

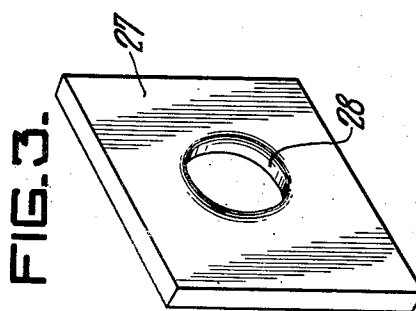
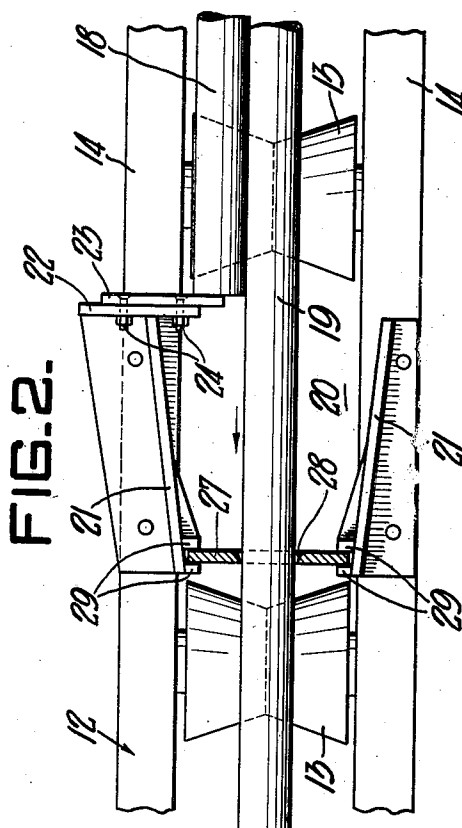
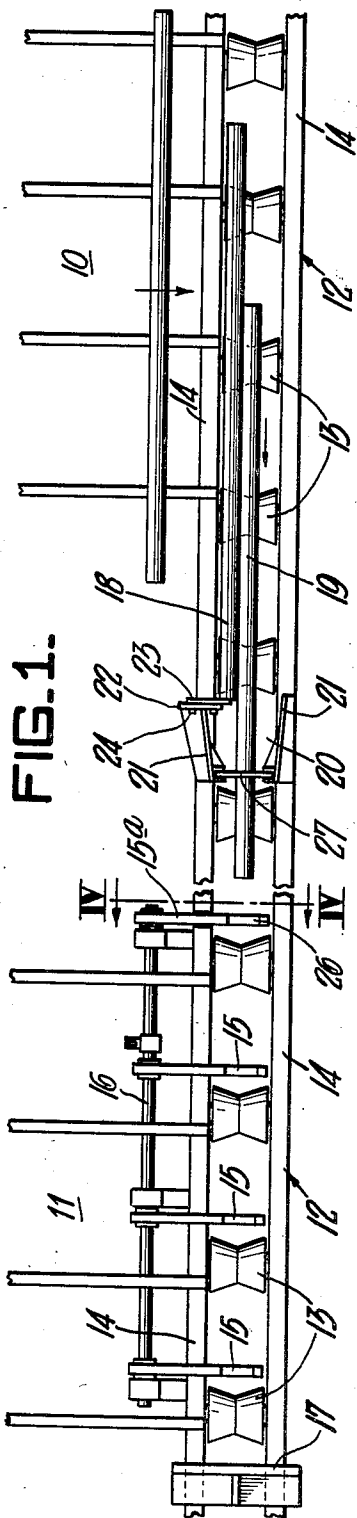
May 27, 1952

L. W. LONG
 DEVICE FOR CONTROLLING MOVEMENT OF PIPE
 OR THE LIKE ALONG A ROLLER CONVEYER

2,597,941

Filed Feb. 23, 1949

2 SHEETS—SHEET 1



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2 SHEETS—SHEET 2

FIG. 4.

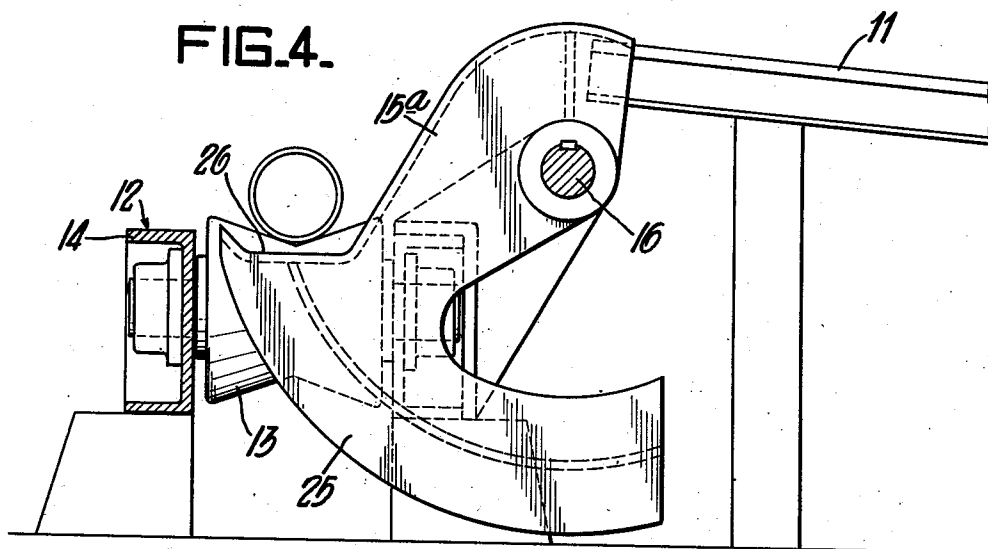
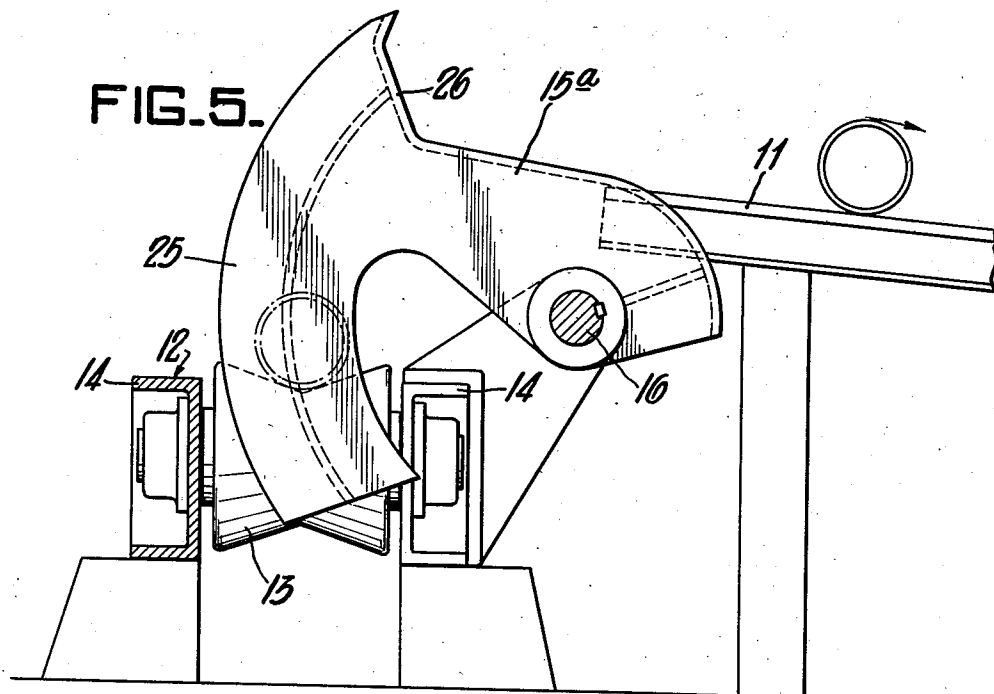


FIG. 5.



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DEVICE FOR CONTROLLING MOVEMENT OF
PIPE OR THE LIKE ALONG A ROLLER
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3 Claims. (Cl. 193—35)

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This invention relates generally to article handling and more particularly to a device for insuring the movement of elongated articles such as lengths of pipe longitudinally along a roller conveyor singly and in orderly succession.

In the manufacture of pipe, several finishing operations are performed thereon successively at spaced stations and it is essential that the pipe lengths be advanced in orderly fashion from one station to the next. In particular, it is necessary to thread the ends of the lengths, subject them to a hydraulic-pressure test and then to a final washing before loading for shipment. After testing, each length is permitted to roll down a skid-table extending from the testing apparatus to a roller conveyor for longitudinal movement to the next station which is the wash-tank. On arrival opposite the latter, the pipe length is lifted from the conveyor rollers by tilting throw-out arms which discharge it onto a skid-table extending to the wash-tank. Operation of the throw-out arms is controlled automatically by arrival of a pipe length in position for discharge onto the wash-tank table.

The delivery of lengths from the skid-table of the testing apparatus is at random and usually there is a second testing apparatus alongside the first, both delivering to the same roller conveyor. As a result, a pipe length from the second testing apparatus may land on the conveyor before one from the first testing apparatus has cleared and move along in partially overlapped relation therewith. When this happens, the leading length causes operation of the throw-out arms before the second length is in position for discharge onto the wash-tank table and it may be thrown askew or even bent so that it must be scrapped. To prevent this, it has been the practice heretofore to employ a workman to stand alongside the conveyor between the skid-table of the second testing apparatus and that of the wash-tank and manually hold back the overlapping length until the preceding length has been deposited on the wash-tank table.

I have invented a device for controlling the movement of pipe lengths or the like along a roller conveyor so as to insure that they reach discharge position in single file and in orderly succession. In a preferred embodiment, I provide a stop effective to arrest any pipe length except that disposed centrally on the conveyor rolls, until the latter has been disposed of. The stop may conveniently take the form of a plate adjustably mounted so it extends into the path of the overlapping pipe length. I may also mount

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a baffle plate transversely of the conveyor having a hole therein large enough to admit only a single pipe length and aligned with the length disposed centrally on the conveyor rollers.

5 A complete understanding of the invention may be obtained from the following detailed description and explanation which refer to the accompanying drawings illustrating a preferred embodiment.

10 In the drawings:

Figure 1 is a plan view showing a pair of spaced skid-tables connected by a roller conveyor having the invention applied thereto;

15 Figure 2 is a portion of Figure 1 to enlarged scale;

Figure 3 is an elevation of a baffle plate having a hole therein, forming part of the invention;

Figure 4 is a transverse section taken along the line IV—IV of Figure 1; and

20 Figure 5 is a view similar to Figure 4 showing a part in alternate position.

Referring in detail to the drawings, skid-table 10 is on the discharge side of a station at which a testing operation is performed on the pipe lengths. A skid-table 11 spaced from table 10 is at the entrance side of the adjacent apparatus for performing an operation on the pipe, specifically the wash-tank. A roller conveyor 12 connects the tables 10 and 11 and extends across the ends thereof. The conveyor is composed of a plurality of spaced parallel rollers 13 journaled in side rails 14 mounted on any suitable supports. The rollers 13 have a trough contour, as illustrated, i. e., they have a V-shaped circumferential groove, whereby pipe delivered thereto from the skid-table 10 centers itself by gravity in the vertical plane in which the diameter of the rollers is a minimum.

35 Tilting throw-out arms 15 are mounted on a common shaft 16 and are adapted to lift a pipe length from the conveyor 12 when in a position opposite the table 11 and deliver it thereto. The shaft 16 is operated by power means automatically controlled by the pipe on the conveyor in a known manner. A stop 17 prevents travel of the pipe lengths on the conveyor 12 beyond the table 11. The apparatus described so far is known and forms no part of my invention. In the usual installation, two sets of hydraulic pressure testing apparatus are placed side-by-side, each having its own skid-table delivering onto the conveyor 12. That is to say, there is usually a second skid-table 10 to the right of that shown and the conveyor 12 would be prolonged to extend across the discharge side thereof.

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It will be readily apparent that a pipe length such as that indicated at 18 may be delivered to the conveyor 12 from table 10 before a pipe length 19 previously delivered to the conveyor from its counterpart to the right thereof has been moved along the conveyor far enough to clear the succeeding length. As previously explained, this would prevent proper transfer of the lagging length from the conveyor to table 11 along with the leading length which causes the automatic tilting of the throw-out arms when it arrives opposite the latter. To prevent such improper operation, I provide a throat 20 on the conveyor 12 between the tables 10 and 11. The throat includes converging side walls 21 secured to the rails 14 of the conveyor in any convenient manner and extending upwardly thereabove. One or both the walls 21 has a bracket 22 therealong. A stop in the form of a plate 23 is secured to the bracket 22 by bolts 24 in such manner as to permit adjustment toward and from the center line of the conveyor. For this purpose, the plate 23 may have elongated slots for accommodating the bolts 24.

When properly adjusted for a given size of pipe, as illustrated in Figure 2, the inner edge of plate 23 overlies the path of pipe length 18 which lies along side the centered pipe length 19 in partially overlapping relation therewith. As a result of this construction, the pipe length 18 is arrested until the length 19 has been advanced sufficiently to clear it. Thereafter, the length 18 rolls to centered position by gravity and then follows length 19 in single file. This prevents length 18 from moving alongside of table 11 until length 19 has been placed thereon by the arms 15. To prevent interference by the length 18 with the discharge of length 19 even after it has been arranged in single file, the first throw-out arm 15^a is provided with a segmental skirt or flange 25 extending rearwardly from the pipe-engaging portion 26 thereof effective to hold back the succeeding length until the discharge of the length 19 has been completed and the throw-out arms restored to starting position. Thereafter, the length 18 is advanced by continued operation of the conveyor rollers into position for lifting by the arms 15 and discharge onto the table 11.

As an added precaution against feeding more than one pipe length at a time into position to be lifted by the throw-out arms, I may provide the throat 20 with a transverse baffle 27. This may be simply a metal plate of appropriate thickness having a hole 28 therein of sufficient size to admit a length of pipe, the hole being positioned so that when the plate is in place, the hole will be in alignment with a pipe length centered on the conveyor. Several plates 27 are preferably provided having holes of different sizes to accommodate the various sizes of pipe being made. The plate is preferably held in place by spaced lugs or ribs 29 on the inner faces of the side walls 21 to permit easy removal and replacement.

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It will be apparent that the invention provides simple, effective and inexpensive means for insuring advancement of pipe lengths singly into position for transfer from the roller conveyor to the skid-table for the succeeding operation. This makes it unnecessary to keep a workman between adjacent tables to prevent piling up of successive pipe lengths on the conveyor.

Changes may be made, of course, in the details of construction illustrated, within the scope of the appended claims.

I claim:

1. In a conveyor composed of a plurality of spaced parallel rollers each having two frusto-conical portions with their smaller ends disposed toward each other whereby cylindrical articles such as pipe lengths placed thereon roll toward a central position, means for arresting articles disposed on the conveyor alongside that in central position comprising a stop plate disposed transversely of the conveyor and lying in the path of the articles on the conveyor alongside the article in central position but terminating short of the path of the article lying in central position.

2. In a roller conveyor for transferring pipe lengths from one station to another spaced therefrom, the rollers of the conveyor each having two frusto-conical portions with their smaller ends toward each other whereby to position a pipe length in a central position thereon by gravity, means for insuring the travel of pipe lengths singly from said one station to the other comprising a stop member in the path of a length lying on the conveyor adjacent the length which is in central position, and means for adjusting the stop member toward and from the center line of the conveyor.

3. In a conveyor composed of a plurality of spaced parallel rollers each having two frusto-conical portions with their smaller ends disposed toward each other whereby cylindrical articles such as pipe lengths placed thereon roll toward a central position, means for arresting articles disposed on the conveyor alongside that in central position comprising a stop plate disposed transversely of the conveyor, said plate having a hole therein of such size as to admit only one article, said hole being aligned with the article in said central position on the conveyor.

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