No. 771,231. PATENTED OCT. 4, 1904.

W. M. COFFMAN.

OILER FOR SHAFT BEARINGS.

APPLICATION FILED FEB. 11, 1904.

NO MODEL.

FIG. 2.

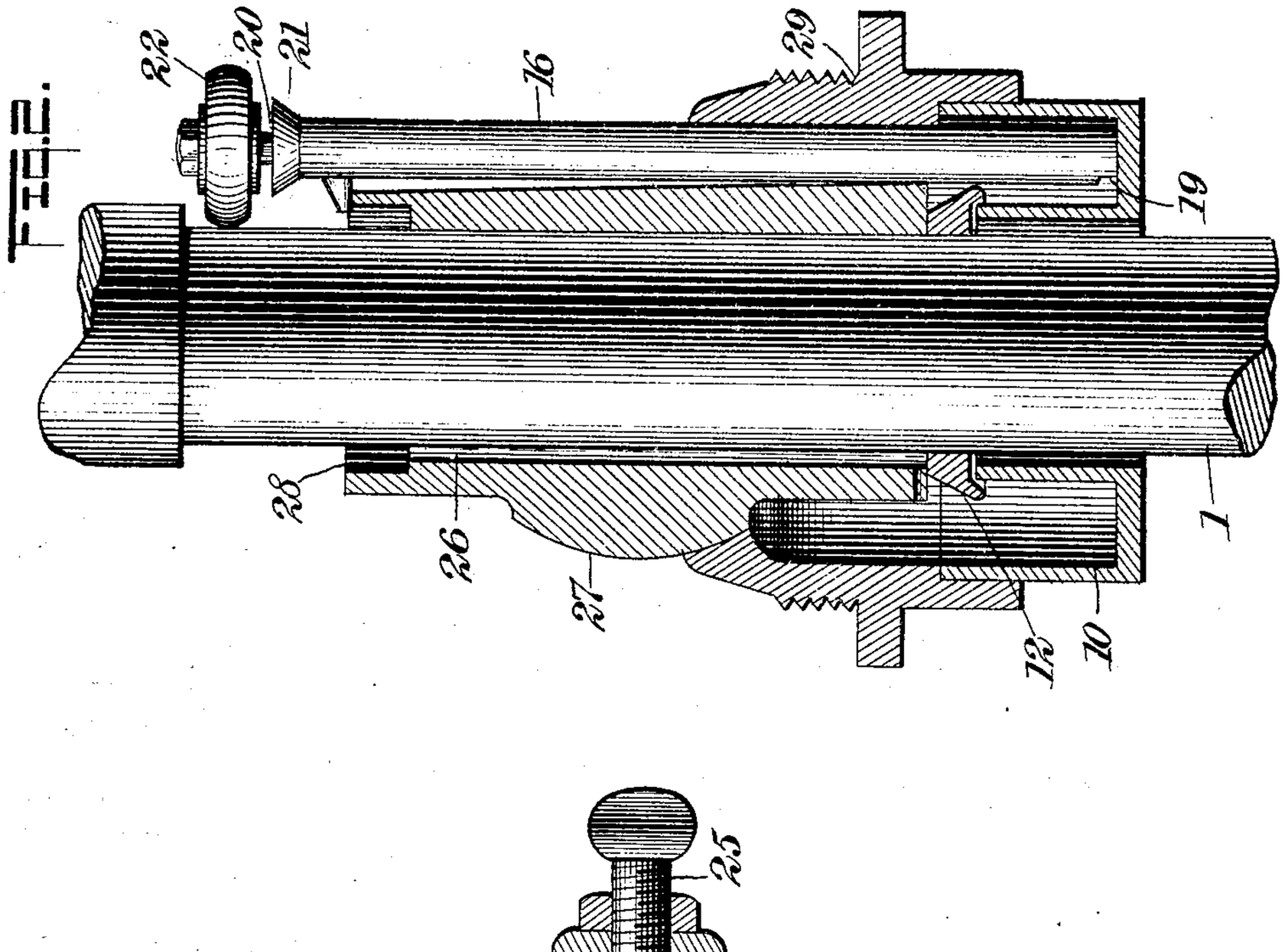
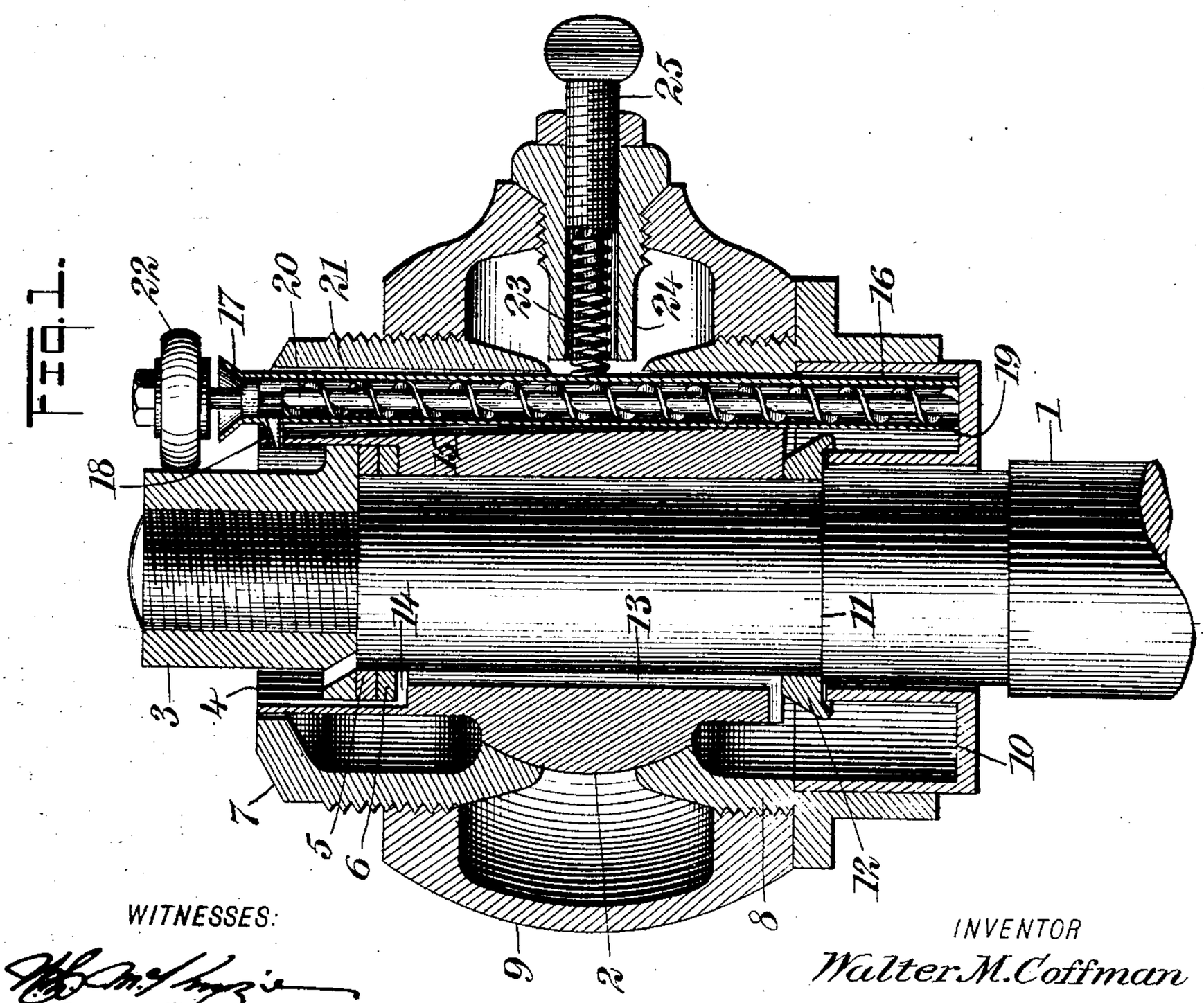


FIG. 1.



WITNESSES:

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No. 771,231. Patented October 4, 1904.

UNITED STATES PATENT OFFICE.

WALTER M. COFFMAN, OF MADISON, WISCONSIN, ASSIGNOR TO NORTHERN ELECTRICAL MANUFACTURING COMPANY, A CORPORATION OF WISCONSIN.

OILER FOR SHAFT-BEARINGS.

SPECIFICATION forming part of Letters Patent No. 771,231, dated October 4, 1904.

Application filed February 11, 1904. Serial No. 193,084. (No model.)

To all whom it may concern:

Be it known that I, WALTER M. COFFMAN, a citizen of the United States, and a resident of Madison, in the county of Dane and State of Wisconsin, have invented a new and Improved Oiler for Shaft-Bearings, of which the following is a full, clear, and exact description.

This invention relates particularly to improvements in automatic oilers for vertical shaft-bearings, an object being to provide an oiler of simple and inexpensive construction that will provide a continuous supply of oil, whether the shaft be running fast or slow, and so arranged that the surplus of oil will flow back to the reservoir to be used over again, thus resulting in economy of oil.

I will describe an oiler for shaft-bearings embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional elevation of an oiler for shaft-bearings embodying my invention; and Fig. 2 is a similar section, but showing a modification.

Referring to the drawings, 1 designates the vertical shaft arranged to rotate in a bearing-sleeve 2, and having screw-thread engagement with the upper projected end of the shaft is a nut 3, which is practically a portion of the shaft and should be so considered. The upper portion of the sleeve is provided with a cup 4 for receiving the oil, as will be hereinafter described, and arranged between the flange at the lower end of the nut 3 and the bottom wall of the cup 4 are bearing-rings 5 6 of any suitable material.

Arranged around the upper portion of the sleeve 2 is an exteriorly-threaded collar 7, and an exteriorly-threaded collar 8 engages around the lower portion of said sleeve. These collars 7 and 8 are secured together and held closely in relation to the bearing-sleeve by means of a casing 9, which may serve as a support for the bearing. Arranged in the lower end of the collar 8 and surrounding the shaft is a reservoir 10 for the lubricant, and arranged around the shaft between the shoulder 11 thereof and the lower end of the sleeve 2 is a bearing-ring 12, the periphery of which is tapered downward and outward. The inner side of the sleeve 2 is provided with a channel 13, which forms a duct or port for the passage of oil back into the reservoir 10, as the lower end of said channel communicates with the reservoir and the upper end communicates, through a port 14, with the cup 4. The wall of the bearing-sleeve 2 is provided with a longitudinal bore 15, which, as shown, gradually increases in size radially from its lower end to its upper end, the purpose of which will be hereinafter described.

Loosely arranged in the bore 15 is a tube 16, which extends upward through a bore in the collar 7 and terminates above the same in a funnel-shaped tube 17, from which a spout 18 leads into the cup 4. This spout 18 will be of sufficient size to permit of a free flow of oil, and it may be open at the top, if desired. The lower end of the tube is provided with a port 19, through which oil may pass from the reservoir into said tube.

Removably placed within the tube 16 is an oil-conveyer, here shown as a stem 20, having a spiral blade 21 extended throughout its length and fitted loosely within the tube. On the upper end of the stem 20 is secured a friction-disk 22, which in this instance bears against the nut 3, but practically against the shaft. This disk may be made of any suitable material—such, for instance, as metal, fiber, hard rubber, or the like—and its frictional engagement with the shaft may be regulated by means of a spiral spring 23, arranged in a tube 24, extending through the casing 9, and the end of said spring bears against the tube 16. The tension of the spring may be regulated by a screw 25, operating in said tube 24.

In the operation as the shaft rotates the rotary movement will be imparted to the spiral conveyer, and the oil received from the reservoir into the tube 16 will be carried continuously and evenly upward and discharged

through the spout 18 into the cup 4, and thence the oil will pass through the port 14 into the channel 13 and in flowing down the shafting will gather up enough oil for lubricating purposes, and the surplus oil will flow back into the reservoir, as before mentioned, to be used again.

In Fig. 2 the construction is practically the same in the essential features as the construction above described. In this instance, however, the channel 26 in the bearing-sleeve 27 communicates directly with a cup 28 at the upper end of the bearing-sleeve, and the conveyer 20 passes through a longitudinal bore in a lower collar 29, to which the reservoir is attached. In making the conveyer and its tube removable it may be readily cleaned when necessary, or another conveyer may be placed in the tube with the spiral running in the opposite direction to the one shown. This will depend, of course, upon the direction of rotation of the shaft.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An oiler for vertical shaft-bearings, comprising in combination with a shaft and a bearing-sleeve, the said sleeve having a cup at its upper end, a reservoir arranged at the lower portion of the sleeve, a tube extended parallel with the shaft and communicating at its lower end with said reservoir, means for conducting oil from said tube into the cup with the bearing-sleeve, the said bearing-sleeve having an interior channel providing communication between the cup and reservoir, and a spiral conveyer arranged in the tube and rotated by the shaft.

2. An oiler for shaft-bearings, comprising a bearing-sleeve provided with a longitudinal channel at its inner side and having a cup at its upper end communicating with said channel, a reservoir arranged at the lower end of the bearing-sleeve and communicating with said channel, the said bearing-sleeve being provided with a longitudinal bore, a tube removably inserted in said bore and having communication at its lower end with the reservoir, a spiral conveyer removably arranged in said tube, a spout leading from the upper end of said tube into the cup of the bearing-sleeve, and a friction-disk at the upper end of the conveyer and having operative engagement with the shaft.

3. In a shaft-oiling mechanism, the combination with a vertical shaft, of a bearing-sleeve therefor having a cup at its upper end and an interior longitudinal channel, the said sleeve also having a longitudinal bore through its wall, the said bore increasing in diameter from the lower end upward, a reservoir supported around the shaft below the bearing-sleeve and communicating with said channel in the sleeve, a tube removably arranged in the bore of the bearing-sleeve and communicating at its lower end with the reservoir, a spout leading from the upper end of the tube to the cup at the upper end of the bearing-sleeve, a stem arranged in the tube, a spirally-disposed blade on said stem, a friction-disk on the outer end of said stem for engaging with the shaft, a spring for holding the disk against the shaft, and means for adjusting the tension of the spring.

4. In an oiling mechanism for vertical shafting, the combination with a shaft, of a bearing-sleeve therefor, having a cup at its upper end and an interior longitudinal shaft communicating with said cup, the said sleeve having a longitudinal bore through its wall, a collar engaging around the upper portion of the sleeve, a collar engaging around the lower portion of the sleeve, a casing having screw-thread engagement with said collars, an oil-reservoir supported in the lower collar, a tube extended through the bore of the sleeve and into the reservoir and communicating with said reservoir, a funnel-shaped upper end for said tube, a spout leading from said funnel-shaped upper end into the cup, a stem extended into said tube, a spirally-disposed blade on said stem, a friction-disk on the outer end of said stem for engaging with the shaft, a spring engaging at one end with said tube for yieldingly pressing the disk against the shaft, a tube arranged in the casing and in which said spring is placed, and a screw operating in said sleeve and engaging with the spring.

5. In combination, a vertical rotatable shaft, a bearing-sleeve therefor, an oil-reservoir at the lower end of said sleeve, a passage leading from said reservoir to the upper end of said sleeve, an oil-conveyer located in said passage, and a driving connection between the conveyer and said shaft.

6. In combination, a vertical rotatable shaft, a bearing therefor, an oil-reservoir at the lower end of said bearing, a passage leading from said reservoir to a point adjacent to the upper end of said bearing, a rotatable oil-conveyer located in said passage, and means for causing the movement of said shaft to rotate said conveyer.

7. In combination, a vertical rotatable shaft, a bearing-sleeve therefor, an oil-reservoir located at the lower end of said bearing-sleeve, a tube substantially parallel to the shaft having its lower end inserted in said reservoir and its upper end adjacent to the upper end of said sleeve, a screw conveyer located in said tube, and a driving connection between the conveyer and the shaft.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER M. COFFMAN.

Witnesses:

L. A. AVERY,

HARRY L. BUTLER.