Feb. 9, 1926. **1,572,555**

G. NELSON

MOUNTING FOR CONVEYER BELTS

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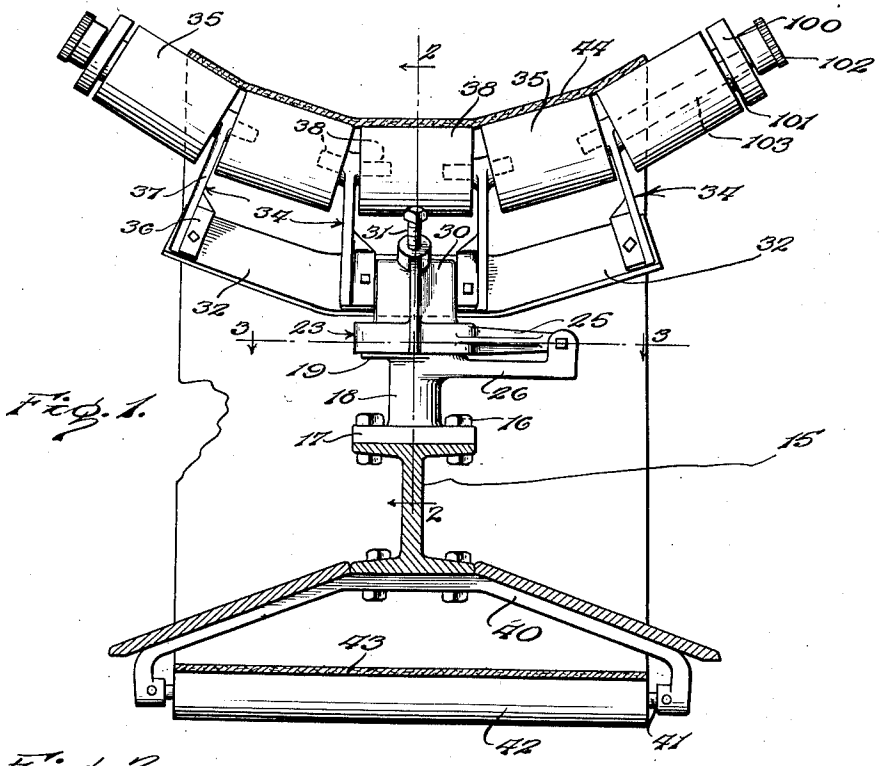


Fig. 1.

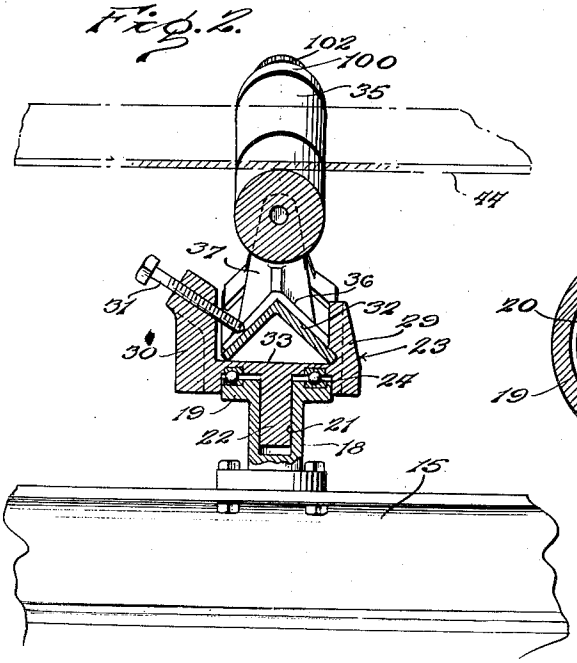


Fig. 2.

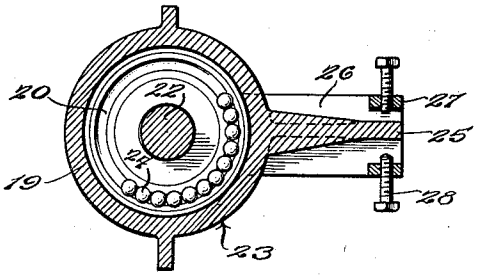


Fig. 3.

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Fig. 4.

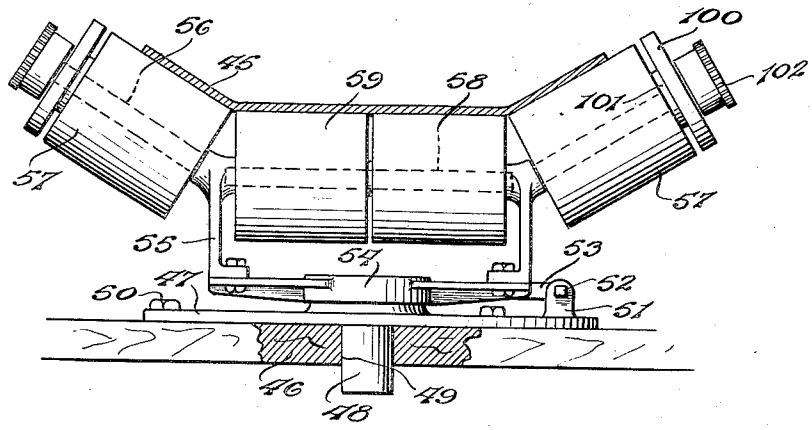


Fig. 5.



Fig. 6.

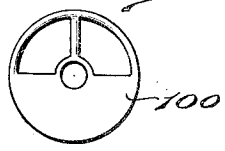


Fig. 8.

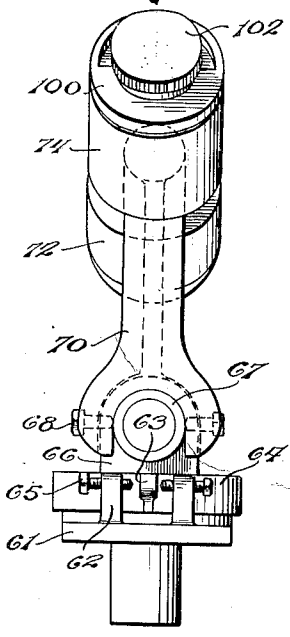
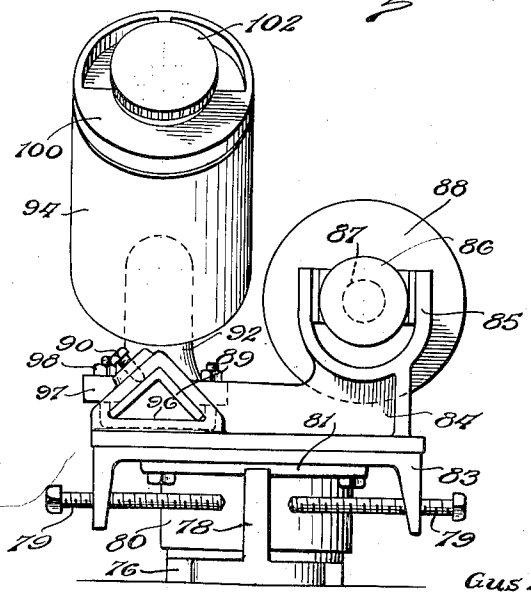


Fig. 10.



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Fig. 7.

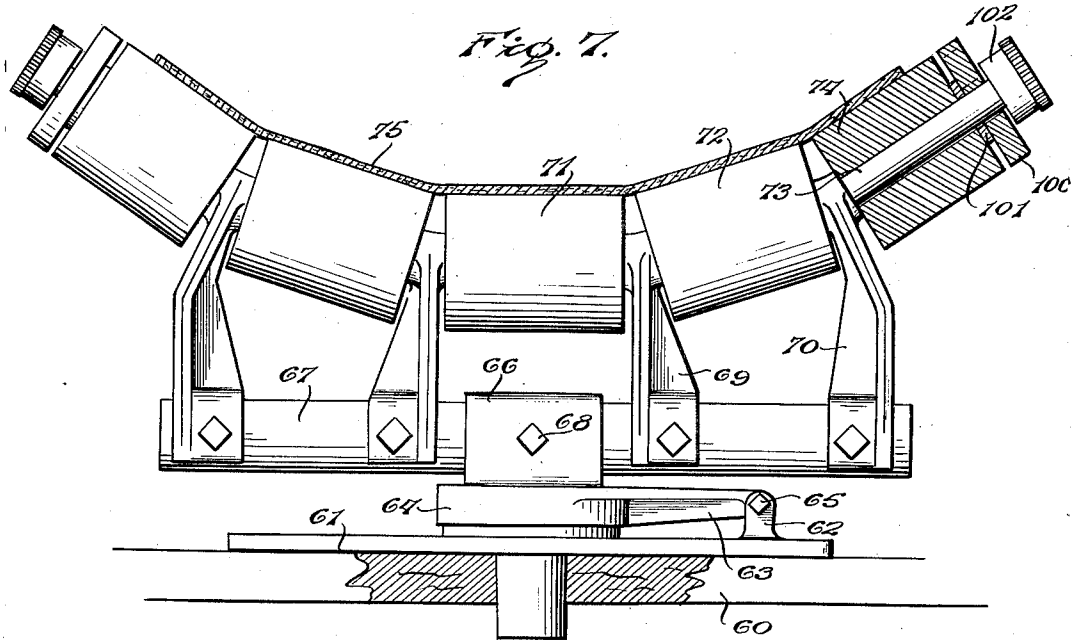
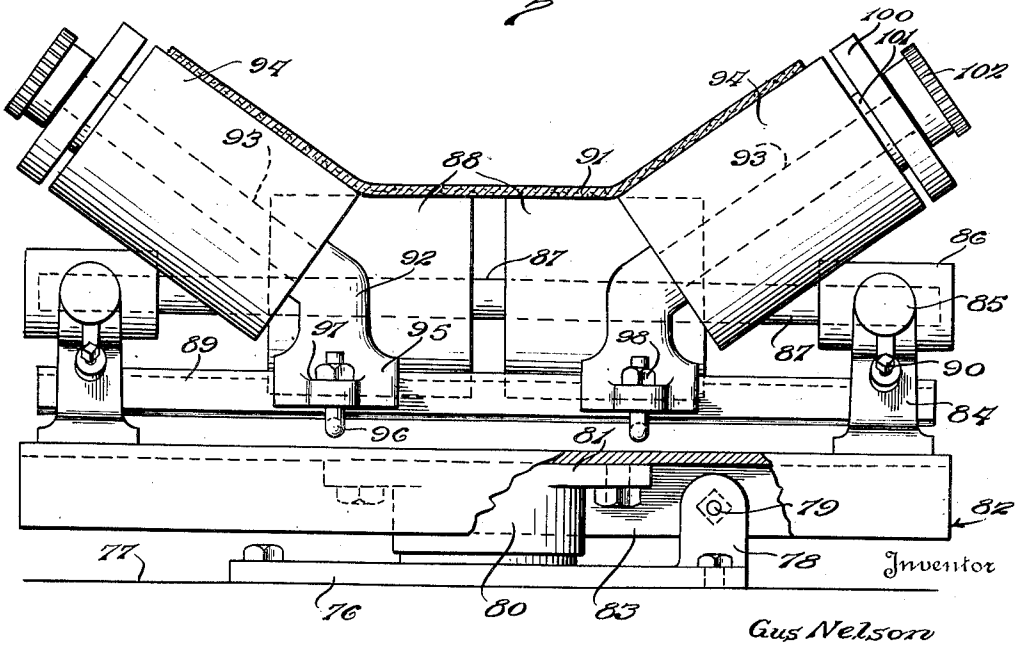


Fig. 9



Inventor

Gus Nelson

By Lacey & Lacey Attorneys

Patented Feb. 9, 1926. 1,572,555

UNITED STATES PATENT OFFICE.

GUS NELSON, OF DOUGLAS, ARIZONA.

MOUNTING FOR CONVEYER BELTS.

Application filed June 12, 1924. Serial No. 719,638.

To all whom it may concern:

Be it known that I, GUS NELSON, a citizen of the United States, residing at Douglas, in the county of Cochise and State of Arizona, have invented certain new and useful Improvements in Mountings for Conveyer Belts, of which the following is a specification.

The present invention relates to conveyers of the type having a belt supported by a series of rollers disposed transversely thereto in such a manner that the conveyer belt is given trough shape, or in other words, the side edges of the belt are turned upwardly above the central bottom portion thereof. This invention relates more particularly to the support or mounting of the belt and has for its object the provision of means whereby the belt may automatically accommodate itself to the variations in the load as the load frequently shifts from one side to the other.

In the accompanying drawings, the invention has been fully illustrated, and

Figure 1 represents a transverse section of the belt carried upon a swiveled mounting;

Figure 2 is a longitudinal section along line 2—2 of Figure 1;

Figure 3 is a horizontal section along line 3—3 of Figure 1;

Figure 4 is a view similar to Figure 1 of a slightly modified form of mounting;

Figures 5 and 6 are plan views of some of the details;

Figure 7 is a transverse section of the belt illustrating another modified form of mounting;

Figure 8 is a side elevation of Figure 7;

Figure 9 is a similar view to Figure 7 of still another modification of the mounting; and

Figure 10 is a side elevation of Figure 9.

In the drawings, reference numeral 15 represents an I-beam forming a part of the supporting frame for the belt. Upon this beam is rigidly secured, as by bolts 16, the foot 17 of a pedestal or base 18. The upper portion of this base is provided with a head 19 upon which is deposited a ball race 20. The base 18 has a central socket 21 in which a pivot 22 of a belt carrier 23 is mounted to revolve and between which carrier 23 and the head 19 a suitable ball bearing 24 is inserted. In this manner the carrier may turn easily upon the base 18. The turning, however, is limited to only a few degrees in a horizontal plane as the carrier is provided with a side projecting arm 25 and the base 18 has a corresponding arm 26 with a pair of spaced lugs 27 between which the end of the arm 25 is adapted to move a certain distance. This distance may be adjusted by set screws 28 against which the end of the arm 25 is made to abut when reaching one of its extreme turning positions.

The carrier 23 has two side walls 29 and 30 extending upwardly from its bottom and one of these walls 30 is provided with a clamping screw 31. Between these two walls 29 and 30 a yoke 32 is inserted and adapted to rest on the bottom 33 of the carrier as best seen in Figure 2. The yoke 32, which is preferably made from a piece of angle iron, the flanges of which are turned downward, is bent upwardly from its central portion so as to form a plurality of straight portions set at an angle to each other, as best seen in Figure 1. With the yoke 32 placed between the walls 29 and 30 of the carrier and after being properly adjusted in transverse direction, the bolt 31 is drawn up to hold the yoke firmly in the carrier.

Upon the yoke 32 are mounted several standards 34, the number of standards depending on the number of rollers or idlers 35 carried in the same vertical plane on the mounting and the straight portions of the yoke 32 also depending on the number of rollers or idlers 35 for a belt 44. Each standard has a V-shaped foot 36 corresponding to the angular shape of the yoke 32 so that one side of the foot engages one flange of the yoke while the other side of the foot engages the other flange, as clearly seen in Figures 1 and 2. Each standard has an upwardly directed post 37 terminating with a journal 38 engaging in a corresponding recess at the end of its roller. In this manner each of the rollers 35 is always supported on the journals of two of the standards with the exception of the outermost ones which are pivoted on long through-going journals 102.

On the under side of the I beam 15 is secured by bolts or the like a support 40 terminating with journals 41 for a bottom roller 42. This bottom roller is adapted to support a return run 43 of the belt 44.

In Figure 4 is shown a slightly modified form of mounting for a conveyer belt 45.

In this case a deck plate 46 takes the place of the I beam 15 in the former figures. Upon this deck plate a base 47 is mounted and preferably provided with a central trunnion 48 engaging in a corresponding opening 49 in the deck plate. The base 47 is secured from turning by means of bolts 50 and is provided near its edge with a pair of upstanding lugs 51 corresponding to the lugs 27 in Figures 1 and 3. These lugs carry set screws 52 against the ends of which a side projecting arm 53 abuts to limit the turning motion of a carrier 54 between which and the base 47 is inserted a ball bearing, as already described.

Upon the carrier are mounted standards 55 having sidewise directed journals 56 for side rollers or idlers 57, said journals having upward inclination with regard to the central shaft 58 supported between the two standards 55 for a central pair of rollers 59. In this modification, the conveyer belt 45 forms a horizontal bottom engaging with the central rollers 59, while the edges of the belt are turned upward to engage with the side rollers 57.

In Figures 7 and 8 another modification of mounting of the idlers or conveyer belt rollers is illustrated. In this case, a deck plate 60 is shown upon which a base 61 is mounted in the same manner as described in connection with Figure 4. This base has also a pair of upstanding lugs 62 between which an arm 63 of a carrier 64 engages, the arm being adapted to have a limited horizontal movement between set screws 65 in the lugs 62. The carrier has a sleeve 66 on its upper side in which engages a tube 67 extending equal distances sidewise in both directions from the sleeve 66 and being held securely therein by a clamping screw 68. Upon this tube 67 are secured standards 69 and 70. Between the middle standards 69 is journaled a roller or idler 71, while intermediary rollers 72 are similarly mounted between the standards 69 and 70. The latter are provided with upwardly directed journals 73 upon which side rollers 74 are mounted to rotate. In this manner a belt 75 will have its middle horizontal portion supported by the central roller 71, while the intermediary portions of the belt will take a slight upward inclination from the central roller corresponding to the inclination of the intermediary rollers 72 and the outer edges of the belt will be turned upwardly still more to correspond to the inclination of the side rollers 74.

Referring now particularly to Figures 9 and 10 still another modification of the mounting is indicated. In this case also a base 76 is bolted on a deck 77 as described in Figures 4 to 8, and the base has an upstanding lug 78. Upon this base 76 a carrier 80 is mounted to revolve on a ball bearing as before and the carrier has a head 81 upon which a channel beam 82 is bolted in inverted position, that is to say, with its flanges 83 directed downwardly. These flanges carry set screws 79, the ends of which are adapted to abut against the central lug 78 on the base 76 to limit revolving motion of the carrier 80 thereon.

Two end standards 84 are rigidly secured to the top of the channel beam 82. These standards have bifurcated upper portions 85 in which are secured cylindrical bearings 86 for a shaft 87 supported between them. Upon this shaft two central idlers or rollers 88 are mounted to revolve. Between the standards 84 is also supported an angle bar 89 with its flanges turned downwardly and held firmly in the standards 84 by means of clamping screws 90. The angle bar 89 runs parallel to the shaft 87 but is displaced in longitudinal direction of a belt 91. Upon this inverted angle bar 89 are secured two central standards 92 having outwardly inclined journals 93 for the side rollers or idlers 94. It should be noted that in this modification the side rollers 94 are situated in a different vertical plane to the central rollers 88. The standards 92 have inverted V-shaped feet 95 engaging over the angle bar 89 and clamping bolts 96 engage with their hooked lower ends under the edges of said angle bar 89, while the bodies of the bolts engage in suitable lugs 97 furnished on the standards 92. The bolts are tightened by nuts 98 in the usual manner.

In Figures 5 and 6 are shown details of a centering device for the conveyer belt. This consists of a counterpoised disc 100 which is mounted freely on the journal 56 of the outer idler 57 as indicated in Figure 4. Between the disc 100 and the idler 57 is keyed on the journal 56 a spacer or washer 101. This spacer is provided in order to prevent turning movement of the idler 57 being communicated to the disc 100. If, however, the conveyer belt 45 should slide too much to one side so that its edge passes the outer end of the idler 57, it will come in contact with the disc 100. It will now be evident that the disc being weighted will tend to remain stationary and will accordingly drag on the under side of the belt when contacting therewith. This will consequently rectify the position of the belt so that it will return to its central position on the idlers. The counterpoised discs 100, spacers 101 and securing caps 102 for the same are also provided for the journals 103 in Figure 1, and for the journals 73 in Figure 7, as well as for the journals 93 in Figure 9.

Having thus described the invention, what is claimed as new is:

1. In a mounting for conveyer belts, a base, a carrier revolubly mounted on said

base, means to limit the movement of said carrier, means for supporting a set of idlers upon said carrier permitting free rotation of each idler, said idlers being arranged to give a trough-shaped cross section to a belt running over the same; said supporting means including standards having journals for said idlers, and a centering device for said belt; said centering device including a counterpoised disc journaled on the standard for the outermost of said idlers and in axial alinement therewith, and a spacing washer inserted between said disc and the adjacent end of the idler.

2. In a mounting for conveyer belts, a base, a carrier revolubly mounted on said base, means to limit the movement of said carrier, means for supporting a set of idlers upon said carrier permitting free rotation of each idler, said idlers being arranged to give a trough-shaped cross section to a belt running over the same; said means including standards having journals for said idlers, a beam secured in the carrier and to which standards are secured, a centering device for said belt; said centering device including a counterpoised disc journaled on the standard for the outermost of said idlers and in axial alinement therewith, and a spacing washer secured on the journal between said disc and the adjacent end of the idler.

3. A mounting for conveyer belts comprising a support, a carrier mounted on the support for rotation in a plane parallel with the top of the support, means to limit the rotation of the carrier, a beam secured across the carrier, spaced standards secured on the beam, a shaft carried by and between said standards, idler rollers mounted on said shafts to support the central portion of a conveyer belt, a bar secured to and extending between said standards parallel with the shaft and at one side of the shaft, standards secured upon said bar, and idler rollers carried by said standards to support the edges of a conveyer belt and impart a trough-like form thereto.

4. A mounting for conveyer belts comprising a support, a carrier mounted on the support for rotation in a plane parallel with the top thereof, means to limit the rotation of the carrier, spaced standards on the carrier, a shaft extending between said standards, idler rollers mounted on said shaft to support the central portion of a conveyer belt, a bar secured to and extending between the standards parallel with the shaft, standards secured upon said bar, and idler rollers carried by the last-mentioned standards to support the edge portions of a conveyer belt and impart a trough-like form thereto.

In testimony whereof I affix my signature.

GUS NELSON. [L. S.]