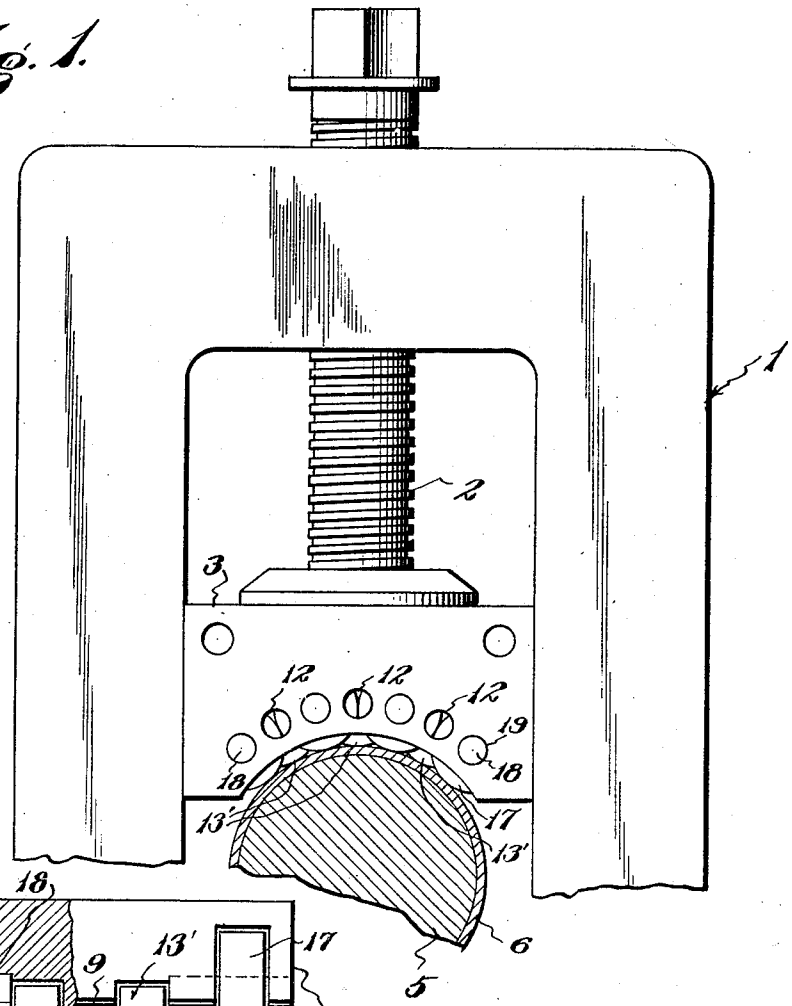
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BEARING CHUCK FOR ROLLER MILL ROLLS

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Fig. 1.



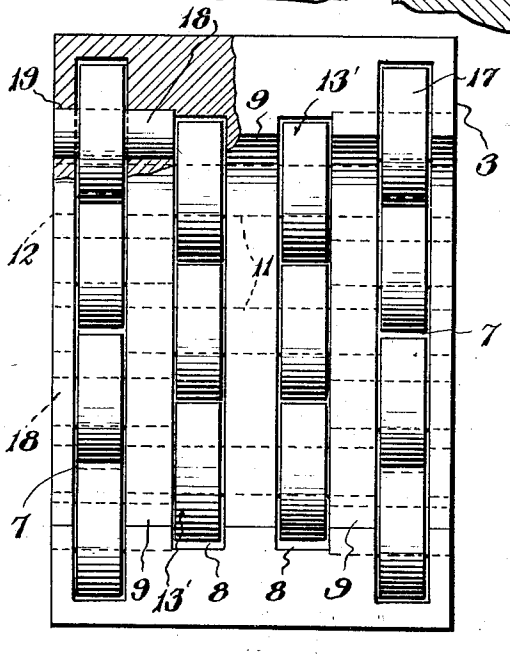


Fig. 2.

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Fig. 3.

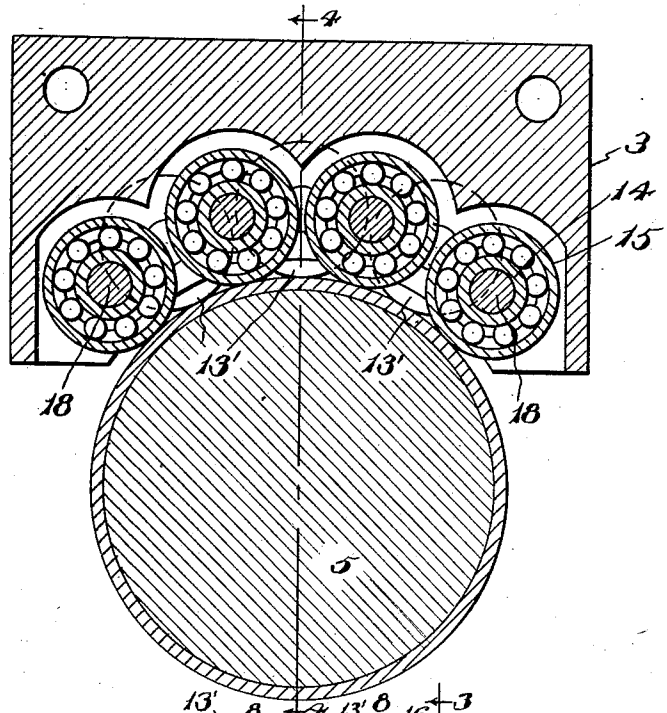
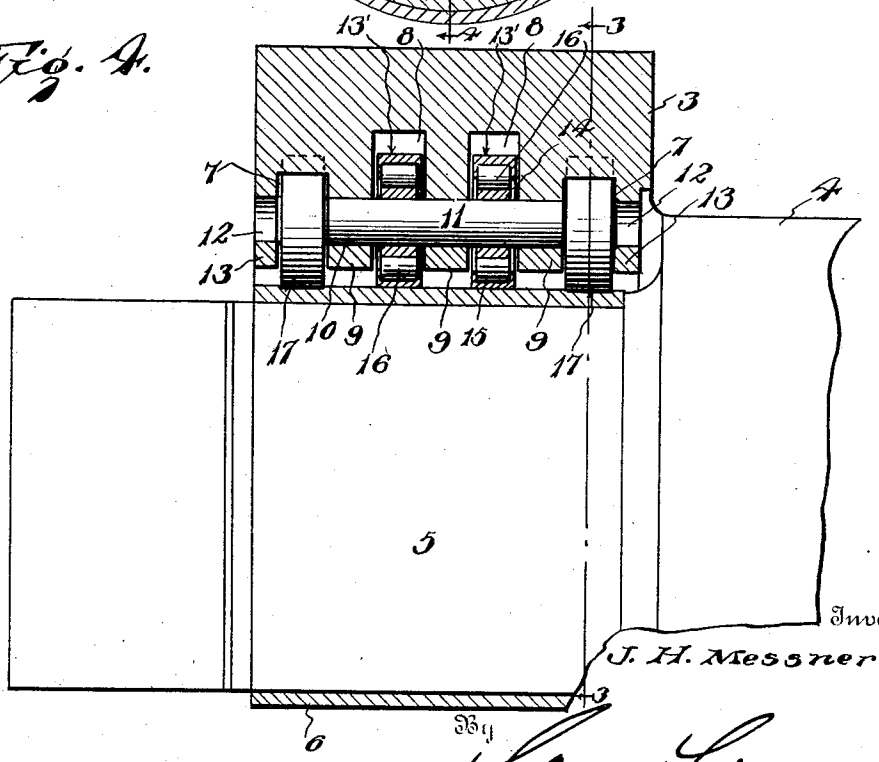


Fig. 4.



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UNITED STATES PATENT OFFICE

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BEARING CHUCK FOR ROLLER MILL ROLLS

Application filed October 24, 1928. Serial No. 314,821.

The present invention is directed to improvements in bearing chucks for roller mill rolls.

The primary object of the invention is to provide a device of this character so constructed that the friction between the ends of the roll and bearing chuck will be reduced to a minimum.

Another object of the invention is to provide a device of this kind wherein a plurality of bearing assemblies are supported in staggered relation upon shafts arranged in such manner that strain upon the shafts will be equalized.

Another object of the invention is to provide a device of this character so constructed that the bearing assemblies can be easily applied in proper relationship to the chuck, and removed therefrom, when the occasion requires.

With these and other objects in view, this invention resides in the novel features of construction, formation, combination and arrangement of parts to be hereinafter more fully described, claimed and illustrated in the accompanying drawing, in which:—

Figure 1 is a fragmentary end view of a mill frame showing the chuck in place.

Figure 2 is a bottom plan view of the chuck.

Figure 3 is a sectional view on line 3—3 of Figure 4.

Figure 4 is a sectional view on line 4—4 of Figure 3.

Referring to the drawings, 1 designates a frame in which is threaded an adjusting screw 2, said screw being engaged with the chuck 3 slidable in the frame. Only one chuck is illustrated, but it will be of course understood that there will be a chuck for each end of a roll. The roll is designated by the numeral 4 and is of conventional form and includes a neck 5 upon which is fitted a wear band 6.

The chuck is formed from a block of steel in which is formed a plurality of parallel arranged cells 7 and 8 extending longitudinally of the chuck, said cells varying in length, the cells 7 being greater in length than the cells 8. The dividing walls 9 are provided with openings 10 in which are engaged shafts 11, said shafts being inserted through the openings 12 formed in the outer walls 13—13 of the cells 7.

Roller bearing assemblies 13′ are provided and include concentrically arranged sleeves 14 and 15, the latter engaging the shaft 11 for location in the cells 8, there being roller bearing assemblies 16 engaged in the cells 7 and are rotatably supported upon the shafts 18 which are inserted in the outer walls 13—13 through the openings 19.

The openings 12 and 19 are circularly alined in order that the bearing assemblies will be arranged to conform to the curvature of the neck 5 and the band 6, as clearly shown in Figure 3 of the drawings.

Upon reference to Figure 2 it will be observed that there are three shafts 11 employed and support six bearing assemblies 13′ arranged in groups of three, while engaged upon the shafts 18 are eight assemblies 16 arranged in groups of four. It will of course be understood that the number of shafts and bearing assemblies may be increased, if desired.

In assembling the device the shafts 11 are first inserted in the openings 10 of the dividing walls 9—9, after which the shafts 18 are applied. In this manner the bearing assemblies are arranged for engagement with the roll 4 to relieve friction.

While I have illustrated roller bearings used in connection with the roller bearing assemblies I do not wish to be limited in this respect, since ball bearings may be employed, if deemed desirable.

It will be thus seen that a bearing chuck constructed in accordance with my invention will permit rotation of the rolls with minimum friction and owing to the staggered arrangement of the bearing assemblies 13′ and 14 the roll will be evenly guided during its rotation, and strain will be equally distributed upon the respective shafts.

Removably fixed to the inner face of the chuck 3 is a bronze strip 20 which bears against the shoulder of the roll 4.

From the foregoing, it is thought that the construction, operation and many advantages

of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, and proportion and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

What is claimed is:—

1. A mill roll bearing provided with a plurality of spaced cells separated by walls in which are formed openings, a group of closely related roller bearings in each of the cells, the spaces between the rollers of one group being opposite the bearing surfaces of the rollers of the adjacent group, and shafts for the roller bearings supported in the openings of the dividing walls, longitudinal movement of the shafts in one direction being limited by the roller bearings.

2. A mill roll bearing provided with a plurality of spaced cells separated by walls in which are formed openings, a group of closely related roller bearings in each of the cells, and shafts for the roller bearings supported in the openings of the dividing walls, the shafts of one group of roller bearings being intermediate the shafts of the other group of roller bearings, whereby the shafts have a limited longitudinal movement in one direction by means of the roller bearings.

3. A mill roll bearing provided with outer and intermediate cells separated by walls in which are formed openings, groups of closely related roller bearings in each of the cells, short shafts for the rollers in the outer cells supported in the walls defining said outer cells and limited in their inward movement by the rollers in the adjacent intermediate cells, and longitudinal shafts for corresponding intermediate rolls supported in the intermediate dividing walls and insertable through openings in the outer walls and prevented from endwise movement in each direction by the rolls in the outer cells.

In testimony whereof I affix my signature.

[L. S.] JOHN H. MESSNER.