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Greeves

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[54] **MECHANISM FOR CORRECTING ANY TENDENCY FOR A MOVING WEB TO DEVIATE FROM A REQUIRED PATH**

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[30] **Foreign Application Priority Data**

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[52] **U.S. Cl.** **226/19,** 226/23

[51] **Int. Cl.** **B65h 25/26**

[58] **Field of Search** 226/19, 23, 22, 190, 226/199

[56] **References Cited**

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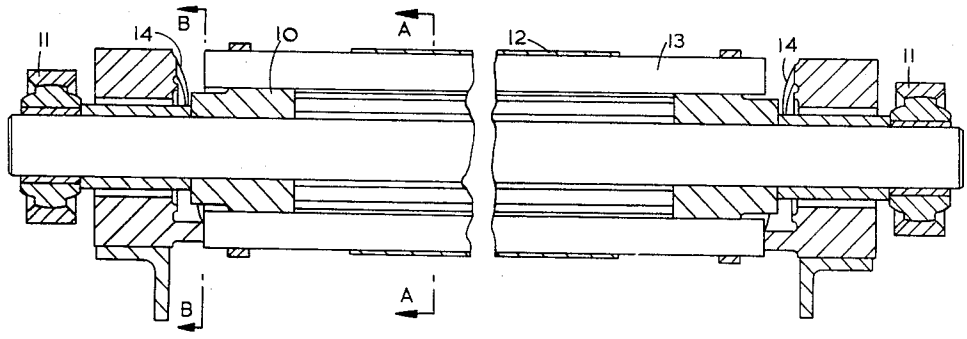
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Primary Examiner—Allen N. Knowles
Attorney—John C. Holman, Herbert Cantor et al.

[57] **ABSTRACT**

Mechanism for correcting any tendency for a moving web such, for example, as a strip of material being wound onto, or unwound from a roller, or an endless belt to deviate from a required path. The mechanism includes a rotatable roller around the periphery of which the web passes so as to be in frictional contact therewith through a predetermined arc. The periphery of the roller is in part constituted by a plurality of angularly spaced bars which are slidable longitudinally in a direction parallel to the axis of the rotation of the roller. At opposite ends of the roller respectively are a pair of relatively fixed cams for ensuring that the bars take up a predetermined longitudinal position whilst they move through the arc in which they are in frictional contact with the web. Means is provided for sensing any deviation of the web from its required path as it approaches the roller and a second pair of cams at opposite ends of the roller respectively are movable by said means to displace the bars longitudinally by an amount determined by said means whilst the bars are moving through the arc in which they are not in contact with the web.

4 Claims, 4 Drawing Figures



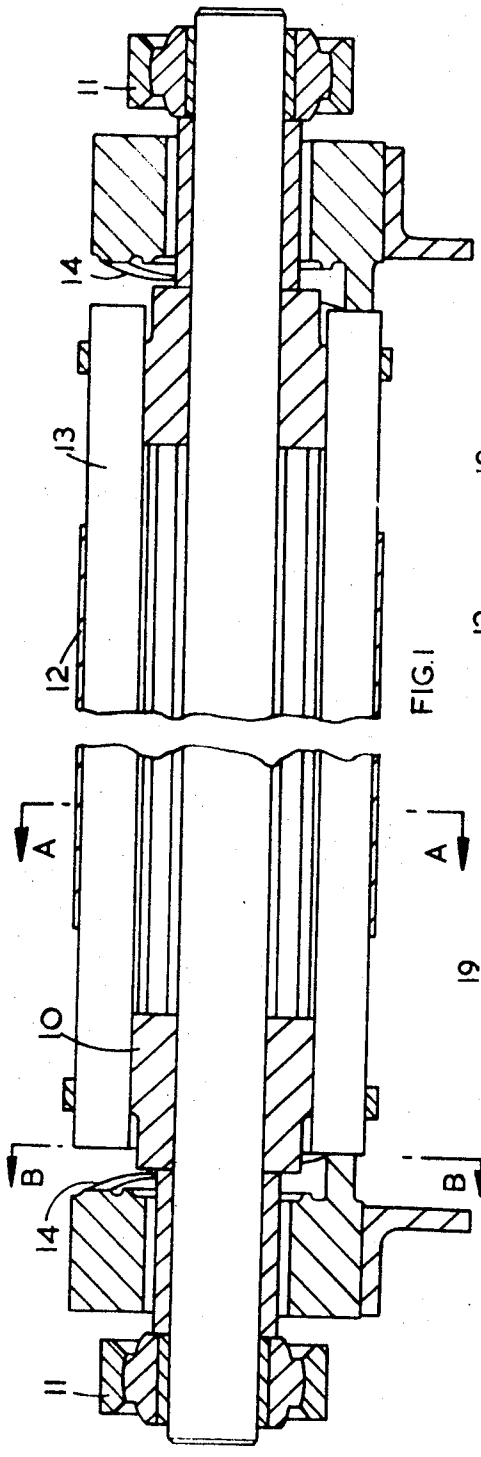


FIG.1

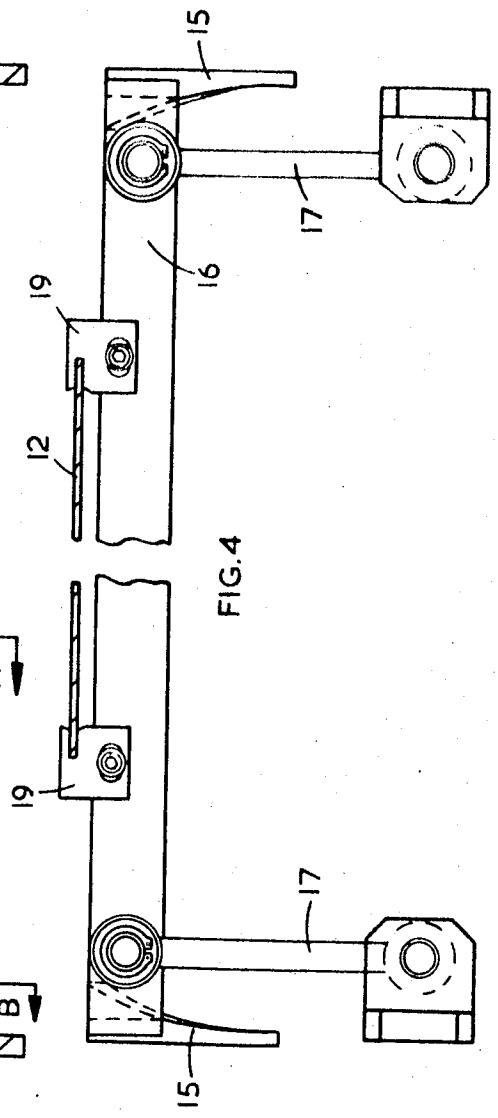


FIG.4

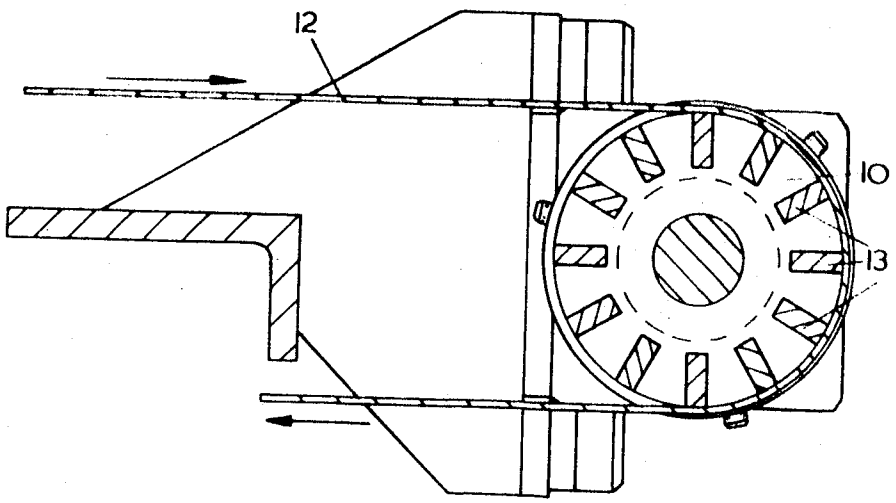


FIG. 2

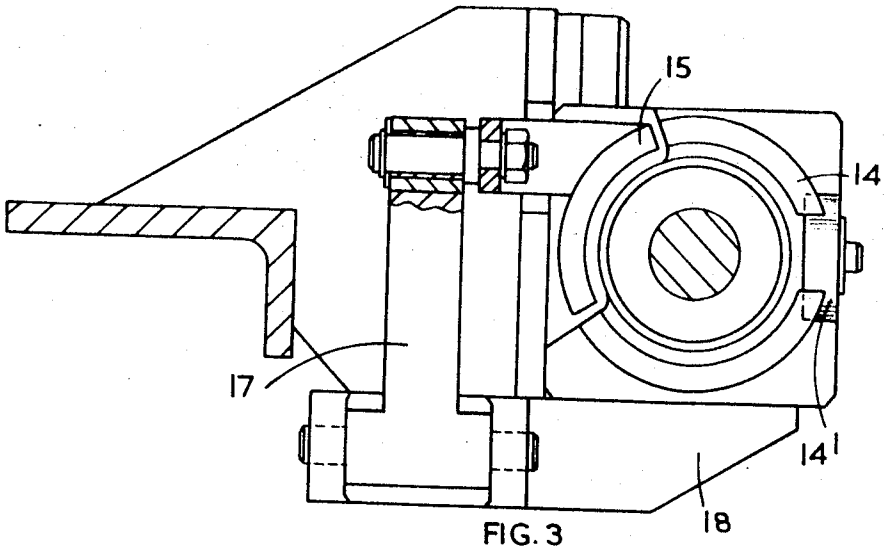


FIG. 3

MECHANISM FOR CORRECTING ANY TENDENCY FOR A MOVING WEB TO DEVIATE FROM A REQUIRED PATH

This invention relates to mechanism for correcting any tendency for a moving web such, for example, as a strip of material being wound onto, or unwound from a roll, or an endless belt to deviate from a required path.

The object of the invention is to provide such mechanism in a simple and convenient form.

Mechanism according to the invention comprises in combination a rotatable roller around the periphery of which the web passes so as to be in frictional contact therewith throughout a predetermined arc, the periphery of said roller being in part constituted by a plurality of angularly spaced bars which are slidable longitudinally in a direction parallel to the axis of rotation of the roller, relatively fixed cams at opposite ends of the roller respectively for ensuring that the bars take up a predetermined longitudinal position whilst moving through the arc in which they are in frictional contact with the web, means for sensing any deviation of the web from its required path as it approaches said roller, and further cams at opposite ends of the roller respectively, said further cams being movable by said means to displace the bars longitudinally by an amount determined by said means during their movement through The arc in which they are not in contact with the web.

In the drawings,

FIG. 1 is a sectional end view of an example of the invention,

FIG. 2 is a section on the line A—A of FIG. 1,

FIG. 3 is a section on the line B—B of FIG. 1, and

FIG. 4 is an end view of the correcting mechanism with the roller removed.

Referring to the drawings, there is provided a rotatable roller **10** which is journalled within bearings **11** and around the periphery of which a web **12** passes. In the illustrated example the web **12** is in frictional contact with the periphery of the roller **10** throughout an arc subtending approximately 180°, whilst the other approximately 180° arc of the roller is free of the web. The periphery of the roller **10** is in part constituted by a plurality of equi-angularly spaced bars **13** which are longitudinally slidable in a direction parallel to the axis of rotation of the roller **10**.

At opposite ends of the roller **10** respectively are a pair of relatively fixed cams **14** which are arranged to make contact with the ends of the bars **13** and ensure that the bars take up a predetermined longitudinal setting during their movement through the arc in which they are in contact with the web. Since in practice the bars **13** will deviate from their predetermined position by only a small amount as will be described, portions of the surfaces of the cams **14** are constituted by the peripheries of rotatable rollers **14'** at the point which will be subjected to maximum use.

There are also provided at opposite ends of the roller **10** respectively a pair of movable cams **15** which are carried by a member **16** which is pivotally connected by a pair of parallel links **17** to the base **18** carrying the bearings **11**, so as to be movable transversely relative to the direction of travel of the web **12**. The member **16** carries a pair of upstanding brackets **19** which are slotted to receive respectively the opposite marginal edges of the web **12**.

The cams **15** are positioned to make contact with opposite ends of the bars **13** respectively as the bars **13** move through the arc in which they are not in contact with the web **12**.

In operation, any deviation of the web **12** laterally from its predetermined path as it approaches the roller **10** will cause displacement of the member **16** and therefore set the cams **15** to a position to displace the bars **13** longitudinally from the position in which they have been set by an amount dependent upon the degree of deviation of the web. As a result these bars will be in a displaced position when they first make contact with the web **12**. As the bars move through The arc in which they are in contact with the web, they will be returned by the fixed cams **14** to the predetermined position thereby returning the web laterally to its required path. As a result the web leaving the roller **10** should be accurately positioned.

In order to enable the degree of correction for a given deviation of the web to be varied the brackets **19** are preferably adjustable in a direction at right angles to the member **16** and perpendicular to the plane of the paper as viewed in FIG. **4**.

It will be appreciated that it is not necessary for the web **12** to be in contact with the roller **10** through an arc as large as 180°, since an arc of 90° or even less will give sufficient time for the movement of the bars **13** to correct any deviation of the web from its predetermined course. However, in order to maximise the friction between the web and the bars **13** the contacting surfaces of the latter may be knurled or coated with an abrasive material.

I claim:

1. Mechanism for correcting any tendency for a moving web to deviate from a required path comprising in combination a rotatable roller around the periphery of which the web passes so as to be in frictional contact therewith throughout a predetermined arc, the periphery of said roller being in part constituted by a plurality of angularly spaced bars which are slidable longitudinally in a direction parallel to the axis of rotation of the roller, a pair of relatively fixed cams at opposite ends of the roller respectively for ensuring that the bars take up a predetermined longitudinal position whilst moving through the arc in which they are in frictional contact with the web, means for sensing any deviation of the web from its required path as it approaches said roller, and a second pair of cams at opposite ends of the roller respectively, said second pair of cams being movable by said means to displace the bars longitudinally by an amount determined by said means during their movement through the arc in which they are not in contact with the web.

2. Mechanism for correcting any tendency for a moving web to deviate from a required path as claimed in claim **1** in which the means for sensing any deviation of the web from its required path comprises a pair of brackets engaging opposite marginal edges of the web, a member displaceable laterally of the web to which the pair of brackets and the second pair of cams are connected.

3. Mechanism for correcting any tendency for a moving web to deviate from a required path as claimed in claim **2** in which the brackets are adjustable in a direction at right angles to the member to enable the degree of correction for a given deviation of the web to be varied.

4. Mechanism for correcting any tendency for a moving web to deviate from a required path as claimed in claim **3** in which portions of the operative surfaces of the pair of relatively fixed cams are constituted by the peripheries of rotatable rollers.

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