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2,584,288

ENDLESS CONVEYER OF THE BELT TYPE

Original Filed Sept. 23, 1948

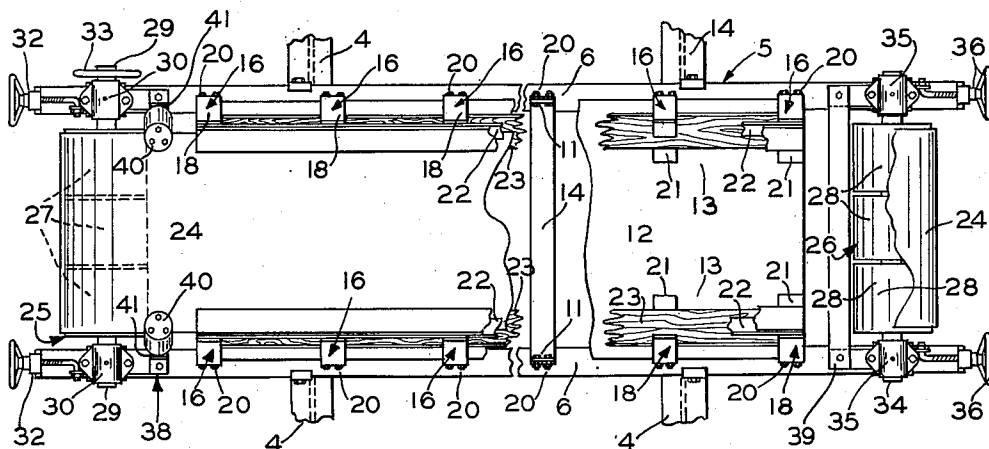


FIG. 1

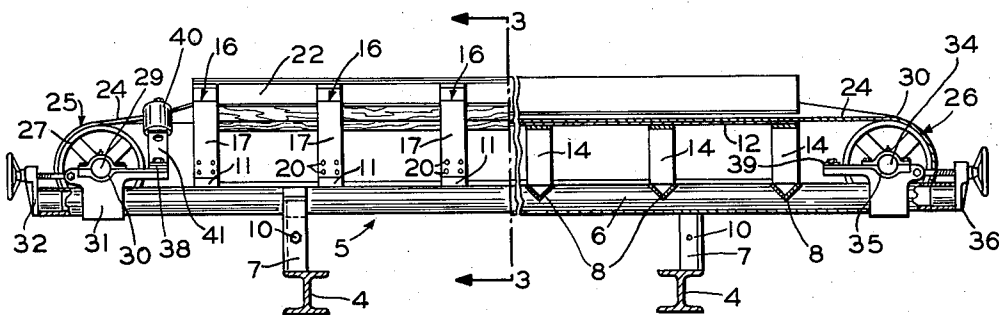


FIG. 2

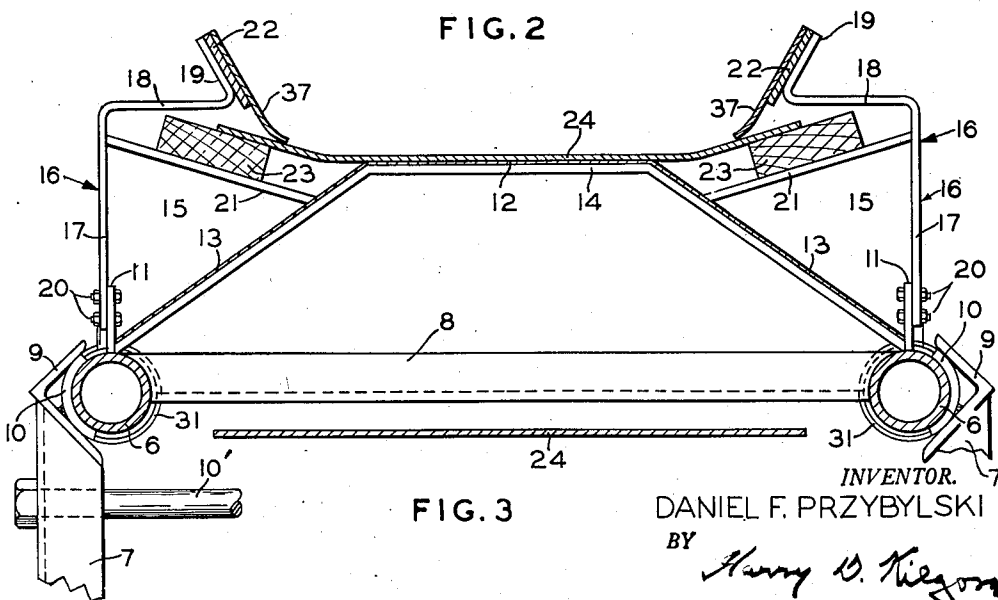


FIG. 3

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ENDLESS CONVEYER OF THE BELT TYPE

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Original application September 23, 1948, Serial No. 50,697. Divided and this application August 23, 1950, Serial No. 180,978

1 Claim. (Cl. 198—191)

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My present invention relates to improvements in endless conveyors of the belt type intended for general use and especially well adapted for use as a cross-conveyor when embodied in my pending application for patent for "Trench Excavator," filed September 7, 1948, under Serial Number 48,121.

This application is a division of my pending application filed September 23, 1948, under Serial No. 50,697 entitled "Endless Conveyor of the Belt Type."

An object of this invention is to provide novel means for transversely dishing the upper run of an endless conveyor belt.

A further object of this invention is to provide novel side members that overlie the longitudinal edge portions of the upper run of an endless conveyor belt.

A still further object of this invention is to provide a novel frame structure for an endless conveyor belt.

Other objects of this invention will be apparent from the following description, reference being had to the drawing.

To the above end, generally stated, the invention consists of the novel devices and combination of devices hereinafter described and defined in the claim.

In the accompanying drawing, which illustrates the invention, like characters indicate like parts throughout the several views.

Referring to the drawing:

Fig. 1 is a fragmentary plan view of an endless conveyor embodying the invention;

Fig. 2 is a fragmentary view partly in side elevation and partly in longitudinal central vertical section; and

Fig. 3 is a view partly in elevation and partly in transverse vertical section taken on the line 3—3 of Fig. 2, on an enlarged scale.

The numeral 4 indicates a pair of I-beams that may be assumed to be part of the bed of the trench excavator heretofore referred to, or any other suitable structure. These I-beams 4 support a main frame 5 for the endless conveyor. This main frame 5 includes a pair of tubular sills 6 and pairs of short legs 7. The sills 6 are rigidly connected at a plurality of longitudinally spaced points by crosstie members 8, each of which is an angle bar arranged with its flanges diverging upwardly relative to a vertical plane.

The legs 7 are made of angle bars, one pair resting on each I-beam 4 and rigidly secured thereto. On the upper ends of the legs 7 are short angle members 9 that are outwardly of

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the sills 6 and parallel thereto. The flanges of the angle members 9 diverge inwardly relative to a horizontal plane. Rigidly secured to and between the flanges of each angle member 9 is a concavo-convex member 10, the concave side of which affords a seat for the adjacent sill 6. The legs of each pair are rigidly connected at their intermediate portions by a crosstie rod 10'.

A pair of upstanding anchor plates 11 is rigidly secured to the sills 6 in the vertical plane of each crosstie member 8. Overlying the main frame 5 is a sheet metal deck 12 having downwardly diverging side members 13. This deck 12 and its side members 13 rest on flat bars 14, the ends of which rest on the sills 6 at the inner sides of the anchor plates 11 and are rigidly secured to both thereof. The deck 12 and its side members 13 also serve as a cover, as will presently appear.

A secondary frame 15 above the main frame 5 comprises, at each anchor plate 11, a leg bracket 16. Each leg bracket 16 is formed of a flat bar shaped to form an upright member 17, an in-turned horizontal member 18 and an upright and outwardly inclined member 19. The member 18 is on the upper end of the member 17 and the member 19 is on the inner end of the member 18. The lower end portions of the member 17 overlap the anchor plates 11 on their outer faces and are secured thereto by pairs of nut-equipped bolts 20. Each leg bracket 16 further includes a flat brace bar 21 having one of its ends rigidly secured to the upright member 17 and its other end is rigidly secured to the adjacent side member 13 of the deck 12. The brace bars 21 are downwardly and inwardly inclined and spaced below the horizontal member 18.

The leg brackets 16 on each side of the secondary frame 15 are all connected by a longitudinally extended flat bar 22 supported on the upper faces of the outwardly and upwardly inclined members 19 of said leg brackets and rigidly secured thereto. A pair of longitudinally extended wood guide rails 23 supported on the brace bars 21 and rigidly secured thereto are provided for supporting the longitudinal edge portions of the upper run of an endless conveyor belt 24. This conveyor belt 24 runs over a driven pulley 25 and an idle pulley 26, each of which comprises three axially spaced sections 27 and 28, respectively. The pulley sections 27 are keyed to a driven shaft 29 journaled in adjustable bearings 30. Each bearing 30 has on its under side a sleeve 31 slidably mounted on one of the sills 6. The internal end portions of the bearings 30 are beveled so that only the internal intermediate

portions of said bearings slidably engage the sills 6.

Each bearing 30 is normally held in a set position on the respective sills 6 by a take-up device 32. On one end of the driven shaft 29 is a sprocket wheel 33 which may be driven from any suitable source of power, not shown. The sections 28 of the idle pulley 26 are keyed to a shaft 34 journaled in bearings 35 that are identical with the bearings 30. The take-up devices 36 for the bearings 35 are identical with the take-up devices 32.

Pull of the conveyor belt 24 on the pulleys 25 and 26 tends to slide the bearings 30 and 35 inwardly on the sills 6, but the take-up devices 32 and 36 overcome this tendency and hold the bearings 30 and 35 where adjusted on the sills 6 and thus hold the pulleys 25 and 26 with the desired tension on the conveyor belt 24. The take-up devices 32 and 36 may be individually operated to angularly adjust the pulleys 25 and 26.

The upper run of the conveyor belt 24, at its transverse intermediate portion, slidably rests on the deck 12 and the longitudinal edge portions of said belt slidably rest on the guide rails 23. These guide rails 23 hold the respective portions of the conveyor belt 24 in upwardly diverging relation and thus transversely dish the conveyor belt 24 to facilitate the holding of a load of material thereon. The lower run of the conveyor belt 24 moves over the crosstie members 19' of the main frame 5. The deck 12 and its side members 13 serve as a cover for the lower run of the conveyor belt 24 and prevent dirt precipitated from the upper run of said belt from falling thereon and being carried thereby between the conveyor belt 24 and the idle pulley 26.

The supplemental frame 15 is provided with flexible side members 37, such as strips of belting. These side members 37 cover the longitudinal bars 22 to which they are secured, extend downwardly therefrom to the conveyor belt 24 and their lower longitudinal edge portions are slightly rolled inwardly onto said belt, see Fig. 3. These rolled edge portions of the side members 37 form closed joints with the conveyor belt 24 and also hold the respective portions of said belt on the guide rails 23. The longitudinal bars 22 hold the side members 37 in upwardly diverging relation. These side members 37 prevent material being conveyed by the belt 24 from being precipitated therefrom.

A pair of scraper bars 38 and 39 are provided for removing dirt from the driven pulley 25 and the idle pulley 26, respectively. These two scraper bars 38 and 39 extend transversely between the upper and lower runs of the conveyor belt 24. The scraper bars 38 and 39 are sup-

ported at their end portions on the bearings 30 and 35, respectively, and are rigidly secured thereto.

The conveyor belt 24 is automatically centered on the pulleys 25 and 26 just before its upper run passes onto the driven pulley 25 by a pair of opposing belt-centering rollers 40. These belt centering rollers 40 are journaled on bearings 41 on the scraper bar 38 to turn about axes that converge transversely over said belt.

During each cycle of the conveyor belt 24 in its course, the same passes between the inclined belt-centering rollers 40 and is automatically centered thereby relative to the pulleys 25 and 26.

The drawing illustrates a commercial form of the invention, but it will be understood that the same is capable of certain modifications as to details of construction, arrangement and combination of parts within the scope of the invention herein disclosed.

What I claim is:

In a conveyor of the class described, a pair of longitudinal sills, front and rear pulleys journaled on the sills, one of the pulleys being driven, a horizontal deck having downwardly diverging side members resting on the sills and secured thereto, an endless belt arranged to run over the pulleys with its transverse intermediate portion supported on the deck, a plurality of leg brackets including upright members resting on the sills and secured thereto, inturned intermediate horizontal members and upwardly and outwardly inclined upper members on the inner ends of the intermediate members and overlying the same, brace members connecting the upright members of the leg brackets to the side members of the deck, guide rails secured to the brace members and extending under the upper members of the leg brackets and supporting the longitudinal edge portions of the belt upwardly inclined to the intermediate portion of the belt, bars resting on the upper members of the leg brackets and secured thereto, and downwardly and inwardly inclined flexible members secured to said bars and with their lower longitudinal portions overlapping and resting on the upwardly inclined edge portions of the belt.

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REFERENCES CITED

The following references are of record in the file of this patent:

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