ATTACHING MEANS FOR CONVEYER PANS


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4 Claims. (C1. 198—220)

This invention relates to the mining art and more particularly to an attaching means for conveyor pans used primarily in coal mines and the like.

It is an object of the invention to provide means whereby a conveyer pan may be readily attached to or detached from an adjacent pan of a number of like pans which when attached together provide a conveyer chute.

In coal mining, other than surface mining, the mine is usually provided with one or more main shafts which may be vertical or inclined and provided with hoists. From the main shafts, lateral tunnels are formed through which coal is conveyed to the hoists. From the lateral tunnels, drifts are provided which follow the veins of coal. As the drifts are lengthened, the same are shored up with timbers and trusses for preventing the roof of a drift from caving in and obstructing the passageway. A coal miner operates upon a vein of coal at the end of a drift which constantly becomes lengthened as coal is removed. A drift is often of a temporary nature, especially when the vein of coal is completely removed and in a particular drift no longer useful. Under such conditions conveyer chutes have been used for the purpose of conveying coal as it is mined and taken from the vein to the hoists. The laterals or drifts are usually horizontally disposed whereby the coal is prevented from rolling down the chute and the particular type of chute with which the present invention is associated includes a plurality of pans placed end to end and overlapping each other and suspended from a truss or beam adjacent the roof of a drift, whereby the coal placed upon the pans of the chute will travel along it at times when the whole chute is agitated or shaken and caused to have reciprocating vertical swinging movements.

It will be understood that the chute must be taken apart and removed to a new drift at times when a non-productive drift requires the same and that as a drift is deepened the chute is correspondingly lengthened by adding more pans to the chute for providing convenience in the placing of coal thereon as the coal is freed or mined from a vein.

An object of the present invention is to provide a means whereby the pans of a coal chute may be readily detached from and attached to each other.

Other and further objects and advantages of the invention will be understood from the following detailed description, reference being had to the accompanying drawing in which:

Figure 1 is a side view of a fragment of a conveyer chute with the device of this invention applied thereto.

Figure 2 is a transverse section of a chute pan taken along the dotted line 2—2 of Figure 1.

Figure 3 is a transverse section of the chute pan taken along the dotted line 3—3 of Figure 1.

Figure 4 is a side view of a hasp employed and Figure 5 is an end view of the same.

Figure 6 is a side view of a locking pin employed and Figure 7 is a top plan view thereof.

Referring now to the drawing for a more particular description, 10 indicates a conveyer pan provided with side walls 11 and open at each of its ends. Adjacent each end of the pan 10 and at each side thereof oppositely disposed eyes 12 are provided and so arranged that when the end 13 of the pan 10 is received upon an adjacent pan 14 that the eyes 12 of the pans are in longitudinal alignment with respect to each other. The eyes of the pans 10 and 14 are adapted to be locked together in a manner whereby they are readily detachable by a means now to be described.

A hasp 15, best shown in Figures 4 and 5, is employed and provided with an axel detent 16 which is adapted to be partially received within an eye 12 as shown in Figure 1.

The hasp is provided with a tang 17 positioned near one end of the hasp and provided with a chain receiving aperture 18 and it will be understood that the chain suspending member 90 or strand 19 may be adjustably secured to the tang 17 by inserting a selected link through the aperture 18 as shown in Figures 1 and 3, the upper end of the chain being carried by the heretofore mentioned beam or truss adjacent the roof of the drift. By this means the height of a particular pan or chute portion may be adjusted above the floor of the drift by lengthening or shortening the chain 19 with respect to the tang 17. The end of the hasp 15 opposite to the detent 16 is step-cut as at 20 for purposes later described.

A locking pin 21 is employed for locking the abutting eyes 12 together and preventing vertical movements thereof away from each other 105 and is provided with a means for detaining the pin 21 within the hasp at desired times including such times as when the chute is agitated, the said means including an elongated transversely positioned head 22 for the pin having an 110
arcuate surface 23, a notch 24 and a lug 25. It will be understood that in order to secure the eyes 12 together in an operative position the pin 21 is inserted in the eyes, its end opposite to its head being prevented from too great a longitudinal movement on account of the detent member 16 obstructing said movement and it will be understood that when the pin 21 is in the position, as shown in Figure 1, that the hasp 15 may be moved against the head 22 of the pin 21, the arcuate portion 23 of the latter facilitating the movement of the pin and eyes 12 with respect to the hasp 15 until the eyes and eyes are in longitudinal alignment with respect to each other, the lug 25 preventing too great a movement, at which time the hasp may be raised upwardly whereby the inclined portion 26 of the hasp will engage with the notch 24 of the head of the pin for locking the parts together, the chains 19 carrying the weight of the pan, preventing the detachment of the parts and causing the hasp to turn on its axel detent 16 to substantially a vertical position.

In order to detach the parts the pin 21 must first be removed and this is consummated by moving the pin upwardly in a vertical direction until the notch 24 of the head 22 is freed from the inclined portion 26 of the hasp and moved past the step-cut portion 20 of the hasp in a horizontal direction.

From the foregoing description it is thought to be obvious that an attaching means for conveyor pans constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason I do not wish it to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice.

What I claim is:

1. A flexible suspended conveyor chute comprising a plurality of pans having eyes near their ends so arranged that the eye of a pan is positioned in longitudinal alignment with an abutting eye of an adjacent pan, a hasp for the abutting eyes provided with an axel detent positioned in a portion of an eye, a locking pin in the eyes, means for removably securing the pin to the hasp and means carried by the hasp for attaching a chute suspending member adapted to move the hasp into a locked position with respect to the pin when the chute is suspended.

2. An attaching means for mine drift conveyor pans provided with eyes adjacent their ends so arranged that the eye of a pan is positioned in substantial alignment with the eye of an abutting pan comprising a hasp provided with a detent adapted to be received partially within an eye, a locking pin adapted to be received in the abutting eyes, means for removably securing the pin to the hasp, and means carried by the hasp adapted to engage with a chain for suspending the pans above the floor of the drift.

3. An attaching device for coal mine drift conveyor pans and the like provided with eyes adjacent their ends so arranged that the eye of a pin is positioned in substantial alignment with the eye of an abutting pan comprising a hasp provided with a detent receivable in a portion of an eye, a locking pin for the abutting eyes, means for removably securing the pin to the hasp, and adjustable means carried by the hasp for selectively positioning the pans with respect to the floor of the drift.

4. An attaching means for mine drift conveyor pans provided with eyes adjacent their ends so arranged that the eye of a pan is positioned in substantial alignment with the eye of an abutting pan comprising a hasp having a detent positioned near one of its ends adapted to be received in a portion of an eye, said hasp being provided with an inclined surface near its end opposite to said detent, a locking pin for the abutting eyes provided with a head having a notch adapted to engage with the inclined surface of the hasp for preventing longitudinal movements of the pin, and suspending means adapted to hold the hasp for engaging the notch of the pin with the inclined surface of the hasp when the weight of the pans urges the pin downwardly.

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