(No Model.)

C. H. KNOWLTON & B. F. MEYER.

BALL BEARING ECCENTRIC AND STRAP THEREFOR.

No. 507,016. Patented Oct. 17, 1893.

FIG: 1

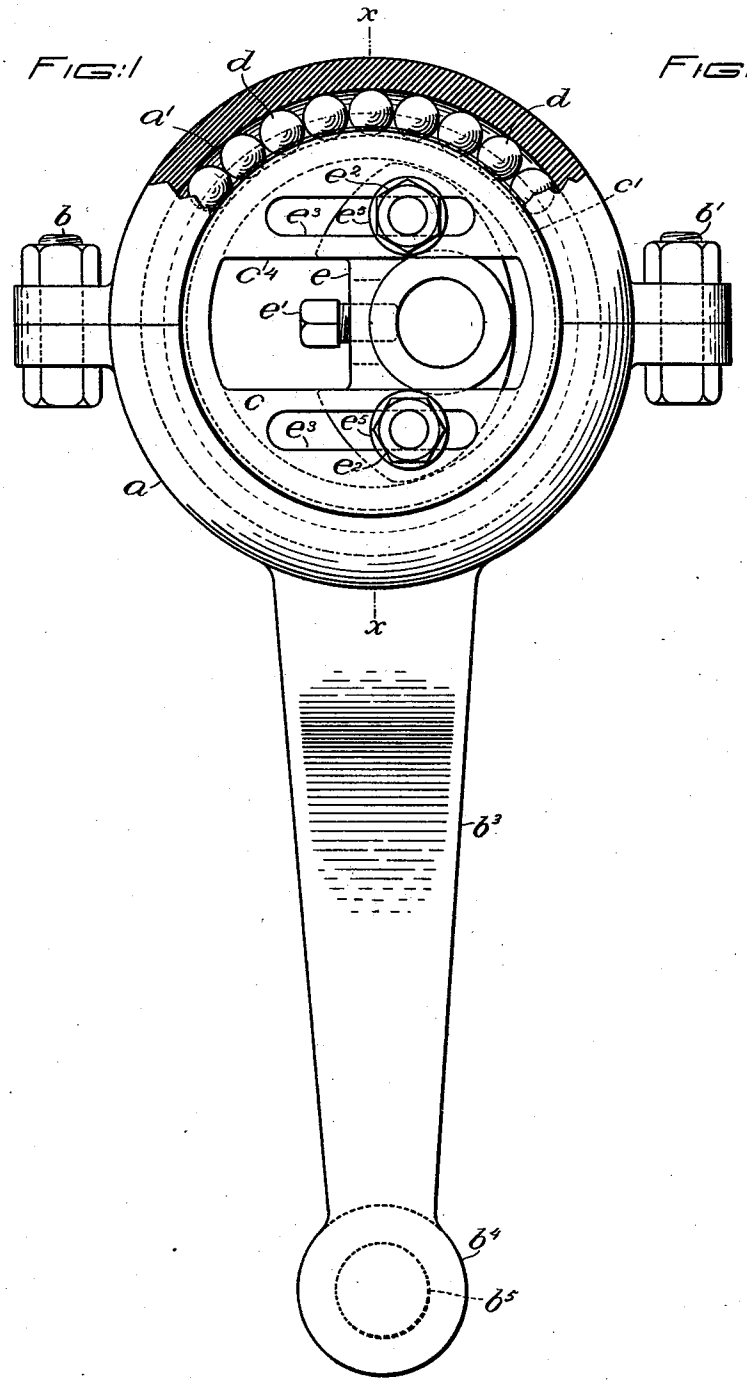
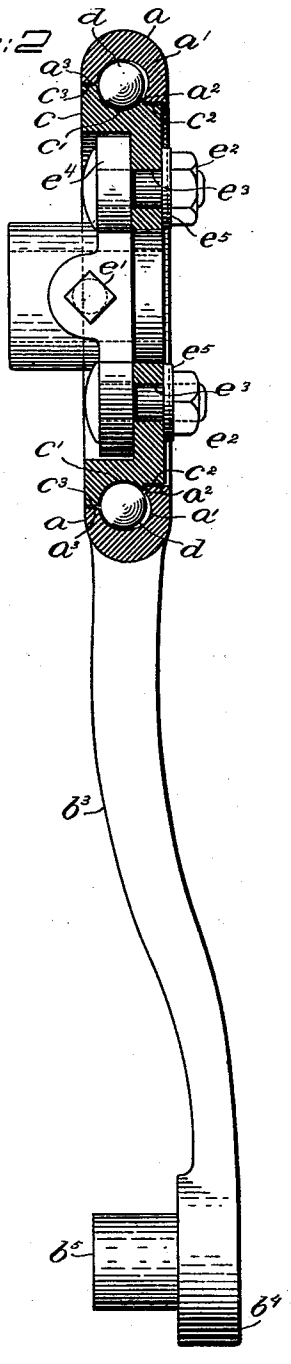


FIG: 2



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES H. KNOWLTON AND BENJAMIN F. MEYER, OF CAMDEN, NEW JERSEY, ASSIGNORS TO THE M. A. FURBUSH & SON MACHINE COMPANY, OF SAME PLACE.

BALL-BEARING ECCENTRIC AND STRAP THEREFOR.

SPECIFICATION forming part of Letters Patent No. 507,016, dated October 17, 1893.

Application filed April 22, 1893. Serial No. 471,426. (No model.)

To all whom it may concern:

Be it known that we, CHARLES H. KNOWLTON and BENJAMIN F. MEYER, citizens of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Ball-Bearing Eccentrics and Straps Therefor, of which the following is a specification.

Our invention has relation to a ball bearing eccentric afforded a range of movement in the reciprocation or oscillation of the strap thereof; and it relates more particularly to the construction and arrangement of the parts of the same.

The principle object of our invention is to provide a comparatively simple, durable, efficient and readily detachable ball bearing eccentric and strap for use in machines especially requiring high speed and with friction on the working parts maintained at a minimum.

Our invention consists of the improvements hereinafter described and claimed.

The nature and general characteristic features of our invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof; and in which—

Figure 1, is a view partly in plan and partly in section of a ball-bearing eccentric with the detachable strap thereof, embodying the features of our invention; and Fig. 2, is a transverse sectional view on the line x—x, of Fig. 1.

Referring to the drawings, a is the two-part strap having an inner grooved face a', with an inner recessed flanged edge a^2, forming a seat for the complemental outer edge of a disk to be hereinafter fully described.

a^3, is the opposite face of the wall of the groove a', but with a smooth surfaced seat. The walls of the grooved face a', are of different depths as clearly shown in Fig. 2, in order to adapt the same to corresponding walls of the grooved peripheral face of the disk, and for the purpose of preventing sidewise displacement while the rolling bodies or balls are in position between the respective grooved faces of the disk and strap. The two parts of the strap are held together by means of bolts b and b', engaging wings b^2 and b^3, preferably cast integral with the two-part strap a. The rear portion of the strap is provided with a crank-arm b^3, having a boss b^4, with an opening b^5, extending through the same for the reception of a pin or stud-bolt, for connecting the strap with a member of a machine, not shown, and so that a reciprocating movement may be imparted from the strap a, thereto.

c, is the disk above referred to and provided with a grooved periphery c', having a recessed and flanged edge c^2, as shown in Fig. 2, adapted to mesh with the complemental recessed and flanged edge surface a^2, of the strap a.

c^3, is the opposite smooth surfaced face corresponding as to shape or form to the surface a^3, of the strap a. This disk c, is provided with an oblong slot c^4, in order to accommodate and support in the required position a butterfly-casting e, adapted to be clamped or otherwise secured to a shaft, not shown, by means of a set-screw e', so that the disk c, may be adjusted transversely with the shaft in order to increase or diminish the throw of the device.

e^2, are set-screws afforded a range of movement in oblong slots e^3, in the disk c, and engaging the wings e^4, of the casting e, as clearly shown in Fig. 2.

e^5, are gaskets interposed between the screws e^2, and the face of the disk c, to facilitate clamping and unclamping of the casting e, to and from the disk c.

d, are balls interposed between the grooved faces of the disk c, and strap a, and afforded a movement around and around in the rotary and reciprocating movements respectively given to the disk and strap suitably connected with certain members of a machine having motion imparted thereto in a manner such as hereinbefore explained.

It may be here remarked that by the construction and arrangement of the strap and disk with respect to each other and with the balls in contact with the respective grooved surfaces thereof, sidewise displacement is absolutely prevented and ease of movement in the working of the parts of the device is in-

sured and at the same time with friction reduced to a minimum. Furthermore, this device by reason of its construction and arrangement by the removal of the bolts and nuts b and b', can be readily detached for repairs, cleaning or replacing a broken or worn ball by another. Moreover, this device is especially adapted for employment in machines in which by the rotary movement of one member a reciprocating motion may be given to another and in which requirements demand a high rate of speed with friction reduced upon the working parts thereof.

Having thus described the nature and objects of our invention, what we claim as new and desire to secure by Letters Patent, is—

1. A ball-bearing eccentric and strap therefor, comprising a slotted disk provided with a grooved face, the walls of which are of different depths and one edge or face recessed, a casting adjustably seated to said disk, a separable strap with a crank-arm and boss for the reception of a stud-bolt or shaft and provided with a complemental grooved face to that of said disk and having wings detachably secured to each other, and balls engaging the grooved faces of said disk and strap, substantially as and for the purposes set forth.

2. A ball-bearing eccentric and strap therefor, comprising a disk provided with a butterfly casting detachably connected therewith and said disk having a grooved face with the walls of different depths, whereof one is recessed and the other is smooth for the engagement of the complemental walls of a detachable two-part strap provided with an inner grooved face and said strap having a crank-arm with a boss having an opening therein for a stud-bolt or shaft, and balls mounted in the grooved faces of said disk and strap, substantially as and for the purposes set forth.

In testimony whereof we have hereunto set our signatures in the presence of two subscribing witnesses.

CHARLES H. KNOWLTON.
BENJAMIN F. MEYER.

Witnesses:
THOMAS M. SMITH,
RICHARD C. MAXWELL.