

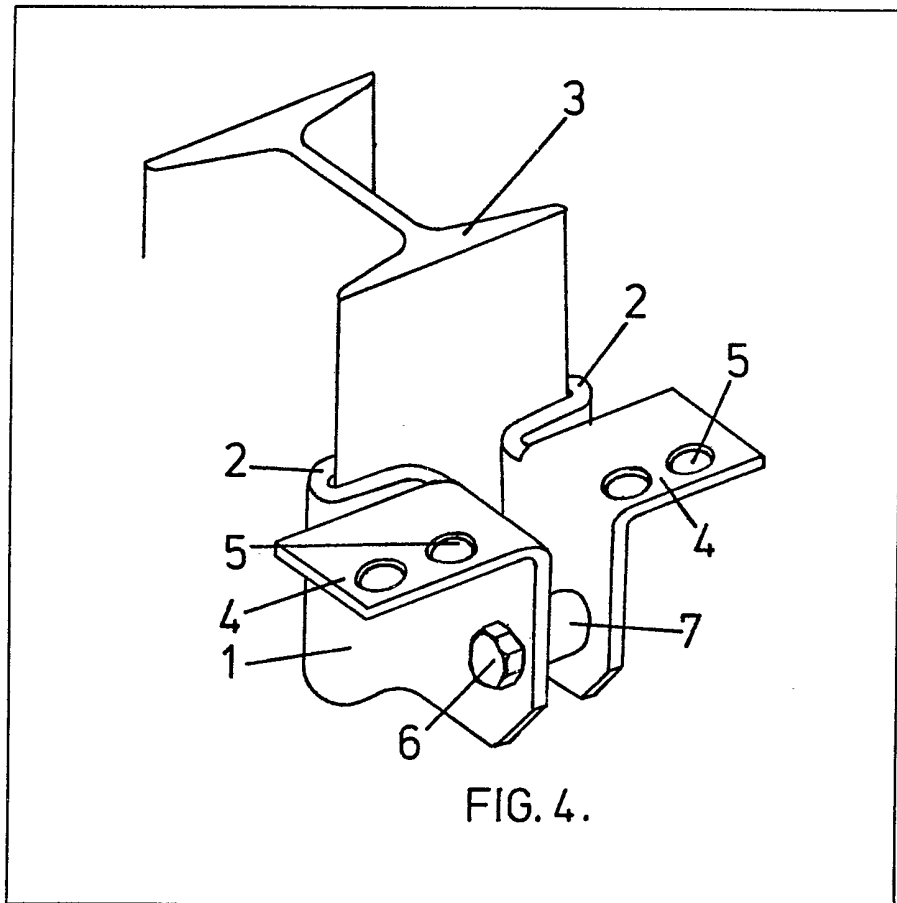
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(54) **Improvements relating to brackets for slinging and adjusting levels of endless conveyer belts**

(57) I-beams 3, e.g. existing supports such as mine pit-props, are used to support conveyer belt rollers. For this purpose clamps comprising jaw 2 shaped to engage a flange of beam 3

are used, held in gripping position by screw 7. Flanges 4, bent at right angles to the jaws, are provided with holes 5 into which ends of the roller chains are fastened. More than one hole is provided to permit horizontal adjustment of the chain; vertical adjustment is provided by relocating the clamp on the beam 3.



The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

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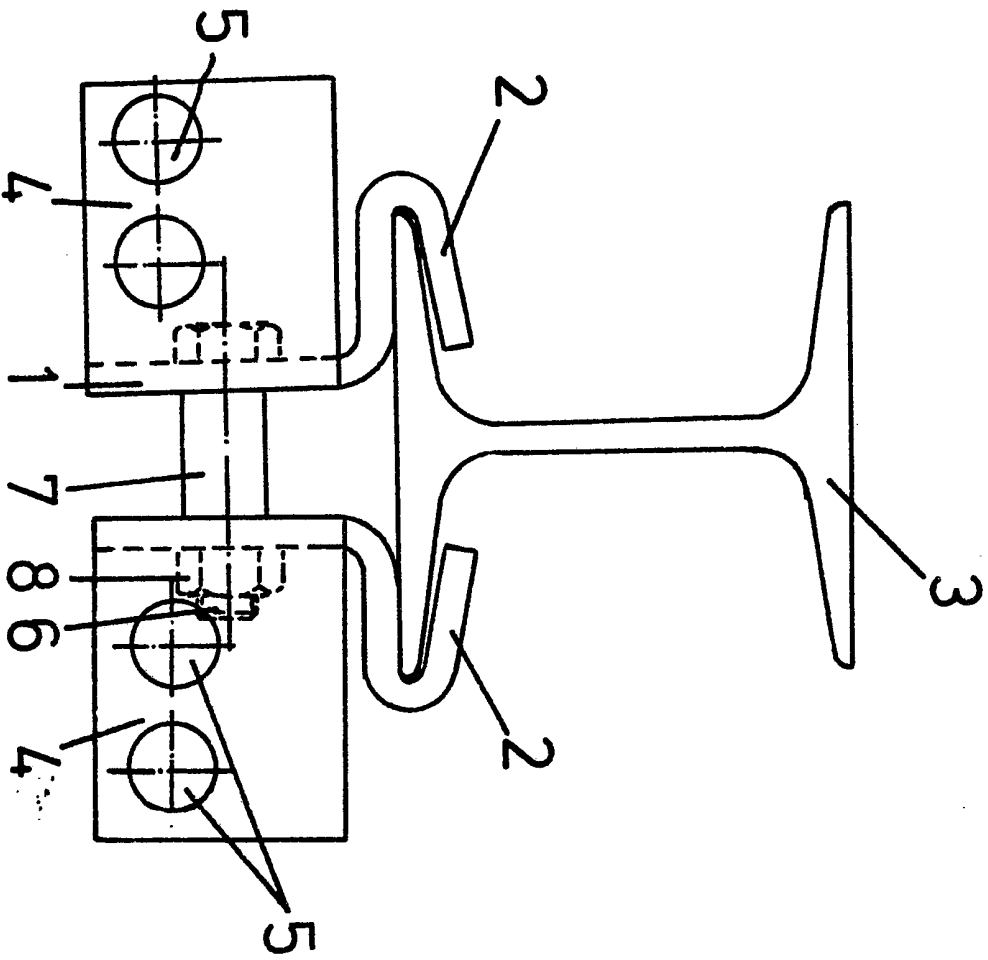


FIG. 1.

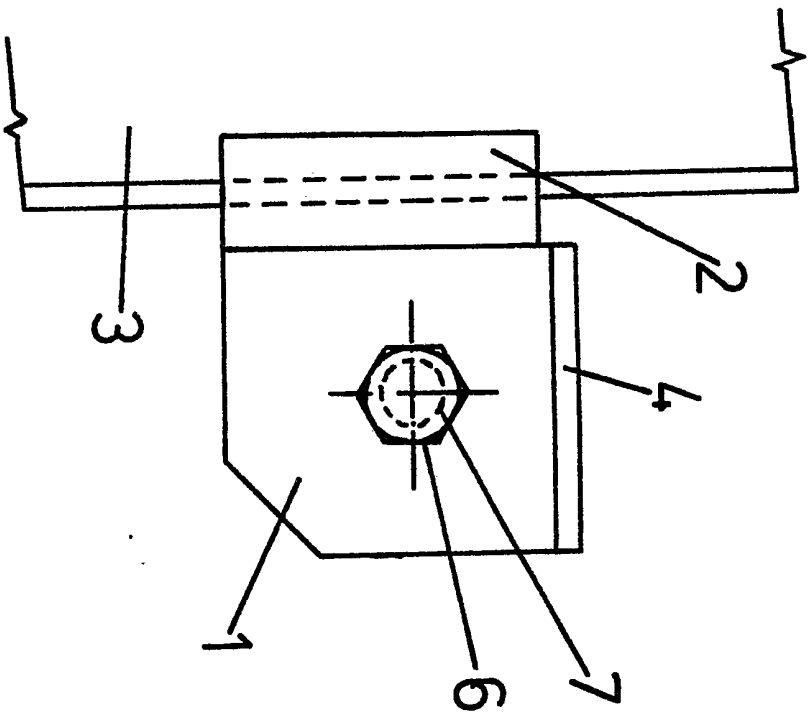


FIG. 2.

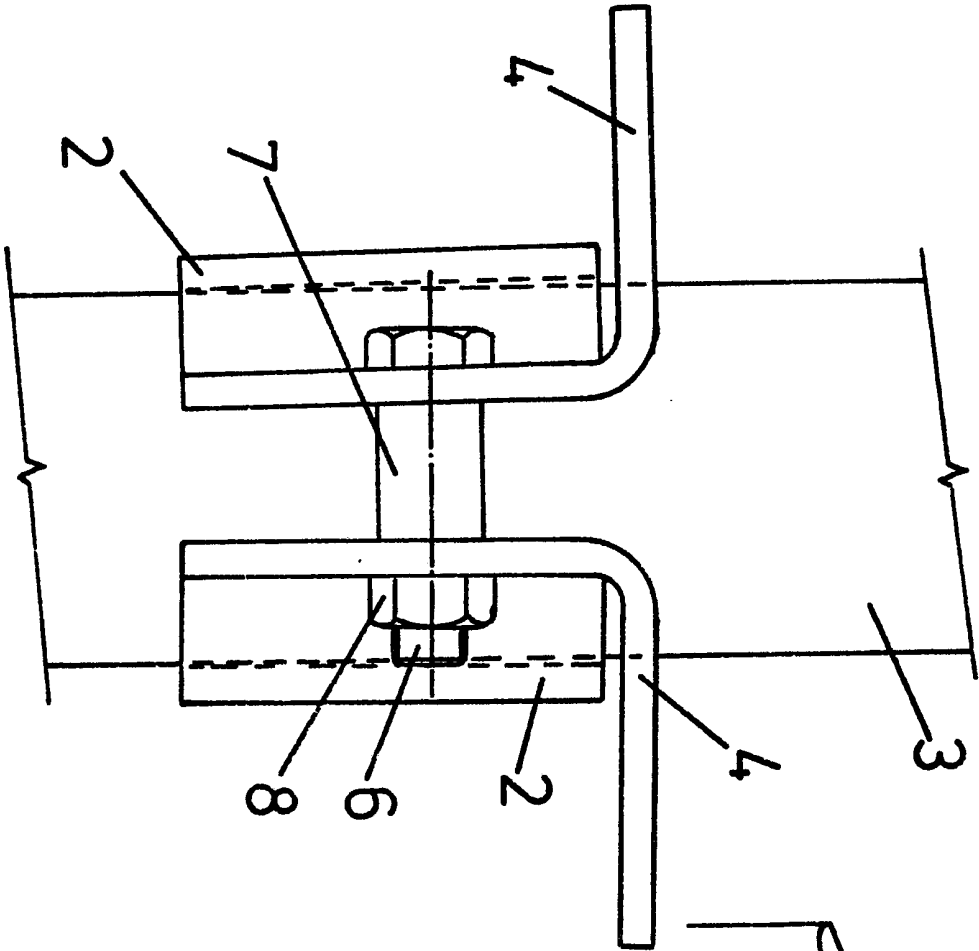


FIG. 3.

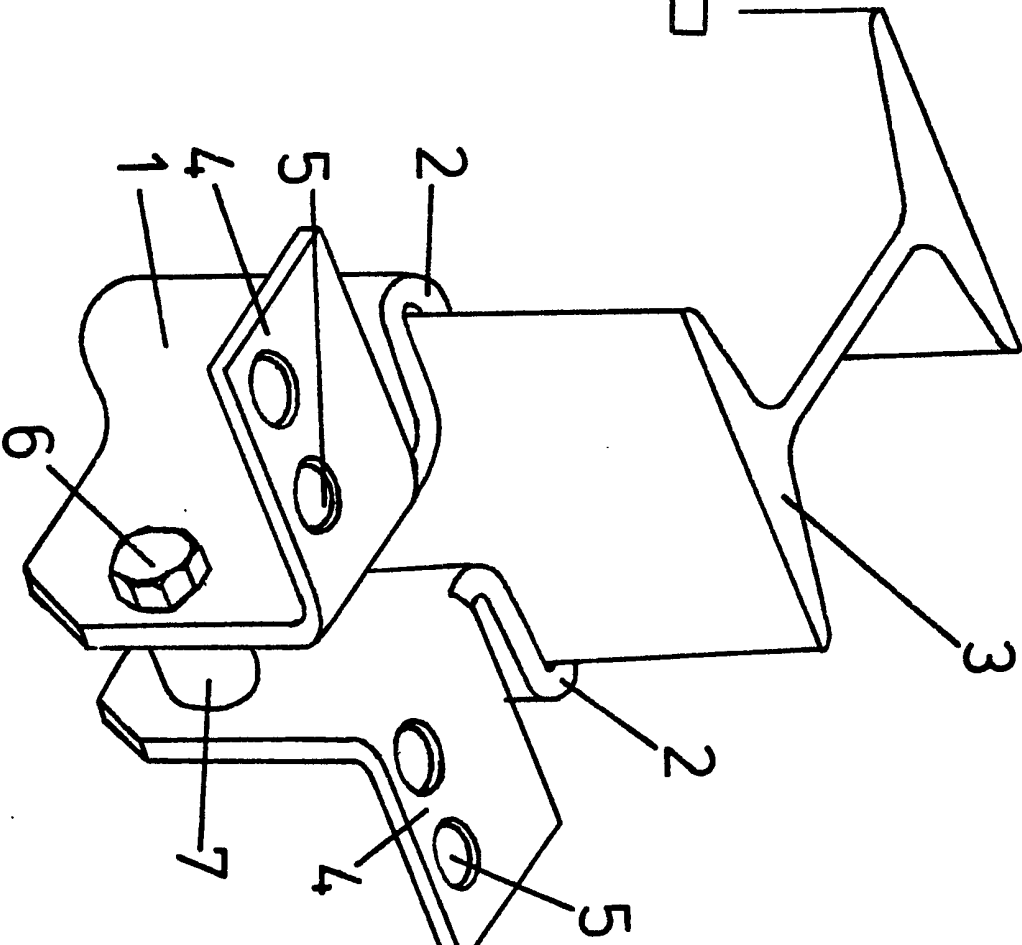


FIG. 4.

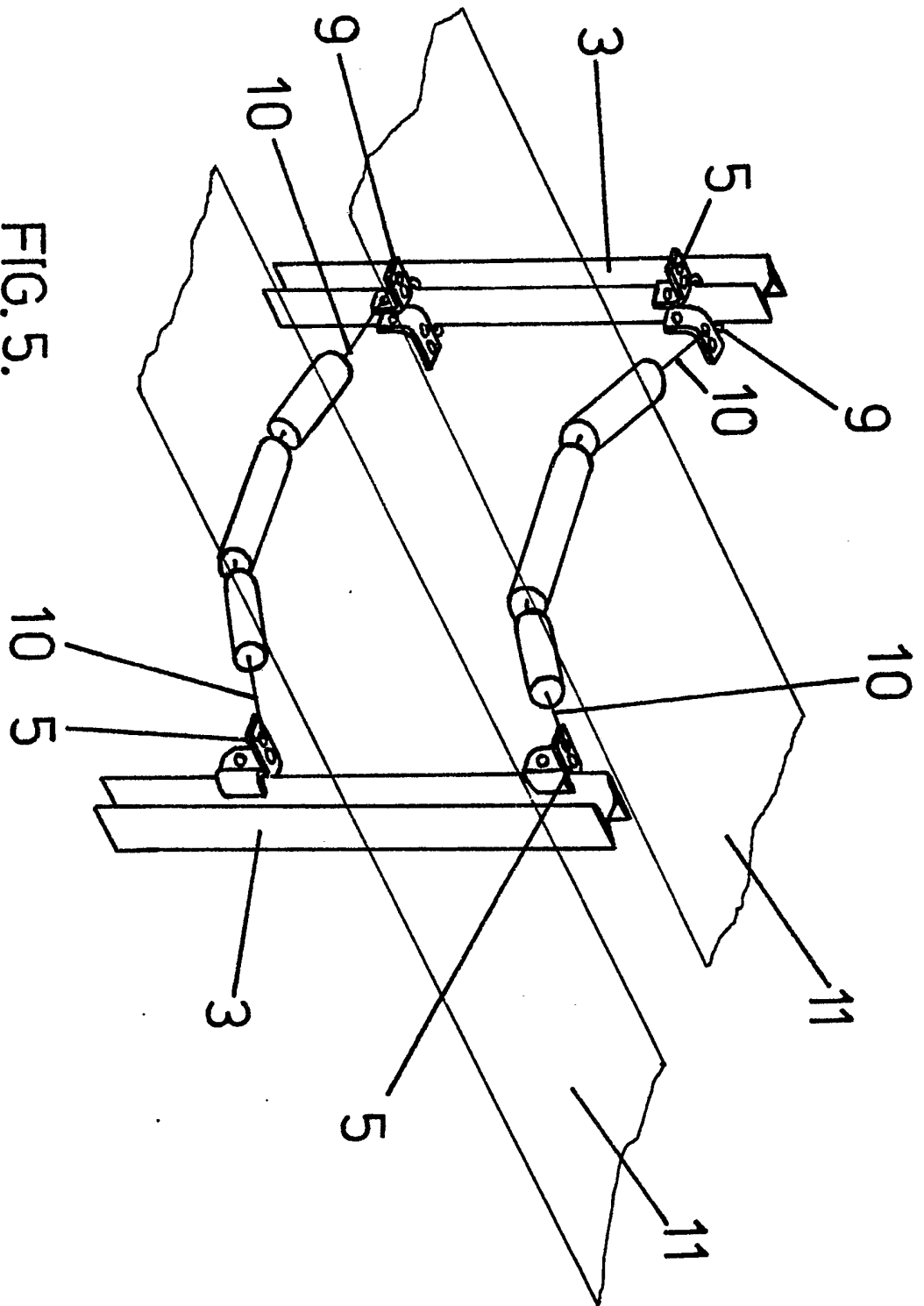


FIG. 5.

SPECIFICATION

Improvements relating to brackets for slinging and adjusting levels of endless conveyor belts

Conveyor belts are used extensively to

5 transport large volumes of minerals, between the conveyor drive unit and the belt return pulley, the belt itself is supported by sets of rollers placed at prescribed distances apart. Each set consists of a

10 frame containing an upper group of rollers, in which the load bearing roller is horizontal and is flanked on either side by rollers which are inclined to the horizontal thus causing the pliable belting to form a trough section across its width, thereby reducing spillage of the transported mineral. Also

15 contained within the frame is a second roller arrangement, normally located below the former, their duty is to support the returning belt. During the installation of the conveyor belt, these frames are erected in a straight line between the drive

20 unit and return pulley to ensure that the rollers will give correct support to the belt, in addition, the frames with the rollers are levelled across the width of the belt so that when in operation, the belt will track correctly in the upper rollers. Under

25 normal circumstances, such an installation will run for a long period of time without any need to re-align or re-level the rollers.

A more recent manner of supporting the rollers is to dispense with rigid roller frames and to hang

30 or sling the sets of rollers by rope or chain from any convenient structure, any variations in longitudinal and cross levels are accommodated by varying the length of the ropes or chains, they likewise require no alterations after a reasonable

35 running-in period.

There are however certain conveyor locations where the roller frames or as in the case of the

40 second type, the suspension structures are subjected to an unstable environment where it is necessary to carry out regular and costly maintenance in order to ensure that the conveyor belting runs centrally within the rollers and does not tilt to such an extent that the mineral rolls off the belt. Such conditions are to be found in the

45 roadways of underground mines where the conveyor belt is used to transport the mineral from the point of extraction to the exit from the mine or working place. When the mineral is removed from the solid vein, the equilibrium of the strata is

50 disturbed and a great deal of strata movement takes place before the equilibrium is restored. The energies thus released tend to act inwards, towards the roadway, from all directions, one result of this movement is that the floor of the

55 roadway is forced upwards along its centre line such that a ridge is formed with the floor on either side becoming steeply inclined. Where the rollers of the conveyor are attached to rigid frames, the whole conveyor is likewise tilted thereby causing the

60 mineral to roll off the belting, in the same manner, uneven undulations along the length of the conveyor mean that the belt is no longer in contact with certain of the rollers and lateral movement or swaying of the belt results with

65 consequential loss of the mineral being transported. As this strata movement is likely to last for the life of the roadway, the cost and inconvenience created can be extensive. Where the conveyor rollers are suspended from available

70 structures, in this case, the roadway supports, the strata movement previously described causes the foot of the vertical support legs to be moved in the direction of the centre of the roadway, while in addition, the support legs may penetrate the floor

75 at unequal rates thereby requiring that the lengths of the suspending ropes or chains be adjusted accordingly.

The present invention relates to clamps which may be attached to available support frames and

80 from which arrangements of conveyor rollers may be suspended, thereby permitting simple adjustments to be made to the conveyor levels and conveyor belt tracking without the need to carry out expensive and time-consuming repairs to

85 the conveyor site.

The object of the present invention is to provide a simple and rapid means of re-levelling and adjusting suspended conveyor rollers, this will

90 comprise of two metal, for example steel clamps, so formed that they can be located to opposing flanges of an I section rolled steel joist, forming part of a support structure, and secured together in that position by inter-connecting bolts, a

95 projecting limb of each plate being bent at right-angles to the support upright and in line with the direction of the conveyor, such plate having holes provided in it such that the roller suspension ropes can be attached at several points, thereby

100 allowing the rollers to be swivelled through an angle, so causing the conveyor belt to be tracked correctly on the rollers.

When the strata pressures which affect a mine roadway cause the floor of that roadway to lift or

105 form a ridge along its length, or the support frames are disturbed to such an extent that the conveyor will no longer function as it should, the tensioning bolts which hold the two parts of the clamp secure on the I section rolled steel joist support leg, can be slackened and the clamps,

110 together with the suspended roller arrangement can be raised or lowered relative to each other until the rollers are level both in the cross-sectional and longitudinal planes. In addition, if for any reason the belting does not run centrally on

115 the rollers, either side of the roller arrangement can be advanced or retarded relative to the direction of belt travel by means of the holes provided in the aforementioned plate, thereby causing the belt to track correctly within the

120 inclined rollers.

In one embodiment of the invention, the clamp comprises two identical steel pressing of a generally L shape in which the leading edge of the horizontal limb is bent to form a U sectional trough

125 which will allow it to be fitted around the flange of an I section rolled steel joist support leg, the vertical limb of the L shape is bent through an angle of 90 degrees and has a number of holes provided along its length to receive the rope or

chain extending from the suspended roller arrangement, at the junction of the two limbs of the L shape, a hole is provided to receive a connecting bolt which will join together two of these identical plates, a spacing tube fits over this bolt, between the plates, thus preventing the plates from being drawn too close together when a threaded nut is provided and the two plates are tensioned.

10 In order that the invention may be fully understood and readily carried into effect, a preferred embodiment thereof will now be described, by way of example only, with reference to the drawings which accompany this

15 Specification, in which:—

FIG. 1 shows a Plan View of the clamp attached to an I section upright beam.

FIG. 2 shows a Side Elevation View of the clamp attached to an I section upright beam.

20 FIG. 3 shows a Front Elevational View of the clamp attached to an I section upright beam.

FIG. 4 shows an Isometric View of the clamp attached to an I section upright beam.

25 FIG. 5 shows a Pictorial View of the clamp and the manner in which it may be used.

30 A pair of steel plates 1 each of a generally L shape has the leading edges of the horizontal limbs bent to form a U sectional trough 2 of such a configuration that they will embrace the opposing flanges 3 of an I sectional rolled steel joist; the vertical limbs of the said L shaped plates are bent through a right-angle to form ledges 4 which have

35 holes 5 provided. When the plates are fitted to the I sectional rolled steel joist, they are secured by bolt 6 which has a tubular spacer 7 fitted over it which prevent the two plates from being drawn too close together when the bolt is tensioned by nut 8.

40 As shown in FIG. 5 the pairs of clamps 9 are secured to the upright 3, the ends of the suspended roller ropes or chains 10 are fastened into the holes of the ledge 5, the clamps are raised or lowered according to the levelling requirements, while correct tracking of the conveyor belt 11 is obtained by advancing or retracting either side of the roller arrangement and attaching the roller ropes into any of the holes 5.

CLAIMS

50 1. A bracket for slinging and adjusting of the rollers which support endless conveyor belts, comprising two identical steel clamps, so formed that they will embrace the flange of an I section rolled steel joist while a projecting section of each plate has holes provided in them, to which may be attached the ropes of suspended conveyor rollers, a bolt connecting the two plates of each clamp, allows the clamp to be raised or lowered in order to achieve the correct running of the belt.

60 2. A bracket for slinging and adjusting the roller which supports endless conveyor belts, constructed and arranged substantially as herein described with reference to and as illustrated by the accompanying drawings.