(No Model.)

J. G. BUZZELL.

MACHINE BOX.

No. 317,087. Patented May 5, 1885.

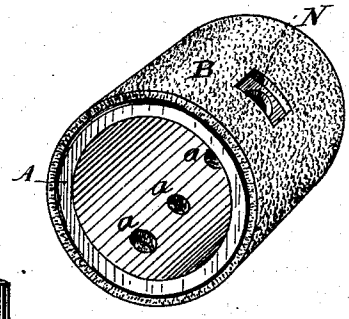


Fig. 1.

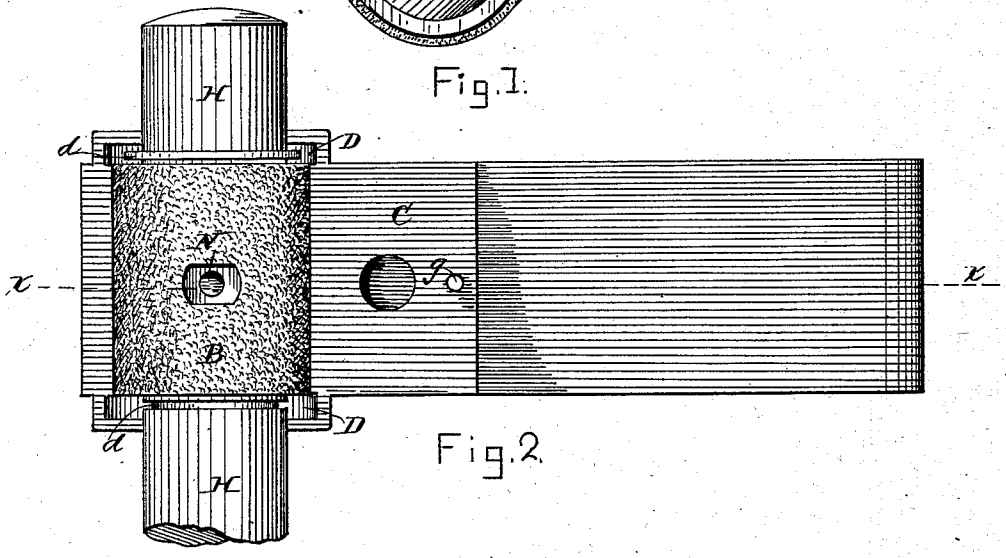


Fig. 2.

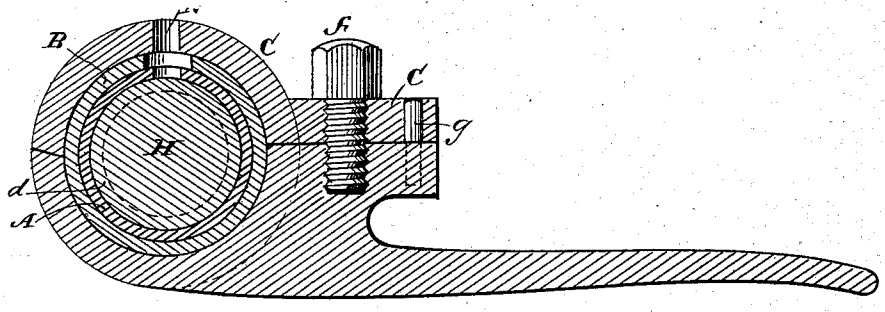


Fig. 3.

Witnesses
Wm. L. Arett
Frank S. Pratt.

Inventor.
John G. Buzzell
by Att'y Chas. Allen Taber.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOHN G. BUZZELL, OF LYNN, MASSACHUSETTS.

MACHINE-BOX.

SPECIFICATION forming part of Letters Patent No. 317,087, dated May 5, 1885.

Application filed January 30, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. BUZZELL, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented a new and useful Box for use in the Hangers or Bearings for Axles or Shafts in Machinery, of which the following is a specification.

My invention relates to an improvement in such boxes, usually made of Babbitt or other composition metal, which surround the shafts or axles within the hangers, bearings, or other permanent parts of the machinery for the purpose of reducing friction; but it has been found that it was nearly, if not quite, impossible to fit a shaft so carefully to its bearings that it shall revolve exactly around its mechanical center, and without sufficient friction to heat and swell it. When a shaft is made to revolve rapidly, especially if it is weighted with pulleys or other mechanism, it has a tendency to revolve around its center of weight, whereby the shaft generally acquires an eccentric movement. It also requires a great expenditure of fine and costly labor to finish the circumference of the shaft to true circles. If these difficulties are not overcome, the shaft will either rattle in its box, causing a great noise and jar to the machinery, preventing fine work, or, if fitted tightly, it will quickly heat and swell, so as to stop the machinery or cause great injury. No box now in use can remedy these evils, and they allow more or less of the oil to escape and be thrown about from the revolving shaft. My invention allows of quite a saving in the expense of finishing the cavity in the hanger for the box, as my box does not require a nice fit.

The objects of my invention are, first, to increase the efficiency of the box in reducing friction; second, to prevent the evil effects of the heating and swelling of the revolving shafts; third, to allow of the eccentric motion of the shafts; fourth, to reduce the jar and deaden the noise of the machinery; fifth, to take up and distribute the waste oil which works out of the box onto the shaft and to return it to the box; sixth, to reduce the expense of fitting the inside of the hangers or shells to the boxes. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a box with its covering. Fig. 2 is a view of a hanger or shaft supporter with the upper portion of the shell removed, showing the box in its place and a portion of a shaft with the circumferential groove and ring. Fig. 3 is a section of the whole arrangement, taken on the line of *x* in Fig. 2.

The same letters refer to like parts in the several views.

My invention primarily consists in surrounding the friction-box A with a band or bands of felt or other suitable semi-elastic substance, B, so that it shall not be rigidly held in the shell C of the permanent machinery. I also cut a few holes, *a a a*, through the box, which are filled with felt or other substance of a similar character for the purpose of affording a free passage to the oil. Around the shaft at each end of the box I either cut a shallow circumferential groove or fit on a ring or collar, *d*. When the oil escapes from the box, this ring or groove stops its passage along the shaft, and the centrifugal force throws it into a cavity, D, cut in the shell C at each end of the box, from whence it passes to the felt, and, being filtered through the felt, passes again to the box through the holes *a a* to lubricate the shaft. The shell or bearing C is made in two parts, one removable, as usual, and they are secured together by a screw or bolt, *f*, and pin *g*. The interior of the shell does not require, in my invention, such careful fitting to the box as is necessary with other boxes, and a great saving is made by me in labor. Through one part of the shell, felt, and box is made an opening, N, for an oil-cup.

By this invention I produce a box which allows of a closer fit to the shaft than could otherwise be used, as it is well known that the composition box will swell faster than the shaft when heated, and will not bind, because the felt cover allows of the necessary expansion. The elasticity of the felt also allows of the eccentric movement of the shaft, avoiding all noise and jar, and securing a minimum of friction, all because the felt covering allows of a slight play and expansion of the box, instead of the rigid and unyielding method of holding now in use.

I prefer to use the collar or ring *d*, rather

than the groove, in connection with the cavity D in most cases; but I find that in some cases the groove acts as well, and do not wish to be limited to either.

I do not intend to claim the composition box alone, either with or without the holes *a a a;* but

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

1. The box A, with its outer covering, B, substantially as described, and for the purpose set forth.

2. The combination of the box A, the yielding cover B, the cavities D D, and the rings or collars *d d*, substantially as described, and for the purpose set forth.

3. The combination of the box A, the rings or collars *d d*, and the cavities D D, substantially as described and set forth.

4. Felt or other suitable semi-elastic substance as a cushion between the box and the unyielding shell, in combination with the box A, substantially as described, and for the purpose set forth.

JOHN G. BUZZELL.

Witnesses:

CHARLES G. DYER,

CHAS. ALLEN TABER.