Nov. 29, 1932. E. DREXLER 1,889,174

CONVEYER ROLLER

Filed April 4, 1930

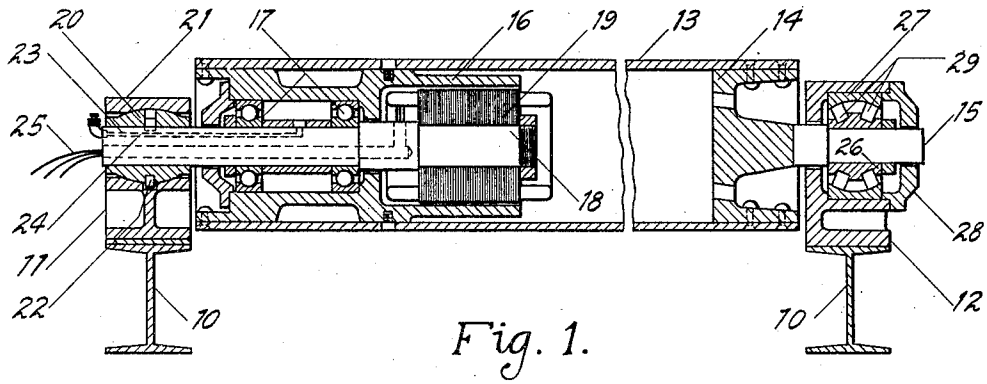


Fig. 1.

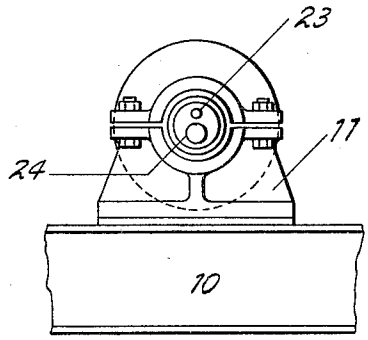


Fig. 2.

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UNITED STATES PATENT OFFICE

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CONVEYER ROLLER

Application filed April 4, 1930. Serial No. 441,678.

My invention relates to conveyer rollers of the individual drive type, and has particular reference to a conveyer roller of this type which derives its power from an electric motor housed within the roller.

According to my invention the roller is mounted for rotation by means of trunnions which extend beyond the ends of the roller and which are journaled in bearings mounted on a suitable supporting frame, and in this connection one of my objects is to provide a simple motor construction utilizing the trunnion at one end of the roller as a reactance element from which to obtain the necessary torque for rotating the roller.

Another of my objects is to provide an improved mounting or bearing construction for the trunnion at the other end of the roller whereby the roller is supported for free rotation and is held against longitudinal as well as lateral movement.

Another of my objects is to provide an improved mounting or bearing construction for the first mentioned trunnion to facilitate desirable adjustments of the roller during erection of a conveyer or whenever desired.

With the foregoing and other objects in view, my invention consists in the novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawing and defined in the appended claims.

In the drawing, the Figure 1 is a longitudinal section through a conveyer roller constructed and mounted in accordance with my invention. Fig. 2 is an end view of the bearing for the stationary trunnion.

In a conveyer system embodying a series of individually driven conveyer rollers, a frame ordinarily is provided and the rollers are mounted transversely of this frame in spaced, parallel relation therealong. A conventional frame is illustrated in the present instance as consisting of a pair of spaced I-beams 10, 10, and in accordance with my invention these frame members have suitably mounted thereon bearings 11 and 12, respectively. The roller is designated generally as 13 and is inclusive of trunnions projecting beyond the ends thereof and which are received by said bearings.

The roller is in the form of a hollow cylinder or shell of suitable length and diameter and within same is riveted or otherwise secured an annular member 14 which is inclusive of a trunnion 15 projecting beyond one end of the roller.

Also riveted or otherwise secured within the roller is the rotor element 16 of an electric motor, and, as shown, this rotor element is hollow and is mounted preferably by means of suitable ball or other anti-friction bearings 17, for rotation upon a shaft 18 which latter projects beyond the other end of the roller and constitutes the second trunnion heretofore referred to.

The stator element 19 of the electric motor is fixed to the shaft 18 and is disposed within an inner end portion of the rotor element 16. Thus, by holding said shaft and consequently the stator 19 against rotation, the roller obviously will be rotated with the rotor 16 when current is supplied to the motor.

On the projecting end or trunnion portion of the shaft 18 is keyed or otherwise secured a sleeve 20 which is received within the bearing 11; i. e., between the fixed portion of said bearing and a cooperating bearing cap 21, and, as indicated, the contacting outer and inner faces of said sleeve and said bearing are of spherical contour, respectively, whereby the sleeve is adapted for limited universal pivotal movement relative to the bearing. A key or other suitable means, designated as 22, is interposed between the bearing 11 and the sleeve 20 to hold the latter and the shaft 18 against rotation, while to permit pivotal movement of the sleeve, said key is fitted more or less loosely within recesses in the sleeve and the bearing.

A longitudinally extending duct 23 is formed partially through the shaft 18 and leads to the anti-friction bearings 17, whereby lubricant may be supplied to said bearings, while another duct 24, is formed partially through said shaft to accommodate the current supply wires 25 leading to the electric motor.

On the trunnion 15 at the other end of the

roller is mounted a bearing sleeve 26, while within the bearing 12 which is in the form of a housing surrounding said trunnion, is mounted a bearing ring 27 which is retained within the bearing 12 by means of a removable cover 28 closing the outer end of the bearing. The inner face of the ring 27 is of spherical contour curved from a center located at the axis of the trunnion and midway between the ends of the ring, and interposed between said ring and the sleeve 26 are two sets of anti-friction rollers 29 disposed, respectively, inwardly and outwardly of the medial transverse plane of the sleeve and tangential to the spherical inner surface thereof, whereby the roller is supported for free rotation and at the same time is held against longitudinal shifting movement. In other words, the arrangement of the rollers is such that they cooperate with the sleeve and the ring to take both the radial and the end thrust load of the roller.

As will be apparent from the foregoing, the provision for universal pivotal movement of the roller 13 with respect to the bearing 11 enables the roller readily to be shifted vertically or laterally at its opposite end with the bearing 12 and before said bearing 12 is secured rigidly in place, thus to facilitate desirable adjustments of the roller during erection of a conveyer or whenever desired. Also, it is apparent that the shaft 18 is held against rotation and that due to the stator 19 of the electric motor being mounted rigidly on this shaft, the motor reacts from said shaft to effect rotation of the roller. Moreover, it will be observed that while my roller and its mountings accomplish the desirable purposes heretofore mentioned, the structure is simple, compact and obviously of a design capable of withstanding hard usage.

Without further description it is thought that the novel features and advantages of my invention will be readily apparent to those skilled in the art to which my invention appertains and it will of course be understood that changes in the form, proportion and details of construction may be resorted to without departing from the spirit of the invention or from the scope of the appended claims.

I claim:

1. A conveyer roller, a vertically and laterally adjustable bearing for one end of said roller, a trunnion at the other end of said roller on which the roller is mounted for rotation, a member with an exterior spherical surface keyed on said trunnion, a bearing with an internal spherical surface receiving said member, and means between said member and said bearing permitting limited universal pivotal movement and preventing rotation of the member relative to the bearing.

2. A conveyer roller, vertically and laterally adjustable journal means for said roller at one end thereof, a trunnion at the other end of said roller on which the roller is mounted for rotation, a member with an exterior spherical surface keyed on said trunnion, a bearing with an interior spherical surface receiving said member, and a key between said member and said bearing holding the member against rotation and permitting limited universal pivotal movement thereof relative to the bearing.

In testimony whereof I affix my signature.

ERNEST DREXLER.