June 20, 1944. C. I. LATTIG 2,351,862

CONVEYER

Filed Oct. 20, 1942

Fig. 2

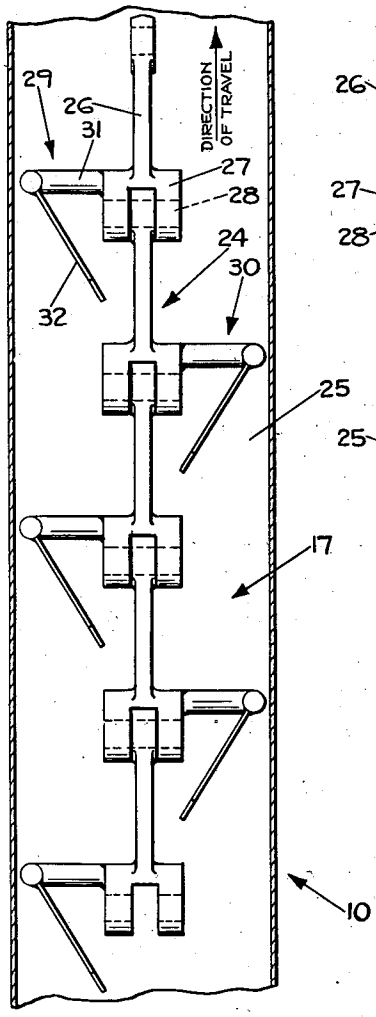


Fig. 3

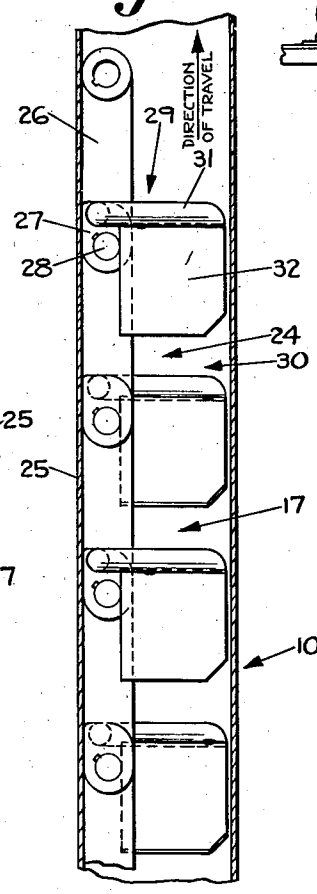


Fig. 1

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CONVEYER

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4 Claims. (Cl. 198—171)

This invention relates to a conveyer particularly of the scraper type in which material is conveyed through an enclosed working leg by a chain and attached flights.

An object of the invention is to provide an improved and simplified conveyer of the above mentioned type in which the flights may be considered as generally solid, as distinguished from the skeleton type, yet operate with some of the characteristics of the skeleton type flight.

Another object of the invention is to provide conveyer chain and flights which are rugged and of simple construction, yet highly efficient in operation.

Other objects of the invention will appear hereinafter, the novel features and combinations being set forth in the appended claims.

In the accompanying drawing,

Fig. 1 is a side elevational view of a conveyer incorporating the features of my invention, the conveyer being broken away at one place to show the structure more in detail;

Fig. 2 is a sectional view looking inside the working leg of the casing from the front to the rear thereof; and

Fig. 3 is a side view inside the working leg of the casing, the casing being shown in section.

Referring particularly to Fig. 1 of the drawing, there is illustrated a generally L-shaped casing or housing 10 which includes a head section 11, a foot or tail section 12, a feed section 13, one or more intermediate horizontal sections 14, a curved section 15 and one or more upwardly extending sections 16, all interconnected.

For a more complete disclosure of the casing or housing 10, reference is made to the application of Stanley M. Mercier, Serial No. 448,395, filed June 25, 1942, entitled "Conveyer." It is to be understood, however, that other casings or housings may be employed.

The casing or housing 10 is formed to provide an enclosing working leg 17 and an enclosing return leg 18. The working leg 17 may be considered as extending from the feed spout 19 of the feed section 13 to the discharge chamber 20 in the head section 11. The head section 11 includes a head or drive sprocket 21 driven by appropriate drive gearing from an electric motor 22 and the tail or foot section 12 includes a tension adjusting tail sprocket 23.

Running through the working leg 17 and the return leg 18 and over the sprockets 21 and 23 is an endless conveyer mechanism 24, the structure of which is shown particularly in detail in Figs. 2 and 3 of the drawing. It may be further pointed out that particularly within the upright section 16 the working and return legs 17 and 18 are formed by a common separating partition 25 which forms the back wall of the working leg 17 and the front wall of the return leg 18.

Referring particularly to Figs. 2 and 3 of the drawing, it will be seen that the endless conveyer mechanism 24 comprises a plurality of rigid links 26 which are provided at their bottoms or trailing ends with knuckles 27, the knuckle of each link being pivotally connected by a pivot pin 28 to the forward or upper end of each trailing link, thus providing for pivotal movement of the chain links along the axes of the pins 28, said chain 26 being substantially rigid against lateral bending.

As illustrated best in Fig. 3 of the drawing, the links 26 form a complete chain which rides upon the rear wall 25 of the working leg 17 which, as above mentioned, forms the partition between the working leg 17 and the return leg 18. As illustrated in the drawing, each of the knuckles 27 carries a rigid flight 29 or 30 but if desired, flights 29 and 30 may be provided only on alternate links 26 or otherwise desirably spaced. The flights 29 and 30 are of similar construction excepting that one extends to one side of the chain formed by the links 26 and the other extends to the other side thereof so that the flights 29 and 30 are spaced alternately on opposite sides of the conveyer chain 26. Except for their being reversed, the flights 29 and 30 are similar so a description of flight 29 only will suffice for both types.

Said flight 29 comprises an L-shaped rod or bar 31 which has one leg thereof rigidly attached to a knuckle 27 as by welding and this one leg extends laterally adjacent the rear wall 25 of working leg 17 until it bends into the second leg which is adjacent the left-hand side wall of said working leg 17 as viewed in Fig. 2 of the drawing. This leg of the rod 31 then extends forwardly and close to said side wall of the casing 10 substantially the entire width of the working leg 17 terminating adjacent the front wall of said working leg 17.

Rigidly attached to the leg of the rod 31 which is adjacent the side wall is a rearwardly or downwardly sloping wing or plate 32, the forward portion of which is adjacent the front wall of the working leg 17 and the rearward portion of which preferably is spaced from the partition 25 or rear wall of the working leg 17 although it

may extend to a position substantially adjacent thereto.

It is to be noted that the bottom or trailing edge of the wing or plate **32** does not extend entirely to the trailing link **26** although it may be so extended. Preferably, however, it extends over approximately two-thirds of the distance from the side wall to the center line of the working leg **17**, as best illustrated in Fig. 2 of the drawing. As previously mentioned, the flight **30** is of similar structure but is reversely positioned, being on the other side of the chain **26**, as clearly illustrated in Fig. 2 of the drawing.

In the operation of the device, the material to be conveyed is delivered to the feed chute **19** and the motor **22** pulls the conveyer mechanism **24** through the housing or casing **10** to convey material from said feed chute **19** thru the working leg **17** to discharge it by way of discharge chamber **20**. The flights **29** and **30** are essentially of the solid type but they do not fill the entire cross-sectional area of the working leg **17**. It is obvious, for example, that the flight **29** will sweep the cross-sectional area of the working leg **17** which is approximately but somewhat less than half the area and on one side thereof, while the flight **30** will operate similarly on the other side thereof. It may be further pointed out that the plane of the L-shaped member **31** is substantially at right angles to the direction of travel of the endless conveyer mechanism **24**. It is also to be noted that the flight **29** includes a leading edge adjacent approximately half of the back wall **25** of working leg **17**, also a leading edge adjacent substantially the entire width of one side wall, the two edges just described being provided by the two legs of the L-shaped member **31**, there also being an edge adjacent approximately half of the front wall of working leg **17** provided by the front edge of the wing or plate **32**. In fact, if desired, the wing **32** may be made relatively thin and could be made as another leg of the rod **31**, in which case it might be extended rearwardly substantially as is wing **32** or it might lie in the same plane as the rod **31** and extend over substantially half the width of the front plate of the working leg **17**. Such a structure would, of course, provide an open-type flight **29** which covered or swept approximately half the area of the working leg **17**.

In the construction as illustrated, which is the preferred construction, it is evident that the material is not positively conveyed by the flights **29** and **30** since it can work its way between said flights in the casing and this provides the characteristics of a generally open-type flight even though the flights are substantially of the solid construction. Such open-type flights have certain advantages in conveying certain types of materials. It is obvious that when the material reaches the discharge chamber **20**, which is preferably of expanded width as compared with the working leg **17**, the material will flow freely from the flights **29** and **30** and out the discharge chute associated with said discharge chamber **20**. It is thus to be seen that I have provided a simple and rugged construction and in practice it is very efficient in operation.

Obviously those skilled in the art may make various changes in the details and arrangement of parts without departing from the spirit and scope of the invention as defined by the claims hereto appended, and I wish therefore not to be restricted to the precise construction herein disclosed.

Having thus described and shown an embodiment of my invention, what I now desire to secure by Letters Patent of the United States is:

1. A conveyer including an enclosed upwardly extending working leg, endless draft conveying mechanism adapted to travel in said working leg, said draft conveying mechanism having successive flights each extending along substantially only one-half of one wall and along an adjacent side wall of said casing, and having a wing sloping rearwardly relative to the direction of travel, successive flights extending from opposite sides of said draft mechanism.

2. A conveyer including an enclosed working leg, an endless chain extending through said leg formed of pivotally connected links, flights, one rigidly attached to each link, successive flights extending laterally only on opposite sides of said chain, said flights comprising L-shaped rods connected to said links in a plane substantially at right angles to the axis of travel of said chain, each of said rods extending partially along one wall of the casing and substantially entirely along a connecting side wall, and plates connected to that portion of each rod adjacent the side wall and extending rearwardly relative to the direction of travel of said chain.

3. A conveyer including an enclosed working leg, an endless chain extending through said leg formed of pivotally connected links, flights, one rigidly attached to each link, successive flights extending laterally only on opposite sides of said chain, said flights comprising L-shaped rods connected to said links in a plane substantially at right angles to the axis of travel of said chain, each of said rods extending partially along one wall of the casing and substantially entirely along a connecting side wall, and conveying means connected to that portion of each rod adjacent the side wall and extending rearwardly relative to the direction of travel of said chain.

4. A conveyer chain comprising pivotally connected rigid links, flights rigidly attached to said links, said flights including L-shaped rods and trailing wings, and successive flights extending from opposite sides of said chain.

CHARLES I. LATTIG.