Feb. 28, 1939. E. R. BERGMANN 2,149,158

SHAKER CONVEYER

Filed Nov. 27, 1936

Fig. 1

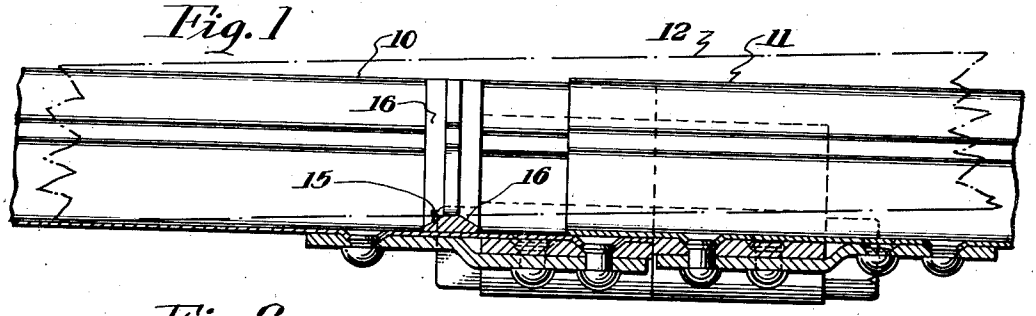


Fig. 2

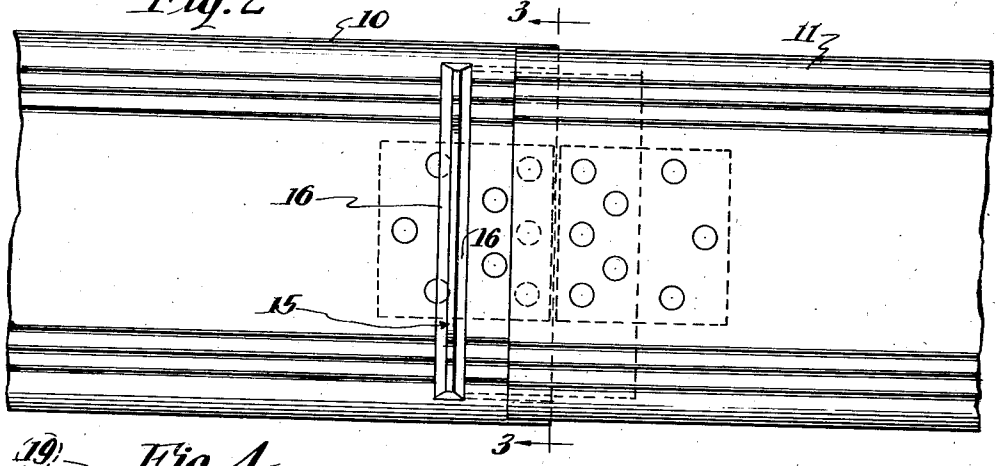


Fig. 4

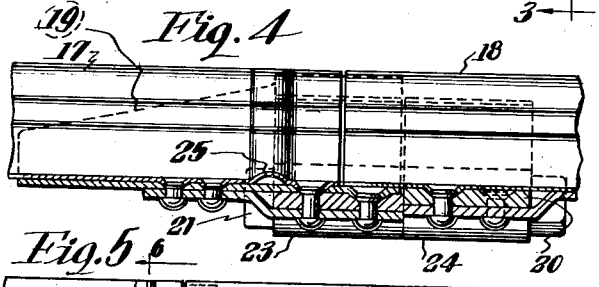


Fig. 3

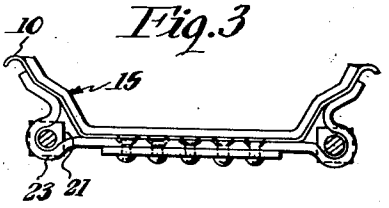


Fig. 5

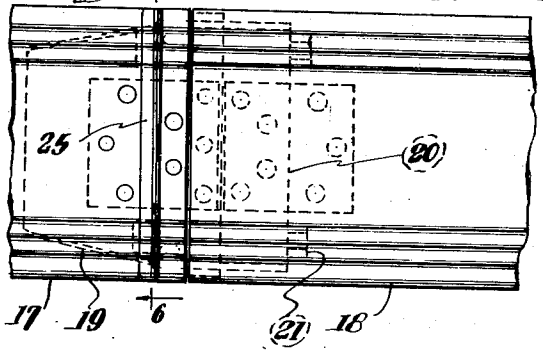
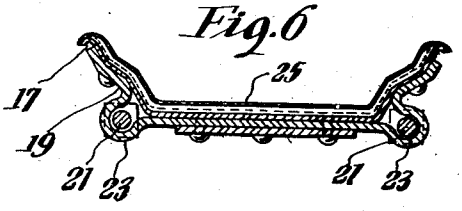


Fig. 6



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UNITED STATES PATENT OFFICE

2,149,158

SHAKER CONVEYER

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Application November 27, 1936, Serial No. 112,854

3 Claims. (Cl. 198—220)

This invention relates to improvements in shaker conveyers and more particularly to a reversible shaker conveyer pan line adapted for use in mines and so arranged that loose material such as coal may be conveyed from the working face, and the drive may be reversed so that bulky material such as supplies and roof props or timbers may be conveyed in an opposite direction to the working face.

It has been found advantageous to use conveyers to convey loose material from the working face of a mine, and move supplies such as roof props or timbers up to the working face by means of the same conveyer. Reversible shaker drives have been provided in order that this may be done with shaker conveyers, but it has been difficult to convey the timbers to the face on account of the overlapping joints where the troughs are connected together, which joints foul the timbers when moving in a direction thereagainst. One means of remedying this difficulty has been to connect the troughs together with abutting joints instead of the usual lap joint. The disadvantage of this type of trough, however, is that the coal tends to leak at the joints between the troughs and timbers frequently foul at the joints in cases where the ground is irregular and the troughs are tilted upwardly or downwardly with respect to each other so that the edge of one trough projects above the other.

The principal object of my present invention is to provide a means to overcome these difficulties when using either lap or butt joint troughs by providing a means for deflecting the forward end of a prop or timber as it approaches the joint between the troughs and permit said timber to readily ride past the trough joint.

My invention may be more clearly understood with reference to the accompanying drawing wherein:

Figure 1 is a longitudinal sectional view of a pair of conveyer troughs connected together in overlapping relation with respect to each other, illustrating one form in which my invention may be embodied;

Figure 2 is a plan view of the troughs shown in Figure 1;

Figure 3 is a sectional view taken substantially along lines 3—3 of Figure 1;

Figure 4 is a longitudinal sectional view of a pair of conveyer troughs connected together in abutting relation with respect to each other, illustrating another form in which my invention may be embodied;

Figure 5 is a plan view of the troughs shown in Figure 4; and

Figure 6 is a sectional view taken substantially along lines 6—6 of Figure 5.

In the embodiment of my invention illustrated in Figures 1, 2 and 3 of the drawing, a pair of conveyer troughs 10 and 11 are herein shown as being connected together in overlapping relation with respect to each other in the usual manner so that one end of the trough 11 overlaps an adjoining end of the trough 10. Said troughs are shown as having a timber 12, illustrated by broken lines in Figure 1, moving therealong in a direction against the overlapped joint.

Referring now particularly to the novel features of my invention and the means for permitting timbers or other bulky objects to be conveyed along the trough line in a direction which is against the overlapping joints of the troughs, a means is provided for elevating the forward ends of said timbers as they approach the joint between the troughs which, as herein shown, comprises a deflecting strip 15 secured to and extending transversely across the bottom and sides of the overlapped trough 10 and spaced from but adjacent the trough joint. As herein shown, said strip is of a greater elevation than the thickness of the bottom of the overlapping trough section 11 so as to clear the end of said overlapping trough and has forward and rear inclined faces 16, 16 to deflect material past the trough joint and permit it to ride thereover.

It will be apparent from the foregoing that a simple means has been provided for permitting timbers or other bulky material to move along the trough line against the lapped joints of the trough which consists in providing a means on the overlapped trough for raising the forward end of the timber over the end of the overlapping trough, and that while a deflecting strip is herein preferably shown as extending across the bottom and sides of the overlapped trough, it should be readily apparent that various types of elevating means may be provided on the overlapped trough which will effect the same result.

Referring now to the modified form of my invention shown in Figures 4, 5 and 6, conveyer trough sections 17 and 18 are provided which are arranged so that their ends are in abutting relation with respect to each other. The trough section 17 is provided with a projecting connecting member 19 extending transversely thereacross and along the sides thereof forwardly beyond the forward end thereof. Said member extends beneath the end of the trough section 18

and upwardly along opposite sides thereof to prevent loss of material through the joint between the troughs and to provide a more rigid joint between the troughs. Said troughs are connected together in the usual manner by means of connecting bolts 21, 21 extending through eye pieces 23, 23 projecting laterally from the connecting member 19 and abutting eye pieces 24, 24, projecting laterally from a reinforcing plate 20 secured to and extending across the bottom of the trough section 18.

In order to eliminate fouling of timbers at the joint between the trough sections where the bottom is uneven and said trough sections are inclined upwardly or downwardly with respect to each other so the end of one trough projects above the end of the other, substantially the same means as that described with respect to Figures 1 and 2 is provided which is herein shown as being in the form of a bead 25 formed in the trough section 17 and extending transversely thereacross and upwardly along the sides thereof. Said bead raises the bottom and sides of the trough section 17 adjacent the joint between the troughs and thus causes the forward end of bulky material such as mine timbers or props to be deflected past the obstruction formed by the joint between the trough sections.

It will be seen from the foregoing that a simple means of a novel and inexpensive construction has been provided which is arranged to permit loose material to be efficiently moved along the trough line in one direction and permit supplies such as timbers or props to be efficiently moved therealong in an opposite direction against the joints of the trough, which enables a reversible shaker conveyer to be efficiently used for conveying coal from the working face and moving timbers or supplies in to the working face after the loading operation.

While I have herein shown and described one form in which my invention may be embodied, it will be understood that the construction thereof and the arrangement of the various parts may be altered without departing from the spirit and scope thereof. Furthermore, I do not wish to be construed as limiting myself to the specific embodiment illustrated, excepting as it may be limited in the appended claims.

I claim as my invention:

1. In a reversible shaker conveyer pan line, a pair of conveyer trough sections secured together, and a continuous deflecting bead formed integral with said trough section and extending transversely across the bottom of said troughs and upwardly along the sides thereof, said bead being adjacent but spaced ahead of the point of connection between said troughs for deflecting material past the joint between the troughs and permitting the movement of material along said troughs in either direction.

2. In a shaker conveyer pan line, a pair of adjoining conveyer troughs secured together in overlapping relation with respect to each other and arranged to convey loose material therealong in a direction from the overlapping to underlapped trough sections, and means to permit bulky material to be conveyed along said trough line in a direction opposite to the direction of movement of the loose material comprising a continuous material deflecting member extending across the bottom of and upwardly along the sides of said underlapped trough at a point adjacent but spaced from the joint between said troughs.

3. In a shaker conveyer pan line, a pair of adjoining conveyer troughs secured together in overlapping relation with respect to each other, and arranged to convey loose material therealong in a direction from the overlapping to underlapped trough, and means to permit bulky material to be conveyed along said trough line in a direction opposite to the direction of movement of loose material comprising a single continuous material deflecting member extending transversely across the underlapped trough and upwardly along the sides thereof at a point adjacent but spaced from the joint between said troughs, said deflecting member having inclined forward and advance sides and the outer sides of said member being raised above the bottom of and extending inwardly from the sides of the overlapping trough.

ERNST R. BERGMANN.