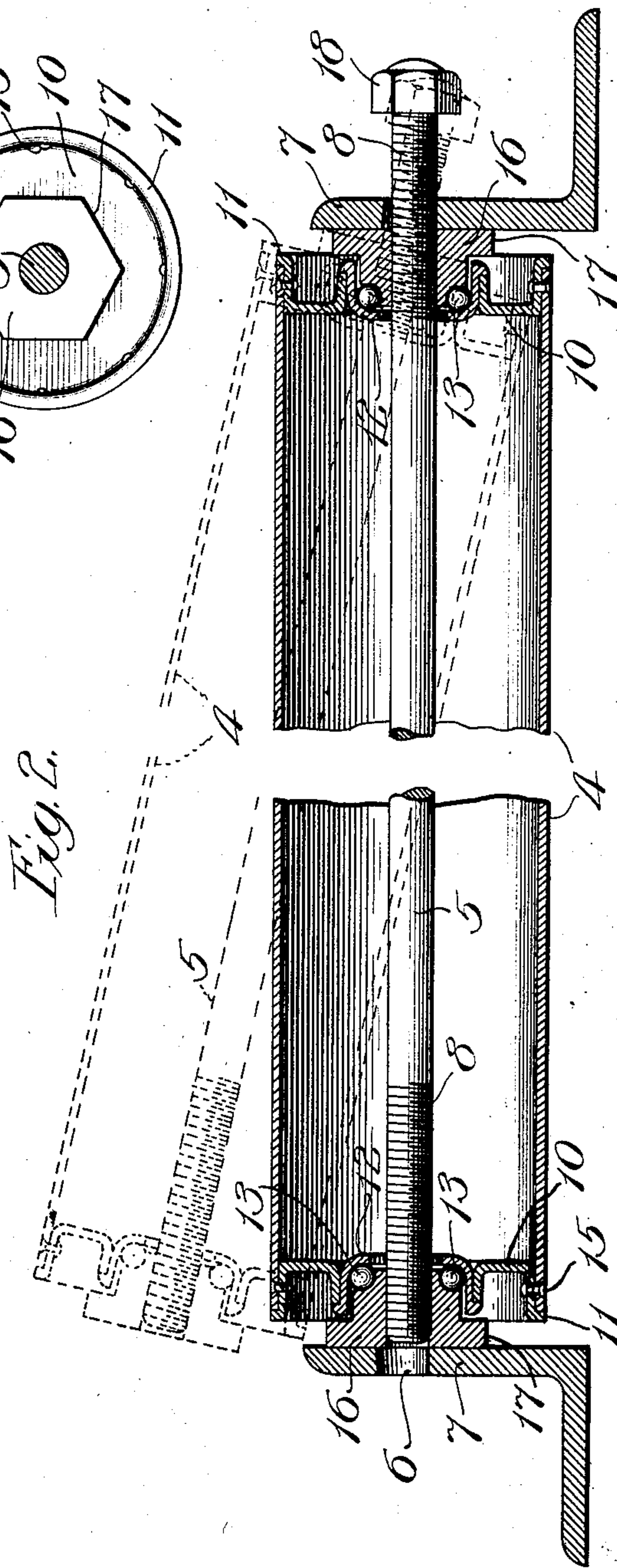
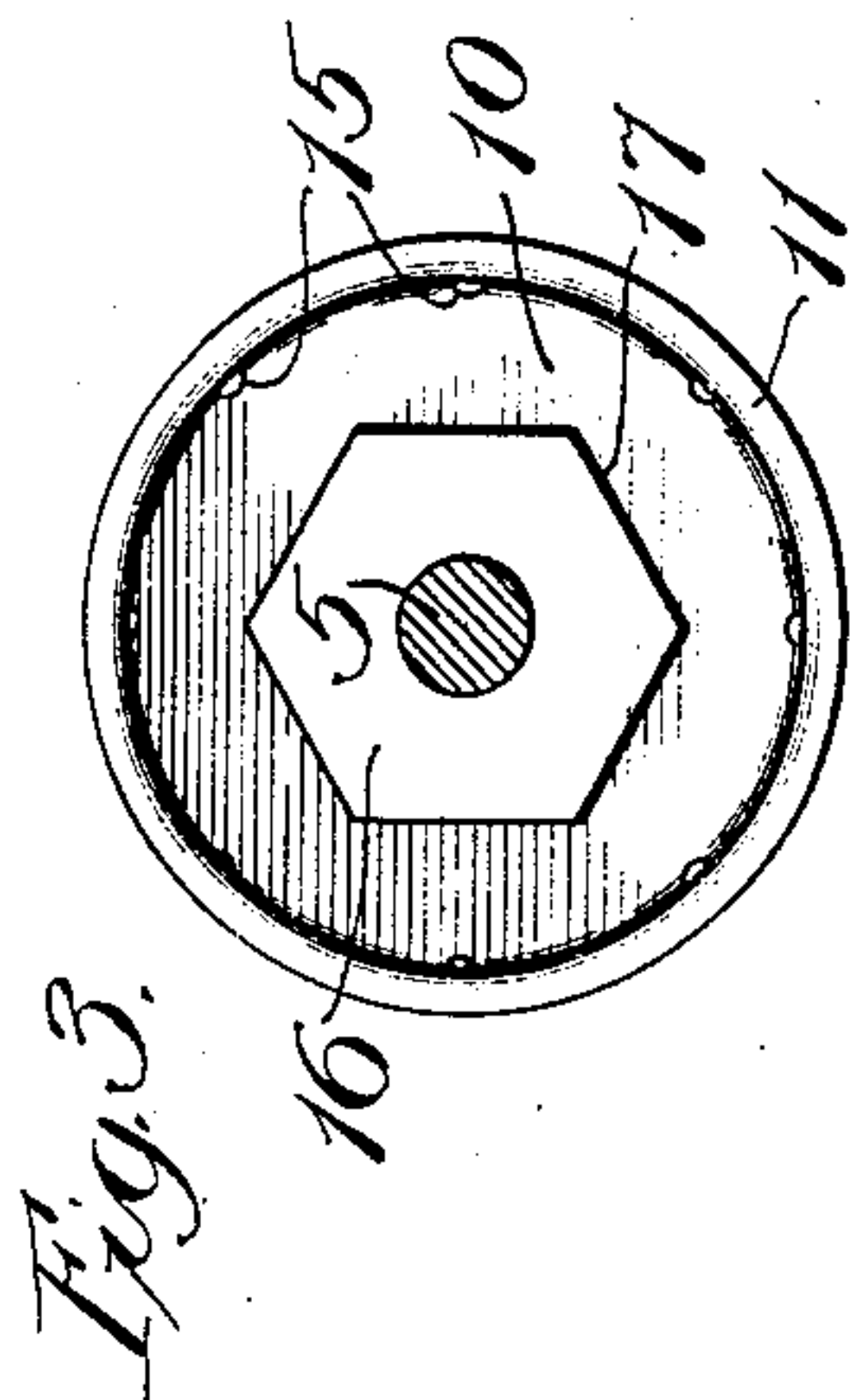
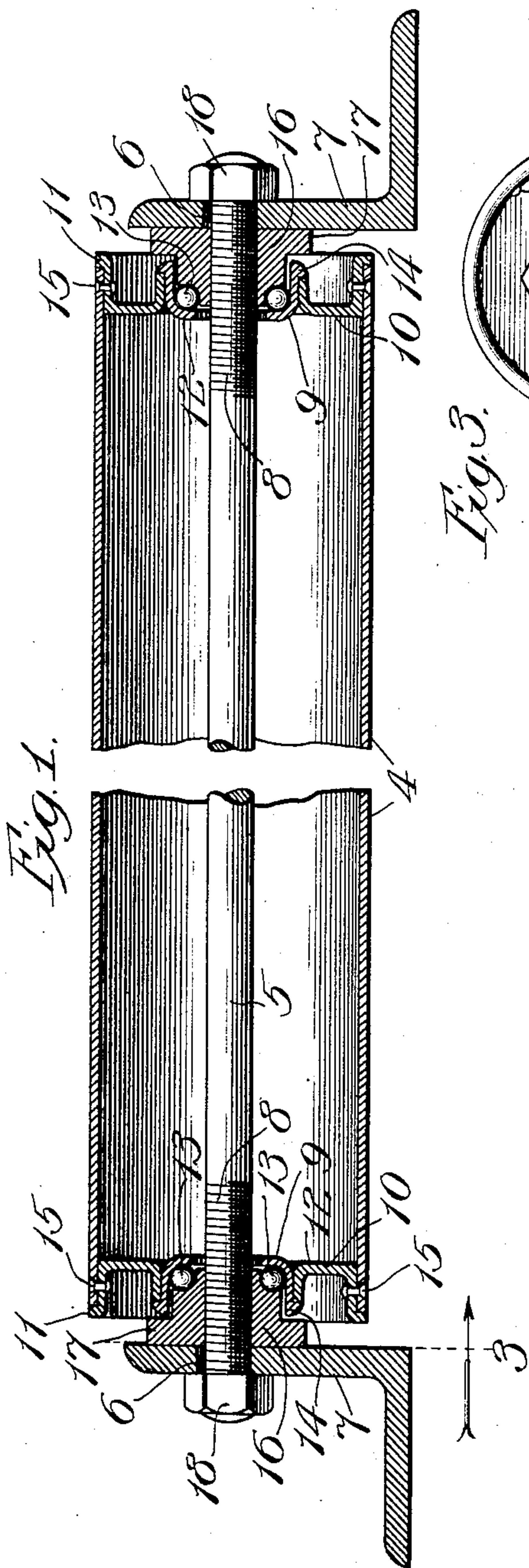


S. L. GOLDMAN.
BALL BEARING FOR CONVEYER ROLLERS.
APPLICATION FILED OCT. 2, 1909.

960,009.

Patented May 31, 1910.



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UNITED STATES PATENT OFFICE.

SIGMUND L. GOLDMAN, OF CHICAGO, ILLINOIS.

BALL-BEARING FOR CONVEYER-ROLLERS.

960,009.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed October 2, 1909. Serial No. 520,726.

To all whom it may concern:

Be it known that I, SIGMUND L. GOLDMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Ball-Bearings for Conveyer-Rollers, of which the following is a specification.

My present invention is primarily intended as an improvement on the device which forms the subject of Letters Patent of the United States No. 914,714, granted to me on the 9th day of March, 1909; my object being to improve, in matters of detail, the construction shown and described in said patent to the end of decreasing the expense of its manufacture and rendering it stronger and more desirable and facilitating the repair of worn or broken parts when the device is in operative position in a gravity or other conveyer.

In the accompanying drawing, Figure 1 is a broken longitudinal section of a conveyer-roller of my improved construction, represented as supported in operative position in the side-members of a conveyer-frame, shown in transverse section; Fig. 2 is a similar view of the same, but illustrating by dotted representation the manner, permitted by the construction, of freeing the roller from its supports to permit access to the ball-bearing, and Fig. 3 is a section on line 3, Fig. 1.

My improved construction of ball-bearing is the same in each end of a tubular roller 4, with a shaft 5 extending centrally through it and through both ball-bearings, beyond which its threaded ends project through openings 6 in the similar angle-bars 7, which form the side-members of a conveyer frame. The diameter of each opening 6, which should taper somewhat outwardly, as shown, is slightly greater than the diameter of the shaft, the threads 8 on which extend from its outer ends inwardly to a considerable distance beyond the respective ball-bearings, all for the purpose hereinafter explained. Both ball-bearings are the same in construction, each involving a cup 9 formed of an outer annular cupped section 10 formed preferably of spring-steel and provided with a flange 11 about its outer edge, and an inner annular cupped section 12, formed preferably of the same metal, but case-hardened to deprive it of its springy quality and adapt

it to withstand the wear of the balls 13 confined within it, the section 12 being provided with a circumferential flange 14. The ball-bearing parts thus far described are the same as in the aforesaid patent and, with the parts 10 and 12 of each assembled, are similarly connected with the roller 4, namely by pressing into each end thereof a set of the assembled cupped sections until the flange 11 abuts against the respective end of the roller, such pressing into place of the cup serving to hold it in position by reason of the springy quality of the section 10 binding it by its expansion against the inner wall of the roller. It is found desirable in practice, however, to supplement the binding effect of the section 10 by means of rivets 15 inserted at intervals through the wall of that section and that of the roller with their ends countersunk in the latter to be flush with its outer surface. The cone 16 for each ball-bearing is a solid body containing a central threaded perforation to adapt it to be screwed upon a threaded end of the shaft 5 and to be adjusted into relation to the balls 13 confined by it; and to facilitate the adjustment through the medium of a suitable tool (wrench) the cone is provided with an angular, and preferably hexagon, head 17. With a roller 4 in position on its supports 6, it is secured in place by means of nuts 18 applied to the projecting ends of the shaft and by means of which the cones are tightly held against the inner faces of the conveyer-frame members. The angular head 17 of the cone extends beyond the peripheral edge of the inner annular section 12, and thus acts as a dust guard for such section.

A conveyer of the kind in which my improved roller-bearing is more especially intended to be used is usually made up of a series of longitudinal connected sections, each section containing a plurality of rollers 4 but slightly separated from each other. Parts of the ball-bearings are liable to impairment with use, the balls, particularly, being subject to fracture, necessitating repair. In the absence of means to enable any roller to be removed without disturbing the others, such repairing necessitates removal of an entire section of the conveyer and consequent arrest thereof and interference with its operation. My improvement obviates any such necessity, since to repair any ball-bearing, as by replacing broken balls with

new ones, all that is required is to remove a nut 18, turn the shaft at the end opposite that from which the nut was removed, in the direction to unscrew it and thereby withdraw its opposite end from the respective opening 6, thus into the position illustrated in Fig. 2, when the entire roller may be tilted to the position represented by dotted lines in that figure, wherein the end containing the impaired part is raised beyond the adjacent rail or frame-member 7 into accessible position enabling the cone and other parts to be wholly withdrawn, if required, or only partial withdrawal of the cone, by unscrewing it, if the repair merely involves replacing one or more broken balls with perfect ones.

The threaded shafts 5 with the nuts 18 on the ends thereof when used in connection with bearings or supports of the angle-iron form shown in the drawing also act as braces and tie such angle irons together, thus obviating the necessity for the use of any other form of braces for this purpose.

What I claim as new and desire to secure by Letters Patent is—

In combination, side-supports, a tubular roller, ball-bearings on the roller ends, each comprising a cap composed of an outer annular section of spring metal, a separate annular section within said outer section and forming the ball-race, balls in said race, cone-forming stepped sleeves confining the balls therein and provided with angular heads extending beyond the peripheral edge of said inner annular sections and closing the same, a shaft extending centrally through said roller and having threaded end-sections upon which said cones are screwed and adjusted relative to the ball-races, and means on the shaft-ends for securing the shaft in place on the side-supports and for adjusting the cones relative thereto, as set forth.

SIGMUND L. GOLDMAN.

In presence of—

J. G. ANDERSON,
L. G. KIRKLAND.