E. H. CRUTCHFIELD AND A. F. COVERT.

BEARING.

APPLICATION FILED DEC. 12, 1919.

1,385,906. Patented July 26, 1921.

2 SHEETS—SHEET 1.

FIG. 1.

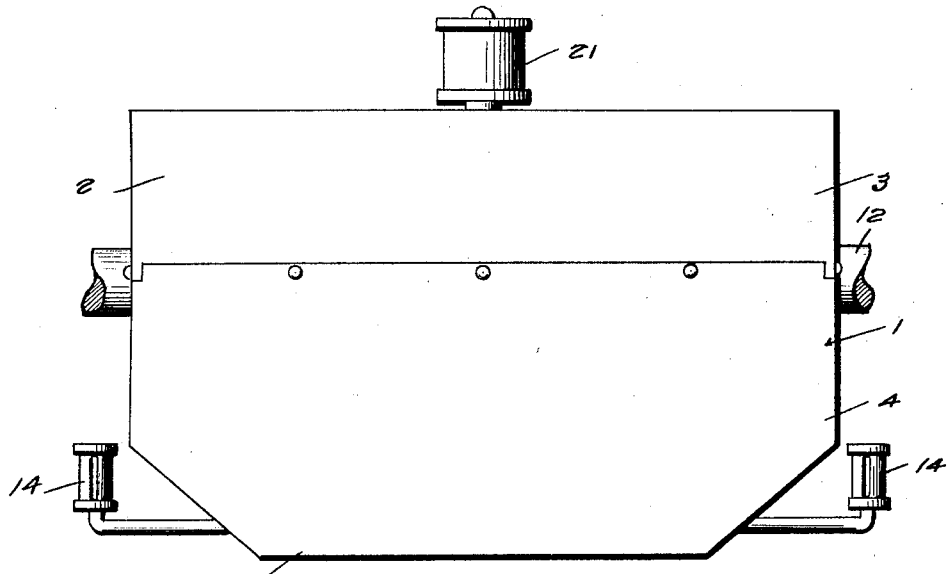
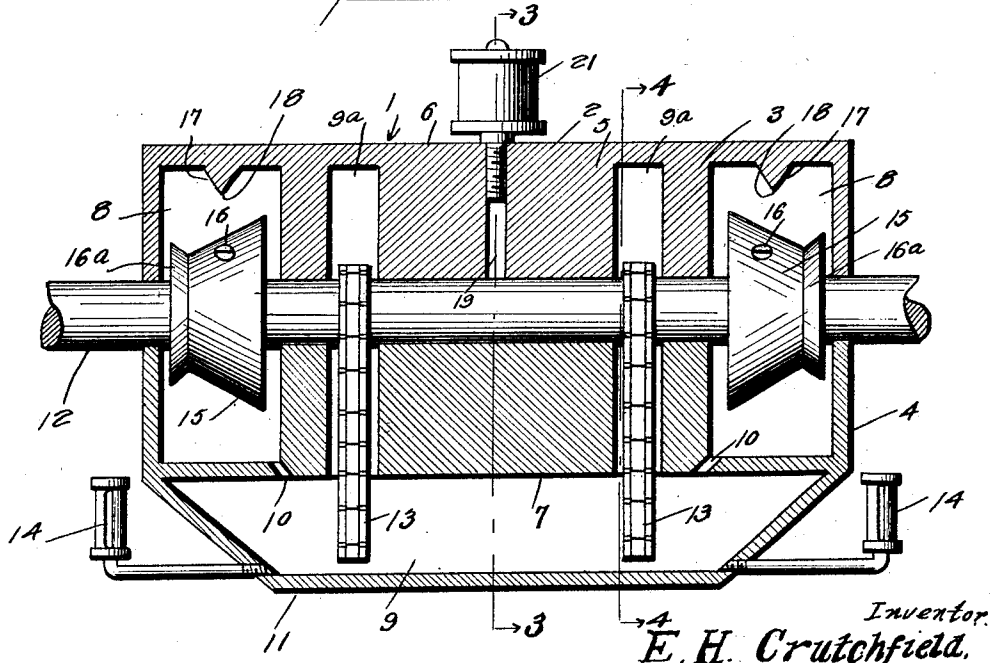


FIG. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

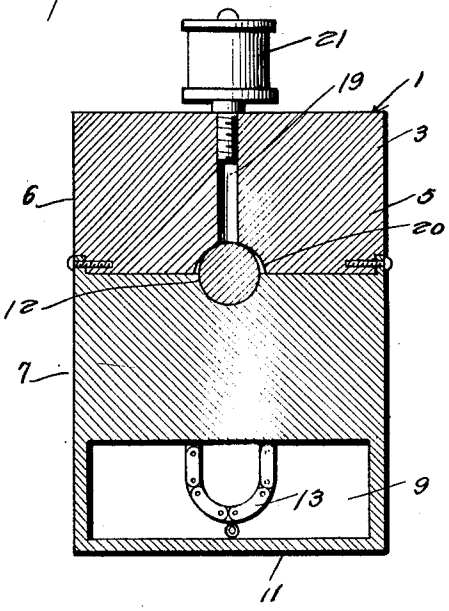


Fig. 4.

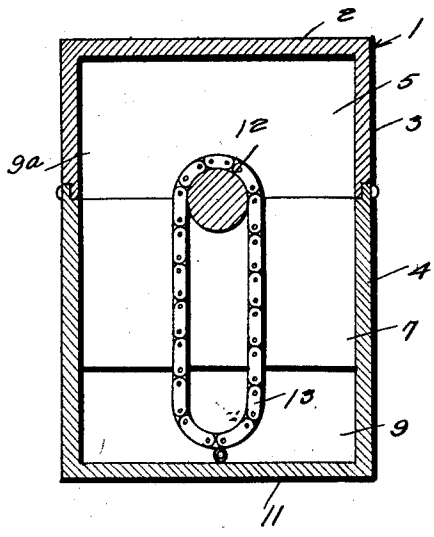


Fig. 2.

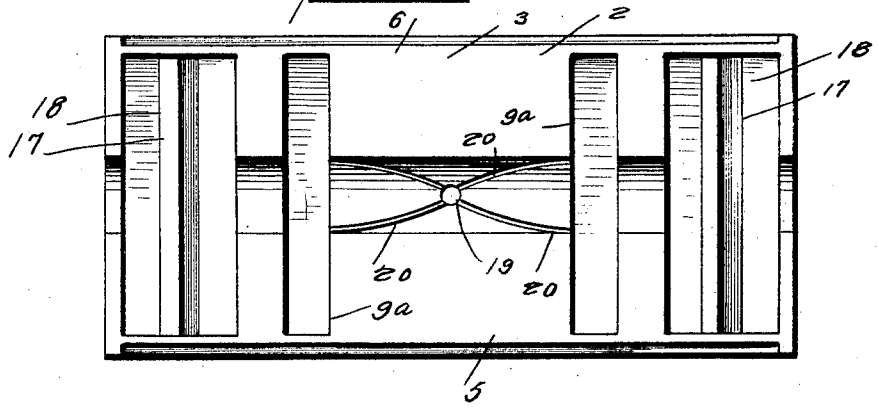
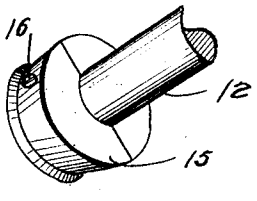


Fig. 6.



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UNITED STATES PATENT OFFICE.

EDWARD H. CRUTCHFIELD AND ADOLPHUS F. COVERT, OF DETROIT, MICHIGAN.

BEARING.

1,385,906. Specification of Letters Patent. Patented July 26, 1921.

Application filed December 12, 1919. Serial No. 344,290.

To all whom it may concern:

Be it known that we, EDWARD H. CRUTCHFIELD and ADOLPHUS F. COVERT, citizens of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Bearings; and we do hereby 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 bearings for shafts and the like, and the primary object of the invention is to provide an improved bearing so constructed that the leaking of oil therefrom is eliminated.

A further object of the invention is to provide an improved bearing for shafts having means for preventing the oil from leaking out of the bearing and for returning the oil to the oil well positioned below the bearing.

A further object of the invention is to provide an improved bearing of the above character having means for efficiently lubricating the bearing and to provide means for preventing the bearing from becoming flooded with the lubricating oil.

A still further object of the invention is to provide an improved device of the above character, which is durable and efficient in use, one that is simple and easy to manufacture, and one that can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed and illustrated in the accompanying drawings, forming a part thereof, in which:

Figure 1 is a side elevation of the improved bearing.

Fig. 2 is a longitudinal section through the same.

Fig. 3 is a transverse section taken on the line 3—3 of Fig. 1.

Fig. 4 is a transverse section taken on the line 4—4 of Fig. 1.

Fig. 5 is a bottom plan view of the upper section of the bearing.

Fig. 6 is a detail perspective view of the shaft showing the guard flanges.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the numeral 1 generally indicates the improved bearing including the casing 2 comprising an upper section 3 and a lower section 4. The sections are detachably connected together so as to permit ready access to the bearing blocks 5 which are arranged in spaced relation in the casing. The bearing blocks may be of any desired number and each includes an upper section 6 and a lower section 7. The sections of the bearing blocks are carried by and secured to the upper and lower sections 3 and 4 of the casing. As clearly shown in Fig. 2 of the drawings, the bearing blocks 5 are spaced from the end walls of the casing and these spaces constitute return oil chambers 8 for receiving the drip from the bearing and those chambers communicate with the oil well 9 by means of passages 10 which extend centrally through the lower portion of the lower section 7 of the bearing block. The oil well 9 may be formed by an extension 11 formed on the lower portion of the casing or by an additional casing attached to the lower wall of the casing 2 directly below the bearing blocks 5. The extension 11 extends longitudinally of the bearing and extends the whole length of the same. It is to be understood that any number of bearing blocks can be employed and an oil well is arranged between each of the spaced blocks. The upper end of the extension 11 is open and communicates directly with the casing 2. It can be seen that if the oil drips from the bearings, the same flows from the chamber 8 through the passage 10 into the oil well 9. The bearings 5 are spaced from each other to provide chambers 9^a and the bearings receive the shaft 12 and the shaft has loosely mounted thereon between the blocks endless chains 13, the lower ends of which are adapted to extend into the oil well 9, and as the shaft 12 is rotated it will be seen that the oil will be carried from the well by the chain 13 and thrown against the bearings 5. Rings can be used in lieu of the chains 12 if so desired.

The oil well 9 is provided with a gage 14 so as to determine the amount of oil in the well.

The shaft 12 has secured thereto adjacent to the outer sides of the bearing blocks 5 split collars or guide flanges 15 and the sections of the flanges or collars secured together by suitable screws or the like 16.

As clearly shown, the collars or flanges 15 are tapered inwardly toward their outer terminals to provide a substantially frusto-conical member and the outer ends of the flanges or collars are each provided with a relatively small flange 16ª which constitutes a drip stop, the purpose of which will be hereinafter more fully described. The outer surface of the relatively small flange 16ª is tapered inwardly toward the flange 15.

It will be seen that as the oil seeps through the bearing blocks 5, the same is prevented from following the shaft by the guard collars or flanges 15, and as the oil comes in contact with these flanges, the same will drip down into the oil chamber and then into the oil well 9.

An oil stop 17 is provided for preventing the oil thrown against the top of the casing by the chain 13 from dripping into the shaft adjacent the terminals of the casing, and this stop includes a substantially V-shaped rib 18, which extends transversely across the upper wall of the casing 2 directly above the collar 15 and as the oil drips from the stop 17 the same will fall onto the collar 15 and be caught by the drip stop 16ª and guided into the oil chamber 8.

The upper sections 5 of the bearing are provided with suitable oil ways 19 which communicate with suitable oil grooves 20 formed on the inner surface of the upper bearing sections and suitable oil cups 21 are provided and communicate with the upper ends of the passageway 19.

From the foregoing description, it can be seen that an improved bearing is provided, in which the oil is absolutely prevented from seeping out through the bearing thereby preventing the loss of the oil and the other inconveniences caused thereby.

In practice, we have found that the form of our invention illustrated in the accompanying drawings and referred to in the above description, as the preferred embodiment, is the most efficient and practical; yet realizing the conditions concurrent with the adoption of our device will necessarily vary, we desire to emphasize that various minor changes in details of construction, proportion and arrangement of parts may be resorted to, when required without sacrificing any of the advantages of our invention as set forth.

What we claim as new is:

A self-lubricating shaft bearing, the same comprising a casing having an oil well therebelow and in communication therewith, and having end oil chambers above and in communication with the end portions of the said oil well, bearing blocks intermediate the end oil chambers, a shaft journaled in the bearing blocks and in the ends of the casing, means for feeding oil to the shaft from the oil well, transverse ribs at the tops of the end oil chambers forming reinforcements and oil stops, frusto-conical collars on the ends of the shafts in the plane of the respective ribs with their smaller ends facing outwardly, and inwardly flared drip stops at the outer ends of the frusto-conical collars.

In testimony whereof we affix our signatures in presence of two witnesses.

EDWARD H. CRUTCHFIELD.
ADOLPHUS F. COVERT.

Witnesses:
MILTON M. PEDERSEN,
ROBERT BLAKE.