# J. T. Bruen,

## Journal Box.

No. 50,445. Patented Oct. 17, 1865.

Fig: A.

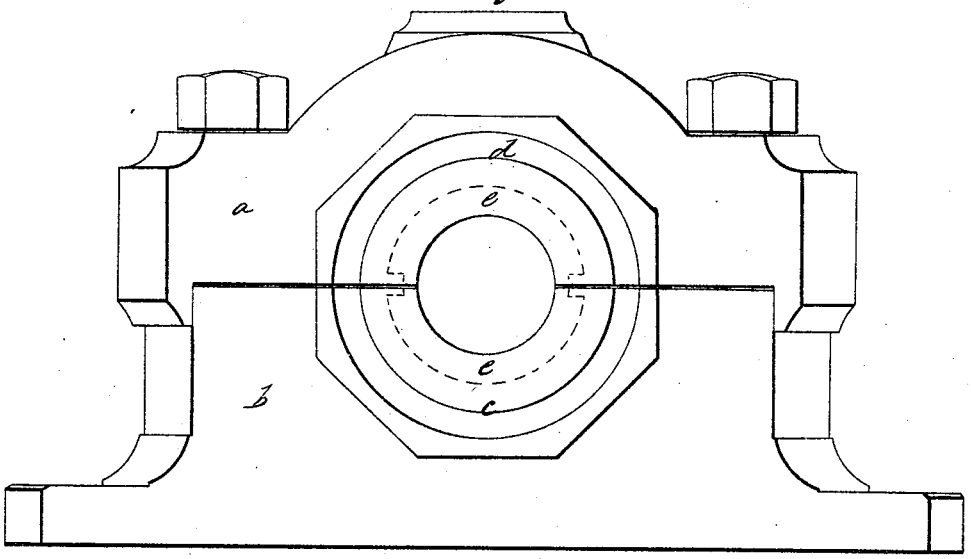
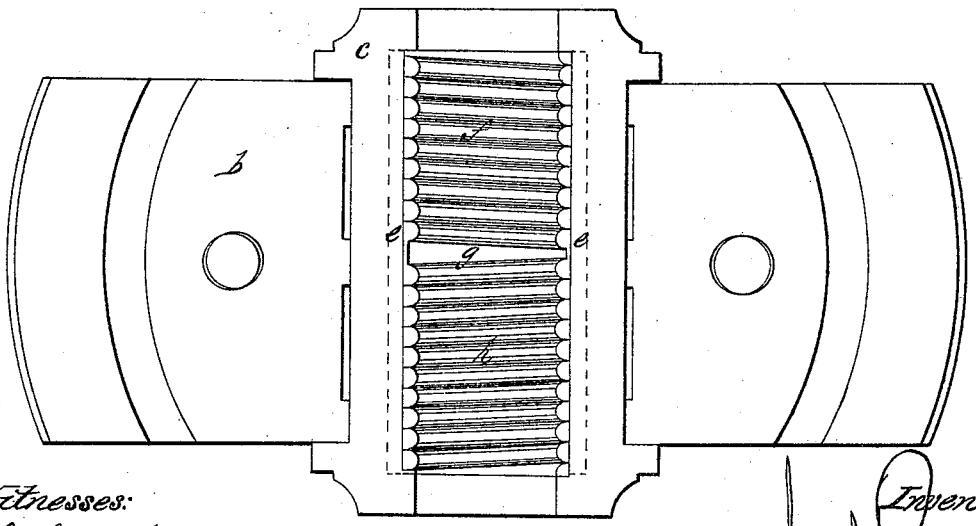



Fig: B.




Witnesses:
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# UNITED STATES PATENT OFFICE.

JOHN T. BRUEN, OF NEW YORK, N. Y.

## IMPROVED JOURNAL-BOX.

Specification forming part of Letters Patent No. **50,445**, dated October 17, 1865.

*To all whom it may concern:*

Be it known that I, JOHN T. BRUEN, of the city, county, and State of New York, have invented a new and useful Improvement in Journal-Boxes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure A is the side elevation of a pillow-block, and Fig. B the plan view of the lower half of the pillow-block.

The same letters indicate like parts in the two figures.

The object of my invention is, first, to prevent abrasion of the journals; second, to reduce the friction-surface; third, to distribute the lubricating materials over the journal; fourth, to retain the lubricating material in the bearing.

The nature of my invention consists in constructing the bearing-surfaces of journal-boxes with circumferential corrugations which present a regular series of lands and grooves alternately along the whole length of the bearing. This surface may be produced in various ways; but the simplest method, and that which I prefer, is to cast the bearing metal or alloy into the chamber or recess of the journal-box on a corrugated metal mandrel or on a suitable core. This mandrel or core has two longitudinal grooves on opposite radial points coinciding with the parting-lines of the upper and lower half of the journal-box, into which grooves are inserted two steel fins, so as to be easily removed. Before casting the mandrel is so placed that these fins coincide and are held between the upper and lower half of the journal-box. The object of these fins is to prevent the molten metal or alloy from flowing out of the recess or chamber while being cast, and especially to insure an exact coincidence of the spiral lands and grooves in the upper and lower half of the box. For this purpose both the upper and lower half should be cast without removing the mandrel. The points of contact on the journal, as it revolves on the convex parts of the lands continually shift, whereby annular cutting or abrasure is prevented. The area of contact or friction between the journal and the box is diminished in the ratio which the area of the apices of the lands bears to the area of a plain box. The oil or other lubricating substance is equally distributed over the whole (inclosed) area of the journal by means of spiral lubricating-channels, (cast in as mentioned,) conveying from both extremities of the journal-box and leading into an oil chamber or receptacle situated in the middle of the bearing. The lubricating substance is more effectually retained in the bearing by the angle which the friction-surfaces make with the axis of the shaft, the apex of which angle lies in the middle of the bearing in the direction of the motion of the shaft, which successively wipes the oil from one to the other of the lands of the spiral lubricating-channels, until the two volumes encounter each other in the oil-chamber at the middle of the bearing.

*a* in Fig. A represents the cap, and *b* the lower part, of a pillow-block.

*c* represents the lower half, and *d* the upper half, of the journal-box.

*e* represents the recess or chamber provided in the journal-box for the reception of the bearing metal or alloy.

*f* and *h* in Fig. B represent the spiral lands and grooves converging toward the middle of the journal-box and in the direction of the motion of the shaft or journal.

I have thus described my invention, its object and nature, and exemplified a mode of application; but it is obviously susceptible of other modes of application. For instance, any molten substance may be used, such as glass or other minerals, (in special cases,) instead of metal or alloy; and other modes of corrugating or indentating, instead of the one described, may be resorted to—as, for instance, a continuous spiral channel from one end of the journal-box to the other, instead of the converging ones, as shown, may be used for upright shafts to wipe the oil upward, or for marine engines and submerged machinery, where a continuous flow of water may with advantage replace lubricating substances. I therefore wish it to be understood that I do not confine myself to the mode specified, nor to the metals, alloys, or minerals used, but intend to vary, as occasion may require.

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

Constructing the bearing-surface of a journal-box of a corrugated or indentated configuration, substantially as and for the purpose herein set forth.

JNO. TH. BRUEN.

Witnesses:

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