

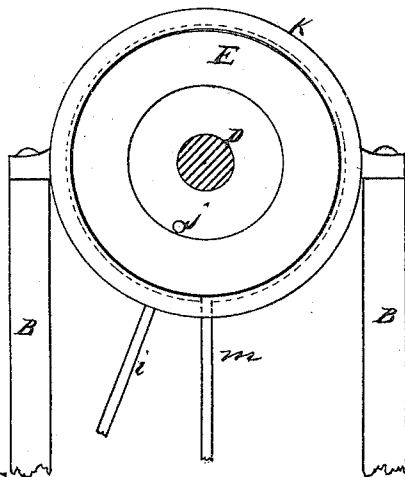
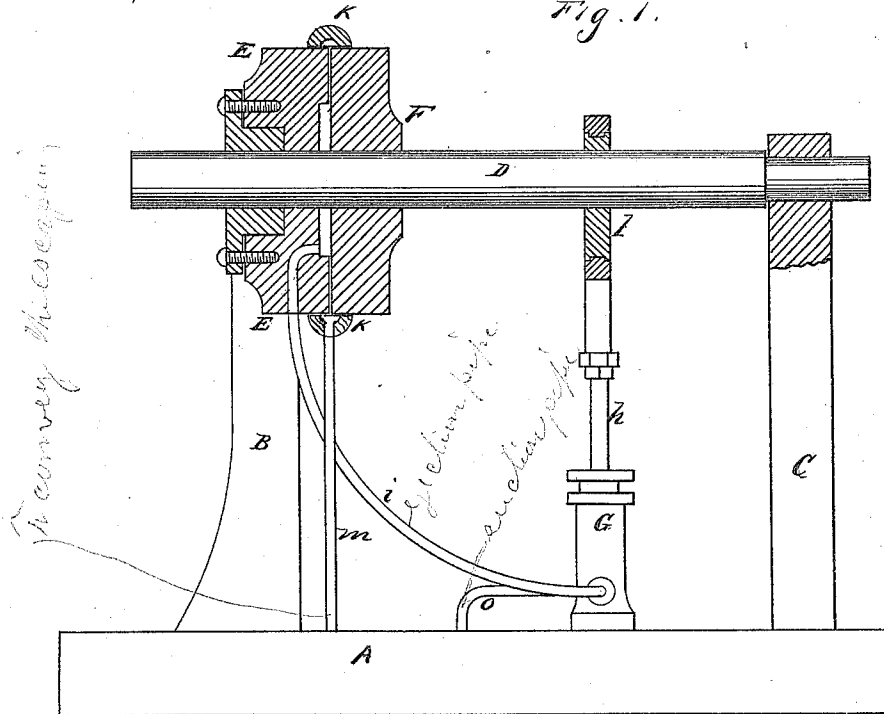
J. HAAS.

Devices for Lubricating Shaft-Bearings.

No. 134,272.

Patented Dec. 24, 1872.

Fig. 1.



Witnesses

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UNITED STATES PATENT OFFICE.

JEROME HAAS, OF STOCKTON, CALIFORNIA.

IMPROVEMENT IN DEVICES FOR LUBRICATING SHAFT-BEARINGS.

Specification forming part of Letters Patent No. 134,272, dated December 24, 1872.

To all whom it may concern:

Be it known that I, JEROME HAAS, of Stockton, San Joaquin county, State of California, have invented Improvements in Lubricating Shaft-Bearings; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

My invention relates more particularly to the construction and arrangement of the bearing of horizontal shafts—such as propeller-shafts—in which the bearing-surface is outside of the line of the shaft, and is an improvement upon Letters Patent which were granted to me on the 2d day of February, 1869, and numbered 86,392. My improvements also include a modification of the device represented in my former patent for lubricating the step or bearing of vertical shafts.

In order to explain my invention so that others will be able to understand its nature, reference is had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a sectional view taken parallel to the shaft, and Fig. 2 is an end view, showing the space on the box.

A represents the base, and B C the supporting-standards. The horizontal shaft D is supported in boxes upon these standards. In this class of shafts the end thrust is received outside of the line of the shaft, and in the present case I have represented the box E as being made large, so that its inner face will receive the thrust. A strong metal disk, F, is firmly secured to the shaft inside of the box E, so that one of its faces bears against the inner face of the box, and the two frictional surfaces thus formed it is the object of my invention to lubricate. In the first place, I countersink or make a circular recess in the two meeting faces around the shaft, which countersink or depression extends almost to the outer rim of each face, so that but a limited bearing-surface will be provided around the periphery of each. The pump G is located directly below the shaft D, and at a short

distance from the bearing-surfaces, its piston-rod *h* being operated by an eccentric, *l*, upon the shaft in the usual way. An ejection-pipe, *i*, leads from this pump upward, and has its opposite or upper end secured in a hole, *j*, in the box E, which hole communicates with the countersink space between the two bearing-surfaces, while a suction-pipe, *o*, connects it with the reservoir in which the lubricant is contained.

In some cases I shall employ a ring, *k*, with an inside groove, (thus forming a semi-tube,) which will slip on over the disk F and box E so as to cover the joint formed by the two meeting faces. A hole is made through the lowermost part of this ring, into which one end of a tube, *m*, is inserted, while its opposite end communicates with the supply-tank. The object of this grooved ring and tube is to convey the escaping lubricant back to the reservoir, from which it can be again returned through the pump to be used over and over again; but usually this ring will not be required, as the lubricant can be allowed to escape freely from between the surfaces and run back into a pan or other receptacle placed beneath, from which a tube will convey it to the reservoir.

The shaft D passes through a stuffing-box in the box E, so that no more of the lubricant will pass through than is necessary for lubricating the bearing.

Either water or oil can be used as a lubricant. I prefer to use oil.

The pump keeps up a continuous circulation of the lubricant, and the pressure exerted by the pump keeps the two bearing-faces slightly separated and completely lubricated.

In making the application to vertical shafts, the lubricant can be allowed to escape freely from between the bearing-surfaces in the same manner as above specified, no arrangement for discharging it being required, as my experience in its use has proven since the issue of my former patent.

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

1. The box E and disk F with their bearing-

surfaces, in combination with the pump G with its tubes *i* and *o*, said pump being operated from the shaft D, substantially as and for the purpose above described.

2. The two bearing-surfaces, when supplied with a lubricant under pressure from a pump, G, said pump being operated from the shaft D and supplied from a reservoir, in combination with the grooved ring or semi-tube *k* and

tube *m*, substantially as and for the purpose above described.

In witness whereof I hereunto set my hand and seal.

JEROME HAAS. [L. S.]

Witnesses:

JOHN L. BOONE,
C. M. RICHARDSON.