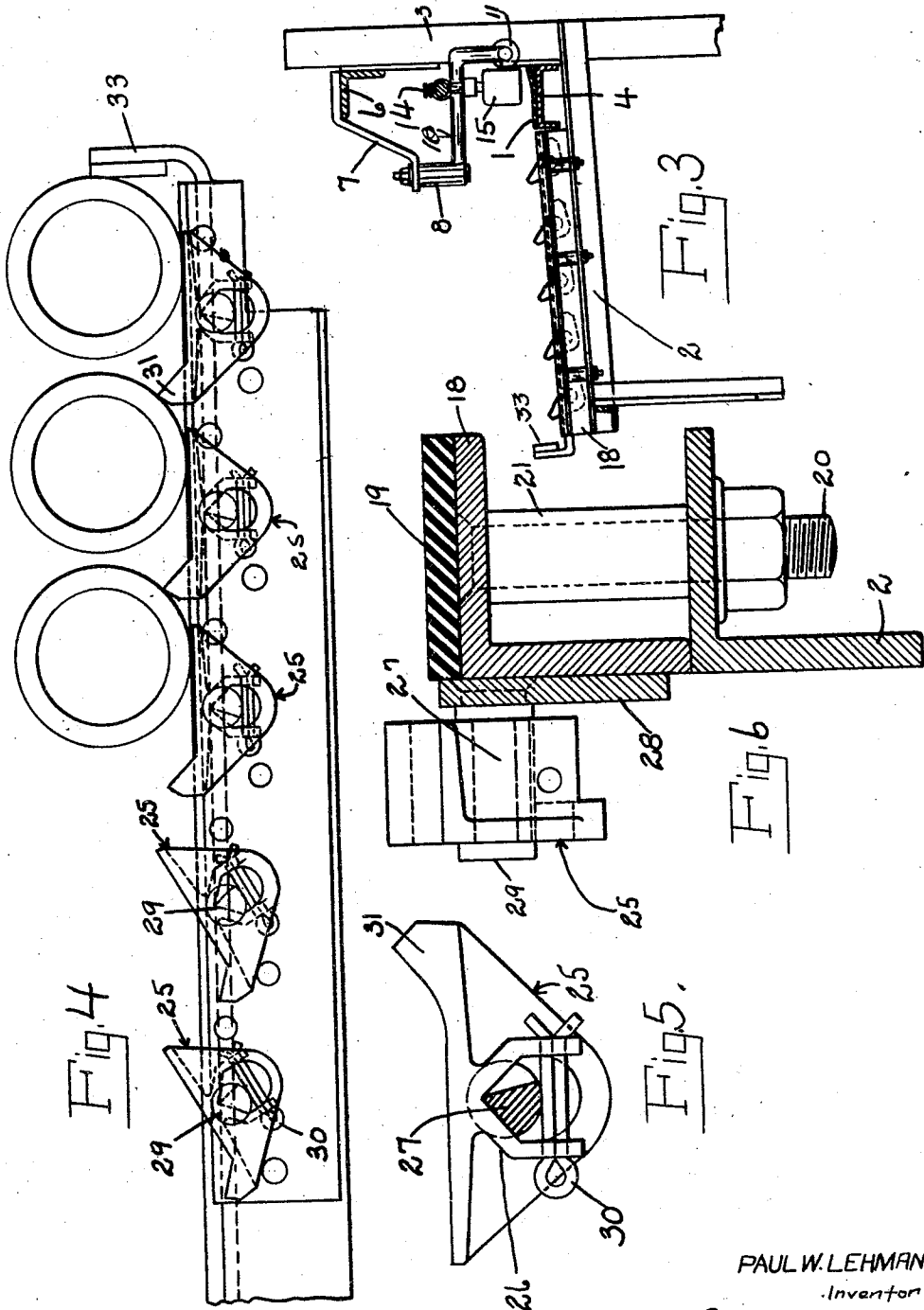
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MANUFACTURE OF INNER TUBES

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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MANUFACTURE OF INNER TUBES

Application filed November 1, 1926. Serial No. 145,662.

This invention relates to devices for handling mandrels or poles upon which inner tubes have been formed preparatory to vulcanization. More particularly it has for its object the provision of means for automatically removing the mandrels from the conveyor coming from the rolling tables and means to receive them in spaced relation and position them so spaced in readiness for further operations, as for instance, to be placed in a wrapping lathe where the ends of the tubes are bound to the mandrel with strips of tape in the usual manner.

In the accompanying drawings which illustrate one embodiment of my invention

Figure 1 is a sectional plan view of the device on line 1—1 of Figure 2,

Figure 2 is a front elevation,

Figure 3 is a section on line 3—3 of Figure 2,

Figure 4 is a side view on a larger scale of the mandrel receiving track,

Figure 5 is a detail of one of the spacer members, showing the reverse side from that of Figure 4, and

Figure 6 is a section, on a larger scale, taken on line 6—6 of Figure 1.

Referring to the drawings 1 designates a conveyor upon which the mandrels with the tubes positioned thereon are brought from the rolling tables. This conveyor may be of any suitable type and driven in any conventional manner. At the point where it is desired to discharge the mandrels I provide a substantially rectangular frame 2 including uprights 3 to which are secured a channel 4 forming a support for the belt 1, see Figure 3. Vertically above the conveyor and suitably secured to uprights 3 is an angle bar 6 to which are secured hangers 7 supporting vertical bearing 8 for swinging arms 10. The free ends of these arms are bent downwardly as shown in Figures 2 and 3, and are provided at said ends with mandrel engaging rolls 11. As best shown in Figures 1 and 3 these rolls are normally positioned at the rear side of the conveyor and are adapted to move a mandrel transversely from the conveyor by a rod 12 pivotally secured to arms

10 as at 14. The forward end of rod 12 is provided with a downwardly projecting plate 15 which, as best shown in Figure 3, is positioned adjacent conveyor 1 and in the path of the mandrels supported thereon. As the conveyor advances the mandrel, the forward end of the latter engages plate 15 moving it to the left as seen in Figure 2, thereby swinging arms 10 and rolls 11 across the conveyor, as indicated in Figure 1, to discharge the mandrel from the conveyor. Rod 12 and the associated parts are returned to normal position by spring 16 secured to the rod and upright 3.

After discharge from conveyor 1 the mandrels are received on sloping tracks 18 which are preferably covered with rubber or other suitable material as indicated at 19 to prevent scratching or other injury to the mandrels. Tracks 18 are in the form of angle irons and are secured to the frame 2 by means of bolts 20 and spacing collars 21, see Figure 6.

Since the unvulcanized tubes on the mandrels are tacky it is desirable that they be kept separated as they accumulate on tracks 18. This is accomplished by automatically acting spaced members generally indicated at 25. These comprise generally triangular shaped members provided on their inner faces with webs 26 forming a triangular seat permitting limited rotation about triangular pins 27 secured to plate 28, the latter bolted or otherwise secured to tracks 18. Pins 27 are provided with circular heads 29 and the members 25 are loosely held in place by cotter pins 30 passing through webs 26. The end of members 25, toward the conveyor 1, are provided with upstanding lugs 31. As shown in Figure 3 and at the left of Figure 4 the weight of lugs 31 normally depress that end of spacer members 25 to the limit permitted by wedge pins 27. As clearly shown in Figure 3 tracks 18 slope slightly from the conveyor 1 and as the mandrel is discharged from the conveyor it rolls against the upstanding end of members 25 tilting them to substantially horizontal position and passing on to the succeeding ones until its movement is arrested by stops 33 secured at the

ends of tracks 18. When thus brought to rest as shown at the right of Figure 4 the weight of the mandrel maintains the spacer in substantially horizontal position with lug 31 preventing the next mandrel from coming in contact with the first and in turn holding the lug 31 of the spacer on which it rests in position to prevent the advance of the succeeding mandrel. When the mandrel adjacent stop 33 is removed for wrapping, or any other operation, the spacer upon which it rested returns to normal position permitting the preceding mandrels to move forward in succession. As will be evident from the preceding description the operation of the spacers is automatic, permitting the advance of the mandrels as required and at the same time maintaining the mandrels in proper spaced relation.

I claim:

1. A device of the character described comprising a conveyor for advancing a mandrel in the direction of its length, pivoted arms normally positioned at one side of the conveyor, a plate positioned in the path of the advancing mandrel and adapted to be displaced thereby and link mechanism operatively connecting said plate and said arms to simultaneously swing said arms across the conveyor to transversely move a mandrel therefrom upon displacement of said plate.

2. A device of the character described comprising inclined tracks adapted to support a series of mandrels and spacer members having inverted V-shaped bearings resting on wedge-shaped trunnions to permit a limited pivotal movement, said members normally permitting a mandrel to advance thereover, but operative by the weight of a mandrel positioned thereon to prevent advance of a succeeding mandrel until the member is released by removal of its supported mandrel.

In testimony whereof I have signed my name to the above specification.

PAUL W. LEHMAN.

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