

LEWIS FAGIN.

Improvement in Lubricator for Vertical Shafting.

No. 118,705.

Patented Sep. 5, 1871.

Fig. 1.

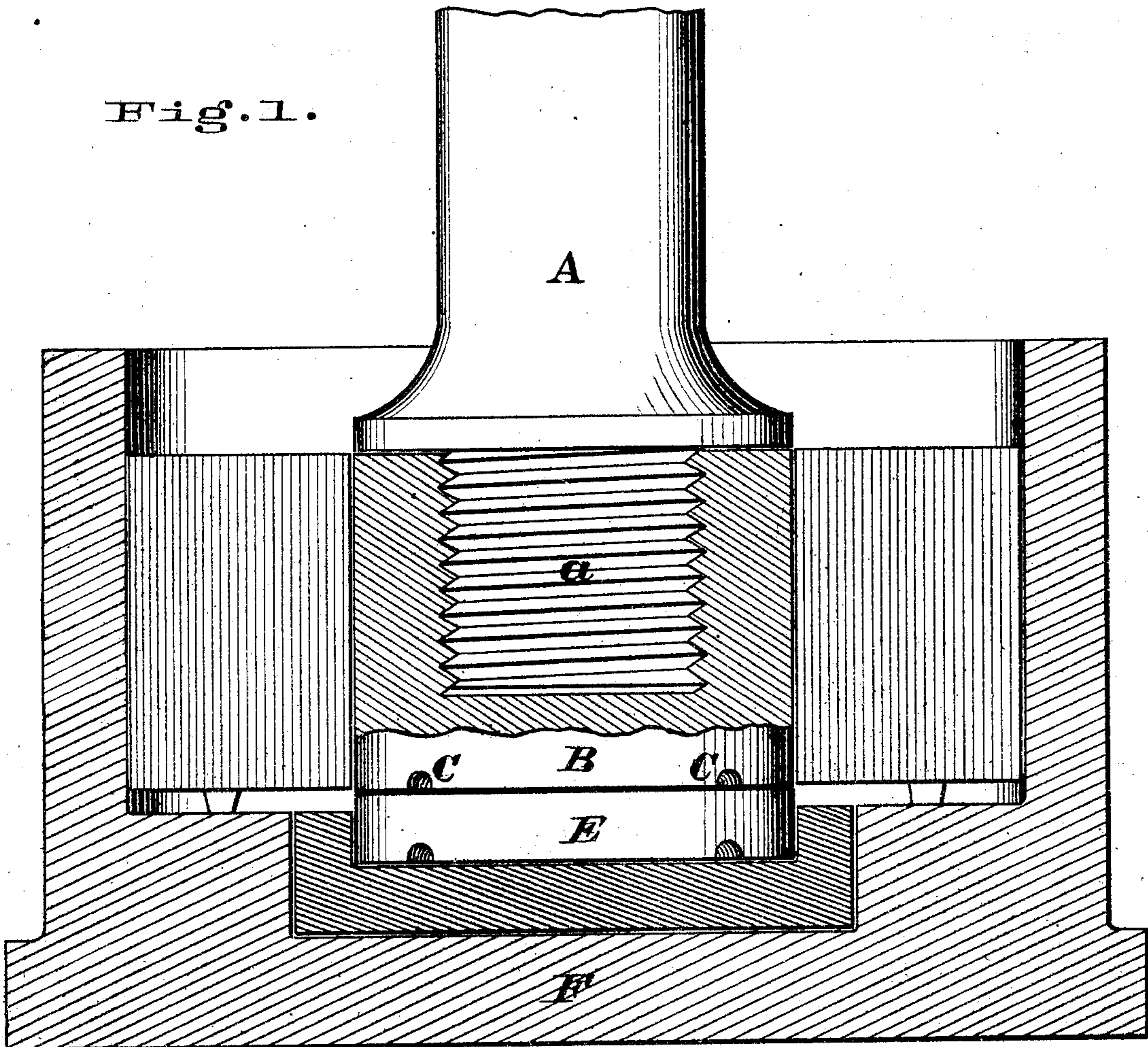
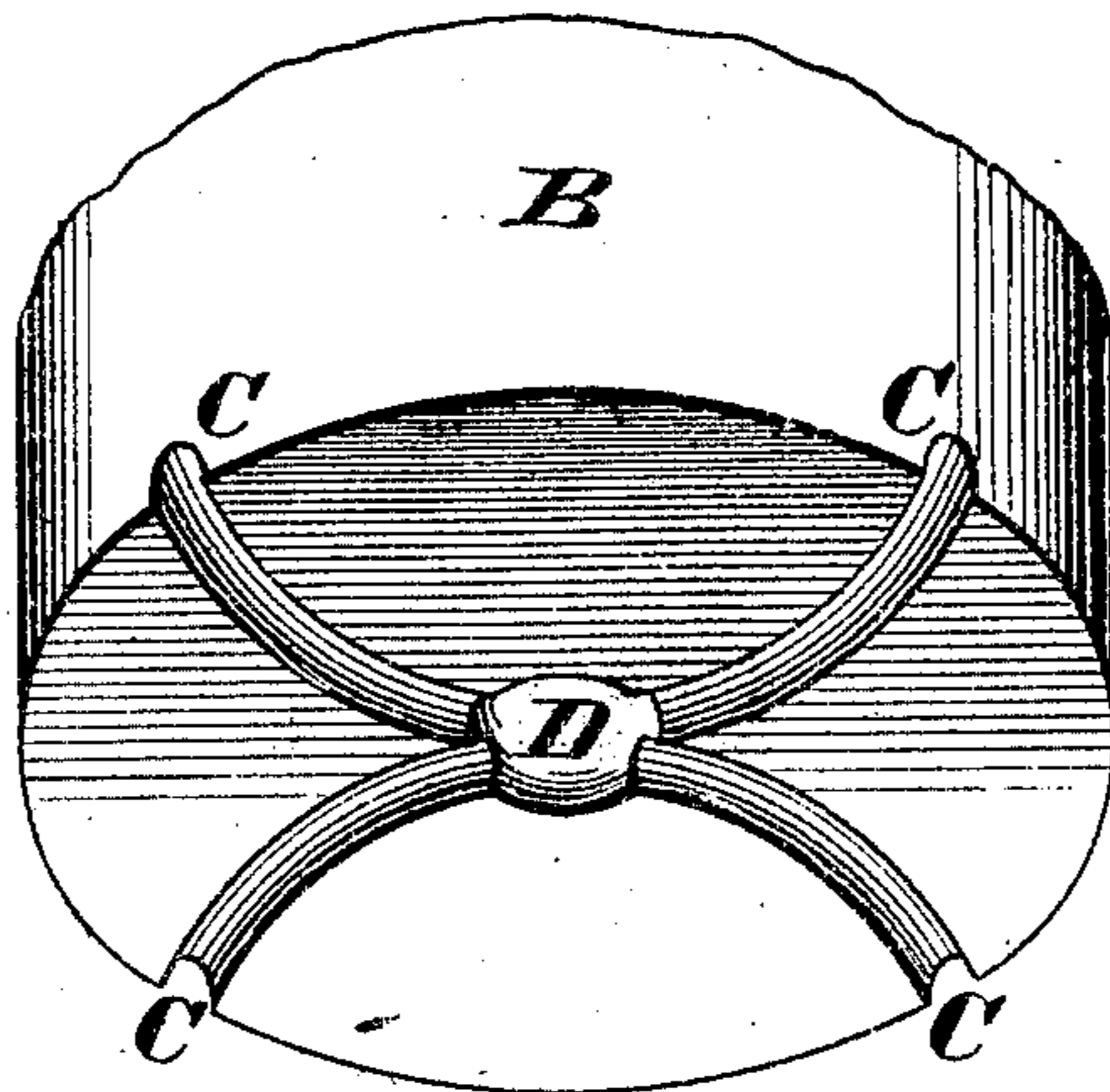


Fig. 2.



Attest.

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UNITED STATES PATENT OFFICE.

LEWIS FAGIN, OF CINCINNATI, OHIO.

IMPROVEMENT IN LUBRICATORS FOR VERTICAL SHAFTINGS.

Specification forming part of Letters Patent No. 118,705, dated September 5, 1871.

To all whom it may concern:

Be it known that I, LEWIS FAGIN, of Cincinnati, Hamilton county, Ohio, have invented a certain Self-Lubricator for Vertical Shafting, Spindles, &c., of which the following is a specification:

The centrifugal motion and great end pressure accompanying the use of heavy vertical shafts drives the lubricating material toward the periphery of the shaft with so much force as to soon displace the lubricant and leave the central portion dry; consequently it soon becomes heated and sometimes actually welded to the step, and is thus rendered immovable so as to stop the entire mill or factory for an indefinite period.

My improvement consists, mainly, in providing lower ends of vertical shafts, spindles, &c., with a series of grooves or channels leading from the periphery to the center, and so formed and disposed as to make the rotation of the shaft itself the effective means of forcing the lubricating material to the center of the bearing-surface, whence it escapes as wanted in every direction outward, so as to completely and constantly lubricate all parts in proportion as the velocity of the shaft demands, alternate ones of said grooves having a reverse curve or inclination, so as to be brought in action when the shaft is reversed. The invention further consists in the provision of a central reservoir in connection with such grooves. Also, in a removable toe connected to the shaft by a screw-joint.

Figure 1 is a partially-sectionized elevation of a shaft and bearing provided with my improved self-lubricating devices, and Fig. 2 is a perspective view of the lower end of the toe of the shaft.

The preferred form of my improvement is as follows: A represents an upright shaft or spindle, having a screw-threaded portion, *a*, for engagement with a toe or end piece, B. The shaft is preferably of wrought-iron and the toe of cast-steel, but other materials may be employed; for example, the toe may be of cast-iron, having its lower end or sole suitably chilled in casting. The end or under surface of this toe is provided with a series of grooves or channels, C, in the form of circular arcs, that intersect at the center and extend to the periphery of the shaft. The curve and direction of the grooves are such that one or the other end will infallibly gather and force oil to the center of the shaft, whence the centrifugal motion will carry it as fast as it is wanted over the whole surface.

In the preferred form of my improvement a chamber or reservoir, D, is formed in the center of the toe or shaft, into which all the grooves empty as into a common reservoir. These channels may have the represented curved contour, or be of any other suitable shape, so as to force a current of oil toward the center or reservoir D whenever the shaft is rotated.

If preferred, one or more loose cast-steel disks, E, with faces similar to that of the toe, may be placed beneath the toe B, and both the disks and toe may stand in an ordinary cast-iron step-box, F. The principal function of the loose disks is to divide the motion between them and the toe. They also enable the adjustment of the shaft as required or to take up wear. The grooves, owing to their shape and location, co-operate with the rotation of the shaft to cause the streams of oil or other lubricant to be forced to the center of the shaft or toe, from whence the centrifugal motion distributes it over the whole surface of the shaft end or toe, and thereby secures a perfect lubrication, no matter how rapidly the shaft may be revolved or which way it may run.

I am aware that grooves have been provided in the face of the toe of a vertical shaft to permit the lubricant to flow in toward the center, and that loose disks similarly constructed have been employed.

I do not, therefore, claim grooves in the faces of the toe B and disks E, nor the provision of such disks, broadly considered.

I claim as my invention—

1. The grooves C in the face of the toe B and supporting-disks E, when formed and arranged as shown and described, so as to cause streams of the lubricant to be forced to the center by rotation of the shaft in either direction, as set forth.

2. The central pit or reservoir D, in combination with the said grooves C, as and for the purpose described.

3. An improved shaft or spindle-bearing, consisting of shaft A *a*, toe B C D, disk E, and step F, as and for the purpose described.

4. The detachable toe B, having a screw-threaded connection, *a*, with its shaft.

In testimony of which invention I hereunto set my hand.

LEWIS FAGIN.

Witnesses:

GEO. H. KNIGHT,
JAMES H. LAYMAN.