

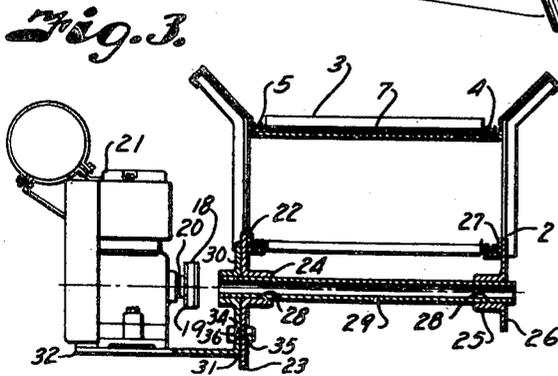
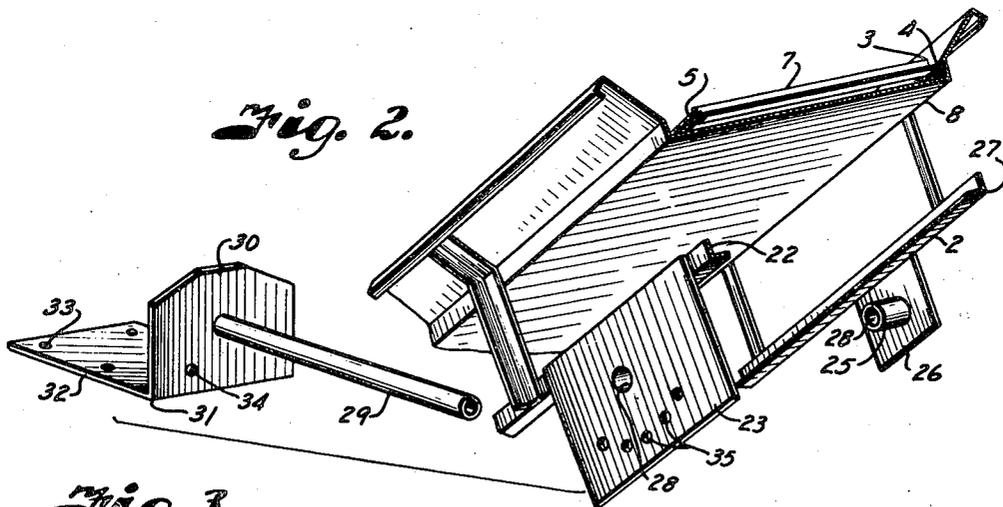
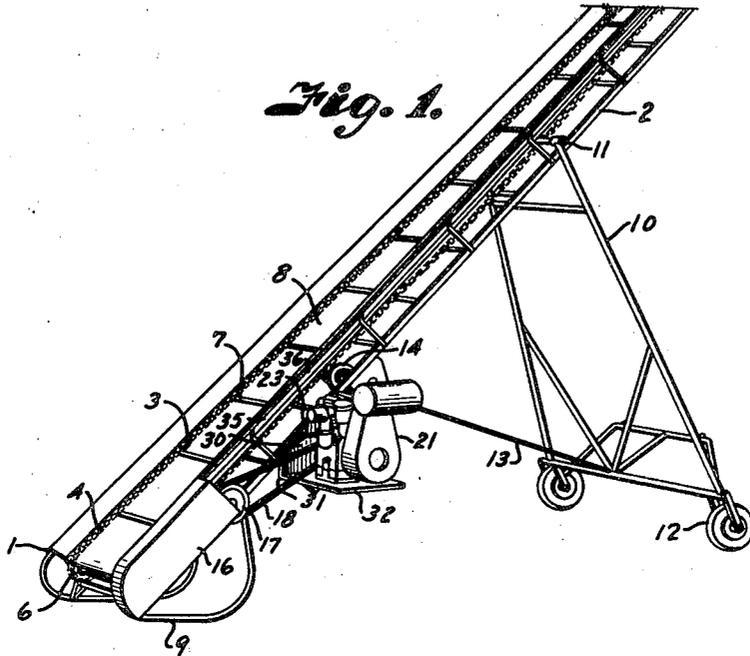
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ENGINE MOUNTING FOR ADJUSTABLE CONVEYERS

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## ENGINE MOUNTING FOR ADJUSTABLE CONVEYERS

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This invention relates to an engine mounting, and more particularly to apparatus for mounting a prime mover on an elevator of the conveyor type for driving same.

In elevators of the endless belt or conveyor type for use in elevating grain, hay and the like, the conveyor is mounted on a boom adapted to be inclined at various inclinations depending upon the height to which the material is to be elevated. The conveyors in such elevators are usually driven by motors or small gasoline engines mounted on the boom. Small engines of the type used for driving such conveyors operate best when in a vertical position, but in conventional conveyor elevators, the inclination is frequently changed, resulting in the engine usually operating at angles other than vertical, resulting in improper lubrication and excessive wear on the engine.

The objects of the present invention are to provide an adjustable engine mounting to maintain the engine in vertical position; to provide a pivotal mounting for pivoting the engine mounting on the axis of the crankshaft; to provide an engine mounting wherein the load thereof is carried on an axial support and held in adjusted position by a single fastening means; to provide an engine mounting wherein the inclination of the engine may be adjusted without alteration of the driving mechanism; and to provide a simple, easily adjusted engine mounting which is sturdy, durable and easily applied to a conveyor type elevator.

In accomplishing these and other objects of the present invention, we have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings wherein:

Fig. 1 is a perspective view of a prime mover mounting embodying the features of the present invention as applied to a conveyor type elevator.

Fig. 2 is a disassembled perspective view of the prime mover mounting apparatus.

Fig. 3 is a transverse sectional view through the elevator illustrating the prime mover mounting as applied thereto.

Referring more in detail to the drawings:

1 designates a conveyor type elevator consisting of a boom 2 having an endless conveyor 3 of the belt or flight type mounted thereon. In the particular elevator illustrated endless chains 4 and 5 operate over sprockets 6, said chains being connected by a plurality of flights 7 being adapted to move upwardly over a trough-like

member carried by the boom 2 to move material up the elevator to any desired point of delivery. The lower end of the elevator is adapted to be supported on a suitable support 9 and the upper end of the elevator arranged at any desired height by means of a suitable strut 10 pivotally connected to the boom as at 11, the lower end of said strut preferably being mounted on wheels 12. The lower end of the strut 10 is connected by means of a line 13 to a suitable windlass 14 on the boom whereby the lower ends of said strut may be drawn toward the lower end of the elevator to adjust the inclination and height of the upper end of said elevator.

The sprockets 6 and the conveyor are driven by a suitable reduction drive mechanism enclosed in a housing 16 carried by the boom of the elevator. For driving the reduction mechanism in the housing 16 a sheave pulley 17 is suitably connected therewith and adapted to be driven by a belt or the like 18 operating over the sheave 17 and a sheave 19 preferably mounted on the crankshaft 20 of a prime mover 21 mounted on the elevator boom as now to be described.

Secured to the side member 22 of the boom and extending downwardly therefrom is a plate 23, said plate having a bearing boss 24 extending inwardly relatively to the elevator in alignment with a bearing boss 25 on a plate 26 extending downwardly from the boom frame member 27 on the opposite side of the boom relative to the plate 23. The bosses 24 and 25 are provided with aligning bores 28 adapted to rotatably receive a shaft 29 preferably of tubular construction for lightness of weight and preferably secured to a vertical flange 30 of an angle bracket 31. The horizontal flange 32 of said bracket extends outwardly from the vertical member and is provided with suitable openings 33 to receive bolts or the like for securing the prime mover 21 thereon. The flange 32 is suitably arranged relative to the shaft 29 whereby said shaft is in axial alignment with the crankshaft of the prime mover mounted on said bracket. The flange 30 of the mounting bracket is provided with an aperture 34 adjacent the lower end thereof and adapted to be selectively aligned with any of a plurality of apertures 35 arranged in the plate 23 on a radius from the axis of the bore 28 therein whereby when the shaft 29 is mounted in the bore 28 the face of the flange 30 will engage the face of the plate 23 and the aperture 34 will align with a selected aperture 35 whereby a bolt 36 may be extended therethrough to secure the engine mounting bracket 31 onto the boom in any se-

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lected angular adjustment whereby the boom may be raised or lowered and the engine positioned in its best operating position.

In using and operating a device of this character described, the conveyor boom is usually carried on the wheeled strut to a desired location. The base 9 is then placed on the ground and the windluffs 14 operated to draw the line 13 and the lower end of the strut towards the lower end of the boom, thereby elevating the forward or upper end of said boom. When the forward end of the elevator has been raised to a suitable height to deliver the material to the desired location, the bolt 36 is removed from the apertures 34 and 35 and the engine mounting bracket and shaft 29 rotated in the bores 28 until the prime mover is in substantially vertical position. The aperture 34 is then aligned with the nearest aperture 35 and the bolt 36 replaced to hold the prime mover mounting bracket in adjusted position. Since the pulley 19 is on the crankshaft and is in axial alignment with the shaft 29, the adjustment of the angularity of the engine may be accomplished without any change in the length of the belt 18. The engine is then started to drive the pulley 17 through the drive mechanism enclosed in the housing 16 to operate the sprocket 6 to move the conveyor upwardly in the trough 8 whereby material may be elevated to any suitable position.

It is believed obvious that we have provided a prime mover mounting which may be easily adjusted to any desired angular position relative to the boom by the simple expedient of moving one bolt, the entire weight of the prime mover being carried by the bearings 24 and 25. The prime mover and mounting also may be thereby removed for storage or the like by the removal of the one bolt. There is substantially no strain on the bolt other than to keep the bracket from rotating in the bearings 24 and 25. The fact that the drive pulley is mounted on the same axis as the support for the prime mover further reduces the load due to the drive connection other than any force that might be exerted due to tension on the belt connecting the prime mover with the apparatus to be driven.

It is believed obvious that we have provided a simple prime mover mounting which may be quickly and easily adjusted to maintain the prime mover in a vertical position regardless of the variations in the inclination of the conveyor boom.

What we claim and desire to secure by Letters Patent is:

1. In an apparatus of the character described, a boom adapted to be arranged at various inclinations, driven means on the boom, a prime mover having a drive shaft, a belt drivingly connecting the prime mover to the driven means, a shaft rotatably mounted on the boom, means on the shaft for supporting the prime mover with the drive shaft in axial alignment with the rotatably mounted shaft, and means for securing said prime mover in any selected angular position relative to the boom whereby the belt maintains driving connection without change in the length thereof.

2. In an elevator, a boom having a support for

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one end, means for elevating the other end of said boom whereby said boom is moved to any desired inclination, a conveyor operating on said boom, a tubular shaft rotatably mounted on said boom, a prime mover mounted on said tubular shaft and having the drive shaft thereof in axial alignment with the tubular shaft, means for securing the prime mover in any selected angular relation with the boom, and means operated by the prime mover for driving the conveyor.

3. In an elevator, a boom having a support for one end, means for elevating the other end of said boom whereby said boom is moved to any desired inclination, a conveyor operating on said boom, bearings mounted on said boom, a prime mover having a drive shaft, means rotatably mounted in said bearings for supporting the prime mover with the drive shaft thereof in axial alignment with the bearings, means for securing the prime mover in any selected angular relation with the boom, and means operated by the prime mover for driving the conveyor.

4. In an elevator, a boom having a support for one end, means for elevating the other end of said boom whereby said boom is moved to any desired inclination, a conveyor operating on said boom, downwardly extending brackets on said boom having bearing openings therein, a shaft rotatably mounted in said bearing opening, an angle plate secured to one end of said shaft, a prime mover mounted on said angle plate having the drive shaft thereof in axial alignment with the shaft, means for securing the angle plate in any selected angular relation with the boom, and means operated by the prime mover for driving the conveyor.

5. In an elevator, a boom having a support for one end, means for elevating the other end of said boom whereby said boom is moved to any desired inclination, a conveyor operating on said boom, downwardly extending brackets on said boom having bearing openings therein, one of said brackets having a plurality of apertures spaced from the bearing opening therein, a tubular shaft rotatably mounted in said bearing openings, an angle plate secured to one end of said tubular shaft, a prime mover mounted on said angle plate having the drive shaft thereof in axial alignment with the tubular shaft, means for extending through selected apertures for securing the angle plate in selected angular relation with the boom, and means operated by the prime mover for driving the conveyor.

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