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1,747,388

CONVEYER

Filed Sept. 15, 1928

Fig. 1.

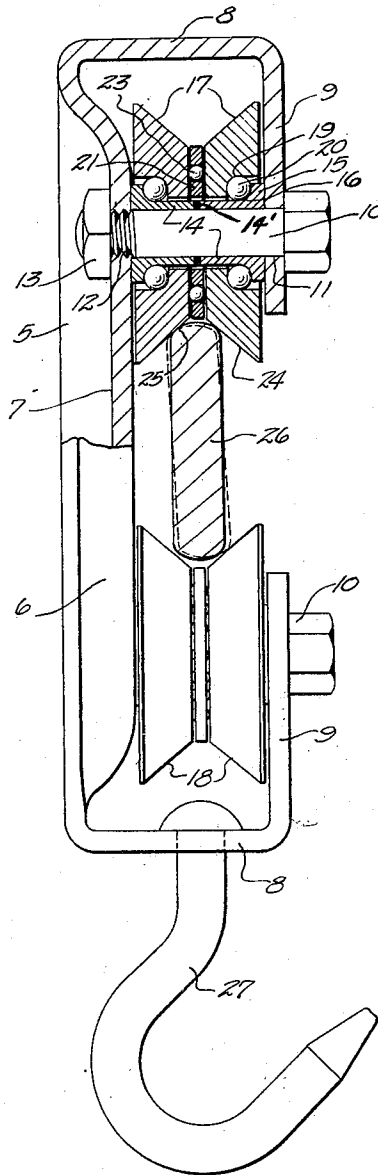


Fig. 4.

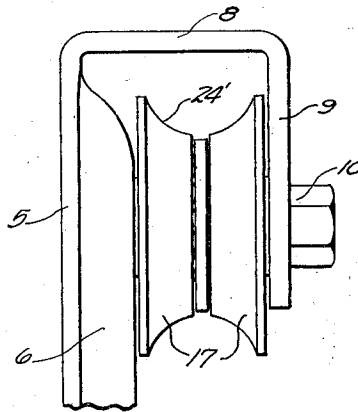


Fig. 2.

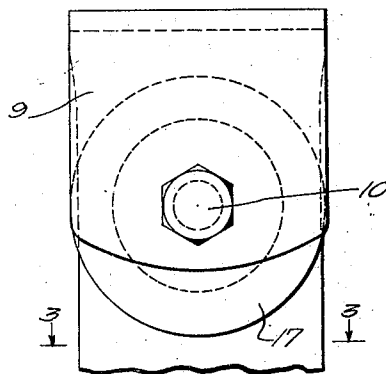
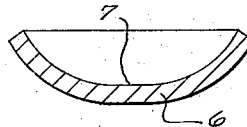


Fig. 3.



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CONVEYER

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The invention relates to conveyers and more particularly to conveyers of the mono-rail type.

The usual forms of conveyers embody a single, flanged wheel engaging the rail and a keeper wheel below the rail. This type of construction produces great wear between the wheel and the rail where the rail is inclined from the vertical or is curved, and where the inclination is pronounced the breaking effect produced by the binding action between the wheel and the rail prevents efficient operation of the conveyer. The object of this invention is to provide a conveyer which overcomes the above disadvantages by the provision of two separately rotatable, coaxially disposed wheels engageable with the rail, to carry the load, and similar wheels below the rail to keep the conveyer on the rail and also act as load carriers when the rail is inclined from the horizontal. By such an arrangement either one of the wheels may rotate faster than the other, as when going around curves, and the rail may be inclined from the vertical to the horizontal, if desired, without impairing the operating efficiency of the conveyer. Furthermore, the wheels of the conveyer are preferably conically inclined and reduce the frictional contact between them and the rail to a low figure, this friction being further reduced by ball bearing journals.

The invention further consists in the several features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings Fig. 1 is an end elevation view of a conveyer embodying the invention, parts being broken away and parts being shown in section;

Fig. 2 is a side elevation view of part of the conveyer;

Fig. 3 is a section taken on the line 3—3 of Fig. 2;

Fig. 4 is a detail end elevation view showing certain modifications.

Referring to the drawings the numeral 5 designates the carrier frame, of channel shape, having a web or back portion 6, which is dished inwardly by a single corrugation 7,

as shown in Fig. 3, to provide an arched construction for strength, and flanges 8, which have inwardly directed extensions or arms 9 substantially parallel to the back portion to provide outboard supports for the axles 10 that are here shown in the form of bolts passing through openings 11 in the arms 9 with their threaded ends 12 in threaded engagement with the portion 6 and locked by nuts 13.

Upon each axle 10 bushings 14 are mounted, having flanged ends 15 and curved ball race portions 16, the upper wheels or rollers 17 and the lower wheels 18 each having recesses 19, and ball bearings 20 are mounted in said recesses and the race portions 16. A plurality of shims 14' are mounted between the bushings 14 and are removable or adjustable to take up for wear on the bushings. Between each set of wheels an apertured ring 21, with ball bearings 23 disposed in the apertures, is mounted, said balls having bearing contact with the inner side of each set of wheels. With this construction it will be obvious that either wheel may revolve independently of the other or at a speed different from that of the other. Each wheel 17 or 18 has a conically inclined rail-engaging surface 24. In Fig. 1 this surface 24 is shown as formed by a plain conical surface, while in Fig. 4 I have shown the surface 24' of the wheels as concavely, conically inclined. The construction shown in Fig. 1 provides a substantially line contact between the wheels and the curved edges 25 of the rail 26 while that shown in Fig. 4 conforms more nearly to the curvature of the rail and gives a greater contact surface, which may be desirable for certain classes of work.

In either instance the rail 26 is disposed between the two sets of wheels 17 and 18 and preferably with a slight clearance from the lower wheels 18 when the rail is vertically disposed.

The conveyer may be provided with any suitable means for connecting it with its load and in Fig. 1 I have shown a hook 27 for this purpose.

With this construction, as the wheels are independently rotatable, when the conveyer is

travelling on a curved section of rail the outer wheel may travel faster than the inner wheel and thus prevent a braking effect and due to the fact that the traveler or conveyer has substantially line contact with the rail it will
 5 turn a corner on an extremely short radius as distinguished from the ordinary flanged wheel. Furthermore, the track may be inclined at any inclination from the vertical to
 10 the horizontal and the conveyer will function efficiently as the canting of the track, as shown in dotted lines in Fig. 1, may bring either one of the lower wheels into contact with the rail. Furthermore, the arrangement of the bear-
 15 ings efficiently takes up the thrusts imposed by the load and results in a conveyer having a long life.

I desire it to be understood that this invention is not to be limited to any particular form
 20 or arrangement of parts except in so far as such limitations are included in the claims.

What I claim as my invention is:

1. In a conveyer, the combination with a track, of a frame, spaced sets of wheels
 25 mounted on said frame and cooperating respectively with the top and bottom of said track, the wheels in each set being co-axially disposed and having inclined track-engaging surfaces and being independently rotatable.

30 2. In a conveyer, the combination with a track, of a frame having spaced, axle-supporting portions, axles mounted in said portions, a set of wheels on each axle cooperating with said track and having inclined, track-engag-
 35 ing surfaces, bearings for each wheel, and a thrust bearing between the wheels of each set.

3. In a conveyer, the combination with a track, of a frame, spaced sets of wheels mounted on said frame and cooperating re-
 40 spectively with the top and bottom of said track, the wheels in each set being coaxially disposed and having conical, track-engaging surfaces inclined toward each other, and bearings for each wheel providing independ-
 45 ent rotation thereof.

4. In a conveyer, the combination with a track, of a frame having a back portion and arms spaced therefrom, axles mounted in said back portion and each of said arms, and inde-
 50 pendently rotatable wheels mounted on each axle and having inclined surfaces providing a track-receiving groove.

5. In a conveyer, the combination with a track, of a frame having axle-supporting por-
 55 tions, axles mounted in said portions, a set of wheels on each axle cooperating with said track, anti-friction bearings for each wheel, and an anti-friction thrust bearing between the wheels of each set.

6. In a conveyer, the combination with a track, of a frame having an arched back por-
 60 tion and spaced arm portions, axles mounted in said back portion and each of said arms, bearing races on each axle, a pair of track-engaging wheels on each axle, ball bearings be-

tween said races and each of said wheels, and a ball thrust bearing between each set of wheels.

7. In a conveyer, the combination with a track, of a frame having an axle-supporting
 70 portion, an axle mounted on said portion, a set of wheels on said axle having track-engaging surfaces, bearings for each wheel, and a thrust-bearing between said wheels.

In testimony whereof, I affix my signature.
 PIERCE MANFRED PEARSON.

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