May 22, 1962 W. S. RAYNOR 3,035,685

CONVEYER ROLLER SUPPORT ASSEMBLY

Filed March 28, 1960

Fig. 1

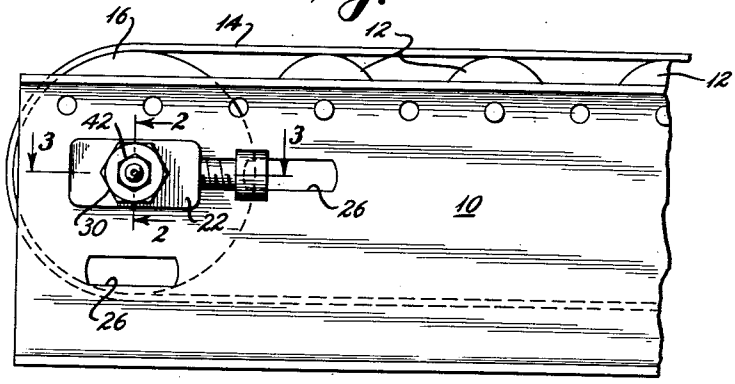


Fig. 2

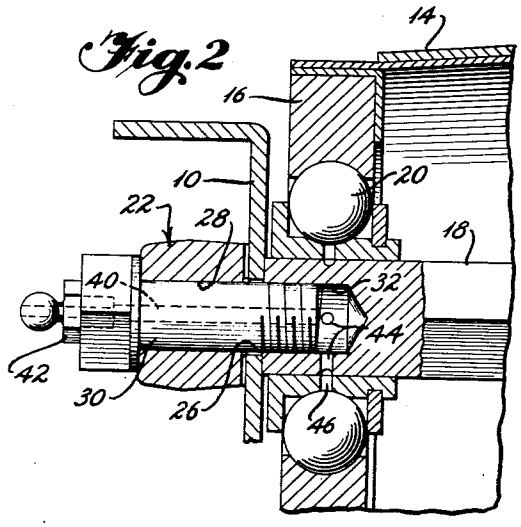


Fig. 3

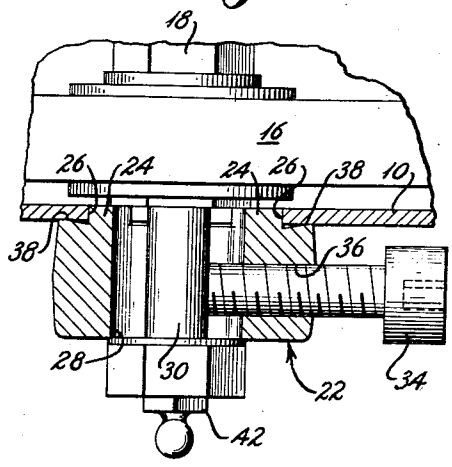
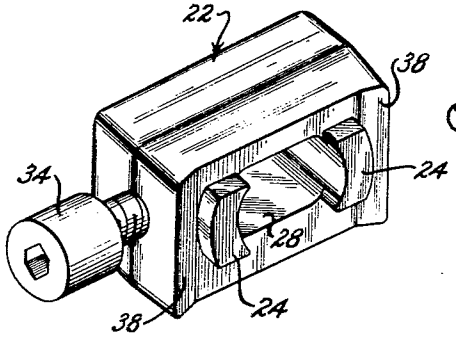


Fig. 4



INVENTOR

Warren S. Raynor

BY

Mead, Browne, Schuyler & Burridge

ATTORNEYS

United States Patent Office 3,035,685 Patented May 22, 1962

3,035,685

CONVEYER ROLLER SUPPORT ASSEMBLY

Warren S. Raynor, Port Hope, Ontario, Canada, assignor to Mathews Conveyer Company, Ellwood City, Pa., a corporation of Pennsylvania

Filed Mar. 28, 1960, Ser. No. 18,055
3 Claims. (Cl. 198—202)

This invention relates to conveyer roller support assemblies and more particularly to a roller support assembly which permits the opposite ends of a belt supporting roller to be adjusted independently of each other in a direction longitudinally of the conveyer to align the roller axis with respect to the fixed frame members of the conveyer.

In conveyers employing belts either as the conveying surface or as a means for driving additional rollers —i.e., the so-called power roll conveyer, accurate alignment of the end or direction changing rollers is of great importance in order that the belt may be accurately trained. Slight misalignment of the rollers tends to drive the belt to one side or the other. Many devices have been designed for this purpose, however in the usual case such devices require additional structure such as special end frame sections to be added to the conveyer assembly. In general, the more satisfactory of the prior art devices are fairly complex, and hence expensive.

It is a primary object of the invention to provide a conveyer roller support assembly of exceedingly practical and efficient construction which requires a minimum modification of the conventional conveyer components.

It is another object of the invention to provide a conveyer roller support structure which permits accurate adjustment of the roller axis.

The foregoing and other objects are achieved in a roller support structure in which a conveyer roller axle has one end located in axial abutment with the inner side of a conventional conveyer frame or side rail. A slot is cut through the side rail, the slot having a width less than the thickness of the axle and being elongated in a direction longitudinally of the conveyer. A mounting block is located on the outer side of the side rail and formed with a pair of lugs which engage the ends of the slot in the rail to locate the block longitudinally of the rail. The block is constructed with a slot extending inwardly through the block the slot having a width substantially equal to that of the slot in the frame rail and likewise being elongated longitudinally of the rail. A conventional bolt passes through the two slots and is threaded axially into the end of the conveyer roller axle. By tightening the bolt, the block and axle are clamped against the opposite sides of the side rail.

The structure is especially adapted to mount the end rollers and hence, due to the change in direction in the belt, the conveyer roller and its axle are urged, by the tension of the belt toward one end of the elongated slots. A bolt is threaded into the block and projects into the slot longitudinally of the slot from the end toward which the roller axle is urged by the tension on the belt. By loosening the clamping bolt, the adjusting bolt may be threaded into the block to position the clamping bolt, and hence the conveyer axle, longitudinally within the slot. When the desired position is reached, the clamping bolt is tightened, thereby clamping the axle against the inner side of the side rail in the adjusted position.

The engagement between the lugs and the ends of the slot within the side rail locate the block longitudinally of the side rail. To assist this action, inwardly projecting teeth are formed on the inner surface of the block to bite into the outer surface of the side rail when the clamping bolt is tightened.

Other objects and features of the invention will become

apparent by reference to the following specification taken in conjunction with the accompanying drawings.

In the drawings:

FIG. 1 is a side elevational view of one end of a conveyer assembly employing the roller support assembly of the present invention;

FIG. 2 is a detail cross-sectional view of the structure of FIG. 1 taken on the line 2—2 of FIG. 1;

FIG. 3 is a cross-sectional view of the structure of FIG. 1 taken on line 3—3 of FIG. 1; and

FIG. 4 is an isometric view showing details of the inner side of the mounting block and adjusting bolt.

In FIG. 1, the invention is shown as being employed in combination with a conventional belt conveyer which includes a fixed side rail **10**, a plurality of support rollers **12** which are rotatably supported in side rail **10** and a conveying belt **14** which is supported upon rollers **12**. It will be appreciated that the conveyer shown in FIG. 1 includes a pair of spaced parallel side rails **10**, rollers **12** extending transversely between the two side rails and being rotatably supported from the rails. Belt **14** passes around an end roller **16** which is supported from side rail **10** by the novel support means to which the invention is directed. As best shown in the cross-sectional view of FIG. 2, end roller **16** includes a stationary axle **18** upon which roller **16** is rotatably supported as the bearing assembly **20**.

The mounting structure includes a mounting block **22** which lies against the outer side of side rail **10**. The inner side of mounting block **22** is constructed with a pair of spaced projecting lugs **24** (FIGS. 3 and 4) which are formed to be received within longitudinally elongated slots such as **26** cut through the vertical web of side rail **10**. As best seen in FIG. 1, slots **26** are elongated longitudinally of the side rail. For purposes of illustration, the side rail **10** shown in FIG. 1 has three slots **26** cut through the rail. One of these slots **26** is obscured by the mounting block **22**. The two slots **26** which do appear in FIG. 1 indicate the location in which the mounting block **22** would be placed for other types of assemblies—for example the lowermost slot **26** of FIG. 1 would be used if a powered roll assembly were required. The shape of the slot **26** which is obscured in FIG. 1 is exactly the same as the shape of the two slots **26** which do appear.

Mounting block **22** is constructed with a slot **28** which, as best seen in FIGS. 3 and 4 is elongated in a direction longitudinally of the conveyor. The width of slot **28** is substantially equal to the diameter of a bolt **30** which, as best seen in FIGS. 2 and 4 passes inwardly through slot **28**, the aligned slot **26** and is threadably received within a tapped axial bore **32** in the end of axle **18**. It is believed apparent that when bolt **30** is tightened into tapped bore **32**, axle **18** and block **22** will be firmly clamped against the opposite sides of the side rail **10**.

An adjustment screw **34** is threaded into a tapped bore **36** which extends through one end of block **22** to permit adjustment screw **34** to be threaded into the block longitudinally along slot **28**. The inner end of screw **34** thus forms an adjustable abutment against which bolt **30** is urged by the tension applied to belt **14**. By threading screw **34** into bore **36**, bolt **30** may be positioned at selected locations longitudinally along slot **28**. It is believed apparent that this adjustment will be made only when clamping bolt **30** is slightly loosened.

To assist lugs **24** in maintaining block **22** at a fixed location longitudinally along side rail **10**, a pair of inwardly projecting teeth **38** are formed at each end of block **22**. When clamping bolt **30** is tightened, teeth **38** are forcibly driven into the outer surface of side rail **10** to firmly locate block **22** longitudinally of the rail.

Since tapped bore **32** axially overlaps bearing assembly **20**, clamping bolt **30** provides a convenient means for

conducting lubricant to bearing **22**. To this end, a central bore **40** passes axially through bolt **30** and a suitable grease fitting **42** is mounted upon the head of bolt **30** to communicate with bore **40**. A plurality of radial bores such as **44** provide communication between the chamber at the bottom of tapped bore **32** and radial bores **46** in bearing **20**.

Although one side of the conveyer is shown, it will be appreciated that an identical mounting assembly is employed on the other side to support the opposite end of axle **18**. The two roller support assemblies permit independent adjustment of the respective ends of axle **18** to thereby angularly align the axis of roller **16** with respect to the fixed conveyer frame represented by side rails **10**. The particular mounting assembly which has been described permits an extremely convenient yet precise adjustment of the angular relationship between the axis of roller **16** and the conveyer frame while requiring a minimum modification of the conventional conveyer structure—namely the formation of an elongated slot such as **26** in the conveyer side rail and the formation of the tapped bore **32** in axle **18**.

While one embodiment of the invention has been disclosed and described, it will be apparent to those skilled in the art that the disclosed embodiment may be modified. Therefore, the foregoing description is to be considered exemplary rather than limiting and the true scope of the invention is that defined in the following claims.

I claim:

1. A conveyer roller support assembly comprising an elongated side rail having a longitudinally elongated opening therethrough, a conveyer roller axle having one end in axial abutment with the inner side of said side rail adjacent said opening, a mounting block overlying said opening at the outer side of said side rail, said block having

a slot extending outwardly therethrough elongated in a direction longitudinally of said conveyer means on said block for locating said block at a stationary location upon said side rail with the slot in said block aligned with the opening in said side rail, a bolt passing inwardly through said slot and axially threaded into said one end of said axle for clamping said block and said axle against the respective sides of said side rail, and means on said block for adjustably positioning said bolt longitudinally within said slot.

2. A conveyer roller support assembly comprising an elongated side rail having a longitudinally elongated opening therethrough, a conveyer roller axle having one end in axial abutment with the inner side of said side rail adjacent said opening, a mounting block having a pair of inwardly projecting lugs in engagement with the opposite longitudinal ends of said opening, said block having a slot extending outwardly therethrough from an inner end opening located between said lugs, said slot being elongated longitudinally of said side rail, a bolt projecting inwardly through said slot and threaded axially into said one end of said axle for clamping said axle and said block against the respective sides of said side rail, and movable abutment means located within said slot and adjustable longitudinally of said slot to locate said bolt in selected positions longitudinally of said conveyer.

3. A conveyer roller support assembly as defined in claim 2 wherein said block includes a pair of inwardly projecting teeth engageable with said outer side of said side rail.

References Cited in the file of this patent

UNITED STATES PATENTS

2,523,829 Hubbell ---------- Sept. 26, 1950