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[54] **TROLLEY HANGER ASSEMBLY**
5 Claims, 6 Drawing Figs.

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 104/89, 105/150, 105/152

[51] Int. Cl..... **B61b 3/00,**
 E01b 25/22

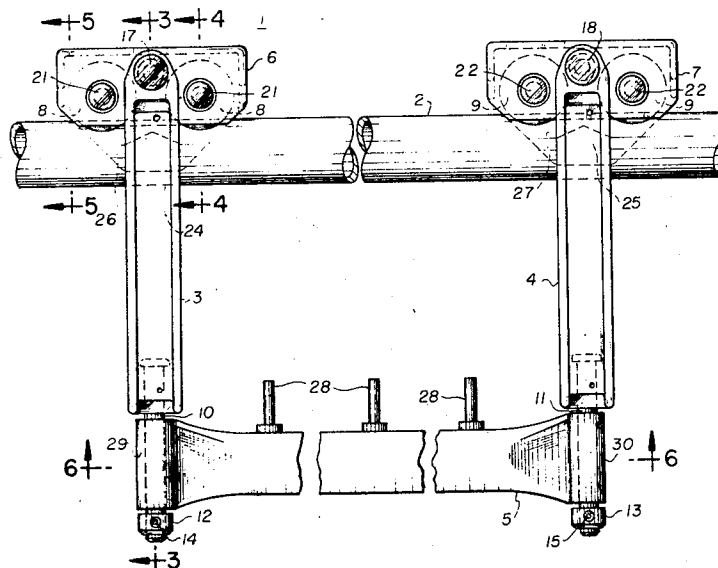
[50] Field of Search..... 104/89, 90,
 93; 16/87, 89, 91, 104; 105/150, 152

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ABSTRACT: A trolley hanger assembly for carrying garment-laden hangers along a trolley rail having two spaced-apart arms with a bearing housing rotatably attached to each of said arms. The two bearing housings each having two sets of rollers for engaging the trolley rail. A carrying rod hingedly attached to the arms for carrying the garments.



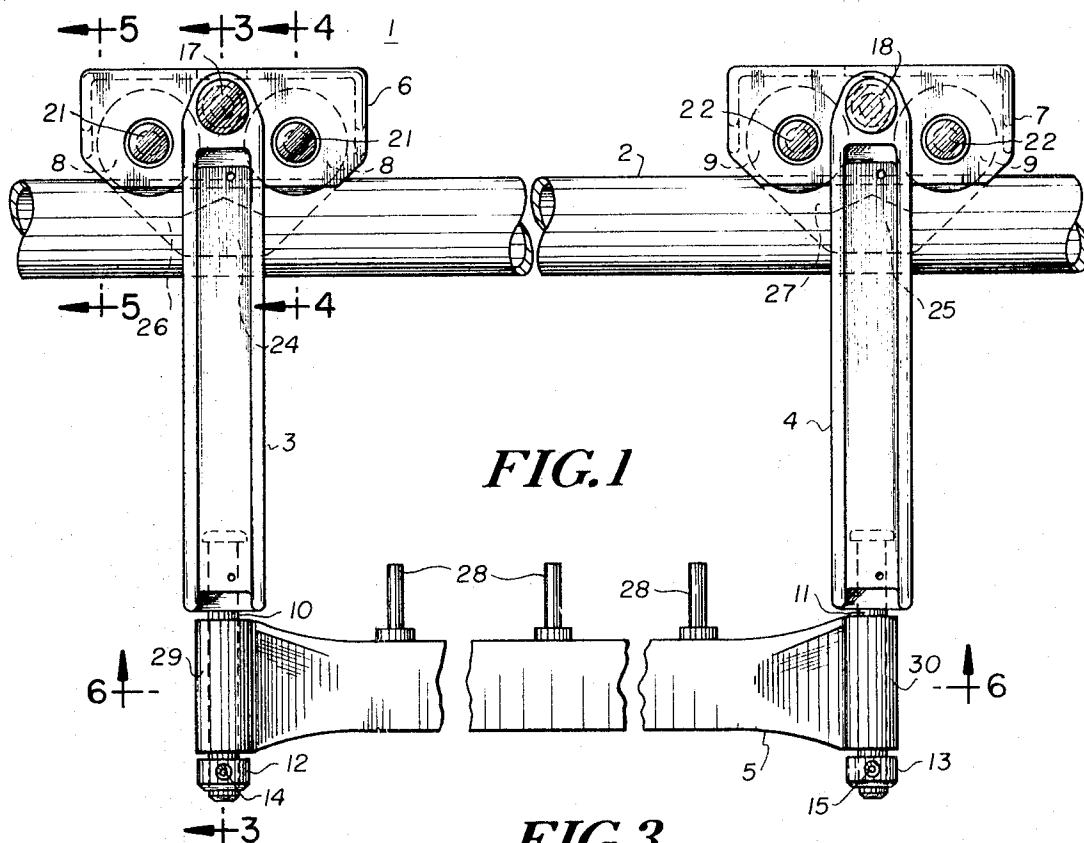


FIG. 1

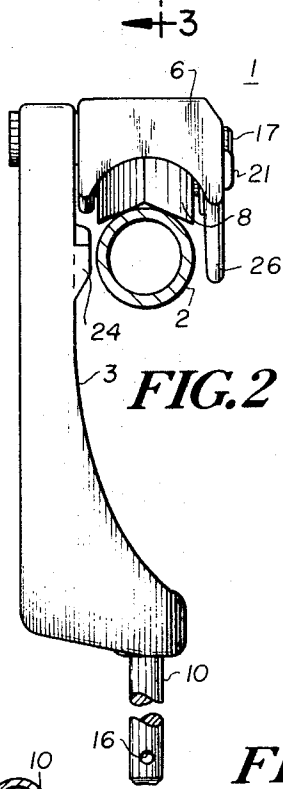


FIG. 2

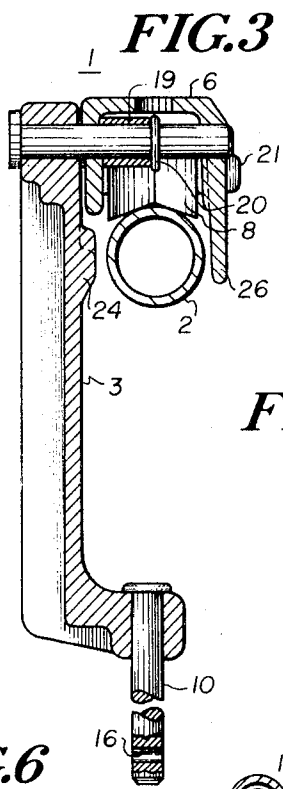


FIG. 3

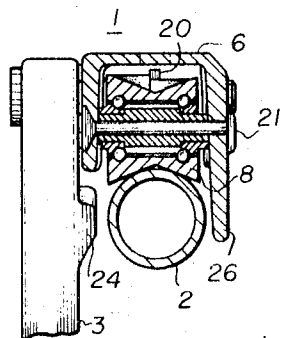


FIG. 4

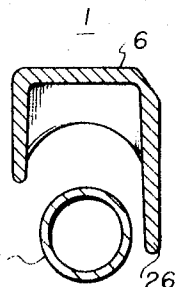


FIG. 5

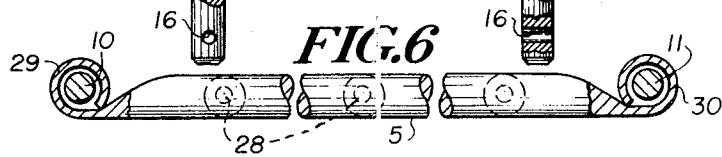


FIG. 6

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TROLLEY HANGER ASSEMBLY

BACKGROUND OF THE INVENTION

The present invention relates to a trolley hanger assembly of the type that may be used in a garment factory conveyor system. Many forms of trolley hangers have been utilized in the past, and prior to our invention significant maintenance and basic operability problems have been encountered. It has been found that prior trolley hanger assemblies became jammed on the trolley rail causing serious conveyor "down time". A major cause of this jamming was the inability of the trolley hanger assembly to dynamically align itself when encountering irregularities in the trolley rail and at the same time withstand the rigors encountered in the conveyor systems, particularly those rigors encountered in a garment factory environment.

One object of the present invention, therefore, is to provide a reliable maintenance-free trolley hanger assembly.

Another object of the invention is to provide a trolley hanger assembly that will achieve dynamic alignment as it moves along irregular or curved portions of the trolley rail. Yet, another object of the invention is to provide a strong inexpensive trolley hanger assembly.

SUMMARY OF THE INVENTION

The above and other objects of the present invention which will become apparent hereinafter are achieved by providing a trolley hanger assembly having two spaced-apart arms of equal length and a carrying rod hingedly connected to the arms. A bearing housing is also rotatably connected to the arms and disposed within each of the bearing housings are load-equalizing bearing means.

The arms and the carrying rod are rigid members. It can be seen that the present invention while affording support for any substantial load that may be attached to the carrying rod, the overall assembly is flexible and capable of achieving dynamic alignment when encountering any irregularities or curves in the trolley rail. This balance between flexibility and ruggedness as found in the present invention also substantially avoids maintenance problems that typically occurred to prior art hanger assemblies when they were dropped or generally mistreated.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings, wherein like references designate like parts:

FIG. 1 is a front elevational view of the present invention;

FIG. 2 is a side elevational view of the present invention;

FIG. 3 is a vertical sectional view taken on line 3—3 of FIG. 1;

FIG. 4 is a fragmentary vertical sectional view taken on line 4—4 of FIG. 1;

FIG. 5 is a fragmentary vertical sectional view taken on line 5—5 of FIG. 1; and

FIG. 6 is a horizontal sectional view taken on line 6—6 of FIG. 1.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings, and in particular FIGS. 1 through 5, the reference character 1 indicates generally a trolley hanger assembly for carry items, particularly garment-laden hangers along a trolley rail 2. It should be noted that with regard to FIGS. 2 through 5 which are directed toward the left end of the trolley hanger assembly 1 that the trolley hanger assembly 1 is, except for the carrying rod 5, symmetrical and, consequently, items referred to, but shown in only the left end of the trolley hanger assembly 1 will be the same for the right end of the trolley hanger assembly 1. The trolley hanger assembly comprises two spaced-apart arms 3 and 4 which are hingedly connected to a carrying rod 5 and rotatably connected to bearing housings 6 and 7, respectively. Rotatably disposed within each of the bearing housings 6 and 7 are load

equalizing bearing means which may be two sets of rollers 8 and 9, respectively. The sets of rollers 8 and 9 are adapted to engage, disengage, and move along the trolley rail 2.

The arms 3 and 4 are of equal length and are of rugged construction. They may be constructed of a lightweight and rugged cast aluminum alloy. The arms 3 and 4 are substantially L-shaped and have pins 10 and 11, respectively depending from each end. The pins 10 and 11 which may be made of aluminum or an alloy thereof, may be press fitted into the end of the arms 3 and 4.

As indicated above the carrying rod 5 is hingedly connected to the arms 3 and 4. The carrying rod 5 is connected to the pins 10 and 11 by sleeves 12 and 13 which are in turn locked in place by fasteners 14 and 15. The fasteners engage the pins 10 and 11 at a fastener hole 16.

The bearing housings 6 and 7 are rotatably connected to the arms 3 and 4 by pins 17 and 18 which are located midway between each set of rollers 8 and 9 and which may be made of the same material as pins 10 and 11. Pins 17 and 18 also may be press fitted into arms 3 and 4, respectively. Sleeve 19, which holds bearing housing 6 in place is in turn held in place by fastener 20.

The sets of rollers 8 and 9 rotate on pins 21 and 22, respectively, and the sets of rollers 8 and 9 may be of steel roller bearing construction. The rotational movement of the arms 3 and 4 with respect to the bearing housings 6 and 7, respectively, is limited by raised portions 24 and 25. The sets of rollers 8 and 9 are shielded from foreign matter by extended portions 26 and 27, respectively, of the bearing housings 6 and 7 and the sets of rollers 8 and 9 provide substantially frictionless movement of the trolley hanger assembly 1 along the trolley rail 2.

It will become apparent from the above discussion that the trolley hanger assembly 1 combines a balance of ruggedness and flexibility. That is, the trolley hanger assembly 1 is capable of carrying substantial loads on the carrying rod 5 and yet adapt to irregularities or unusual curvatures of the trolley rail 2. It is also apparent from the above description that if a substantially horizontal force or shock is imparted to the carrying rod 5 as may be the case when garment-laden hangers are thrust on the carrying rod 5, that the trolley hanger assembly will move about the circumference of the trolley rail 2 in the direction of the imparted force or shock, whereby any shock transmitted to the carrying rod 5 will be absorbed by the trolley hanger assembly 1 and not be transmitted to the trolley rail 2.

It is further apparent from the drawings that in view of the arms 3 and 4 being substantially L-shaped members that the carrying rod 5 will move along substantially parallel to and directly under the trolley rail 2 thereby keeping the load on the sets of rollers 8 and 9 normal and substantially uniform with respect to the trolley rail 2.

The carrying rod 5 when adapted to a garment factory environment has garment separators 28 attached thereto whereby selective garment groupings may be conveniently established.

The garment separators 28 serve the further purpose of preventing the groupings of garment-laden hangers from sliding on the carrying rod 5 when the trolley hanger assembly is in motion.

The carrying rod 5 as shown in FIGS. 1 and 6 is tubular in cross section and has flattened and rolled ends so as to form two substantially parallel and cylindrical carrying-rod bearings 29 and 30. The carrying rod 5 may be constructed of tubular steel.

As will be evident from the foregoing description certain aspects of our invention are not limited to the particular details of construction of the examples illustrated, and we contemplate that various other modifications and applications will occur to those skilled in the art. It will also be evident that we have provided a trolley hanger assembly which achieves the objects of our invention. It is, therefore, our intention that the present invention shall cover all modifications and applications thereof as do not depart from its spirit and scope.

We claim:

1. A trolley hanger assembly for travel along a rail having an externally convex cross-sectional configuration, comprising:
 - a. at least two spaced-apart arms, each arm being substantially L-shaped;
 - b. a bearing housing mounted rotatably on the upright leg of each of said L-shaped arms on an axis normal to said upright leg;
 - c. each of said arms being provided with a raised portion for limiting the rotational movement of the bearing housing rotatably secured thereto;
 - d. a set of rollers rotatably mounted in each of said bearing housings on spaced parallel axes, said axes being parallel to said rotational axes of said bearing housings, and said rollers having an externally concave cross-sectional configuration adapted to engage said externally convex cross-sectional configuration of said rail to permit travel of said assembly along said rail;
 - e. bearing pin means mounted in and depending from the horizontal leg of each of said L-shaped arms, said bearing means being offset from and substantially parallel to said upright legs of said L-shaped arms; and
 - f. a carrying rod hingedly connected to said bearing pin means such that, due to said L-shaped configuration of said arms, upon rolling movement of said rollers along said trolley rail said carrying rod moves substantially parallel to and directly under said trolley rail, and said hinged connections permitting said carrying rod to dynamically align with said rail upon said rollers engaging irregular or curved portions of said rail.

2. A trolley hanger assembly according to claim 1, wherein said bearing housing has an extended portion so as to form a protective shield for said set of rollers.

3. A garment trolley hanger assembly according to claim 1, wherein said carrying rod has garment separators attached thereto whereby selective garment groupings may be conveniently established and retained.

4. A trolley hanger assembly according to claim 1, wherein said set of rollers are adapted to engage a trolley rail of tubular cross section and rotate about the circumference of said trolley rail whereby any substantially horizontal shock transmitted to said carrying rod will be absorbed by said trolley hanger assembly and not transmitted to said trolley rail.

5. A trolley hanger subassembly comprising: a substantially L-shaped arm; a bearing housing having a set of rollers of concave cross-sectional configuration rotatably mounted therein on spaced parallel axes, said bearing housing being rotatably mounted on the upright leg of said L-shaped arm on a pivot axis normal to the long axis of said arm and parallel to the axes of said rollers; said arm being provided at least one raised portion on the upright leg thereof to engage and limit the rotational movement of said bearing housing around its axis; and bearing pin means connected to and depending from the horizontal leg of said L-shaped arm for suspending load-carrying means, said bearing pin means being offset from the upright leg of said L-shaped arm so that any load-carrying means suspended from said pin means will move along substantially parallel to and directly under said rollers.

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