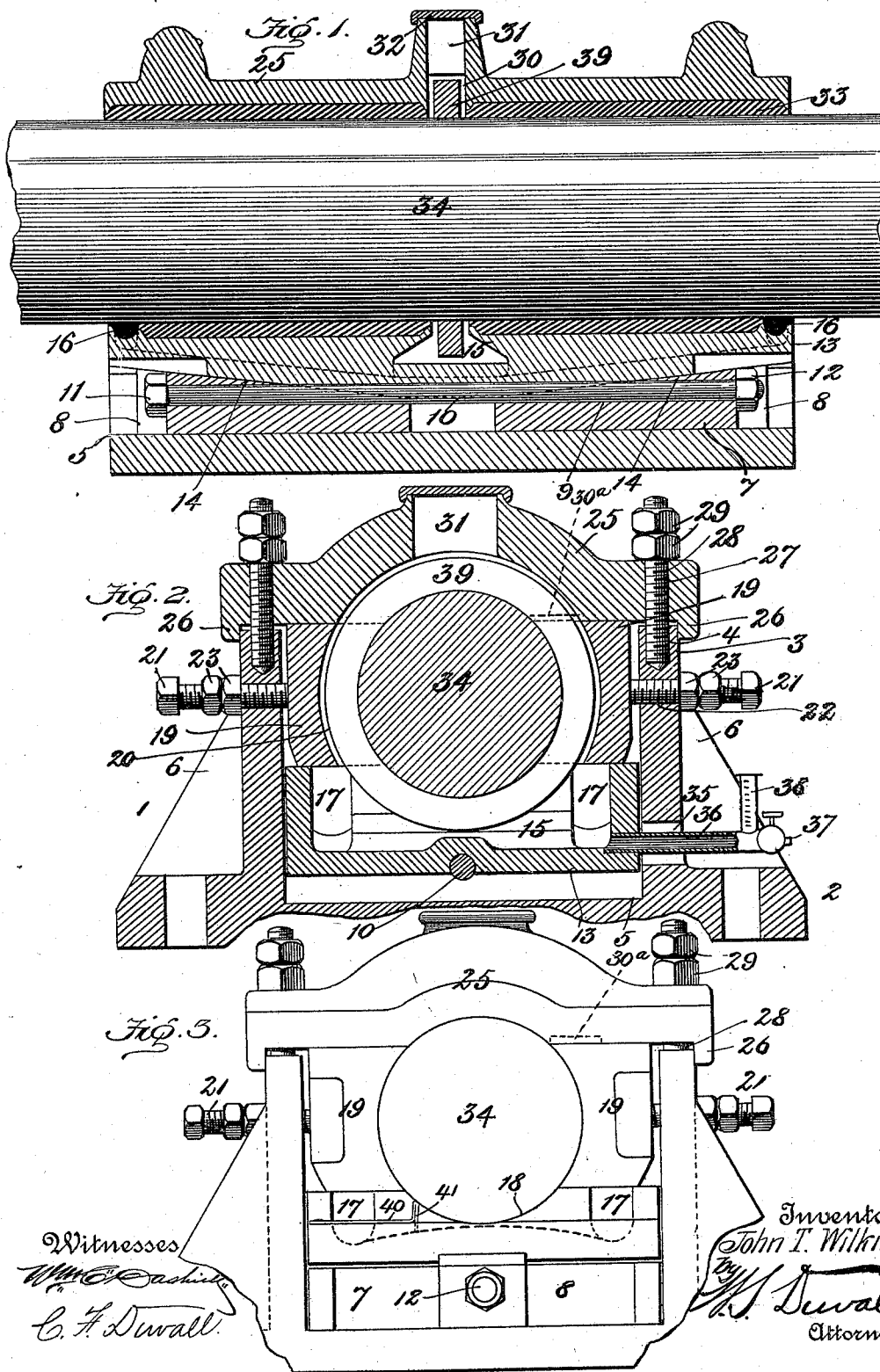


J. T. WILKIN.
JOURNAL BOX.

No. 579,508.

Patented Mar. 23, 1897.



Witnesses
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C. F. Duwall

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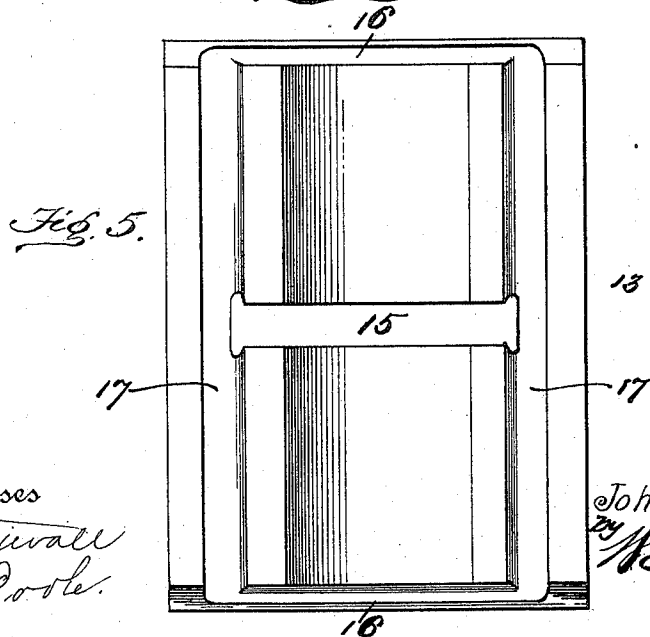
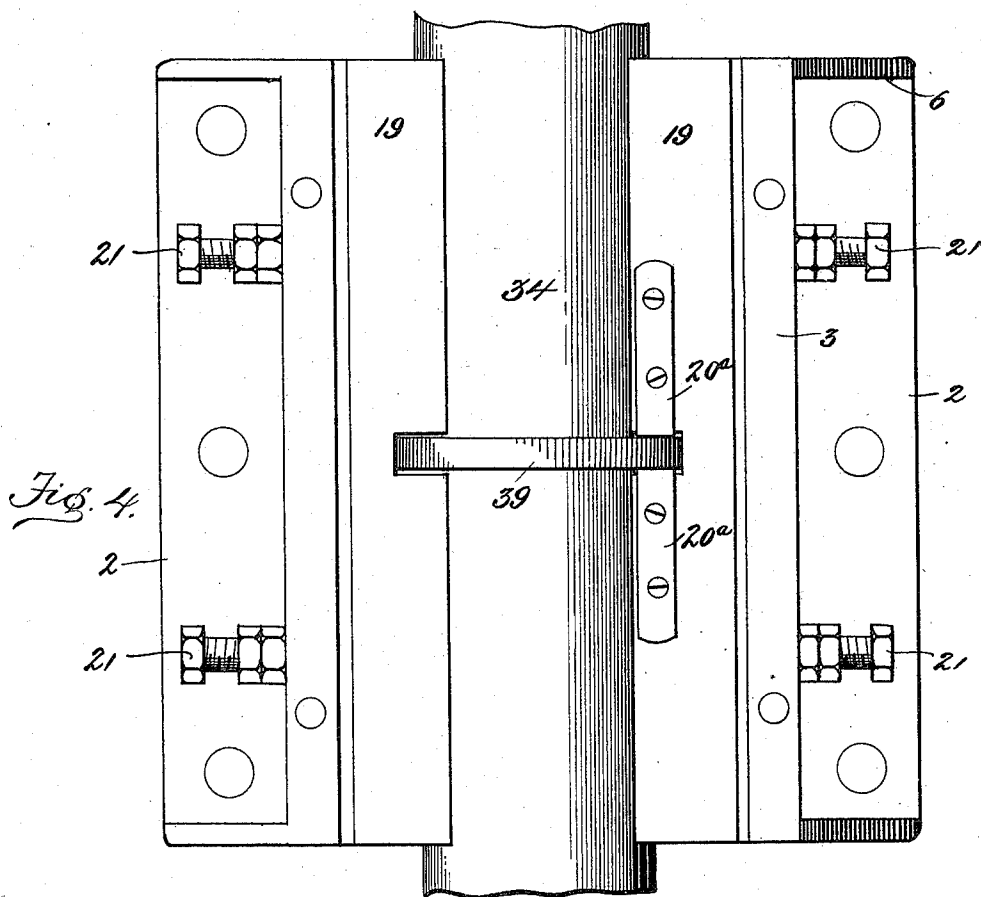
(No Model.)

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UNITED STATES PATENT OFFICE.

JOHN T. WILKIN, OF CONNERSVILLE, INDIANA.

JOURNAL-BOX.

SPECIFICATION forming part of Letters Patent No. 579,508, dated March 23, 1897.

Application filed August 13, 1896. Serial No. 602,686. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. WILKIN, a citizen of the United States, residing at Connerville, in the county of Fayette and State of Indiana, have invented certain new and useful Improvements in Journal-Boxes; and I do hereby 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 improvements in journal-boxes, and more particularly to that class employed in connection with rotary blowers and pumps, although, as will hereinafter appear, it may be otherwise applied.

The objects of my invention are to provide a journal-box that is self-oiling or is adapted to distribute oil to the journal in a uniform manner; to collect said oil and return the same to the oil reservoir or groove for redistribution, so that a constant oiling or self-lubrication takes place; to provide means for locating the shaft in an accurate and positive manner and adjusting the journal-box to the shaft or journal; to clamp all the internal portions composing the box rigidly together, so as to obviate the tendency to loosen by the vibrations to which the said parts are subjected, and, finally, to gain the maximum amount of adjustment within a minimum space and without using any extra length of journal for adjustment space.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a vertical longitudinal section of a journal-box constructed in accordance with my invention. Fig. 2 is a vertical transverse sectional view substantially through the center of the same, the oiling-ring appearing in elevation. Fig. 3 is a front end elevation of the journal-box. Fig. 4 is a plan view with the cap-plate removed. Fig. 5 is a detail of the bottom section.

Like numerals indicate like parts in all the figures of the drawings.

In carrying out my invention I employ a frame 1, which comprises a transverse base portion 2, having suitable bolt-holes by means of which it may be secured upon any base or support, or I may omit such form of base to

the frame and otherwise change said frame in this respect and as regards other details in order that the box as a whole may be adapted to serve its useful functions in other relations than rotary blowers and pumps, for which particular use it is primarily designed and intended. Between its edges there are formed integral with the base opposite parallel side walls 3, in the upper ends of which, at intervals, threaded holes are formed. Between its side walls 3 the base 2 is recessed, as at 5, and said side walls are braced at their ends and preferably their middles by means of inclined webs or flanges 6.

Arranged within the recess 5 and opposing each other is a pair of adjusting wedges or blocks 7, the combined length of which is less than the length of the frame 1, so that their inner ends do not meet, but produce an intermediate space at the center of the frame. The lower surfaces of the wedges are plain and rest upon a corresponding surface, to wit, the bottom of the recess 5. The upper faces of the wedges, however, are reduced toward their inner ends, as indicated in Fig. 1. The outer ends of the wedges between their side edges are recessed, as at 8, and the said wedges are centrally bored in line with each other, as indicated at 9, for the purpose of receiving a draw rod or bolt 10. The head 11 of the bolt bears against the bottom of the recess 8 of one of the wedges, while the adjustable nut 12 of said bolt bears against the bottom of the recess of the opposite wedge, and inasmuch as said nut is adjustable upon the bolt it will be seen that a rotation of the nut upon the bolt will cause a drawing together of the wedges. Furthermore, as the nut and head of the bolt are located in the recesses 8 they do not project beyond the end of the frame 1, and inasmuch as the ends of the wedges are recessed for nearly their entire width free access to the head of the nut may be obtained.

Seated upon the wedges 7 is the bottom quarter-block 13 of the box, and the under side of the same, as best appears in Fig. 1, is tapered at its opposite ends toward its middle, as indicated at 14. Against these tapered or inclined faces 14 the wedges work, and, as is obvious, will cause a raising of said bottom quarter-section. The bottom quar-

ter-section is provided with a transverse and therefore substantially segmental-shaped oil reservoir or groove 15, the same being highest at its center and having its opposite side walls cut away, so as to render it larger at its base or bottom. Near the opposite ends the bottom quarter-section is provided with similar segmental grooves 16, the same being arranged in a plane slightly above the bottom of the reservoir-groove 15, and like it being slightly higher at their centers than their ends. The ends of the grooves 16 communicate with the opposite ends of opposite side grooves 17, which are deeper at their centers than at their ends and which communicate with the depressed ends of the reservoir-groove 15.

Resting upon the upper edges of the bottom quarter-section, whose upper face between its side edges, it will be observed, is curved or of segmental shape, as indicated at 18, is a pair of opposite side quarter-blocks 19, the upper edges of which are slightly above the upper edges of the sides 3 of the frame 1, and the said side blocks have their inner surfaces curved to form a continuation of the inner surface of the bottom quarter-section 13. These side blocks are also recessed at their centers, as at 20, to form a continuation of the oil-reservoir 15 in the bottom quarter-section, and at each side thereof one side block is provided with distributing-plates 20^a, which at their ends run in contact with the oil-distributing ring hereinafter described. An adjustment of the side blocks is secured through the medium of set-screws 21, that are threaded in perforations 22, with which the sides 3 of the frame 1 is at intervals provided. Jam-nuts 23 are located on the screws and serve to retain the same against possible accidental movement, and also to enable one to take out the side quarters and return them to the same position.

Surmounting the structure as thus described is the cap-plate 25, the same resting upon the upper edges of the side blocks 19 and being above and out of contact with the upper edges of the side walls 3 of the frame 1. The opposite side edges of the cap-plate 25 are provided with depending flanges 26, which take over and engage with the side walls 3 and are thereby prevented from lateral movement. At intervals the cap-plate is provided near its edges with clearance-openings 27, and the same register with the openings 4 in the walls 3. Through the openings 27 of the cap-plate and into the openings 4 of the walls 3 are threaded screws 28, having binding-nuts 29 on their upper ends above the cap-plate, whereby said cap-plate is bound rigidly upon the frame 1. The under side of the cap-plate is curved so that its curved surface, in conjunction with the curved surfaces of the side blocks and bottom quarter-block, form a complete annular bearing. The cap-plate is, furthermore, at its center provided with the groove 30, which forms a continua-

tion of the reservoir-groove 15, formed in the bottom quarter and side blocks, and at one side above the distributing-blades is channeled almost its entire length, as at 30^a. Communicating with the groove 30 there is formed in the cap-plate an oil-induction opening 31, the same being provided with a suitable cap or cover 32. These parts, it will be understood, are preferably lined with Babbitt metal 33, as shown, and, combined, support in a rotatable manner the shaft or journal 34.

One of the side walls 3 is immediately above the base 2 and at or near its longitudinal center provided with an opening 35, and through the same there extends a drip-pipe 36, the outer end of which is provided with a cut-off 37 and the inner end of which communicates with the central, and therefore depressed, portion of one of the side grooves 17 of the bottom quarter-section. Between its ends the drip-pipe 36 may be provided with an ordinary sight-gage 38. This completes the construction of the journal-box with the exception of the oil-ring 39, which is fixed upon and moves with the journal and within the annular groove formed in the bottom quarter-section, side blocks, and cap.

In operation a lubricating-oil is introduced through the opening 31, and, following the course of the groove, is directed to the reservoir-groove 15, in which the oil-distributing ring 39 constantly runs as the shaft or journal is rotated. The ring during its rotation with the shaft takes up and distributes oil over the surfaces of the oil-distributing plates 20^a, the oil being thereby directed toward the opposite ends of the shaft by the groove 30^a in the cap-plate. When it reaches the ends of the journal-box it is caught by the grooves 16, formed in the ends of the bottom quarter-section, and they, being raised at their centers, discharge said oil into the side grooves 17, which, being depressed at their centers, return the lubricant to the reservoir-groove 15. In this manner, as will be obvious, a constant uniform oiling of the shaft takes place, and the oil circulates from the center of the shaft to the ends of the boxing and returns.

In order to insure the gathering of the oil at the ends of the box, small yielding scraper-blades 40 of light resiliency may be located in the end grooves 16 of the bottom quarter-section. These blades are provided with upwardly-bent ends 41 and run lightly in contact with the shaft.

From the foregoing description, in connection with the accompanying drawings, it will at once be obvious that I attain the various stated objects of my invention, to wit, a self-lubricating journal-box, a ready means of adjustment that results in a positive and accurate adjustment of the parts composing the box to the shaft or journal without changing the relation of the wearing parts, that the several parts composing the box are well intended and adapted to obviate looseness as a result

of vibrations, and, finally, that I gain a relatively large amount of adjustment with the space occupied and that there is no extra length of shaft required for adjustment-space which is not utilized as journal-bearing.

Having described my invention, what I claim is—

1. In a journal-box, a lower bearing portion having an intermediate transverse oil-reservoir groove depressed at its ends, opposite end grooves arranged above the reservoir-groove and depressed at their ends and inclined return-grooves leading from the depressed ends of the end grooves to the lower depressed ends of the oil-reservoir groove combined with a shaft or journal arranged in the bearings and an oil-distributing ring mounted for movement with the shaft and within the oil-reservoir groove, substantially as specified.

2. In a journal-box, the combination with a frame comprising bottom and opposite sides, of a bottom quarter-section, means for adjusting the same, opposite side sections resting on the bottom quarter-section, a superimposed cap-section resting on the side sections and binding-screws passing through the cap-section and into the sides of the frame, of a shaft or journal supported within said sections, substantially as specified.

3. In a journal-box, the combination with a frame comprising a bottom and opposite vertical sides, a bottom bearing-section arranged upon the bottom of the frame, opposite side sections arranged upon the bottom section, a cap-section arranged upon the side sections and having its opposite side edges provided with depending flanges engaging the side walls of the frame, binding-screws passing through the cap-section and into the side walls of the frame, and means for independently adjusting the side and bottom sections, of a shaft or journal supported by said sections, substantially as specified.

4. In a journal-box, the combination with a frame comprising a bottom and opposite sides, a lower bearing-section arranged on the bottom and having its under side provided with opposite inclined surfaces, a pair of wedge-shaped blocks arranged between the bottom of the frame and the inclined bearing-surfaces of the bearing-section, and a bolt passing through and binding the wedge-blocks together and provided at one end with an adjusting-nut, of opposite side and an upper bearing section, means for adjusting the same independent of the lower section and a shaft or journal inclosed by said sections, substantially as specified.

5. In a journal-box, the combination with a rigid frame comprising a bottom and opposite sides, a pair of blocks arranged upon the bottom and having their upper surfaces reduced toward their inner ends, said blocks being bored in line with each other, a binding-bolt having a nut at one end arranged in the bore, of a superimposed bottom and bear-

ing section, the under side of which is oppositely beveled or inclined to the upper sides of the blocks, opposite side bearing-sections arranged on and supported by the bottom section, means for adjusting the same laterally, a superimposed cap-section supported by the side sections and out of contact with the walls of the frame, and binding-bolts passed through the cap-section into said walls, and a shaft or journal supported by the sections, substantially as specified.

6. In a journal-box, the combination with a frame comprising a base and opposite side walls, a bottom bearing-section carried by the base and provided with an intermediate oil-reservoir groove, opposite end grooves and return-grooves leading from the end grooves to the intermediate groove, and means for adjusting vertically the bottom section, of opposite side bearing-sections and a superimposed cap-section having intermediate grooves forming a continuation of that of the bottom section, said side sections being supported by the bottom section, and said cap-section being supported by the side sections, means for laterally adjusting the side sections, screws for securing the side sections adjustably upon the side walls of the frame, an oil-opening arranged in the cap-section and communicating with the intermediate grooves, and a shaft or journal arranged in the sections and having a distributing-ring mounted for rotation thereon and within the intermediate grooves, substantially as specified.

7. In a journal-box, the combination with the rigid frame comprising the bottom and opposite side walls, the opposite wedge-blocks having registering bores and opposite ends recessed between their side edges, a binding-bolt having an adjustable nut at one end arranged in the bores and connecting the blocks, the nut and head of the bolt being located in said recesses and therefore back of the ends of the frame, a bottom bearing-section having its under surface inclined to conform with the blocks, opposite side sections and a superimposed cap-section, of means for adjustably securing the side and cap sections, and the journal or shaft provided with a distributing-ring adapted to move therewith and in an oil-groove formed in the bottom, side and cap sections, substantially as specified.

8. In a journal-box, the combination with the supporting-frame, the bottom, side and top sections, the same being provided with a continuous groove, and the bottom section with end grooves and return-grooves, of a shaft mounted for rotation in the sections and having an oil-ring fixed thereon to move therewith, and adapted to rotate in the continuous groove, and opposite distributing oil-plates mounted on one of the side sections with their ends in contact with the opposite sides of said ring, substantially as specified.

9. In a journal-box, the combination with

adjustable sections arranged within a support
and provided with a continuous annular
groove and with a longitudinal groove, of a
shaft supported by the sections and provided
5 with an oil-ring adapted to move therewith
within the groove, and oil-distributing blades
supported by one of said sections and adapted
to take oil from the ring and distribute the
same over the surface of the shaft through

the medium of said longitudinal groove, sub- ro
stantially as specified.

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

JOHN T. WILKIN.

Witnesses:

HYATT L. FROST,
JOSIE B. MCKEE.