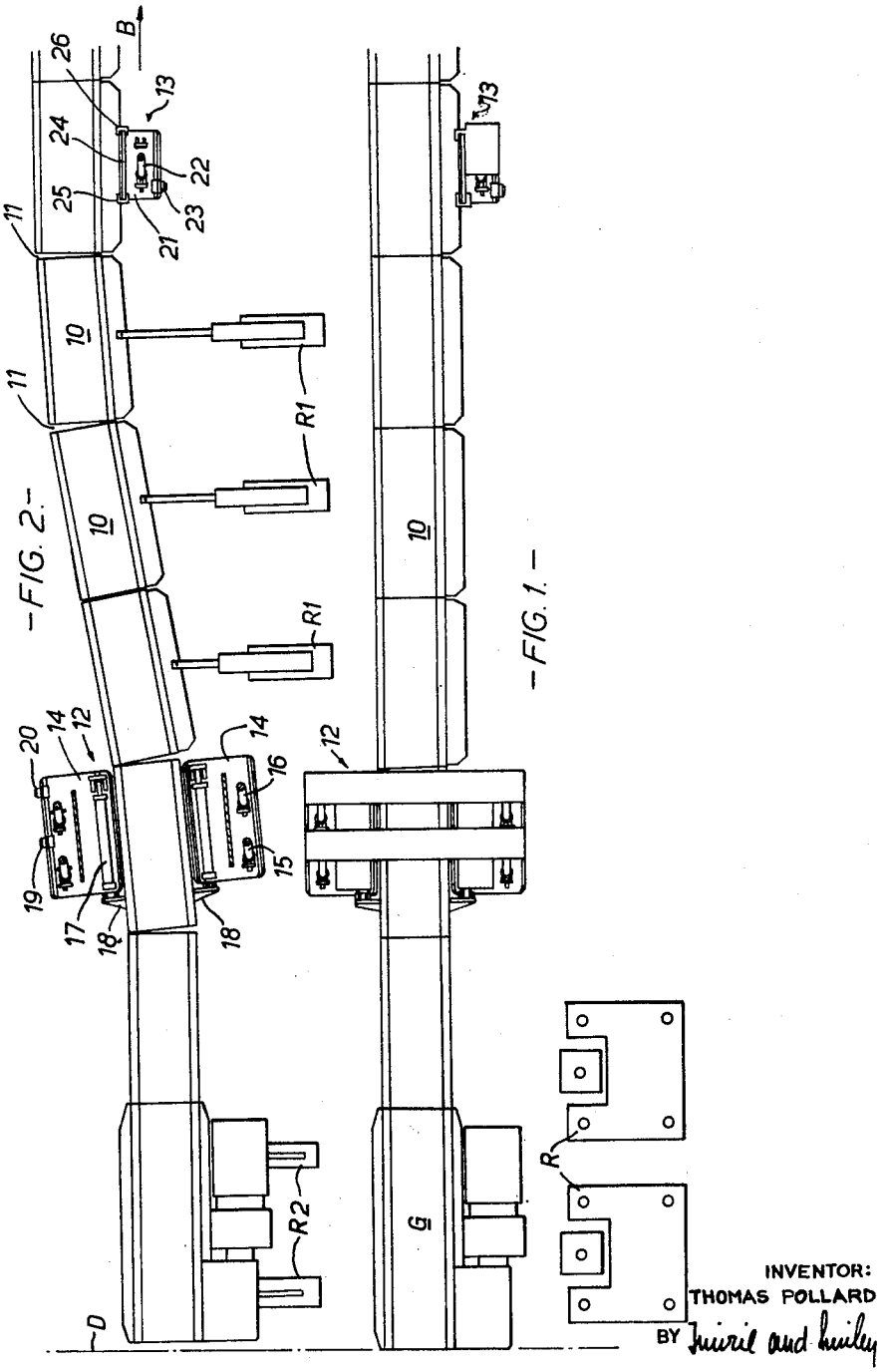
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BODILY ADJUSTABLE CONVEYOR

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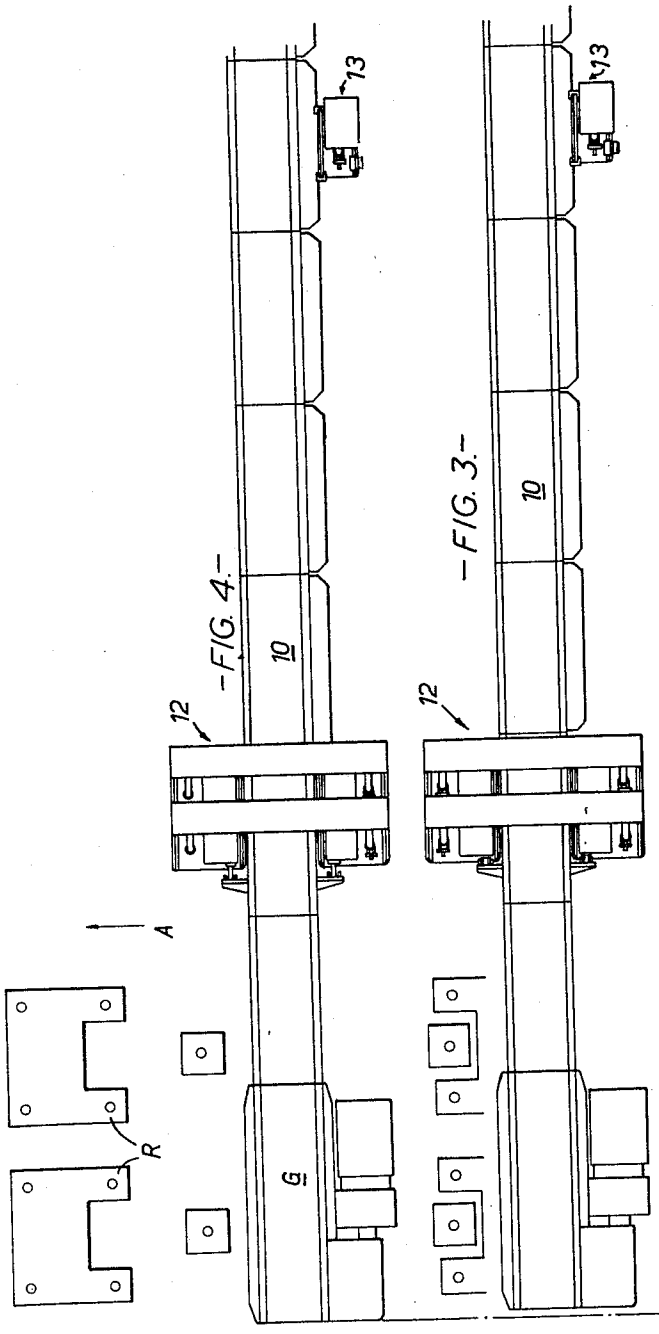


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-FIG. 4.-

-FIG. 3.-

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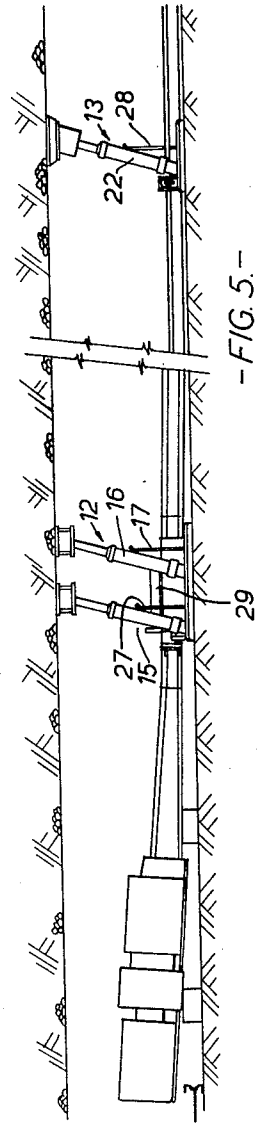


FIG. 5.

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BODILY ADJUSTABLE CONVEYOR

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This invention is for improvements in or relating to conveyors.

The invention is more particularly concerned with flexible conveyors such as are used on the coal face underground in the mining or coal.

In coal mining operations it is necessary as cutting of the coal proceeds to push the conveyor over from time to time towards the coal face. During the operation of pushing over the conveyor there is an objectionable tendency for the conveyor to "creep' down the face either as a result of the snaking or flexing operation, which is brought about by the process of moving the flexible conveyor over section by section, and/or due to the fact that the conveyor is on an incline.

An object of the present invention is to provide means whereby the above-mentioned objectionable tendency for the conveyor to "creep" may be prevented.

According to the present invention there is provided a method of positioning and pushing over a conveyor or the like towards a coal face or the like in which the conveyor is held against movement in the direction of its length by two abutment devices spaced apart along the conveyor, said abutment devices being released in turn for the pushing over of first one section of the conveyor and then another section thereof, after which ram means (e.g. a hydraulic ram) associated with one of said abutment devices is operated, with said abutment device fixed and the other released, to correct any objectionable movement of the conveyor in the direction of its length.

According to a further feature of the present invention there is provided the combination with a conveyor of at least two abutment devices for holding the conveyor against movement in the direction of its length, adapted to be secured between floor and roof of a mine working or the like and spaced apart along the length of the conveyor, at least one of said abutment devices comprising a ram or rams (e.g. a hydraulic ram) whereby a thrust may be applied to the conveyor in the direction of its length.

Preferably the abutment devices are spacer apart by a distance substantially equal to or not less than the "snaking" distance of the conveyor.

One particular embodiment of the invention will now be described, by way of example, with reference to the accompanying diagrammatic drawing wherein:

FIGURES 1, 2, 3 and 4 are plan views showing four stages in the pushing over and positioning of the conveyor, and

FIGURE 5 is an elevation of the coal face with the conveyor located thereagainst.

Referring to the drawings, the conveyor comprises a plurality of relatively short sections or pans **10** flexibly connected together at their meeting ends so that the joints **11** can open up, as indicated in FIGURE 3, to permit the conveyor to be pushed over towards the coal face section by section as indicated by the arrow A in FIGURE 1.

Roadhead supports are indicated at R and the gearhead unit for a conveyor is indicated at G.

For the purpose of the present invention there is provided towards the gearhead unit end of the conveyor two abutment devices **12** and **13**.

These abutment devices are spaced apart along the conveyor by an amount at least equal to the "snaking"

distance, i.e. the length of the conveyor which takes on a curved formation, due to opening up of the joints between the pans as indicated in FIGURE 2, when the main length of the conveyor is pushed over whilst the gearhead unit is still held stationary. It will be appreciated that the main length of the conveyor is to the right of the abutment device **13** and is not shown in the drawings. This portion of the conveyor may be pushed over in the conventional way by means of hydraulic ram devices attached to roof supports.

The abutment device **12** comprises two identical units one located on one side of the conveyor and one on the other side. Each unit has a baseplate **14** carrying a pair of hydraulic props or inclined staker legs **15** and **16** whereby the unit can be secured between floor and roof. Each unit is provided with a double-acting ram **17** adapted to act on a clevis or bracket **18** fixed to the conveyor pan. The hydraulic props **15** and **16** and rams **17** are controlled by means of valves **19** and **20**. The abutment device **12** can straddle the conveyor as the coal cutting machine is reversed before reaching this position.

The abutment unit **13**, which is located on one side of the conveyor only, i.e. on the side remote from that nearest the coal face in order to avoid obstructing the coal-cutting machine, comprises a baseplate **21** on which there is mounted a single hydraulic prop or inclined staker leg **22**.. The hydraulic pressure fluid to this taker leg is controlled by a valve **23**. An abutment plate proper **24** engages in brackets **25**, **26** on the conveyor pan.

The abutment devices **12** and **13** are provided with spring supports **27** and **28** respectively for supporting the pivoted staker legs temporarily when they are released from between floor and roof.

When it is required to push over the conveyor from the position shown in FIGURE 1 the staker leg **22** of the abutment device **13** is retracted so that said abutment device is free, the staker legs of the abutment device **12** remaining extended so that that abutment device is secured firmly between floor and roof.

The main portion of the conveyor is then moved over, by rams R1 (see FIGURE 2), to the position shown in FIGURE 2. During this next movement there is a downface sliding of the abutment device **13**, i.e. a movement of said device in the direction of the arrow B. The staker leg **22** of the device **13** is then extended so as to secure said device between floor and roof.

The staker legs **15** and **16** of the abutment unit **12** are then retracted so as to release that unit from between floor and roof. It will be appreciated that the abutment unit **13** is now acting to prevent any objectionable sliding of the conveyor down the face. The gatehead unit G together with the abutment unit **12** and the rest of the conveyor is then pushed over (the commencement of this movement being actually shown in FIG. 2), by the rams R2 (see FIGURE 2), into the position shown in FIGURE 3. It will be noted from FIGURE 3 that this pushing over of the conveyor has resulted in a movement down the face of the gearhead unit. To correct this, after the abutment device **12** has been re-secured between floor and roof, the abutment device **13** is released temporarily from between floor and roof and the rams **17** are then operated and through the clevises **18** push the gearhead unit, conveyor and abutment device **13** in the upface direction, i.e. back to the original datum line indicated at D. The inlet and outlet ports to the rams **17** are then closed so that they are isolated and act to hold the conveyor against movement in the direction of its length.

The staker leg **22** of the abutment device **13** may, as indicated, have its own control valve as above described, or alternatively it may be operated remotely from a valve on the abutment device **12**.

A hydraulic intensifier **29** may be provided for the hydraulic rams of both devices **12** and **13**.

Advantages of a system according to the invention are:

(1) As opposed to some anchoring devices the mechanism does not increase the overall length of the conveyor assembly.

(2) The system is not part of the roof support equipment and therefore support is not diluted when the system is in operation, nor is the machinery held in position by devices that could be taken for roof supports, which may be dislodged by the pressure of the machinery. In this way the risk of falls of roof is reduced.

(3) The system lends itself to adaptation to various types of roadhead and face support.

(4) Because of the absence of a sliding connection between the two anchoring devices the construction is simpler and more economic.

I claim:

1. In combination, a conveyor having two bracket means projecting laterally from it and spaced apart respectively along the length of the conveyor, pressure-fluid-operated ram means for moving the conveyor in a direction at right-angles to its length so as to advance it towards a coal face, two abutment devices having releasable pressure-fluid operated prop means for securing them between floor and roof, one adjacent one of said bracket means on the conveyor and one adjacent the other of said bracket means on the conveyor, and means on said abutment devices engaging their adjacent bracket means on the conveyor to hold the conveyor against down-seam movement when on an inclined seam, one of said bracket-engaging means comprising pressure-fluid-operated ram means having a ram operative to act in the direction of length of the conveyor and to move the conveyor in the direction of its length to correct any down-seam movement which takes place when the conveyor is advanced towards the coal face.

2. In combination, a conveyor having two bracket means projecting laterally from it and spaced apart respectively along the length of the conveyor by a distance not less than the "snaking" distance of the conveyor, pressure-fluid-operated ram means for moving the conveyor in a direction at right-angles to its length so as to advance it towards a coal face, two abutment devices having releasable pressure-fluid-operated prop means for securing them between floor and roof, one adjacent one of said bracket means on the conveyor and one adjacent the other of said bracket means on the conveyor, and means on said abutment devices engaging their adjacent bracket means on the conveyor to hold the conveyor against down-seam movement when on an inclined seam, one of said bracket-engaging means comprising pressured-fluid-operated ram means having a ram operative to act in the direction of length of the conveyor and to move the conveyor in the direction of its length to correct any down-seam movement which takes place when the conveyor is advanced towards the coal face.

3. In combination, a conveyor having two bracket means projecting laterally from it and spaced apart along the length of the conveyor by a distance not less than the "snaking" distance of the conveyor, said conveyor including a gear head driving unit at one end of the conveyor and adjacent one of said bracket means, pressure-fluid-operated ram means for moving the conveyor in a direction at right-angles to its length so as to advance it towards a coal face, two abutment devices having releasable pressure-fluid-operated prop means for securing them between floor and roof, one adjacent one of said bracket means on the conveyor and one adjacent the other of said bracket means on the conveyor, and means on said abutment devices engaging their adjacent bracket means on the conveyor to hold the conveyor against down-seam movement when on an inclined seam, the bracket-engaging means of the abutment device adjacent the gear head unit comprising pressure-fluid-operated ram means on either side of the conveyor having rams operative to act in the direction of length of the conveyor and to move the conveyor in the direction of its length to correct any down-seam movement which takes place when the conveyor is advanced towards the coal face.

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