

S. W. Putnam

Shaft Bearing

Nº 90,781.

Patented Jan. 1, 1869.

Fig: 1

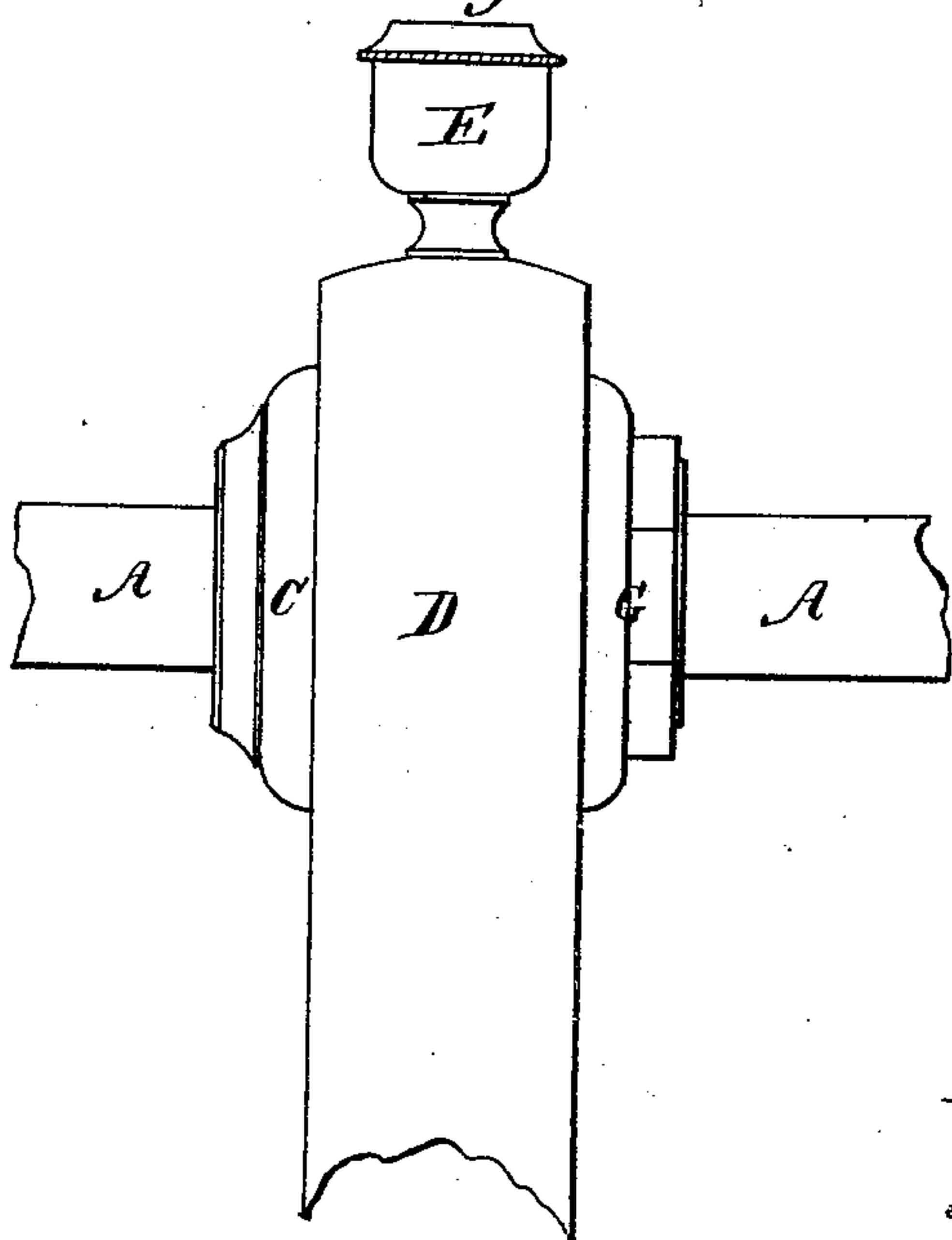


Fig: 2.

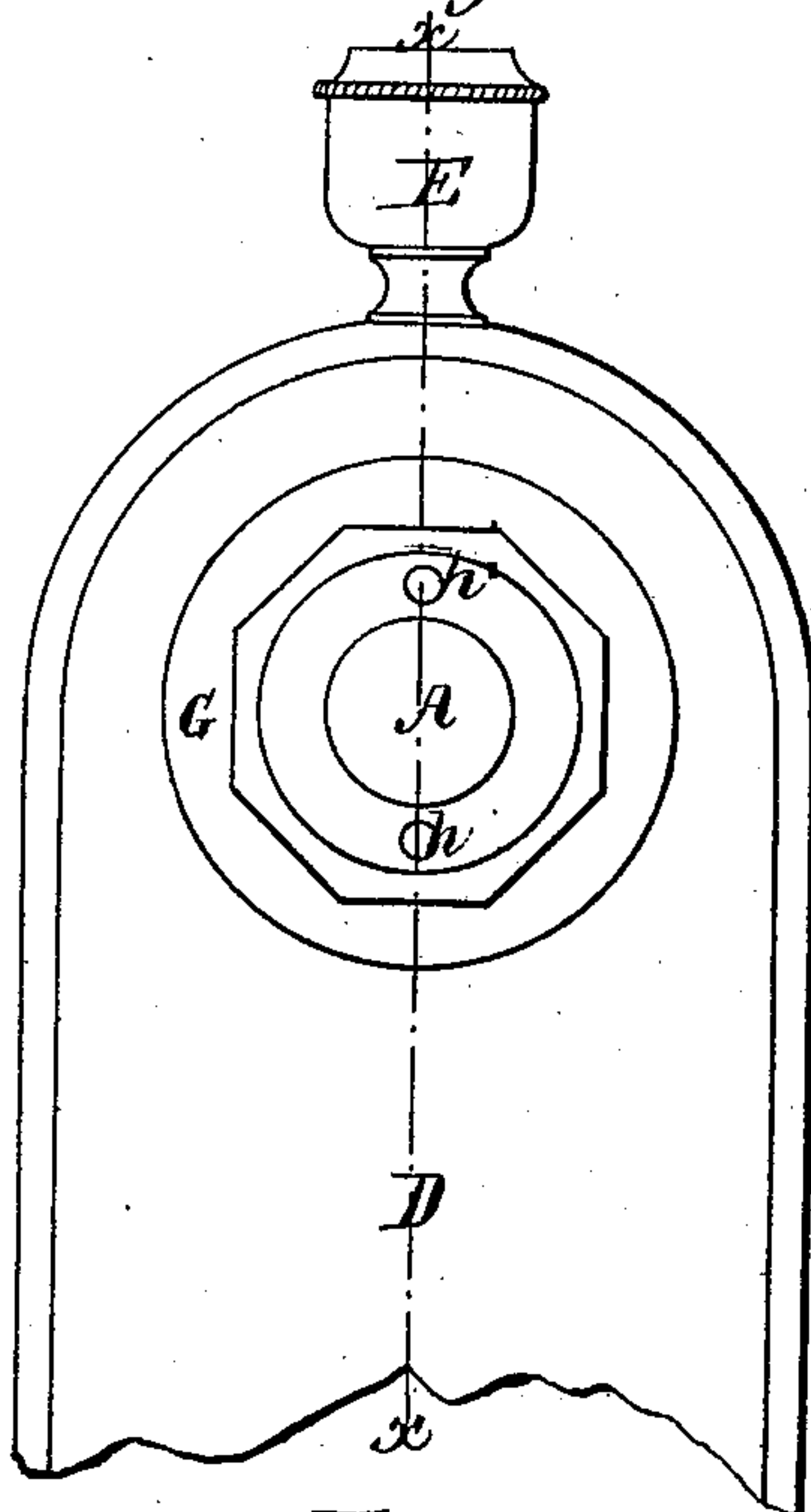


Fig: 3.



Fig: 4.



Fig: 5.

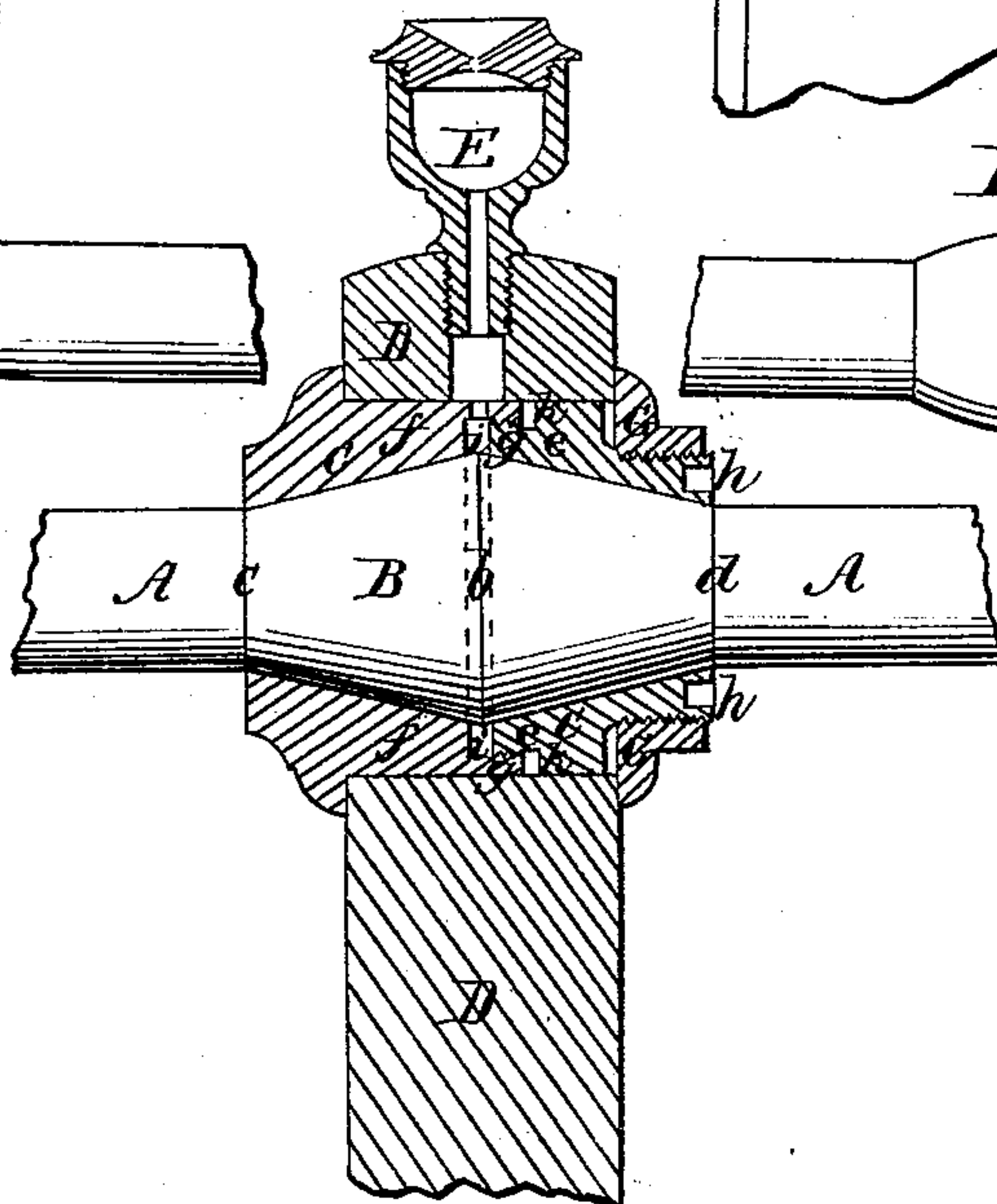


Fig: 6.



Witnesses;
John H. Hustons
Henry O. Putnam

Inventor;
Salmon W. Putnam Jr

United States Patent Office.

SALMON W. PUTNAM, JR., OF FITCHBURG, MASSACHUSETTS.

Letters Patent No. 90,781, dated June 1, 1869.

IMPROVEMENT IN BEARING FOR SPINDLES AND SHAFTS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, SALMON W. PUTNAM, JR., of Fitchburg, in the county of Worcester, and State of Massachusetts, have invented certain new and useful Improvements in Bearings for Lathe-Spindles, Shafts, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a front elevation of my improved bearing.

Figure 2 is a side elevation of the same.

Figure 3 is a vertical section through the centre of the same, on the line *xx* of fig. 2.

Figures 4, 5, and 6, modifications, to be referred to.

The boxes for the reception of the spindle of a hand or engine-lathe have heretofore been formed in two pieces, let into the frame-work, those portions of the spindle within the boxes being turned down to a smaller diameter than the main portion of the spindle, and being provided with square shoulders, to keep them in place.

This method of construction is, however, objectionable, for, the reason that the lower halves of the boxes do not remain round, as required, but soon become worn, causing the spindle to "chatter," and allowing it to drop down out of the central line which it is designed to occupy; and, when this occurs, it becomes necessary to remove and file down the boxes, which is a long and tedious operation.

To overcome this difficulty, the bearing-portion of the spindle and the interior of the boxes have been made tapering in one direction, which answered a good purpose if a longitudinal pressure was exerted on one side of the spindle only, in such a manner as to tighten the bearing within the box; but, if the pressure was exerted upon the opposite side, the bearing would be crowded away from the box, causing it to run loosely therein, and "chatter."

My invention has for its object to avoid all of the above-mentioned difficulties; and consists in so inclining, or curving the bearing-portion of a spindle or shaft from the centre toward both ends, that when it is fitted into a box of corresponding form, a pressure exerted longitudinally in either direction will tend to retain it firmly in place within the box in a true central line, thus preventing all "chattering," and causing the interior of the box to remain round and true at all times, without regard to wear; and

My invention also consists in a box of peculiar construction, to be used in connection with the above-described spindle or shaft.

To enable others skilled in the art to understand

and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings—

A represents a spindle or shaft, the bearing-portion B of which is made of an increased diameter at the centre, *b*, and tapers in both directions from this point to the extremities *c d*.

This bearing runs in a box, C, which is fitted into the stock or frame-work D, and is made in two halves, *e f*, screwed together at *g*, the interior of each half of the box being turned out tapering, so that, when the two halves are screwed together, the interior of the box will correspond to the shape of the bearing-portion of the shaft; and it will thus be seen that a pressure exerted longitudinally in either direction upon the shaft A will tend to retain its bearing-portion firmly in place within the box in a true central line, and it is thus prevented from falling below the position which it is designed to occupy, while all "chattering" is avoided, and the interior of the box is caused to remain round and true at all times, without regard to wear.

The two portions of the box may be kept up firmly against the bearing, as the parts become worn, by screwing the portion *e* further into the portion *f* with a suitable wrench applied to the openings *h*.

i is a groove, which extends entirely around the interior of the portion *f* of the box, and forms an oil-chamber, which communicates with the cup E above, the central position of this oil-chamber serving to insure the equal distribution of the oil on all portions of the bearing.

The distance of the shoulder *k* from the end of the portion *f* of the box is such as to prevent the oil-chamber *i* from being closed when the two portions of the box are screwed close together.

A packing, of leather or other suitable material, may be placed around the oil-chamber if desired, to prevent leakage.

G is a "check-nut," which serves to keep the box C firmly in place within the stock, or frame-work D.

Instead of the centre of the bearing being of greater diameter than its extremities, it may be of smaller diameter, and taper up toward the ends, as seen in fig. 4, or the bearing may be made convex or concave, as seen in figs. 5 and 6, without departing from the spirit of my invention, as in either case a longitudinal pressure on one side or the other would tend to tighten the bearing within the box, and retain it in its true central position, the box for each bearing being so constructed as to meet the requirements of the case.

A box, divided vertically, and screwed together, as

above described, may be used to advantage with a straight bearing, provided with a collar at its centre, which may be enclosed between the two portions of the box, and kept tightly in place by screwing them nearer together as the parts become worn. I therefore intend to employ my improved box wherever it may be used to advantage.

Claims.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The shaft, having the bearing so inclining, or

curved that a longitudinal pressure exerted in either direction will tend to retain it firmly in place within its box in a true central line, substantially in the manner and for the purpose described.

2. The box C, as constructed, and operating substantially in manner shown, box C being provided with the central groove, or oil-chamber *i*, substantially as described.

SALMON W. PUTNAM, JR.

Witnesses:

JOHN F. HASKINS,
HENRY O. PUTNAM.