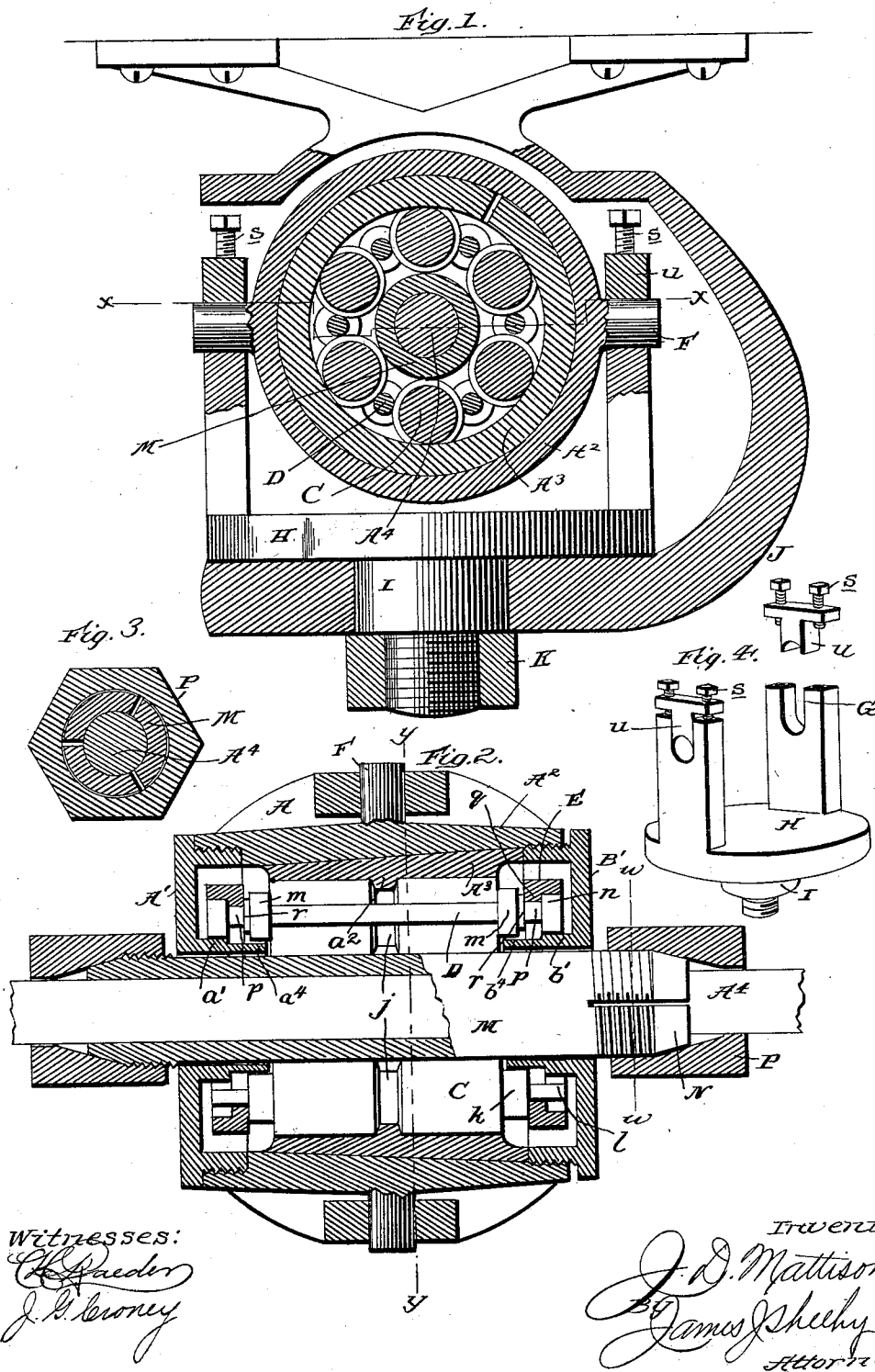


(No Model.)

J. D. MATTISON.
BOX FOR SHAFTING.

No. 592,807.

Patented Nov. 2, 1897.



Witnesses:
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BOX FOR SHAFTING.

SPECIFICATION forming part of Letters Patent No. 592,807, dated November 2, 1897.

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To all whom it may concern:

Be it known that I, JAMES D. MATTISON, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Boxes for Shafting; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to journal-boxes for shafting; and, among other things, it contemplates providing the shaft with a sleeve to receive the wear, the said sleeve being detachably fixed on the shaft, so that it may be removed when worn and replaced by a new one, and being applicable to shafts of slightly-varying diameters, so as to permit of any one of the same being used in conjunction with the journal-box.

The invention also contemplates mounting the journal-box in a hanger or other support in such a manner as to permit of it being readily adjusted to receive shafts in different positions.

With the foregoing ends in view the invention will be fully understood from the following description and claims when taken in conjunction with the annexed drawings.

Figure 1 is a view, partly in elevation, illustrating my improvements, said view being taken in the plane indicated by the line $y y$ of Fig. 2. Fig. 2 is a section taken in the plane indicated by the line $x x$ of Fig. 1, with some of the parts in elevation. Fig. 3 is a transverse section taken in the plane indicated by the line $w w$ of Fig. 2, and Fig. 4 is a perspective view of the yoke with one of its cap-blocks in a raised position.

In the said drawings similar letters designate corresponding parts in all of the several views, referring to which—

A indicates a box which preferably comprises a cylindrical body A^2 , having interior threads at its opposite ends, an annular interiorly-threaded head A' , which is arranged in one threaded end of the body A^2 and is provided with the inwardly-directed annular flange a' , having the reduced portion a^4 and an annular exteriorly-threaded head B' , which is arranged in the opposite threaded end of the body A^2 and is provided with the inwardly-

extending annular flange b' , having the reduced portion b^4 .

The interior of the box-body A^2 is tapered or reduced in diameter toward one end, as shown, and it is designed to receive the correspondingly tapered and split housing-ring A^3 , which has an interior rib a^3 , as shown.

C indicates main bearing-rollers, which have peripheral grooves j at their middle, receiving the rib a^3 , whereby they are held against endwise movement. The said main rollers C are interposed between and bear against the housing A^3 and a sleeve (presently described) on the shaft A^4 , and they are provided adjacent to their ends with the reduced portions k and the bosses l , the purpose of which will be presently described.

Intermediate of the main bearing-rollers C are arranged the rollers D, the purpose of which is to hold the rollers C the proper distance apart and to further assist said rollers C in reducing the friction to a minimum. These intermediate rollers D are small in diameter for the greater part of their length, and they are provided adjacent to their ends with the enlarged portions m , which bear against the reduced portions k of the rollers C, and are further provided with the end portions n , which bear against the flanges $a' b'$ of the heads $A' B'$, and with the grooves p to receive the inwardly-extending flanges q of the movable or revoluble rings E, and the reduced portions r , which bear against the inner sides of the rings, as illustrated. The said rings E serve to hold the intermediate rollers D in their proper relative positions, and through the medium of said rollers D said rings E also serve to hold the main bearing-rollers C in their proper relative position. It will further be seen that while the bosses l of the rollers C do not in operation engage the rings E or the flanges $a' b'$, yet they extend to points between the rings and the flanges $a' b'$ and consequently are enabled to serve the important function of preventing the rollers C from dropping out of place when the shaft is removed from the box.

The reduced flange portions $a^4 b^4$ of the heads $A' B'$ rest between the reduced portions k of the series of rollers C and the center of the box. Said reduced portions $a^4 b^4$ are not engaged by the roller portions k , but

they rest closely adjacent to the same and are therefore adapted to prevent the rollers C from moving inwardly any appreciable distance when the shaft is removed from the box. This prevents the rollers C from assuming such positions as to interfere with the subsequent introduction of a shaft and obviates the necessity of adjusting the said rollers prior to introducing the shaft and sleeve, which is an important advantage. I prefer to use the said reduced portions $a^4 b^4$, and also provide the rollers C with the bosses l , but when desired I may omit the said bosses and depend upon the said flange portions to prevent the rollers C from dropping out of place when the shaft and sleeve thereon are removed from the box.

The box-body A^2 is provided at diametrically opposite points with trunnions F, and these trunnions are journaled in bearing-notches G, formed in the upper ends of the arms of a yoke H, whereby it will be seen that the box may be canted in either direction if desirable or necessary to suit the shaft which it is to receive. The said trunnions F are secured in the bearing-notches of the yoke-arms by the cap-blocks u , (see Fig. 4,) which are connected to said arms by screws s , which take into the upper ends of the arms, as shown, and are designed, in addition to connecting the caps and yoke, to adjust the former so as to take up any wear that may occur. The yoke H is provided on its under side with a pivot I, which is journaled in a bracket J, so as to permit of the yoke H and box A being turned, if necessary, and is secured in position by a nut K, mounted on its threaded portion, as shown. The bracket or hanger F is preferably of the form shown, being designed to be connected to and depend from a ceiling-beam or other suitable support.

M indicates a sleeve on shaft A^4 , which is interposed between the main bearing-rollers C and is designed to receive wear and protect the shaft. This sleeve M is preferably case-hardened to prolong its usefulness and is detachably fixed upon the shaft, so that it may be removed when worn and be replaced by a new sleeve. Such detachable fixture of the sleeve M on the shaft A^4 is preferably effected by splitting the ends of the same to form resilient branches N and providing said branches with exterior threads, as shown, for the engagement of nuts P, which serve to bind the branches against the shaft and thereby fix the sleeve thereon. The sleeve M also serves to permit of shafts of slightly-varying

diameters being used in conjunction with one size of journal-box, for it will be observed that the sleeve may be fixed on shafts slightly smaller in diameter than the one illustrated.

It is obvious that in practice a plurality of sleeves M, having bores of different diameters, may be provided with each box, so as to permit of shafts of materially different diameters being journaled in the box.

Having thus described my invention, what I claim is—

1. The combination of a shaft hanger or support having an aperture, the yoke bearing upon the hanger or support and having the pivot journaled and secured in the aperture thereof and also having bearing-notches in its arms and threaded sockets in the upper ends of the arms at opposite sides of the notches, a journal-box having trunnions journaled in said bearing-notches of the yoke, removable cap-blocks arranged in the bearing-notches upon the trunnions and having flanges at their upper ends, and screws taking through said flanges into the sockets in the arms of the support, substantially as specified.

2. In a journal-bearing, the combination of the box with heads at its ends having the inwardly-directed annular flanges provided with the inner reduced portions a^4, b^4 , the main bearing-rollers having the reduced portions k , surrounding the said inner reduced portions a^4, b^4 , rollers arranged intermediate of the main bearing-rollers and having the reduced intermediate portions and the enlarged portions adjacent to their ends, the latter engaging the portions k of the main bearing-rollers, and also having end portions bearing on the inwardly-directed flanges of the box-heads, and movable rings surrounding and engaging the intermediate rollers, substantially as specified.

3. In a journal-bearing, the combination of a box with heads at its ends having inwardly-directed annular flanges provided with the inner reduced portions a^4, b^4 , main bearing-rollers having the reduced portions k , surrounding the said inner reduced portions a^4, b^4 , and rollers arranged intermediate of and engaging the main bearing-rollers on the unreduced portions of the flanges on the box-heads, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES D. MATTISON.

Witnesses:

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