E. H. Stearns,

Journal Box.

No. 110,086. Patented Dec. 13. 1870.

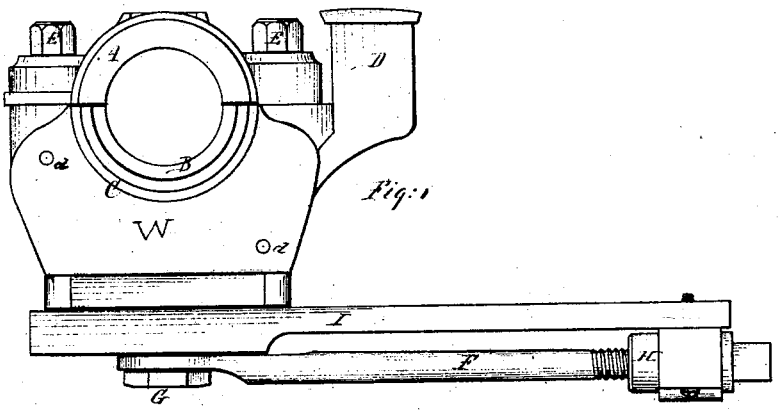
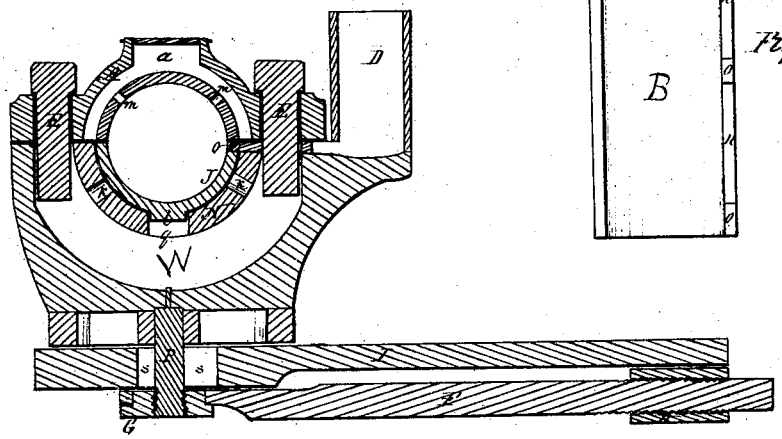


Fig: 1

Fig: 2



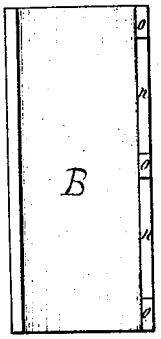


Fig: 4

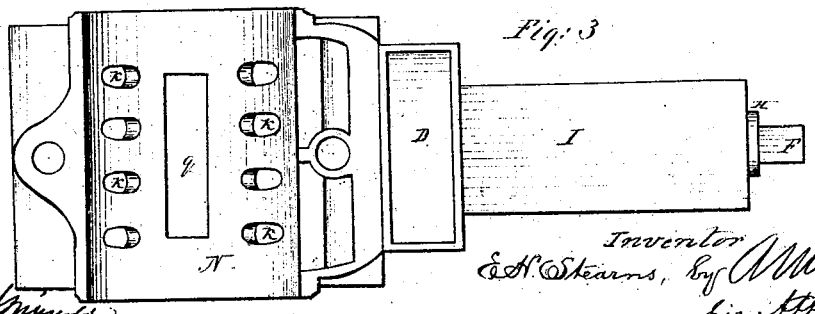


Fig: 3

Witnesses,
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EDWARD H. STEARNS, OF ERIE, PENNSYLVANIA.

Letters Patent No. 110,086, dated December 13, 1870.

IMPROVEMENT IN JOURNAL-BOXES.

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

I, EDWARD H. STEARNS, of Erie, in the county of Erie and State of Pennsylvania, have invented certain Improvements in Journal-Boxes for Saw-Mills and other machines, of which the following is a specification.

Nature and Objects of the Invention.

The first part of my invention relates to the use of a detachable Babbitt-metal lining for journal-boxes, extending the entire length of the box, and closely fitted and imbedded therein, so that the water which is used to receive and convey away heat from it as fast as it may be developed by friction with the journal, may be entirely excluded from contact with the journal itself, but at the same time such lining shall be easily removable, so that when worn out it may be replaced by a new one; and in this cheap and simple manner the box itself will be protected against the effects of the heat developed by friction, while the journal itself shall have its heat borne away as fast as developed.

The second part of my invention relates to the construction of the journal-box itself, with a large water-chamber in its lower part, arranged in such a manner as to receive a regulated supply of cold water, and to discharge the same as fast as it shall become warm with the heat, received in the manner aforesaid from the Babbitt lining.

The top of the water-chamber in which the lining is imbedded is thoroughly perforated with large vertical holes, through which the cold water enters to cool the lining as it becomes heated from the friction of the journal, so that the water conveys away the heat of the lining, without at all coming in contact with the journal.

The third part of my invention relates to the construction and location of an oil-chamber on the outside of the box, but as a part of the same, in such a manner that a reservoir of oil shall be kept in a position that is higher, considerably, than the longitudinal center of the journal, and shall be forced in contact with it, by its own weight, through wide recesses provided for it in the upper edge of the Babbitt-metal lining and under the cap of the box, so that this device for lubricating the journal shall be self-acting.

The fourth part of my invention relates to the mounting of the journal-box upon the frame in such a manner that, by the use of a wrist, a slot in the frame, and a screw-shaft, the direction of the journal may be changed whether in motion or at rest, by the turning of a simple crank, and by means of a screw-shaft they may be easily moved laterally at any time.

In the accompanying drawing—

Figure 1 represents an end elevation of my improved journal-box;

Figure 2, a vertical cross-sectional view of the same;

Figure 3, a plan view of the same, the cap and lining being removed; and

Figure 4, a like view of the Babbitt lining detached.

A is the cap.

E E, the screw-bolts, by which it is secured to the box D.

The oil-chamber *a* is a small chamber in the top of the cap to contain tallow, which will melt and run down upon the journal, (when it becomes heated,) through the holes *m m*, fig. 2.

B is the Babbitt lining; and

C, its bed in the box; and

K K K K are the holes in the bed for the admission of cold water; and

q is the oblong opening therein, for the corresponding projection on the bottom of the lining to enter, and by which it is held exactly in its proper position, without either side or end motion.

P is the wrist, before mentioned; and

G is the nut which is screwed upon the end thereof, so as to hold the box more or less tightly down against the frame, the wrist being rigidly fixed in the box.

S S is the neck of the nut G, and over this neck the end of the screw-shaft F turns, when the direction of the journal and box is changed, as hereinbefore intimated.

The blank space on each side of the wrist at P, fig. 2, indicates the form of the slot in the bed-piece I, which allows of the lateral motion of the box and journal, before mentioned, and this motion is imparted by means of the nut H upon the outer end of the screw-shaft F.

The bed-piece I and the nut H are boxed together, as shown in fig. 1.

Fig. 4 shows, in a detatched view, the simple form of the Babbitt-metal lining.

The points O O O are those upon which the cap is received, while *n n* are the channels through which the oil is pressed by the weight of the supply of it in the oil-chamber D, and they should be tightly packed with cotton or cotton-wicking, which will regulate the flow of oil against the journal, which will cease altogether, of course, when the journal is at rest.

The flow of oil may be further regulated by its height in the chamber D.

These oil-chambers may be cleaned by simply removing the cap, without disturbing the journal.

The surface of the cap and box where they join together should be planed smooth, so as to make tight joints, to exclude dust and prevent the escape of oil.

The water-chamber in the box should be perforated with holes, as many in number and as large in diameter as may be without too much impairing its strength as a support for the journal, in order that as much of the under surface as possible may be thrown into contact with cold water to keep it cool, and consequently the journal also cool.

In the side of the journal-box are holes *d d*, one for a pipe for receiving cold water, the other for discharging the water after it has become warm.

In case a journal is driven by a belt horizontally, or

rom above, either with or without water-chambers, Babbitt linings may be provided and used in the cap, nd where a water-chamber is used in the cap it should ommunicate with the lower chamber so that the water nay pass through both.

For many saw-mills and other machines the cap may e cast in one piece of metal, planed, bored, and turned perfect fit, and cast hollow with a chamber for tallow, o be used as before explained.

It is believed to be manifest, from the foregoing description, that by the use of my improvements the following important results are effected:

First, the journal is kept cool.

Second, an accurate and closely-fitting bearing for the journal may be constantly had, by means of a detachable lining, removable and exchangeable at pleasure, thus securing true action of the machinery.

Third, the lubricating-oil is furnished to the journal effectually and automatically without contact with water.

Fourth, an easily adjustable bearing is furnished for the whole device.

Claims.

I claim as my invention—

1. The described detached Babbitt-metal lining B of a journal-box, in a saw-mill, having the projection described on its under side to fit into a corresponding slot in the box itself, for the purpose of preventing both lateral and endwise motion, substantially as and for the purpose set forth.

2. The water-chamber W with its bed C, formed as described, having the oblong slot *q* for the reception of the said projection on the Babbitt-metal lining, and perforated with holes K K K, and the cap A with its screw-bolts and screw-holes, by means of which the box is closed and made fast over the journal, substantially as and for the purpose described.

3. The oil-chamber D, situated with reference with the journal, as described, so that the weight of the oil therein will force the same through the oblong openings *n n*, described, against the journal, on a level with its longitudinal center, substantially as and for the purpose described.

4. The shaft F, bed-piece I and G, and nut H, in combination, as an adjustable bearing for a journal-box, constructed and arranged substantially as described.

E. H. STEARNS.

Witnesses:

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