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MOTOR MOUNT

Filed March 29, 1966

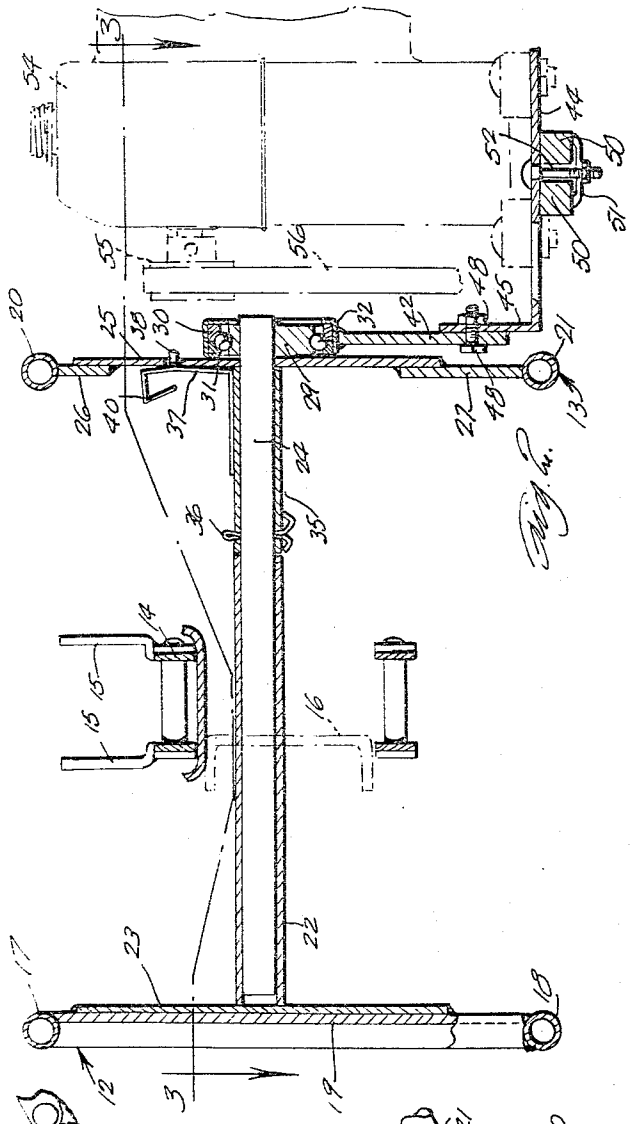


Fig. 4

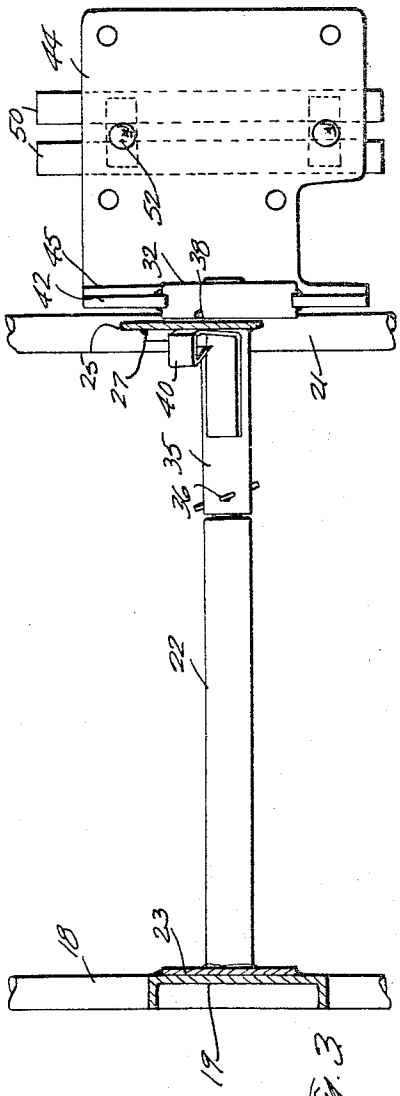


Fig. 3

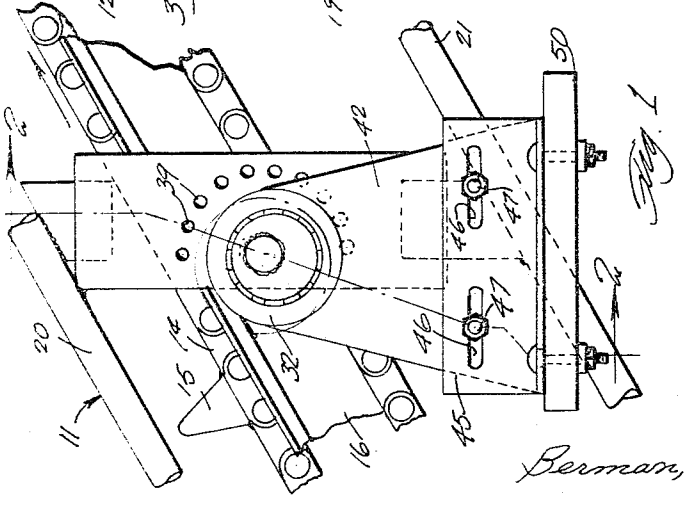


Fig. 1

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MOTOR MOUNT

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This invention relates to motor supports, and more particularly to an improved means for supporting the drive motor of a portable conveyor.

A main object of the invention is to provide a novel and improved motor mount for use to support the drive motor of a conveyor, the mount being relatively simple in construction, being easy to install on a conveyor, being arranged to support the associated motor in a level position at all times, and being easily adjustable to change the elevation of the motor as desired and in order to provide the proper tension in the drive belt associated with the motor.

A further object of the invention is to provide an improved motor supporting structure for use on a conveyor of the portable type, the supporting structure involving relatively inexpensive parts, being very durable, being compact in size, and providing a wide range of adjustability so that the associated motor will be supported in a level position and at an elevation such as to provide the desired driving tension in the belt associated with the motor and connecting the motor to the operating mechanism of the conveyor.

A still further object of the invention is to provide an improved adjustable motor mount for supporting the electric motor associated with a portable conveyor, for example, a conveyor of the type employed for elevating bales of material, the motor support being easy to install on a conveyor, being provided with easily operated means for adjusting the height of its horizontal motor supporting plate and for releasably locking same in adjusted position, and being likewise provided with means for biasing the motor supporting plate towards a normally horizontal position.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

FIGURE 1 is a fragmentary side elevational view of a portion of a bale conveyor provided with an improved drive motor supporting structure constructed in accordance with the present invention.

FIGURE 2 is a transverse vertical cross-sectional view, taken substantially on the line 2—2 of FIGURE 1.

FIGURE 3 is a horizontal cross-sectional view, taken substantially on the line 3—3 of FIGURE 2.

Referring to the drawings, 11 generally designates a conventional portable bale elevator or conveyor of a type having a pair of spaced parallel elongated supporting frames 12 and 13 and an endless conveyor belt member of the chain type disposed between said frames substantially parallel thereto, said endless belt conveyor being designated at 14. The chain conveyor belt 14 is provided with spaced outwardly projecting lugs 15 for engagement with a bale or similar object to be elevated, the object being slidably supported on a longitudinally extending rail or channel member 16 which is rigidly connected to the conveyor frame and which is located parallel to and between the opposite elongated side frames 12 and 13.

The bale conveyor may be similar to the "Snowco" portable bale elevator manufactured by The Snow Company, Omaha, Nebr.

The side frames 12 and 13, forming part of the conventional structure of the conveyor comprise elongated loops of metal tubing which are suitably stiffened by spaced transverse brace plates connecting the top and bottom portions of the loops. Thus, the frame 12 has a top portion 17 and a bottom portion 18, said top and bottom portions being rigidly connected by spaced transversely extending strut plates or bars 19. The opposite side frame 13 comprises top and bottom members 20 and 21 which are rigidly connected in the same manner by spaced transversely extending strut bars (not shown). The strut bars are further connected by transversely extending tie rods (not shown), so that the side frames 12 and 13 are rigidly united to form a unitary framework. The endless conveyor chain 14 is mounted in a conventional manner between the frames 12 and 13, the lower end loop of the chain being engaged with a suitable sprocket connected to a drive pulley and the top loop of the chain being engaged on an idler sprocket rotatably mounted on a transverse shaft provided at the top end of the frame structure.

The conveyor structure thus far described is conventional and in itself forms no part of the present invention.

Designated at 22 is a transversely extending sleeve-like socket member which is rigidly secured to a vertical plate 23, which is in turn rigidly secured to the inside of the side frame 12, for example, to one of the brace plates 19, as shown in FIGURE 2, with the sleeve-like socket member 22 projecting toward and perpendicular to the opposite side frame 13. Designated at 24 is a transverse shaft member which is rotatably engaged through a vertical plate 25 which is rigidly secured at its top end portion to a lug 26 rigidly secured to and depending from the top frame element 20 and at its bottom to an upstanding lug 27 rigidly secured to the bottom frame element 21. Thus, plate 25 is rigidly secured to the frame structure of the conveyor in a position parallel to and opposite the vertical plate 23. Shaft 24 is rotatably received in the sleeve-like socket member 22.

Eccentrically secured to the right end portion of shaft member 24, as viewed in FIGURE 2, is a circular disc member 29 on which is rotatably mounted an outer ring member 30. The opposing surfaces of disc member 29 and ring member 30 are suitably recessed to receive ball ball bearings 31, so that the disc member 29 and the ring 30 define the inner and outer races of a ball bearing assembly, whereby the ring 30 is freely rotatable relative to the disc member 29 and is coaxial therewith. An annular retaining cage or housing 32 is provided, said housing 32 containing the outer raceway ring 30 and the ball bearings 31 and being thus freely rotatable relative to the disc member 29 which is centrally received in the housing, as shown in FIGURE 2. However, rotation of the shaft 24 varies the elevation of ring 30 and housing 32 due to the eccentricity of disc member 29.

Designated at 35 is a sleeve member receiving the shaft 24 and disposed between the sleeve-like socket member 22 and the stationary plate 25, the sleeve member 35 being locked to the shaft 24 by a cotter pin 36. The cotter pin 36 is removable to facilitate disassembly and reassembly of the structure, as required. A resilient arm 37 is secured to the sleeve 35, the spring arm 37 projecting radially outwardly from the sleeve and being located adjacent the plate member 25. The resilient arm 37 is provided with a locking pin 38 projecting therefrom and selectively engageable in a circularly arranged series of locking apertures 39 provided in the plate member 25 concentrically with the axis of shaft 24. The end of arm 37 is formed with a finger loop 40 facilitating leftward flexure of the arm, as viewed in FIGURE 2, so as to disengage the pin 38 from the apertures 39 when it is desired to vary the position of angular adjustment of shaft 24. When the shaft 24 is rotated, as above described, the eccentric disc 29 is likewise rotated, which varies the height of ring 30 and housing 32.

Rigidly secured to housing 32 is a depending down-

wardly flaring plate-like arm 42 arranged parallel and outwardly adjacent to the side frame 13, as shown in FIGURE 2. Designated at 44 is a horizontal outwardly extending motor supporting plate provided at its inner edge with an upstanding side flange 45, said side flange 45 being formed with a pair of longitudinally aligned horizontal slots 46, 46. Fastening bolts 47, 47 are engaged through the lower end portion of plate-like arm 42 and the slots 46, 46, said fastening bolts being provided with fastening nuts 48, whereby the flange 45 is clampingly secured to the lower end portion of the arm 42. The position of the plate 44 may be adjusted horizontally by loosening the nuts 48, setting the plate 44 to its desired position relative to the arm 42, and by then retightening nuts 48.

Clamped to the bottom of plate 44 are a pair of heavy weighting bars 50, 50 which act as ballast means to bias plate member 44 towards a horizontal position. Thus, the bars 50, 50 are clampingly engaged by transverse clamping arms 51 which are secured to plate 44 by vertical fastening bolts 52, as is clearly shown in FIGURE 2. The conveyor drive motor, shown at 54, is adapted to be mounted on the supporting plate 44.

The motor 54 is provided with a conventional output pulley 55 on which is engaged one end portion of an endless drive belt 56, the opposite end portion of the belt being engaged on the driving pulley associated with the drive mechanism for the conveyor endless chain member 14. By varying the angular position of shaft 24 and disc 29, as above described, the height of the plate 44 may be varied, whereby the belt 56 may have its tension adjusted to the proper value required for the prevailing conditions. The weight of the ballast bars 50, 50 and the weight of the motor 54 cooperate to bias the plate member 44 continually towards a horizontal position, contributing toward maintaining the proper tension in the drive belt 56. In addition to vertically adjusting the motor supporting plate 44 by means of shaft 24 in the manner above described, the plate 44 may be horizontally adjusted by the provision of the horizontal slots 46, 46 and the associated fastening bolts 48, as above described.

From the above description, it will be readily apparent that a means has been provided for adjustably supporting the drive motor 54 on the conveyor frame in a manner to permit the position of the motor to be adjusted to compensate for different angles of inclination of the conveyor as well as for a wide range of various other operating conditions which may be encountered, the adjustments in all cases allowing the tension of the drive belt 56 to be maintained at its optimum value while assuring stable and reliable support for the drive motor 54.

While a specific embodiment of an improved motor-supporting structure for use on a conveyor has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. In combination, a conveyor having a pair of spaced parallel elongated supporting frames and an endless conveyor belt member disposed between said frames substantially parallel thereto, transversely extending socket means rigidly secured to one of the frames and extending toward the other frame, transverse shaft means rotatably supported in said other frame and supportingly received in said socket means, an eccentric disc member rigidly secured on said shaft means, a ring member rotatably mounted on said disc member coaxially therewith, a substantially horizontal motor supporting member adapted to support a drive motor for the conveyor, means rigidly connecting said motor supporting member to said ring member, and means locking said shaft means in an adjusted position of rotation relative to said other frame, whereby to adjust the elevation of said motor supporting member.

2. The structural combination of claim 1, and wherein said socket means comprises a tubular sleeve rigidly secured perpendicularly to said one of the frames.

3. The structural combination of claim 2, and wherein said motor supporting member comprises a plate having an upstanding side flange and the means rigidly connecting the motor supporting member to the ring member comprises a depending plate-like arm secured to the periphery of the ring member, and bolt means connecting the depending arm to the upstanding side flange.

4. The structural combination of claim 3, and a bar-like weight member secured to the underside of said plate to act as a ballast means for biasing the plate towards a horizontal position.

5. The structural combination of claim 4, and wherein said other frame is provided adjacent the shaft means with a vertical plate element formed with spaced arcuately arranged apertures on an arc concentric with the shaft means, and wherein said locking means comprises a resilient arm extending from the shaft means adjacent said vertical plate element and provided with a projection selectively receivable in said apertures.

6. The structural combination of claim 3, and wherein said side flange is formed with a plurality of horizontal slots and said bolt means comprises respective bolts extending through said depending arm and said horizontal slots, for adjustably connecting said plate to said depending arm.

7. The structural combination of claim 5, and a sleeve detachably secured on said shaft means inwardly adjacent said vertical plate element, said resilient arm being secured to and projecting substantially radially from said last-named sleeve.

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