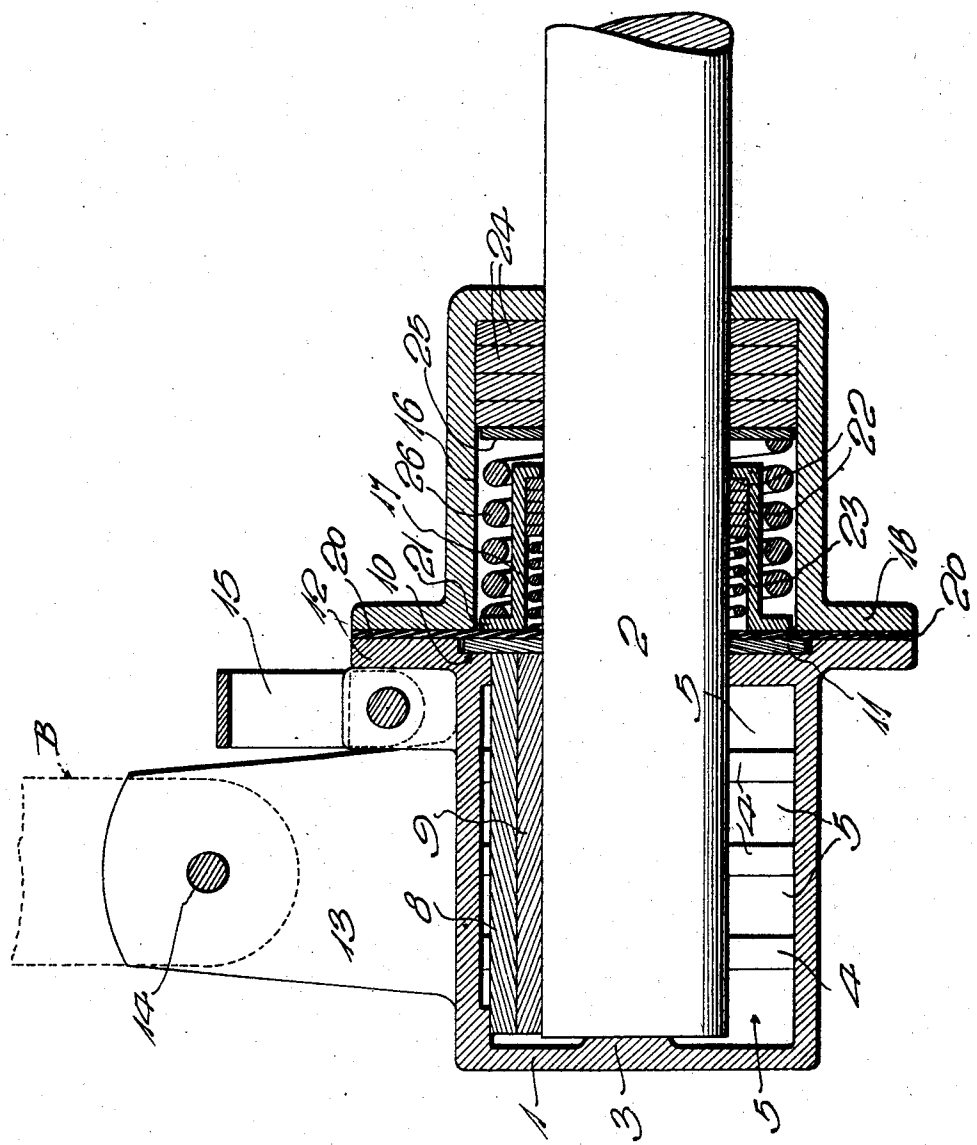
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STUFFING BOX FOR PIT BEARINGS

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# UNITED STATES PATENT OFFICE.

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## STUFFING BOX FOR PIT BEARINGS.

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*To all whom it may concern:*

Be it known that I, ORSON W. DUNHAM, a citizen of the United States, residing at Treece, State of Kansas, have invented certain new and useful Improvements in Stuffing Boxes for Pit Bearings; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved stuffing box for pit bearings for use in mounting a shaft at the lower end of a frame which extends into a pit through which an endless bucket conveyor passes for removing material from the pit. These pits become filled with water and it is desired to provide means for preventing this water from entering the bearing. This bearing or shaft mounting as it may be termed is provided with an improved type of cup or bearing proper for fitting upon the end of the lower shaft and is further provided with an improved type of stuffing box which is mounted about the shaft and connected with the inner end portion of the bearing cup so that the open inner end of the cup is closed and water excluded. The means for closing the open inner end of the cup includes a major stuffing box having packing means therein and an auxiliary stuffing box which is positioned within the main stuffing box and provided with packing means, the packing means of the main stuffing box including a spring which serves to compress packing rings about the shaft and also serves to retain the auxiliary stuffing box in the proper position. The shaft-carrying cup is provided with an improved construction whereby the end portion of the shaft which extends into this cup may be well lubricated and thus caused to turn easily.

This invention is illustrated in the accompanying drawing, wherein:—

The figure is a view showing the improved shaft mounting and stuffing box in longitudinal section with one end portion of the shaft extending into the same and shown in elevation.

This shaft mounting in connection with which my improved stuffing box is used, is provided with a cup 1 which fits upon the end portion of the shaft 2 and is open at its inner end. It is upon this shaft that a sprocket or its equivalent (not shown) for the chain of the conveyor is mounted. A projection 3 is provided at the center of the head formed at the outer end of this cup to engage the end of the shaft as shown and the walls of the cup have been provided with ribs 4 which extend circumferentially of the cup and divide the same into grease pockets 5. The cup 1 is provided with a bearing or bushing composed of sections 8 and 9, one of which may be formed of brass or other wear-resisting material. In order to retain the bushing in place, the open end portion of the cup 1 has been provided with a groove forming a seat 10 in which a retainer or closure ring 11 is placed. An outstanding flange or collar 12 is provided and intermediate its length, the cup is provided with upwardly extending arms 13 having openings to receive a securing bolt 14 by means of which the shaft mounting is anchored to a bar B indicated by dotted lines. There has also been provided a strap ring 15 which may be engaged by a grapple in order to move the conveyor frame upwardly when desired.

As previously stated, it is desired to prevent water from entering the bearing cup 1 and also prevent the grease from working out of the same. Therefore, there has been provided packing means which includes a major stuffing box 16 and an auxiliary stuffing box 17 which fits inside the major stuffing box. These so-called boxes are in the form of open-ended cups. This main or major stuffing box is provided with an outstanding flange or collar 18 which is of the same size as the collar 12, these collars being suitably connected. A gasket 20 formed of rubber or any other suitable material is provided between the major stuffing box and cup and will provide a water-tight joint. From an inspection of the drawing, it will be seen that this gasket is of the same external diameter as the collars 12 and 18 and has an opening of just sufficient size to permit the shaft 2 to pass through it. Therefore, the gasket 20 covers the washer 11 and will be engaged by the outstanding flange 21 of the auxiliary stuffing box 17. Within the auxiliary stuffing box, there has been provided packing rings 22 which are formed of the usual material and there has also been provided a spring 23 which has its inner end engaging the packing rings 22 and its outer end engaging the gasket 20. The gasket is

reinforced by the ring or washer 11 which holds the bushing in place and therefore the spring will exert pressure to contract the packing rings 22 about the shaft. Within the major stuffing box, there has also been provided packing rings 24 which are of course larger and thicker than the packing rings 22. A protecting washer 25 is provided for these packing rings 24 and this washer 25 is engaged by a spring 26 which is a great deal heavier and stronger than the spring 23. The outer end portion of this spring 26 engages the outstanding flange 21 of the auxiliary stuffing box and therefore this spring will serve to compress the packing rings 24 and also serve to hold the auxiliary stuffing box in place with its outstanding flange engaging the gasket 20 and prevent it from being moved by the spring 23. By this arrangement, the packing rings 24 will serve to provide major means for excluding water from the cup 1 in case it attempts to work along the shaft 2 into the cup and the packing rings 22 will serve as auxiliary means to exclude any water which may happen to work past the rings 24. Therefore, there has been provided a shaft mounting in which the shaft will be rotatably mounted in the cup 1 in a very efficient manner and water prevented from working into this cup and grease prevented from working out of this cup.

I claim:

1. A stuffing box composed of main and auxiliary sections, said auxiliary section being disposed within said main section, packings within said sections, and a spring surrounding the auxiliary section and bearing at one end against the packing in said main section and at its opposite end against the auxiliary section to maintain the latter in place.

2. A stuffing box comprising main and auxiliary sections, said sections being cup-like in formation and the auxiliary section being fitted into the main section, packing fitted into said sections, a spring within the auxiliary section for compressing the packing therein, and a spring surrounding the auxiliary section and within the main section for compressing the packing in the latter, said spring also engaging said auxiliary section for maintaining the same in place, and a closure for the open ends of said sections against which the pressure of both of said springs is exerted.

In testimony whereof I have hereunto affixed my signature.

ORSON W. DUNHAM.