(No Model.)

S. G. PHILLIPS.

SHAFT BEARING.

No. 504,049. Patented Aug. 29, 1893.

Fig: 1.

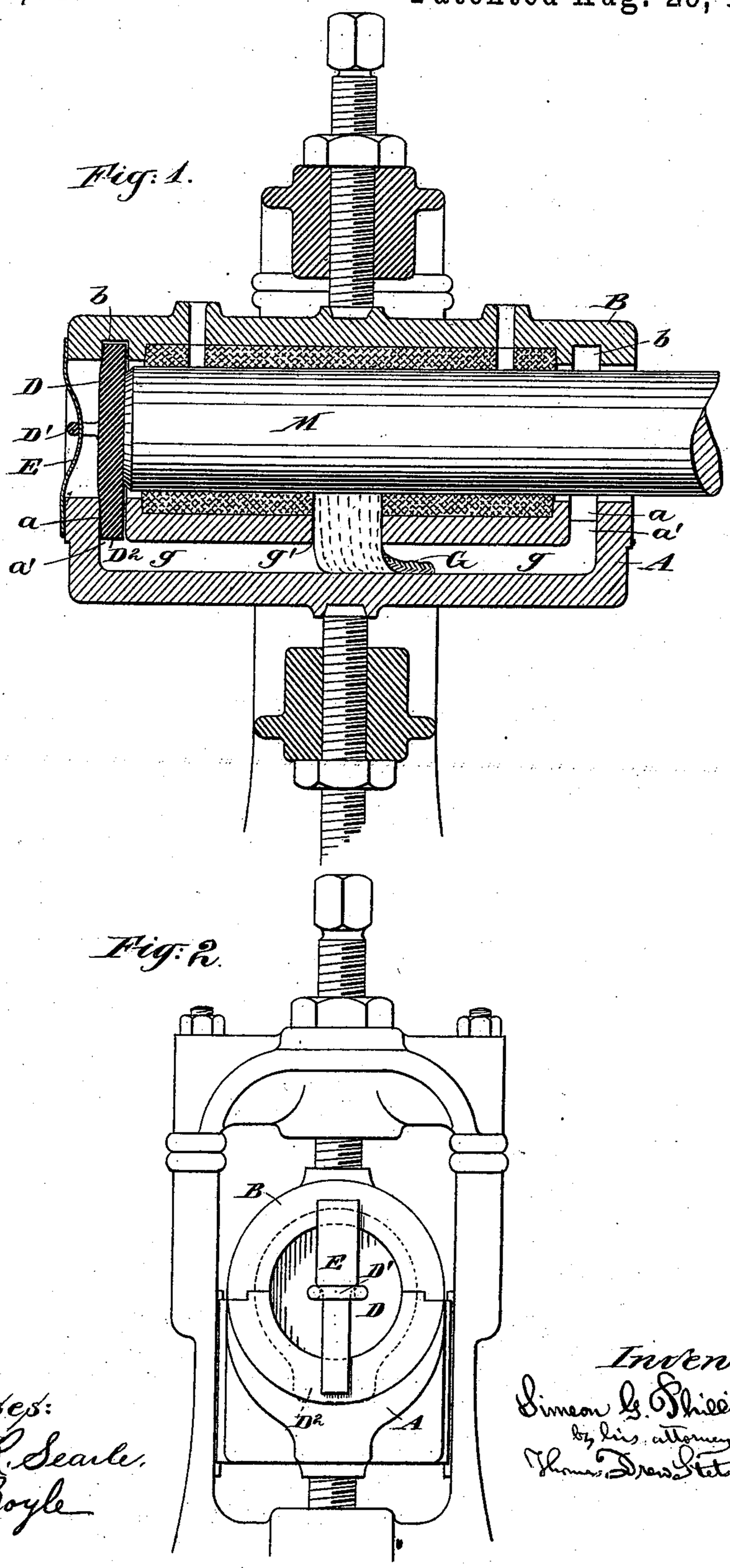

Fig: 2.

Witnesses:
Charles R. Seale.
M. F. Boyle

Inventor:
Simeon G. Phillips
by his attorney
Thomas Drew Stetson

UNITED STATES PATENT OFFICE.

SIMEON G. PHILLIPS, OF WOODBRIDGE, NEW JERSEY.

SHAFT-BEARING.

SPECIFICATION forming part of Letters Patent No. 504,049, dated August 29, 1893.

Application filed August 24, 1892. Serial No. 443,952. (No model.)

To all whom it may concern:

Be it known that I, SIMEON G. PHILLIPS, a citizen of the United States, residing at Woodbridge, in the county of Middlesex and State of New Jersey, have invented a certain new and useful Improvement in Shaft-Bearings, of which the following is a specification.

My improvement is intended more especially for the bearings of screw-wheels, employed as blowers. It economizes the length required for a bearing. I have in my experiments applied it in brick-drying apparatus where the bricks are piled open-work on cars which are moved along on parallel tracks in narrow buildings, with screw-wheels between. The invention allows the use of very short bearings, and makes it easy to attain effective lubrication for long periods without attention. It involves little expense. I form a groove near the outer end of each brass or box, and in applying the boxes together drop into the outermost groove in the lower box a sufficiently thick disk of metal, and in applying the upper box thereon match its outermost groove similarly upon the upper half of such disk. The disk is retained by the holding of the boxes properly together. I receive the end thrust of the shaft on such disk. The grooves are a little wider than the thickness of the disk. I hold the disk firmly outward toward the end of the bearing by a spring, and allow the oil or other lubricant to traverse freely around in the groove and thus to promote the lubrication of the whole inner face of the disk, the part which is subjected to the thrusting friction.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a longitudinal vertical section and Fig. 2 is an end view.

Similar letters of reference indicate corresponding parts in both the figures where they appear.

A is the bottom box, represented as adjustable in the pedestal, but this may be varied. It will serve if the box is formed in one with the pedestal or otherwise engaged so as to effectively support the bearing and also resist the thrusting strain due to the action of the screw-wheel.

B is the upper box, adjustable under the cap or binder. In the lower box A near each end of the bearing is a groove *a*, and near each end of the bearing in the upper box B is a corresponding groove *b*.

D is the disk of cast iron or other suitable material. It is matched in the grooves *a*, *b*, at the outer end of the bearing.

D′ is a staple cast in the disk, or otherwise firmly attached on the outer face, and E is a spring inserted as shown and bearing against the outer face of the boxes A and B. It holds the disk D against the outer side of its respective grooves *a*, *b*, leaving a narrow space in each groove on the inner face of the disk in which the oil may be traversed around and more certainly spread over the entire inner face of the disk D to lubricate the bearing of the end of the shaft M against the same.

I core or otherwise produce a passage *g* in the pedestal, connected at each end with a groove *a*. A vertical passage *g′* reaches up from the passage *g* at the mid-length. In this may be fitted a wick G of cotton or other suitable material, which promotes the oiling of the bearing. So long as any oil remains in the passage *g* the wick G which reaches down to such passage and reaches up to or a trifle above the inner surface of the lower box A is certain to supply such lubricant to the rubbing surfaces of the boxes A and B, and the adjacent surface of the shaft M, and effectively lubricate all those surfaces. The revolution of the shaft subject to an endwise thrust received from the action of the screw-vanes on the air wears away the metal of the shaft end and disk but slightly or not at all near the center, because of the small motion at that point. If the surfaces are plane at the commencement the friction due to the thrusting strain wears away the metal most at the periphery, and less and less toward the center. This induces a very desirable condition; the endwise bearing is received entirely at and near the center or axis of motion.

I form the disk D with an arm D^2, and provide a corresponding recess *a′* in the center of the bottom of the lower groove *a*. In applying the parts together I take care to drop the disk D in such position that its arms D^2 will be received in the recess *a′*. This protects the disk from ever being revolved or

partially revolved by the friction of the shaft in working.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. I have shown the spring E as wider at one end than the other, and as having a sudden offset at the point where it is received in the staple D′. This may be omitted. Its use insures against the descent of the spring too far by any chance. When there is a considerable offset, as shown, the wide end of the spring may be made thinner than the other part so as to make the resilience of the spring at the two ends about equal.

I have shown grooves similar to the grooves *a*, *b*, near the opposite ends of each box. Such are useful in relation to the lubrication, but are not essential to my invention, and perform no function relatively thereto.

A screw and nut may be used instead of the staple D′ to receive the force of the spring E and communicate it to the disk D.

Parts of the invention may be used without the whole. I can dispense with the staple D′ and spring E. When these parts are used they may have different forms. I can let the spring into each box by forming the outer faces of the boxes with sufficient spaces slightly sunk to receive the spring, but the thickness of the spring is so slight that in general practice the spring may rest fairly against the outer faces.

I claim as my invention—

1. In a shaft bearing, the lower box or pedestal A, having a groove *a* near it outer end, in combination with the upper box B, having a corresponding groove *b* near its outer end, and with the disk D engaged in both said grooves, all adapted to serve as herein specified.

2. The shaft bearing described, having the lower box formed with a groove near its outer end, the upper box formed with a groove near its outer end, a disk D engaged in said grooves and having a staple D′, and a spring E inserted in said staple serving to hold said disk outward in said grooves, all combined and arranged to serve substantially as herein specified.

3. The shaft bearing described, having the lower box A formed with a groove *a* near its outer end and a recess *a′* in the bottom thereof, the upper box formed with a groove near its outer end, a disk D engaged in said grooves and having a staple D′, and a spring E inserted in said staple serving to hold said disk outward in said grooves, and having also an arm D^2 serving to hold the disk against being revolved, all combined and arranged to serve substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

SIMEON G. PHILLIPS.

Witnesses:
M. F. BOYLE,
H. A. JOHNSTONE.