April 13, 1926. 1,580,367

G. W. BEULKE

CONVEYER ROLLER

Filed Sept. 29, 1924

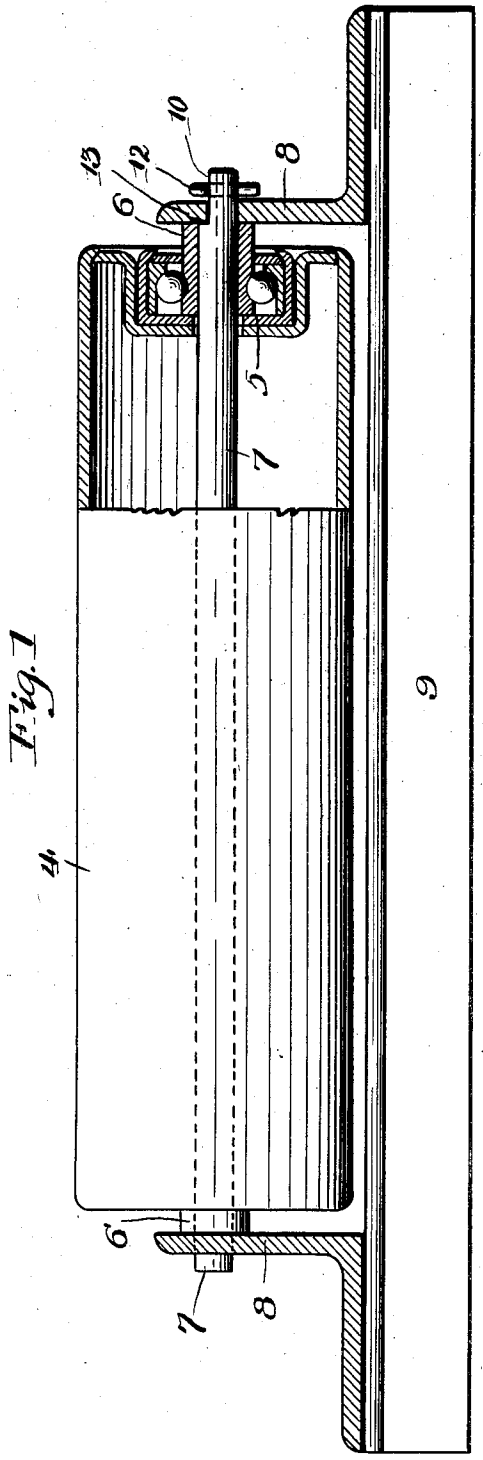


Fig. 1

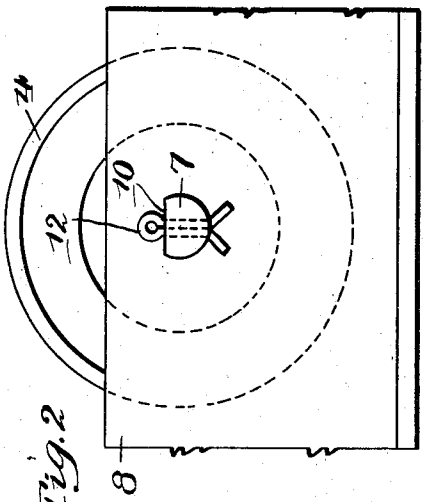


Fig. 2

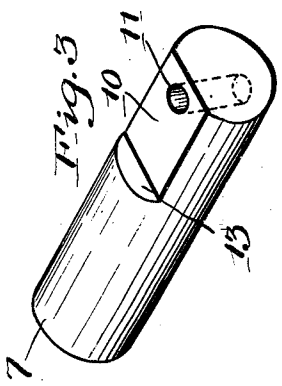


Fig. 3

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UNITED STATES PATENT OFFICE.

GORDON W. BEULKE, OF ST. PAUL, MINNESOTA, ASSIGNOR TO STANDARD CONVEYOR COMPANY, A CORPORATION OF MINNESOTA.

CONVEYER ROLLER.

Application filed September 29, 1924. Serial No. 740,538.

To all whom it may concern:

Be it known that I, GORDON W. BEULKE, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented new and useful Improvements in Conveyer Rollers, of which the following is a specification.

This invention relates to conveyer rollers and particularly to rollers which are revoluble upon rods extending axially therethrough, and fixed at their ends in supporting side rails.

The object of this invention is to provide inexpensive and efficient means for securing the supporting rods for such rollers to the side rails.

More particularly, it is my object to provide novel fastening means for the rods adapted to prevent rotation thereof and to transmit end thrust to the rails while permitting quick and easy insertion and removal of the rollers.

In the accompanying drawings, which illustrate the best form of my device at present known to me, Figure 1 is a side elevation of the invention, showing the roller partially in central, vertical section; Fig. 2 is an end view of the same together with a fragmentary portion of one of the supporting rails; and Fig. 3 is an enlarged perspective view of an end of the axial rod.

Referring to the drawings, I have used the numeral 4 to indicate the roller body which is provided in each end with a recess for an anti-friction bearing 5 adapted to transmit end thrust to a sleeve 6 upon an axial rod 7. This rod 7 is supported at its ends in a pair of side rails 8 connected by transverse frame members 9.

The rod 7 is circular in cross section throughout its length with exception of a short flattened portion 10 near one end. One of the rails 8 has a punched hole formed to fit the flattened end of the rod 7, while the opposite rail has a circular hole through which the rod 7 may be inserted. Near its outer extremity, close to the face of the rail, the portion 10 has a perforation 11 adapted to receive a stout cotter key 12. This key 12 prevents accidental removal of the rod 7 from the rails and roller and constitutes an abutment for end thrust in one direction. End thrust in the opposite direction is transmitted to one of the rails 8 by a shoulder 13 at the inner end of the portion 10 of the rod 7.

As will now be readily understood, the roller 4 may be quickly and easily mounted between the rails 8 (said rails have been previously joined in parallel relation by the member 9) by merely inserting the rod 7, flat and foremost, successively through the rail having a circular perforation, axially through the bearing sleeves 6, and then into the non-circular hole in the rail at the right, as shown in Fig. 1. When the cotter key 12 is finally placed in the perforation 11 and secured therein in the usual manner, the roller is held in spaced relation with the side rails, end thrust being transmitted to one of the rails by the key 12 and shoulder 13.

It will be noted that the sleeves 6 maintain the roller 4 in proper spaced relation to the rails 8, but were the key 12 or shoulder 13 omitted, end thrust applied to the roller would cause the rod 7 to work out of its bearings in the rails. In order to insure uniform wear on the sleeves 6, it is necessary to allow said sleeves to rotate slowly or creep upon the rod 7. A rod which is circular in cross section within the sleeves 6 is, therefore, practically essential to efficient working of the bearings. Obviously, rotation of the rod 7 in the rails is prevented by the flat portion 10 which fits the punched hole in the rail. Thus wear between the rod and rails is prevented and unusually free rotation and secure mounting of the roller is obtained.

Having described my invention what I claim as new and desire to protect by Letters Patent is:

1. The combination with a roller adapted to be journalled between a pair of side rails, of a circular rod extending axially through said roller and arranged to be supported at its ends in said rails, said rod being adapted to be withdrawn longitudinally from said rails without separation of said rails, a non-circular portion on an end of said rod disposed to project through, and fit within, a hole in one of said rails whereby said rod is prevented from turning in said rails, and removable fastening means on the projecting end of said non-circular portion adapted to prevent longitudinal withdrawal of said rod from said rails.

2. The combination with a pair of rails

rigidly connected one to the other in parallel relation, of a roller adapted to be revolubly mounted between said rails, a rod extending axially through said roller and arranged to be supported at its ends in said rails, one end of said rod being free for longitudinal movement in one of said rails, a shoulder formed in said rod for engagement with the inner surface of the other of said rails, said shoulder constituting a stop for end movement of said rod in one direction and removable means engaging said rod adjacent to the outer surface of said last mentioned rail, adapted to prevent longitudinal withdrawal of said rod from said rail in the opposite direction.

3. The combination with a pair of rails rigidly connected one to the other in parallel relation, of a roller adapted to be revolubly mounted between said rails, a rod extending axially through said roller and arranged to be supported at its ends in said rails, a non-circular portion near an end of said rod adapted to fit within an opening in one of said rails whereby said rod is prevented from turning in said rails, the other end of said rod being free for longitudinal movement in the other of said rails, a shoulder formed in said rod adjacent to said non-circular portion, adapted to constitute a stop for longitudinal movement of said rod in one direction and removable means engaging said rod adjacent to the outer surface of said last mentioned rail adapted to prevent longitudinal withdrawal of said rod in the opposite direction.

4. The combination with a roller adapted to be journalled between a pair of side rails, of a rod extending axially through said roller and arranged to be supported at its ends in said rails, bearing sleeves revoluble on said rod adjacent to the inner surfaces of said rails, and arranged to transmit end thrust to the rails, anti-friction bearings revoluble upon said sleeves and adapted to coact therewith in transmitting end thrust from the roller to said rails, a non-circular portion on one end only of said rod, disposed to project through and fit within a hole in one of said rails, whereby said rod is prevented from turning in said rails, a shoulder formed in said rod adjacent to said non-circular portion for engagement with the inner surface of one of said rails, said shoulder constituting a stop for end movement of said rod in one direction and removable means engaging said rod adjacent to the outer surface of said last mentioned rail, adapted to prevent withdrawal of said rod longitudinally in the other direction.

In testimony whereof, I have hereunto signed my name to this specification.

GORDON W. BEULKE.