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PIVOTAL MOUNTING FOR PULLEY STRUCTURES

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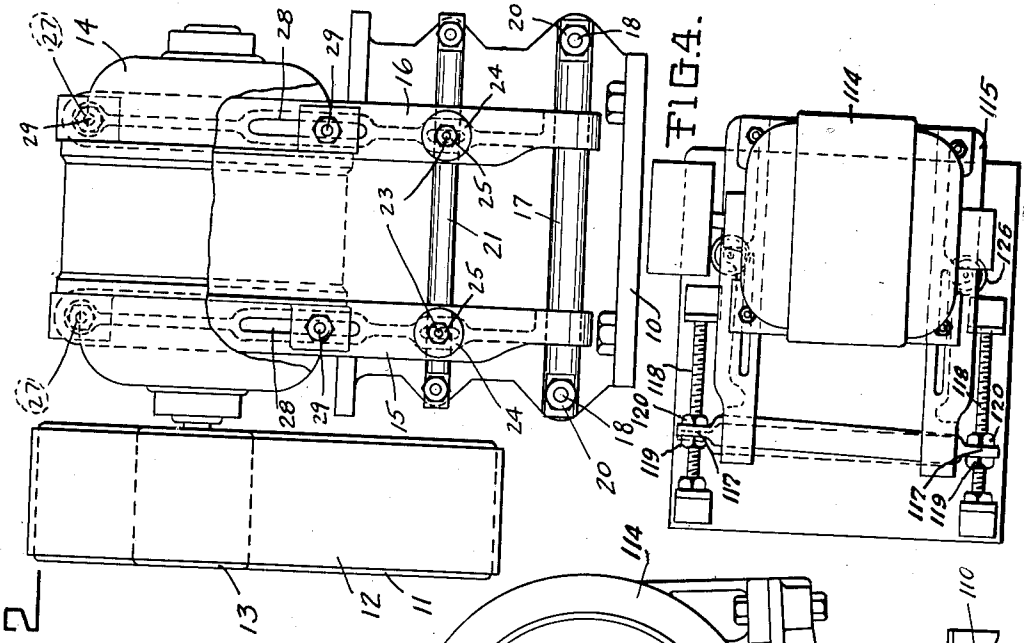


FIG. 4.

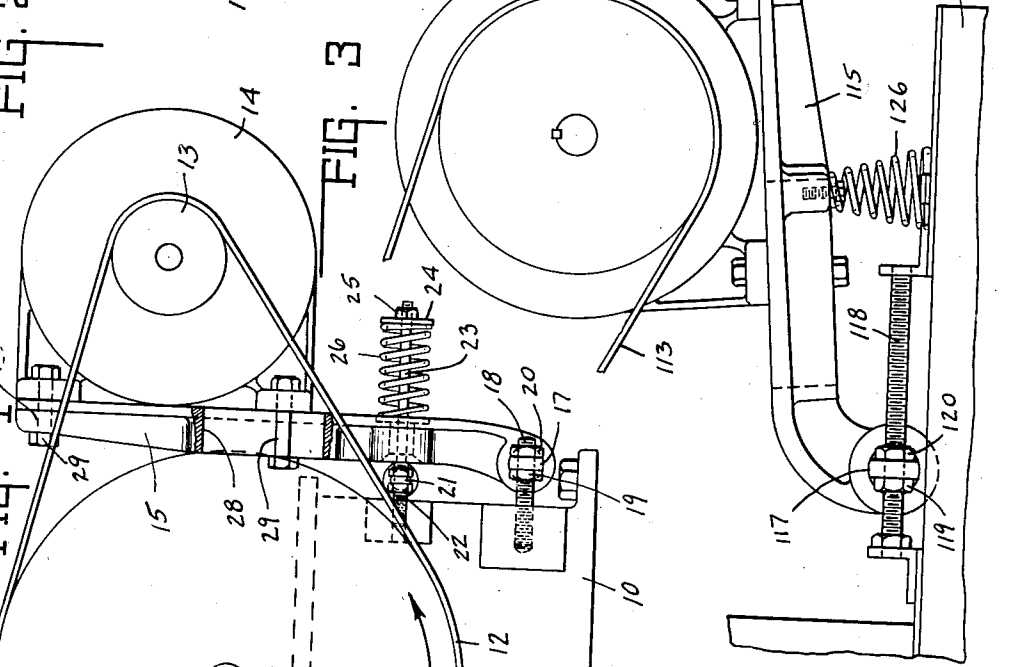


FIG. 2

FIG. 3

FIG. 1

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PIVOTAL MOUNTING FOR PULLEY STRUCTURES

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5 Claims. (Cl. 308—11)

This invention relates to a pivotal mounting for a pulley structure adapted for use, through the instrumentality of a flexible belt, with a fixed center pulley, the invention having particular relation to what are termed "short center drives".

The pivotal mounting of said pulley structure enables it to exert, through its weight, the proper tension upon the driving belt, and it is one of the objects of this invention to maintain this belt tension constant or uniform by the provision of one or more compensating springs normally tending to resist further swinging movement of said pivoted pulley structure away from the fixed center pulley. Such spring or springs may be so calibrated initially as to exert upon the pivoted pulley structure the desired resisting force, or suitable means may be provided for adjusting said spring or springs to enable them to accomplish their intended function.

A further feature of the present invention is the capability of the pivoted supporting means of the present mounting to receive, for securement thereon, pulley structures of varying base lengths and varying base widths, said supporting means being so constructed that each pulley structure is secured thereon, regardless of its base length, the same predetermined distance from the free end of said supporting means. In this way, each pulley structure will exert upon the driving belt substantially the same tensioning effect.

A further feature of the present invention is the capability of the pivoted supporting means of the present mounting to be easily and quickly adjusted relative to the base of the mounting, to which base said supporting means is pivotally connected. Said supporting means may be moved bodily along and across said base and may also be swung relative thereto. The swinging adjustment of said supporting means relative to the base of the mounting is of the highest importance, as it enables the pulley structure secured on said supporting means to be so adjusted with respect to the fixed center pulley as to effect proper tracking of the driving belt on said pulleys. Sometimes, such as when the belt stretches unevenly, proper tracking of said belt is effected by so adjusting said supporting means as to cause the axis of the pulley structure mounted thereon to be moved out of parallelism with the axis of the fixed center pulley. The crosswise adjustability of the supporting means enables the pulley structure mounted thereon to be moved into proper alignment with the fixed center pulley, and the adjustment of said supporting means along the base of the mounting enables the belt tension to be increased and decreased, all as will be readily understood.

Further features of the present invention are in part obvious and in part will appear more in detail hereinafter.

The full nature of the invention will be understood from the accompanying drawing and the following description and claims:

Fig. 1 is a side elevation of the drive showing a vertical motor support. Fig. 2 is a front elevation thereof showing a portion of the motor broken away. Fig. 3 is a modified form of the structure showing a horizontal support.

Fig. 4 is a top plan view of the pivotal support for the motor and the adjustable mounting therefor.

In Figs. 1 and 2 of the drawing there is shown a supporting base 10 upon which there is mounted a driven pulley 11 which is driven through the belt 12 by the driving pulley 13. The driving pulley 13 is driven from the motor 14. The drive shown herein is of the short belt gravity type wherein the driving motor is mounted upon a substantially vertical support pivoted at the lower end thereof to the base so that the weight of the motor and driving pulley tend to cause the support to swing about its pivotal mounting away from the driven pulley whereby the desired tension upon the driving belt will be applied.

As shown in Figs. 1 and 2, there are a pair of upright supporting bars 15 and 16 having their lower ends pivotally mounted upon a cross rod 17, said cross rod being adjustably secured to the base 10 by the screw threaded bolts 18 at the ends thereof. Said cross rod may thus be adjusted toward and from the base 10, said rod being held in adjusted position by the adjusting nuts 19 and the locking nuts 20.

Above the cross rod 17 there is mounted upon the adjacent face of the base 10 a spring supporting rod 21 which is similarly adjusted by the screw bolts 22 toward and from the base 10. Slidably mounted upon the rod 21 there are eye bolts 23 which extend through suitable apertures in the bars 15 and 16. The outer ends of the eye bolts 23 are provided with discs 24 and nuts 25, adapted to maintain compression springs 26 positioned between said bars and the free ends of said eye bolts 23.

Each of the upright bars 15, 16 is provided with a bolt opening 27 adjacent the top thereof and an elongated slot 28 spaced downwardly therefrom. The slots 28 permit pulley carrying motors of varying base lengths to be mounted on said bars, while the apertures 27 insure the mounting of each motor, regardless of its base length, on the bars 15, 16 the same predetermined distance from the upper free ends of said bars. For securing pulley carrying motors on said bars, bolts 29 are employed.

By enabling the pivot rod 17, upon which the lower ends of the bars 15, 16 are pivotally and slidably mounted to be adjusted toward and from

the base 10, the motor pulley 13 mounted on said bars may be moved into such position with respect to the fixed center pulley 11 as to effect proper tracking on said two pulleys of the belt 12. Sometimes, such as when the belt stretches unevenly, proper tracking of the belt is obtained by so adjusting the motor pulley 13 that its axis of rotation is out of parallelism with the axis of rotation of the fixed center pulley 11. This swinging adjustment of the pivot rod 17, and hence the motor pulley 13, is, therefore, of the greatest importance.

The slidability of the motor supporting bars 15, 16 on the pivot rod 17 not only enables motors of varying widths to be secured on said bars but also enables a pulley mounted on said bars to be brought into proper alignment with the fixed center pulley 11 for belt driving purposes, all as will be readily understood.

In order to compensate for the stretching of the belt to thus maintain a constant pull, the tension of the springs 26 is so adjusted by means of the bolts 22 or the nuts 25 that any increase in tension upon the belt caused by the increased gravity effect on the driving motor, will be compensated for by the resistance of the compression springs 26 against the upright bars. Thus, the tension of the springs 26 will resist the movement of the motor from normal position, while relieving the belt from increased tension.

In the embodiment of the invention shown in Fig. 3, the belt 113 and motor 114 are mounted upon a pair of substantially horizontal supporting bars 115 said bars being slidably pivoted at one end upon the cross rod 117 which is adjustably mounted with respect to the base 110 by means of the threaded bolts 118 and the adjusting and locking nuts 119 and 120. As distinguished from the structure shown in Figs. 1 and 2, the compensating springs 126 are positioned between the base 110 and intermediate portions of the supporting bars 115, the springs 126 acting not only to compensate for the stretching of the belt to maintain a substantially constant tension and pull, but also acting as a resilient counterbalance to the force of gravity exerted by the weight of the motor upon the substantially horizontal supporting bars.

The invention claimed is:

1. A pivotal mounting for pulley structures of various base lengths, said mounting being for a pulley structure adapted for use, through the instrumentality of a belt, with a pulley having a fixed center, said mounting comprising a base adapted to be rigidly connected to a suitable support, supporting means pivotally mounted at one end on said base and adapted to have a pulley structure secured thereon, said supporting means being provided with a pair of openings adapted to have extended therethrough bolts for securing a pulley structure on said supporting means, one of said openings being located in the pivoted end portion of said supporting means and being generally in the form of longitudinally extending slot and the other of said openings being located in the free end portion of said supporting means and being generally in the form of an aperture just slightly larger than the bolt which is to extend therethrough, said slot enabling said supporting means to receive pulley structures of various base lengths and said aperture insuring the securement of each pulley structure, regardless of its base length, on said supporting means with that end of said pulley structure base nearer the free end of said supporting means located a predetermined distance from said supporting means free end.

2. A pivotal mounting for a pulley structure adapted for use, through the instrumentality of a belt, with a pulley having a fixed center, said mounting comprising a generally flat base adapted to be rigidly connected to a suitable support, a pair of spaced, generally parallel members carried by said base in generally parallel relation thereto, a pivot rod extending transversely between said members and having its end portions provided with openings through which said members extend, whereby said pivot rod is adjustable along said members and hence along said base, means for maintaining said pivot rod in any desired position of adjustment relative to said members, and pulley structure supporting means pivotally mounted on said pivot rod between said members and adapted to have a pulley structure rigidly secured thereon.

3. A pivotal mounting for a pulley structure adapted for use, through the instrumentality of a belt, with a pulley having a fixed center, said mounting comprising a generally flat base adapted to be rigidly connected to a suitable support, a pair of spaced, generally parallel adjusting screws carried by said base in generally parallel relation thereto, a pivot rod extending transversely between said adjusting screws and having its end portions adjustably associated therewith, said pivot rod end portions being provided with openings through which said adjusting screws extend, whereby said pivot rod is adjustable along said screws and hence along said base, and pulley structure supporting means pivotally and slidably mounted on said pivot rod between said adjusting screws and adapted to have a pulley structure rigidly secured thereon.

4. A pivotal mounting for a pulley structure adapted for use, through the instrumentality of a belt, with a pulley having a fixed center, said mounting comprising a generally flat base adapted to be rigidly connected to a suitable support, a pair of spaced, generally parallel adjusting screws carried by said base in generally parallel relation thereto, pivot means extending transversely between said adjusting screws and having its end portions adjustably associated therewith, said pivot means end portions being provided with unthreaded openings through which said adjusting screws extend, whereby said pivot means is adjustable along said screws and hence along said base, a pair of lock nuts on each of said adjusting screws, the lock nuts of each pair being on opposite sides of a pivot means end portion, and swingable pulley structure supporting means mounted on said pivot means between said adjusting screws and adapted to have a pulley structure rigidly secured thereon.

5. A pivotal mounting for a pulley structure adapted for use, through the instrumentality of a belt, with a pulley having a fixed center, said mounting comprising a generally flat base adapted to be rigidly connected to a suitable support, a pair of spaced, generally parallel adjusting screws carried by said base in generally parallel relation thereto, pivot means having two axially aligned portions spaced from each other along the pivotal axis and provided with openings intersecting said pivotal axis and through which openings said adjusting screws extend, whereby said pivot means is adjustable along said screws and hence along said base, and swingable pulley structure supporting means mounted on said pivot means and adapted to have a pulley structure rigidly secured thereon.

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