Mar. 6, 1923. 1,447,264

W. E. PHILIPS

BELT CONVEYER

Filed Apr. 29, 1922 2 sheets-sheet 1

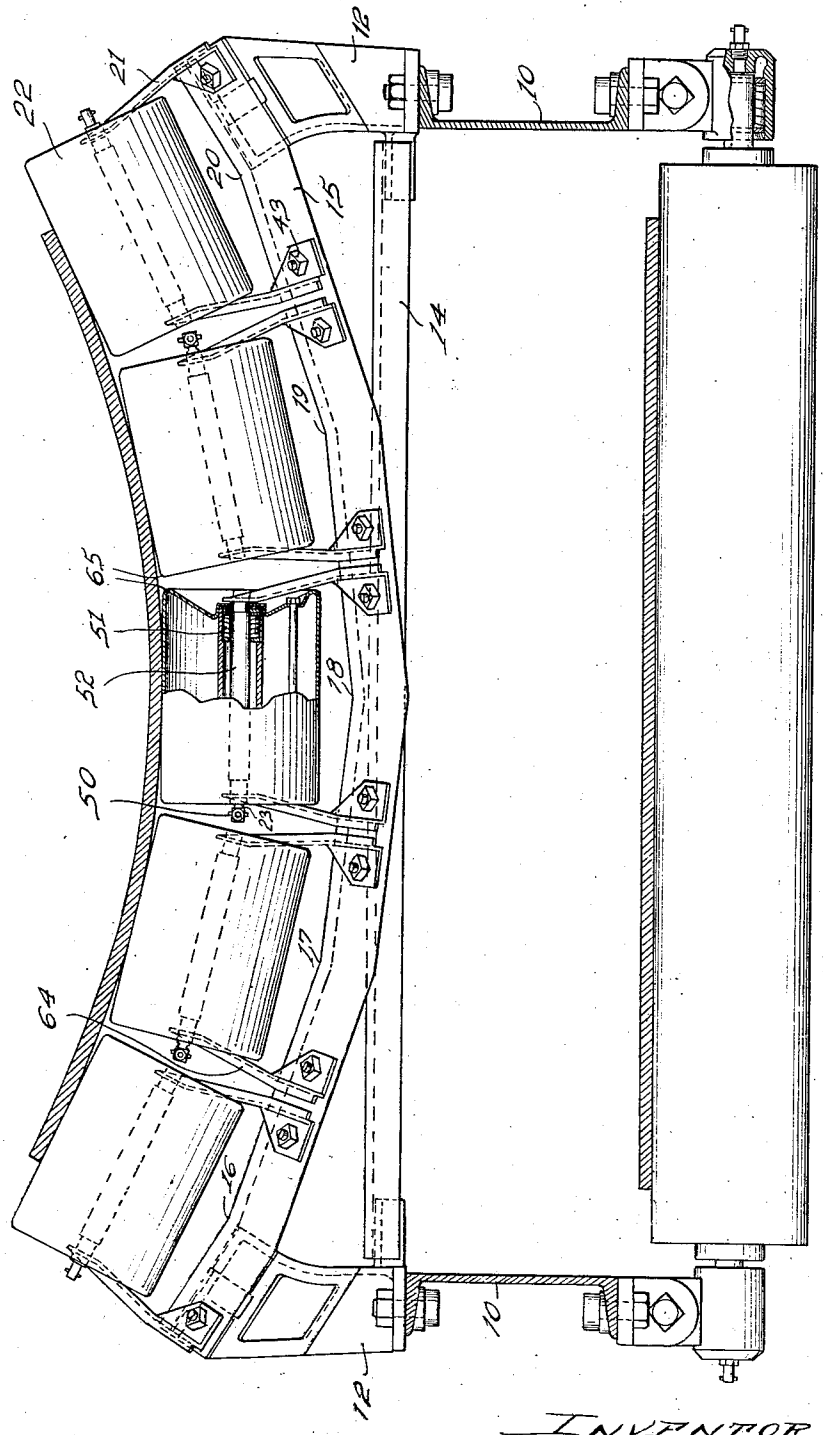


FIG. 1.

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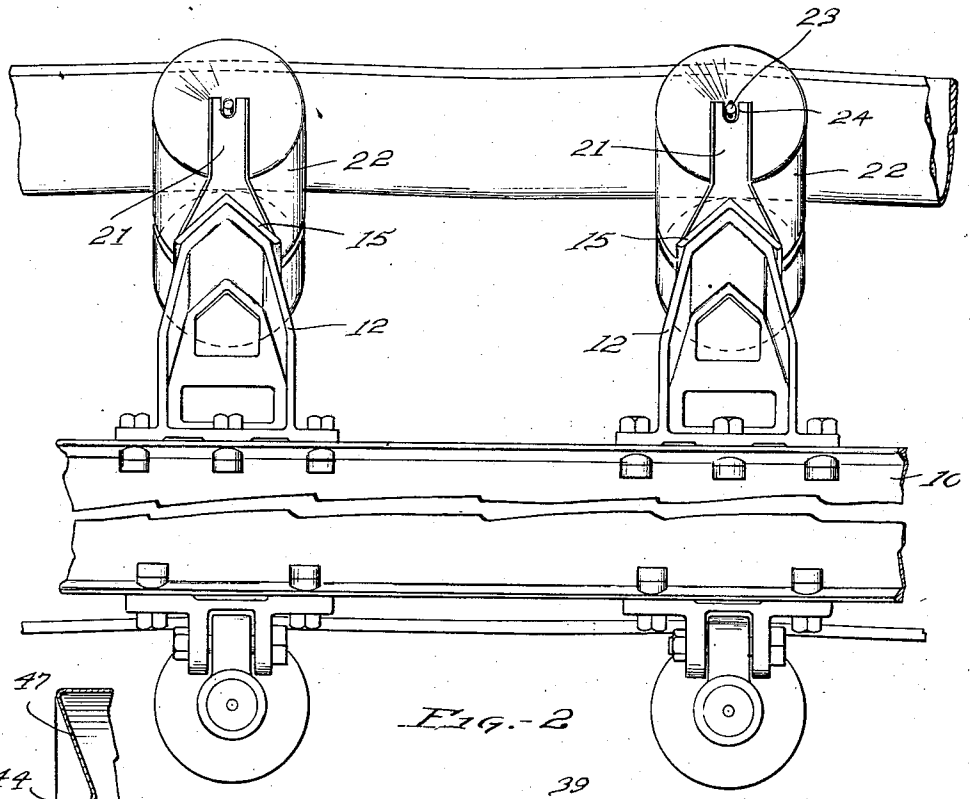


Fig.-2

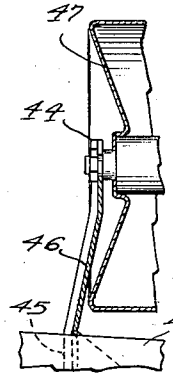


Fig.-6

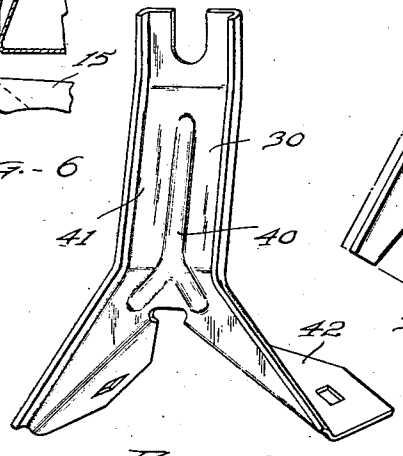


Fig.-3

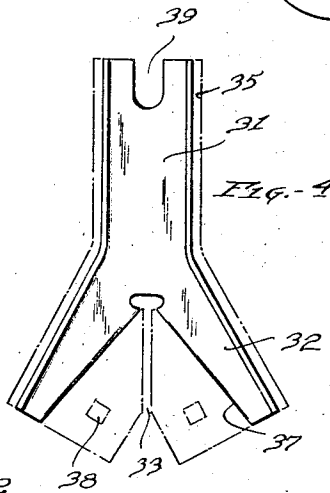


Fig.-4

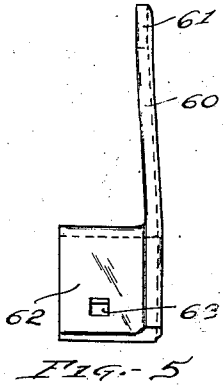


Fig.-5

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Patented Mar. 6, 1923. 1,447,264

UNITED STATES PATENT OFFICE.

WILLIAM E. PHILIPS, OF CLEVELAND, OHIO.

BELT CONVEYER.

Application filed April 29, 1922. Serial No. 557,468.

To all whom it may concern:

Be it known that I, WILLIAM E. PHILIPS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in a Belt Conveyer, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to supporting means for belt conveyers of the character wherein an endless belt structure supported on rollers is used to convey material from one locality to another.

The general object of the invention is to provide a rigid support for the rollers or idlers of a belt conveyer which can be rapidly made and assembled in position and economically maintained in operation. A further object is to so arrange the support that its upper end may lie within the cup-shaped end of the roller, thus reducing the necessary space between adjacent rollers.

In its preferred form, the invention is embodied in an L-shaped supporting bracket for belt conveyers comprising a supporting member and an angularly arranged base member, the parts being made in one integral structure, either by casting or by stamping.

Other objects of the invention will be apparent from the following description, taken in connection with the accompanying drawings, wherein Fig. 1 is an elevation of a belt conveyer support showing the details of my invention; Fig. 2 is an end view of two of the supporting members arranged side by side; Fig. 3 is a perspective detail showing one of the supporting brackets; Fig. 4 is a plan showing the development of the bracket shown in Fig. 3; Fig. 5 is a side view of a modified form of the supporting bracket, and Fig. 6 is a fragmentary sectional view, showing a bracket in its relation to a roller.

Referring to the drawings by reference characters, I show a base 10. Upon this base structure suitable members 12 may be arranged to support the ends of the conveyer support.

The conveyer support illustrated in the present drawings comprises a member 15 which may be an angle iron bent as indicated at 16, 17, 18, 19 and 20 to provide angularly disposed portions. The ends of this support 15 are indicated as removably secured to the members 12, while the intermediate portion adjacent the angle 18 may be as secured to a member 14 which may be a structural shape extending across the base 10.

Suitable brackets or supports 21 are shown as secured to the supporting member 15. Each bracket is preferably secured to a straight portion of a support intermediate the angular bend 16, 17, etc. The brackets 21 support idle rollers 22 which are arranged to rotate on axles 23 fitted in slots 24 in the ends of the brackets.

The preferred form of bracket which is shown in detail in Fig. 3 comprises a strip of sheet metal 30, the development of which is shown in Fig. 4. The strip 30 comprises parts for forming an upper portion 31 and a pair of lower portions 32 having a slit 33 therebetween.

In bending up the bracket from the blank shown, the portions indicated at 35 in dotted lines, Fig. 4, are turned to stand at right angles to the main body portion of the bracket to form stiffening flanges, while the lower portions 32 are bent on a line 37 to stand at substantially a right angle to the main body portion. The lower portion of the bracket is provided with apertures 38 which are adapted to receive a fastening member, whereby it may be secured to the support, while the upper end of the bracket is indicated as provided with a notch or recess 39 which is adapted to receive the support for the pulley idler. A reinforcing rib 40 shown as of an inverted Y-shape may be provided to stiffen the bracket.

The bracket thus described, it will be noted, comprises an upstanding portion 41 and a pair of laterally extending flanges 42. The angle between the flanges 42 is preferably a right angle so that the bracket may be fitted over an angle iron, though it is to be understood that the flanges of the bracket may both lie in the same plane so that the bracket can be secured to a plane support. In assembling the structure, the bracket 21 may be secured to the supporting member 15 by suitable means, such as bolts 43 and the pulley idlers may be secured to the bracket or they may be arranged with their axles merely resting in the slots 39, since the weight of the idler together with the weight of the belt thereupon will prevent them from being displaced.

Each bracket is preferably bent to provide upper and lower portions 44 and 45 which are

preferably substantially parallel with each other, while the intermediate connecting portion 46 is arranged at an angle to the other two portions to thus dispose the portion 44 to one side of the portion 45. This arrangement is such that in the completed bracket, the portion 44 being offset from the portion 45 may stand within the end of the pulley idler which is preferably cupped as at 47. Two pulley idlers may thus have their contiguous edges arranged quite close together and thereby the conveying belt may be supported throughout substantially its entire width.

Each idler is preferably provided with a coupling 50 for connection to a grease gun, while the interior of the idler is provided with bearings 51 which are arranged adjacent a grease reservoir chamber 52. The connection 50 may be provided with a self-closing valve so that lubricant under pressure may be forced into the chamber 52 whereupon the valve in the coupling 50 will close and thus the lubricant under pressure insures proper lubrication.

In Fig. 5 I have shown a modified form of a bracket which is adapted to be made of cast metal. This bracket comprises an upwardly extending arm 60 having a slot 61 in the upper end and is provided with a lower supporting portion 62. This supporting portion 62 may comprise two flanges which may be arranged one at right angles to the other to straddle an angle iron, or the flanges may be plane to fit a flat member. In this modification, apertures 63 may be provided for removably securing the bracket in place.

The arrangement of the brackets intermediate the bends 18 is such as to allow the parts to be very readily assembled, while at the same time providing a rigid structure without waste of material.

Having thus described my invention, I claim:—

1. The combination of a pulley idler having a cupped end and a support for the idler, said support comprising a base member and a pair of independent brackets secured thereto, each bracket having an upwardly extending holding portion fitted to the idler within the cupped end.

2. The combination of a pair of pulley idlers having their axes arranged at an angle one to the other with the tops of the pulley idlers arranged contiguous to each other, and the bottoms spaced apart, two independent supporting brackets mounted beneath the idlers, said brackets extending between the lower spaced portions of the idlers whereby they may be supported with the upper portions contiguous, said pulley idlers having cupped ends and the supporting brackets having portions which enter the cupped ends to support the idler.

3. In a device of the character described, the combination of a supporting bar, brackets secured thereto, a roll between the brackets having inside bearings and reentrant ends, a shaft within the bearings extending beyond the adjacent portions of such ends and mounted in the brackets, the brackets being independent of each other and having their upper portions closer together than the length of the roller at its periphery.

4. A support for a belt conveyer comprising a bent transverse bar, a series of independent L-shaped brackets secured thereto in pairs back to back, rollers each located between two brackets of adjacent pairs, each roller having a cup-shaped end, a shaft extending through each roller into such cup-shaped end portion, inside bearings between the roller and the shaft, said brackets at their upper portions extending within the cup-shaped cavities of the rollers and there engaging such shaft.

5. In a conveyer support, the combination of a V-shaped transverse bar with its apex upward, brackets secured to said bar and having V-shaped feet, whereby the shape of the bar automatically positions the brackets in alignment, and rollers between the brackets.

6. In a conveyer support, means for maintaining conveyer supporting rolls in a position to maintain the belt in trough shape, said means comprising a V-shaped angle iron, having its apex toward the rolls, said angle iron being bent to conform longitudinally substantially to the trough shape of the belt in cross section.

7. In a conveyer support, a series of members arranged at different inclinations to each other, rolls rotatably mounted thereon, whereby a trough support for a belt is provided, standards intermediate of said members for holding them in position, an angle iron for supporting said standards and shaped longitudinally to conform substantially with the trough shaped belt, said angle iron being V-shaped in cross section having its apex toward said rolls whereby the accumulation of dirt thereon is prevented.

8. In a belt conveyer, the combination with longitudinal supporting members, of standards carried thereby having their upper ends inclining downwardly in opposite directions, a cross beam in the form of an angle bar with its ridge uppermost resting on and secured to the tops of said standards, brackets having their under surface complementary to the upper surface of said angle bar, said brackets resting on the angle bar and secured thereto in aligned position, and rollers between the brackets.

In testimony whereof, I hereunto affix my signature.

WILLIAM E. PHILIPS.