

Dec. 23, 1924.

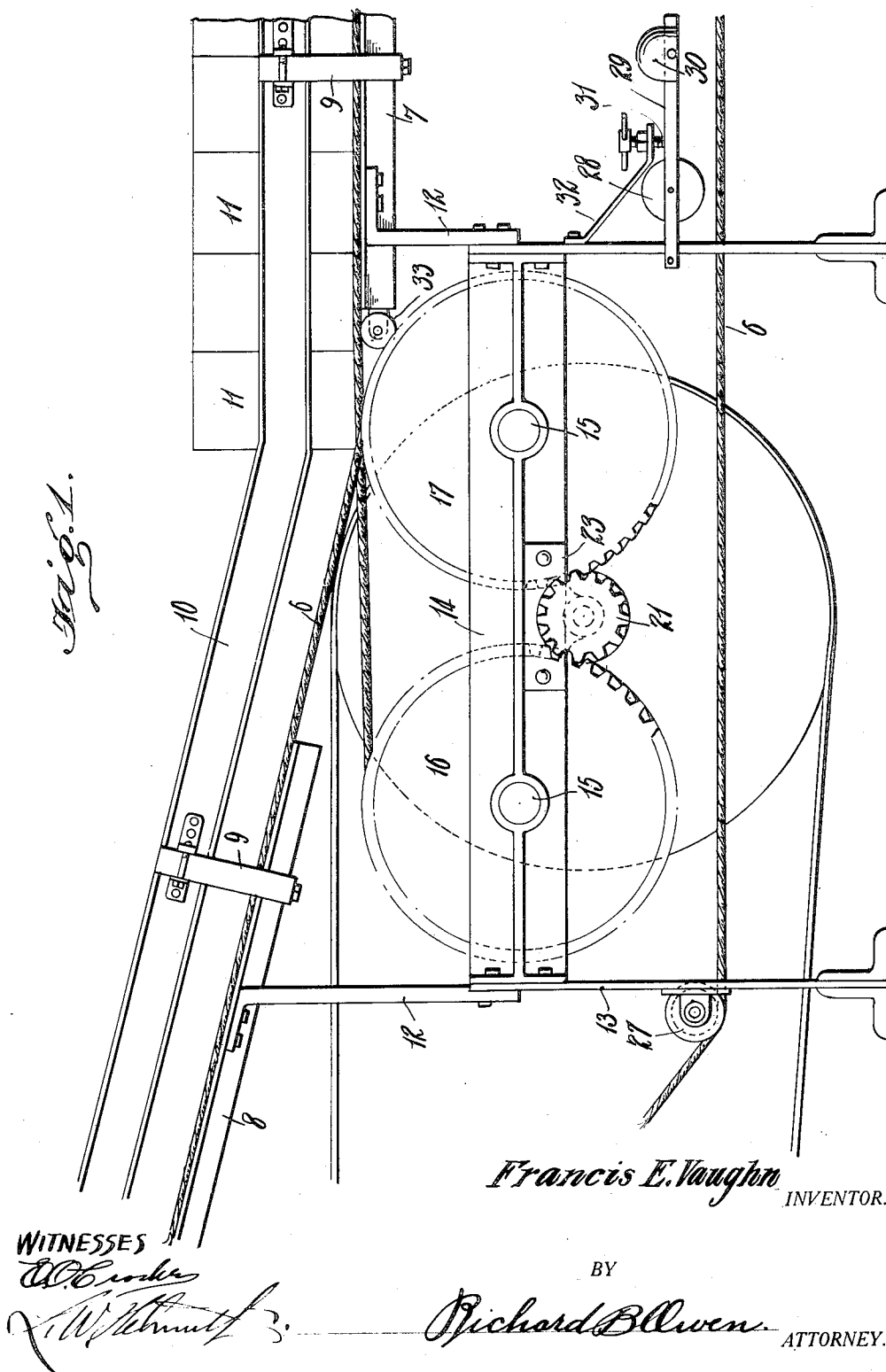
1,520,458

F. E. VAUGHN

CABLE DRIVE

Filed April 13, 1920

2 Sheets-Sheet 1



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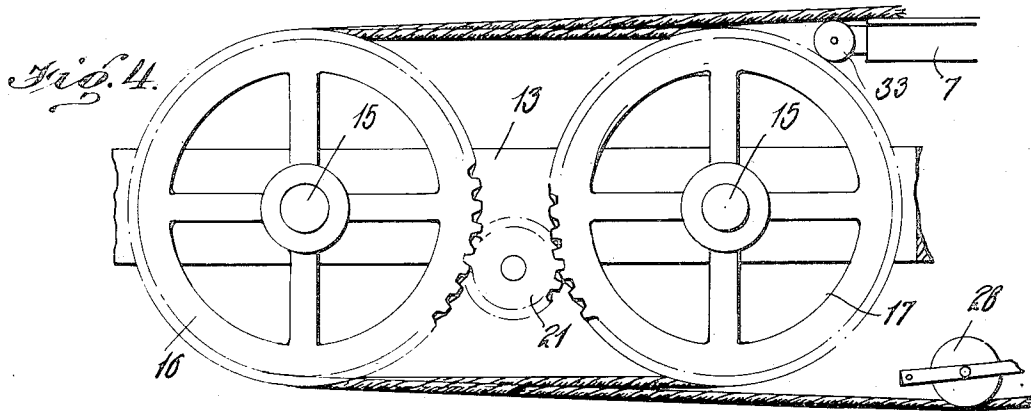
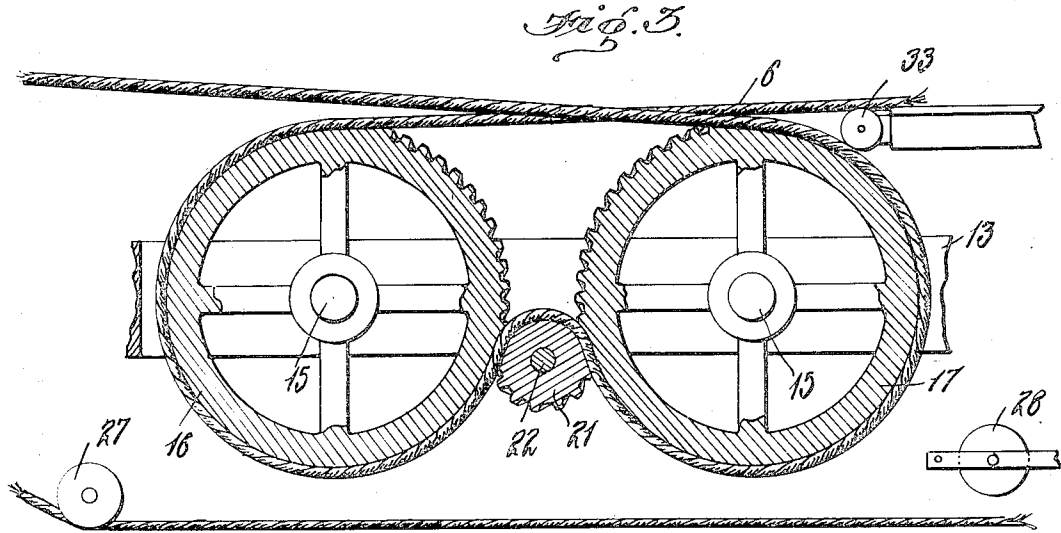
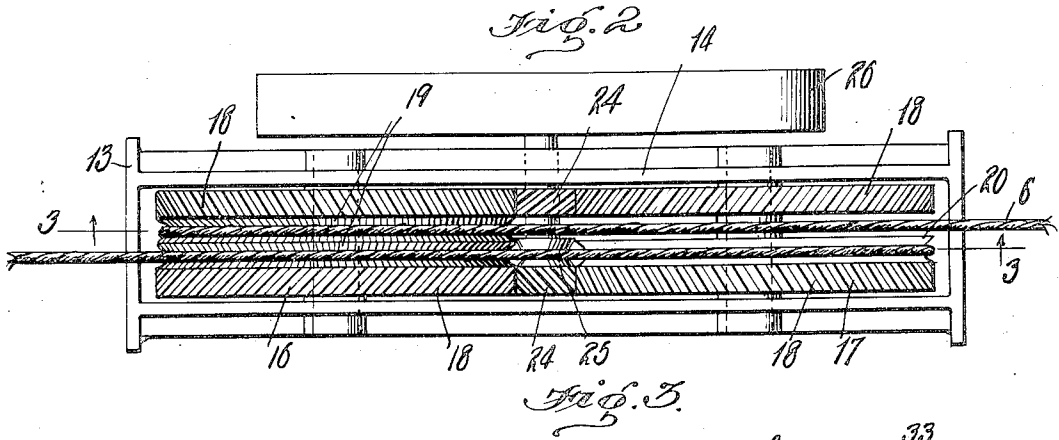
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2 Sheets-Sheet 2



WITNESSES

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Fig. 5

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INVENTOR.

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UNITED STATES PATENT OFFICE.

FRANCIS E. VAUGHN, OF INDIANAPOLIS, INDIANA.

CABLE DRIVE.

Application filed April 13, 1920. Serial No. 373,481.

To all whom it may concern:

Be it known that I, FRANCIS E. VAUGHN, a citizen of the United States, residing at No. 1867 Shelby St., Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Cable Drives, of which the following is a specification.

This invention relates to new and useful improvements in conveyors wherein a portion of the upper run of the conveyor is caused to travel at a different angle from the remaining portion of the conveyor.

One important object of the invention is to provide a pair of sheaves by having said cable wrapped upon the third sheave for the accomplishment of the above function, and a third sheave for driving said first two sheaves in the same direction and which also performs the function of maintaining the cable in engagement with the major portion of the two sheaves.

Still another important object of the invention is to provide means for driving the endless cable in such a manner as to preclude slipping or lost motion thereof.

Still another object of the invention is to provide means for preventing the cable from unraveling.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the accompanying drawings forming a part of the application and wherein like numerals are employed to designate like parts throughout the several views,

Figure 1 is a side elevation of the invention.

Figure 2 is a top plan of the same.

Figure 3 is a longitudinal section through the same taken on the line 3—3 of Figure 2.

Figure 4 is a side elevation of the invention used in a different way, and

Figure 5 is a top plan of the drive sheave.

Referring to the drawings wherein for the purpose of illustration is shown the preferred embodiment of the invention, the numeral 6 designates a single endless cable, the upper run of which engages a horizontal track 7 and an inclined track 8 which are spaced a distance apart for a purpose which will presently be described. Both of these tracks consist merely of angle beams, upon the horizontal portions of which is slidably supported the cable. The

yokes 9 support a pair of spaced parallel side rails 10 above the tracks in order to prevent tipping and to balance articles positioned upon the cable and carried thereby.

The tracks 7 and 8 are separated to permit the cable to engage the following mechanism and be supported and driven thereby. The adjacent ends of the tracks 7 and 8 are supported by braces 12, the lower ends of which are secured to the framework 13 which supports the driving mechanism of the cable. The framework includes a pair of parallel spaced side rails 14, to which are journaled the shafts 15 of the pair of spaced sheaves 16 and 17. As most clearly seen in Figure 2, the periphery of each sheave is provided with a pair of spaced spiral gear faces 18 and between these gear faces of the sheave 16, I provide a pair of V-shaped peripheral grooves 19 disposed side by side. If desired the sides of the two grooves may be roughened or provided with teeth in the well known manner whereby the cable is driven positively even when movement of the conveyed article is arrested, thereby providing means for the cable to slide under the conveyed articles when they have been retarded for various reasons. A single peripheral V-shaped groove 20 is provided in the sheave 17 between the spiral gear faces thereof.

An intermediate relatively small drive sheave 21 is disposed between the aforesaid sheaves and is mounted on a shaft 22 whose axis is disposed slightly below that of the shafts 15 and is journaled transversely of the frame in depending bearings 23. This sheave is equipped with a pair of spaced, spiral gear faces 24 which mesh with the gear faces of the sheaves 16 and 17 for driving the same in the same direction at a ratio to the drive sheave of about 6 to 1. The intermediate sheave is provided with a peripheral V-shaped groove 25 which if desired may have roughened walls to firmly engage with the cable. As seen most clearly in Figure 2, the shaft 22 extends beyond one side of the frame 13 whereby a relatively large drive wheel 26 may be secured thereto.

Power from the cable drive arrangement is derived from any suitable source, not shown, and transmitted through a belt, to the drive wheel 26 which of course, being secured to the shaft 21, causes rotary move-

ment of the intermediate sheave 21 in the clockwise direction. This sheave causes the two large sheaves to rotate in the counter-clockwise direction. The upper run of the cable comes from a pulley, not shown, off to the right of the drawing, engages over the top of the sheave 16 and travels around the sheave 16 to the intermediate sheave 21 thence down and partially around the sheave 17 from where the cable extends up the inclined track 8. In the event of slack the upper run of the cable engages the other groove in pulley 16. At the end of this track, another pulley, not shown, is positioned and the return run of the cable is directed toward the bottom of the frame 13 to be engaged by an idler 27 carried by the frame. The cable then travels beneath the driving sheave to be engaged at the opposite side of the frame by a tightener pulley 28 carried by a frame 29 pivoted to the frame 13. This frame 29 is disposed in its lowermost position by a weight 30 carried by the end thereof, whereby the tightener normally engages with the cable. A screw 31 carried by the bracket 32 may be adjusted to maintain the tightener in engagement with the cable when desired. From this tightener pulley, the cable then passes out to the pulley mentioned above from where it was stated that the upper run began.

A wheel or roller 33 is disposed adjacent the top of the sheave 17 in such relation therewith that the roller forces the cable into the groove in the sheave and forces in all wires that have unraveled from the cable.

In Figure 4 of the drawings, a different use of the invention is shown and in this instance the upper run of the cable comes in from the right of the sheet and travels around the sheave 16 in the groove therein which is disposed adjacent the drive wheel 26, after which the cable passes out and around the groove in the sheave 17, thence over again to the sheave 16 around the same and back to the pulley, not shown, to the right of the drawing. The cable in this instance does not engage with the intermediate sheave 21. However, it will be noted from this arrangement that the two portions of the cable disposed below the driving mechanism, cross and consequently the tightener 28 is urged downwardly to space the lower return run of the cable from that portion which extends from the sheave 16 to the sheave 17.

The foregoing description and the drawings have reference to the preferred or approved embodiment of my invention. It is to be understood however, that such changes may be made in construction and combination of parts, materials, dimensions, etc., as may prove expedient and fall within the scope of the appended claims.

Having thus fully described my invention,

what I claim as new and desire to secure by Letters Patent is:—

1. In an elevating conveyor for cans and the like including a trackway having two separated portions positioned angularly of each other, having spaced side walls and a supporting runway, the combination of an endless cable bearing upon said runway, a direction changing and power mechanism positioned adjacent the trackway separation and including a pair of grooved pulleys positioned with their axes parallel to each other and transverse to the plane including the trackway, said cable when elevating, leaving one portion of the trackway and passing over the nearer pulley and engaging the pulley farthest removed from said last mentioned trackway portion and the angularly positioned portion of the cable having engagement with the nearer pulley adjacent the position where the first mentioned cable portion passes over the nearer pulley, whereby the cans or the like will be transferred from one cable portion to the other without tipping, and power means for driving said pulleys for moving said cable.

2. In an elevating conveyor for cans and the like including a trackway having two separated portions positioned angularly of each other, having spaced side walls and a supporting runway, the combination of an endless cable bearing upon said runway, a direction changing and power mechanism positioned adjacent the trackway separation and including a pair of grooved pulleys positioned with their axes parallel to each other and transverse to the plane including the trackway, said cable when elevating, leaving one portion of the trackway and passing over the nearer pulley and engaging the pulley farthest removed from said last mentioned trackway portion and the angularly positioned portion of the cable having engagement with the nearer pulley adjacent the position where the first mentioned cable portion passes over the nearer pulley, whereby the cans or the like will be transferred from one cable portion to the other without tipping, an intermediate pulley positioned with its axis parallel to the other pulley axis and between said pulleys whereby the intermediate cable portion is closed to engage that portion of the intermediate pulley adjacent the two pulleys, and power means for driving said pulleys for moving said cable.

3. In an elevating conveyor for cans and the like including a trackway having two separated portions positioned angularly of each other, having spaced side walls and a supporting runway, the combination of an endless cable bearing upon said runway, a direction changing and power mechanism positioned adjacent the trackway separation and including a pair of grooved pulleys

positioned with their axes parallel to each other and transverse to the plane including the trackway, said cable when elevating, leaving one portion of the trackway and
5 passing over the nearer pulley and engaging the pulley farthest removed from said last mentioned trackway portion and the angularly positioned portion of the cable having engagement with the nearer pulley adjacent the position where the first mentioned
10 cable portion passes over the nearer pulley, whereby the cans or the like will be transferred from one cable portion to the other without tipping, an intermediate pulley

positioned with its axis parallel to the other 15 pulley axis and between said pulleys whereby the intermediate cable portion is closed to engage that portion of the intermediate pulley adjacent the two pulleys, said pulleys having engaging surfaces for driving en- 20 gagement, and power means for driving the intermediate pulley for operating the cable.

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

FRANCIS E. VAUGHN.

Witnesses:

MAC. C. WALLACE,
RALPH E. ELLIOTT.