Nov. 4, 1952 A. W. DUNCAN 2,616,552

COVER PAN CONVEYER STRUCTURE

Filed Jan. 23, 1950 2 SHEETS—SHEET 1

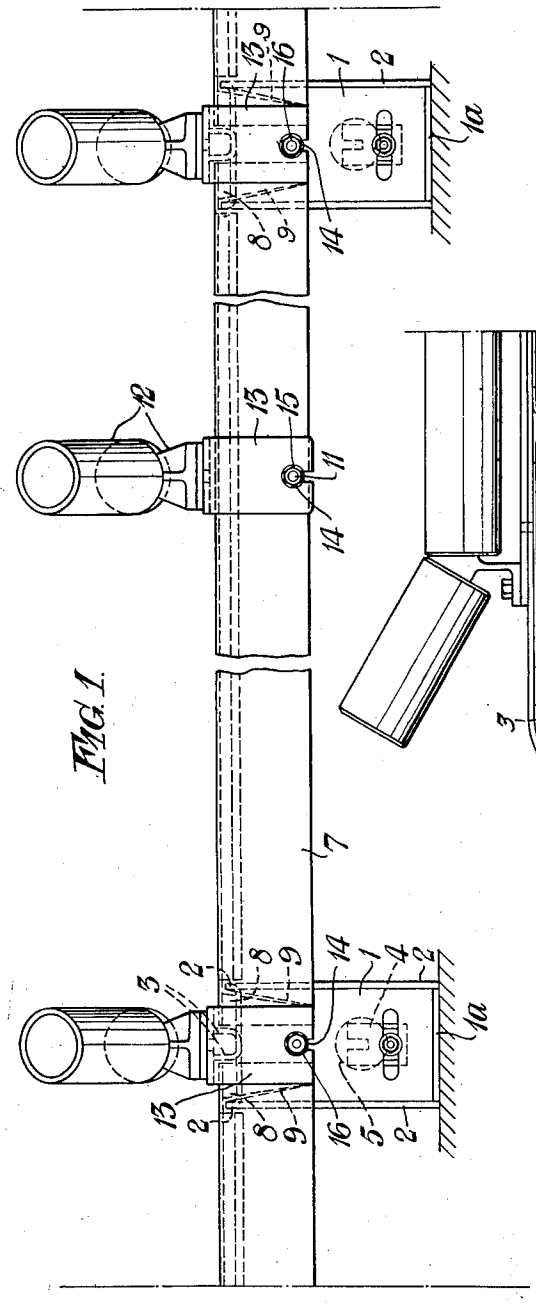


FIG. 1.

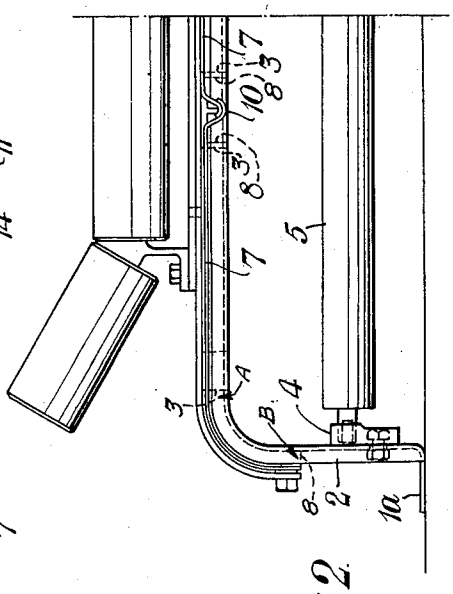


FIG. 2.

Inventor
Angus W. Duncan
By J. B. Simmons
Atty

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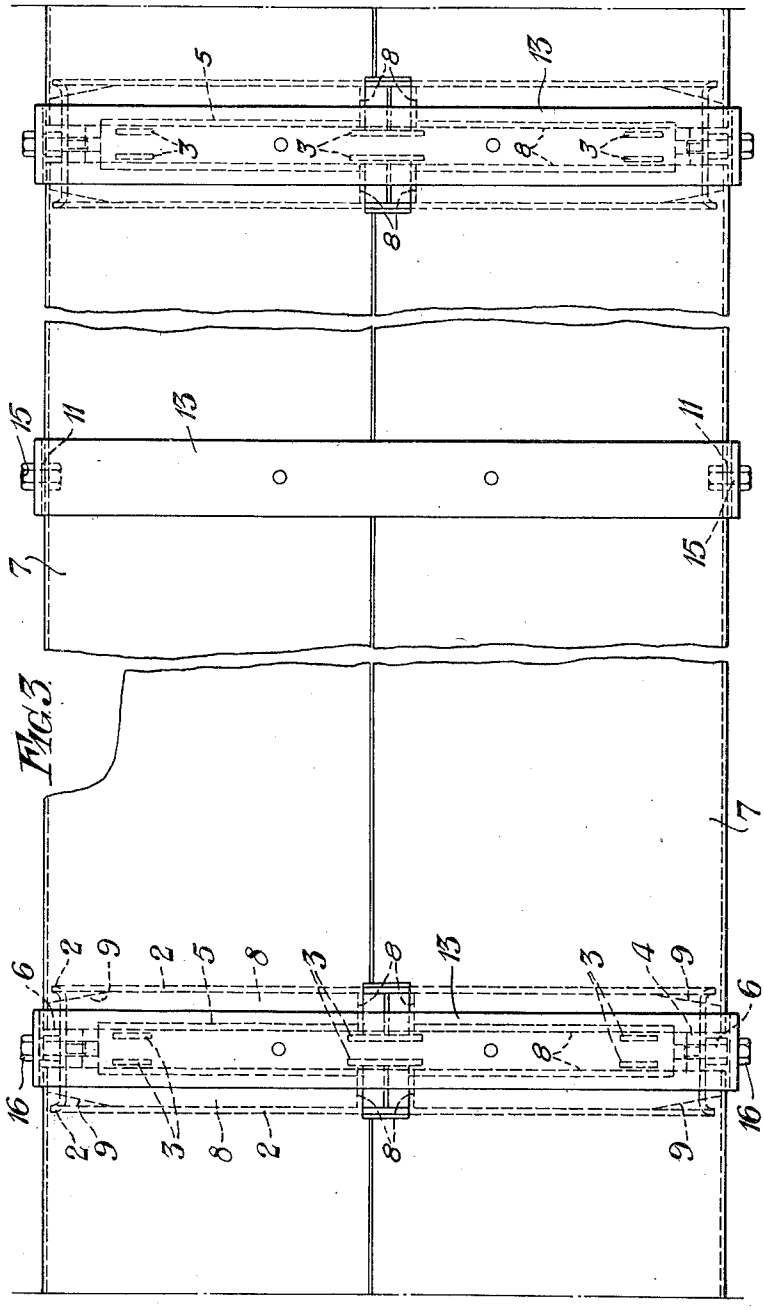


Fig. 3.

Inventor:
Angus W. Duncan
By J. B. Jennie
Atty.

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2,616,552

## COVER PAN CONVEYER STRUCTURE

Angus W. Duncan, Worcester, England, assignor to The Mining Engineering Company Limited, Worcester, England

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6 Claims. (Cl. 198—204)

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This invention is designed to provide a robust and convenient form of run of conveyor structure of the kind in which an inverted trough forming a cover pan over the return run comprises separable sections which preferably abut or overlap along the centre line of the conveyor and in which the troughs so formed are carried by stools in such a way as to ensure the lateral rigidity of the conveyor while permitting of some vertical flexibility to follow floor irregularities.

The present invention is more especially intended for belt conveyor structures such as are used underground in gate roads and the like and provides a construction which will protect the return belt completely when assembled yet will pack together closely for storage or transport, and the component parts are kept to such a size and form that they can be made from relatively heavy section plate thus ensuring robustness to resist distortion and damage. Also assembly and dismantling is rapid and simple using few bolts.

In the improved structure supporting stools of wide shallow channel section formed into inverted U shape with the shallow flanges on the outside and having upstanding lugs preferably pierced and bent upwardly from the horizontal part of the web and lying parallel with the shallow flanges are used in combination with cover pans formed of two similar L-shaped sections with narrow preferably flat bars secured on their inner surface at each end, the bar being adapted to rest between a shallow flange and one or more lugs of a stool, the bars preferably extend down the vertical limb of the L and the vertically extending part of each bar is tapered or inclined so that each L section can pivot slightly above the horizontal portion of the bar to give the required vertical flexibility.

Inverted U-shaped straps which lie over the assembled trough ends are secured to the sides of the stool and prevent the bars from becoming displaced. The rollers for carrying the upper belt may be suitably mounted above these straps and similar straps may be used if rollers are to be mounted also at intermediate positions.

Other parts of the invention are embodied in a typical form suitable for a troughed belt conveyor which will now be described by way of example with reference to the accompanying drawings in which:

Fig. 1 is a side elevation,

Fig. 2 a partial end elevation, and

Fig. 3 a plan.

In this form the supporting stool of wide shallow channel section with web 1 and flanges 2 is

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formed into inverted U shape. The web is turned outwards to form feet 1a. Lugs 3 are pierced and bent upwardly from the web of the top horizontal position and the web of the side vertical portions are slotted to receive adjustable brackets 4 for mounting the return roller 5. Tapped bosses 6 are welded centrally to the side webs.

The cover pan is formed from two similar L-shaped sections 7 each having narrow flats 8 riveted or welded on their inner surfaces at each end. Preferably, the flats 8 are also L-shaped and extend substantially across both limbs of the L sections. The sections are of any desired length conveniently such as will space the stools at twice the troughed idler spacing and are made from relatively heavy section plate. They fit over the stools with one limb mounted horizontally across the stools and the other limb disposed vertically against the sides of the stools, the flats 8 resting between the respective stool channel flange 2 and the upturned lugs 3. The vertical and bent portions of the flats, indicated between points A and B in Figure 2, are also nested within the stool channels and these portions are tapered away as indicated at 9 in Figures 1 and 3 to allow the L sections to pivot slightly about the horizontal portion of the flats.

The L sections are oppositely disposed on the stools and overlap at their longitudinal joint in any convenient way to ensure a dust tight joint 10 and holes are drilled at 11 in the vertical portions on the centre line of the position where it is desired to fit a troughed idler generally shown at 12.

Inverted U-shaped flats 13 of sufficient width to receive the troughed idler have countersunk slots 14 formed centrally at each end and are drilled to suit the idler mounting. They fit over the L sections at the idler position being received by bolts 15 having countersunk faces and passing through the holes 11 in the L section vertical portion. They also fit over the stools resting on the upturned lugs 3 and extend over the ends of the L sections 7 thereby securing them when held by countersunk faced set screws 16 tightened into the tapped bores 6 welded to the stools. It will be appreciated that there is some small clearance between the U flat 13 resting on the upturned lugs 3 and the upper surface of the L sections to permit limited vertical flexibility in the assembled structure but the fitting of the flats 8 on the L sections between the channel flange and upturned lugs gives good lateral rigidity. The L sections are prevented from

springing out of the channel under floor movement by the U flat 13 secured to each stool.

The L sections are of such a form that they rest closely together for storage or transport and the stools also pack closely.

When assembling the structure the troughed idlers 12 can be mounted on the U straps 13 first. The stools 1, 2 are then placed over the return belt and the return rollers 5 slide under it and drop into their brackets 4. The L sections 7 are dropped into place between the stools and the U straps 13 fitted over L sections and the stools and the bolts 15 and setscrews 16 inserted and tightened.

It will be understood that the open countersunk slot and countersunk faced bolt method of securing the U straps is described by way of example but various alternatives are obvious. Thus ordinary bolts and holes could be used or mushroom headed rivets fixed in the L sections and stools in conjunction with L slots in the U straps.

I claim:

1. A belt conveyor structure comprising supporting stools of wide shallow channel section and of inverted U shape with the shallow flanges on the outside and having upstanding lugs lying parallel with the shallow flanges, in combination with cover pans formed of two similar L-shaped sections with narrow relatively flat bars secured on their inner surface at each end, the bar being adapted to rest between a shallow flange and at least one lug of a stool.

2. A belt conveyor structure as in claim 1 wherein the upstanding lugs are integral with and struck upwardly from the horizontal part of the web of the stools.

3. A belt conveyor structure as in claim 1 wherein the bars extend across both limbs of the L-shaped sections and the vertically extending part of each bar has an inclined edge to enable pivoting of each L section slightly about the horizontal portion of the bar.



4. A belt conveyor structure as in claim 1 wherein inverted U-shaped retaining straps lying over the ends of the L-shaped sections are secured to the stool.

5. A belt conveyor structure comprising supporting stools of shallow channel section formed into inverted U shape with the shallow flanges on the outside and upstanding lugs spaced from the flanges, in combination with cover pans formed of two similar L section members substantially overlapping along the centre line of the structure and having projections at their ends engaged between the flanges and the lugs, and retaining members holding the said projections down while permitting some small vertical pivotal movement between cover pans and stools.

6. A belt conveyor structure as in claim 5 wherein said retaining members comprise inverted U-shaped straps which carry upper belt rollers and are removably secured to the sides of the stools.

ANGUS W. DUNCAN.


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