

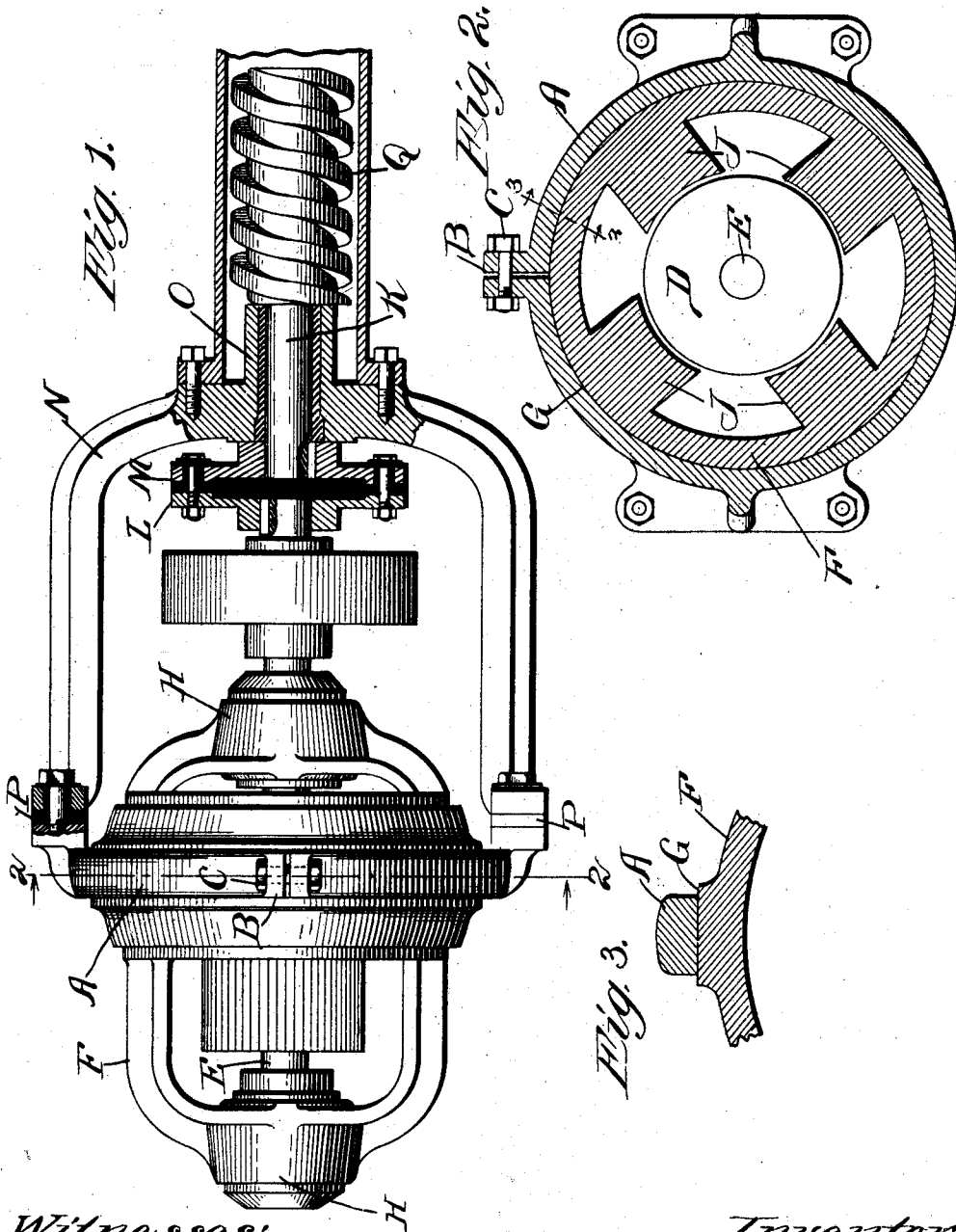
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Patented Jan. 29, 1901.

T. W. EATON.
MOUNTING FOR ELECTRIC MOTORS.

(Application filed Oct. 8, 1900.)

(No Model.)



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UNITED STATES PATENT OFFICE.

THOMAS W. EATON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE EATON & PRINCE COMPANY, OF SAME PLACE.

MOUNTING FOR ELECTRIC MOTORS.

SPECIFICATION forming part of Letters Patent No. 666,656, dated January 29, 1901.

Application filed October 8, 1900. Serial No. 32,416. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. EATON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Mounting for Electric Motors, of which the following is a specification.

This invention relates to mountings for electric motors.

One object of the invention is to provide a construction of motor-mountings which is simple and efficient and wherein the motor is capable of being readily removed for inspection or repair and replaced in position without disturbing the relation of the parts.

A further object is to provide means whereby the motor is held in proper relation when once assembled in place without the possibility of derangement, and when removed and replaced will always occupy the same fixed relation to the other parts.

Other objects of the invention will appear more fully hereinafter.

The invention consists substantially in the construction, combination, location, and arrangement, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings and to the various views and reference-signs appearing thereon, Figure 1 is a plan view, parts broken off and parts in horizontal section, showing a construction embodying the principles of my invention. Fig. 2 is a transverse section on the line 2 2, Fig. 1, looking in the direction of the arrows. Fig. 3 is a broken detail view in section on the line 3 3, Fig. 2.

In carrying out my invention I provide a suitably supported and insulated band or ring, the interior surface of which is bored truly concentric with the axis of rotation of the motor-shaft, and I provide the motor frame or casing with a flat or turned surface, also truly concentric with the axis of rotation of the motor-shaft and also with bearings for the motor-shaft, which are bored truly concentric with the extended geometrical axis or center line of the turned and bored portion of the motor frame or casing and of the inte-

rior surface of the supporting ring or band. In practice I prefer to employ a split band or ring. From this description it will be readily seen that when the motor is properly arranged in the motor frame or casing and such frame or casing is inserted in or through the supporting band or ring, so that such ring will embrace the turned cylindrical surface of the motor frame or casing, the motor will be efficiently held in proper assembled relation, and when the ends of the split ring or band are drawn together to effect a clamping action the motor is held firmly and securely in position without danger or possibility of lateral derangement and may be easily withdrawn or removed by loosening up upon the clamping ring or band and withdrawing the same therefrom. It will also be seen that whenever the motor is once in place in the supporting-ring it will remain in absolutely fixed relation with respect thereto, and the motor-shaft will always occupy the same position, however often the motor may be withdrawn for repair and replaced in position. It will also be seen that I avoid the necessity of feet or pedestals for supporting the motor, thus not only providing a most efficient and satisfactory motor-support, but also materially reducing the cost of construction.

Referring particularly to the drawings, reference-sign A designates the supporting or clamping band or ring, which may be split, as shown at B, the bolt C serving to draw the split ends together. D is the motor-armature; E, the motor-shaft; F, the motor frame or casing, having the turned cylindrical surface G, which is adapted to be received snugly within the supporting ring or band A, and H H the bearings in frame F for the motor-shaft. The interior surface of ring or band A, the interior surface G of frame F, and the motor-shaft bearings H H are all truly and accurately bored or turned concentric with the axis of shaft E. The frame or casing F may form a support for the motor-field magnets J, or said magnets may be formed on or cast integrally with said frame or casing, as shown. Thus the motor may be readily assembled in place in the supporting clamp, ring, or band by loosening the clamp-bolt C and inserting the motor-frame therein, in

which position it will be firmly held by again clamping up said bolt, or said motor may be removed for inspection, repair, or renewal by loosening up clamp-bolt C and withdrawing the motor-frame from the supporting ring or band.

A construction and arrangement of motor-support as above described, while adapted for use generally in any and all cases where motors are employed and where it is desirable to remove the motor and replace the same with facility and with avoidance of possible derangement of the proper alinement of the shaft, are particularly effective and desirable where the motor is directly connected to its work. Such connection is shown in the drawings, wherein the motor-shaft E is arranged in alinement with the power-shaft K and may be connected thereto by any suitable means—such, for instance, as by bolting together the disks L M, respectively splined upon said motor and power shafts and suitably insulated from each other, as shown—and in order to secure the absolute alinement of said shafts at all times and however often the motor may be removed and replaced the power-shaft K is journaled in a supporting-frame N, the journal-bearing O of said shaft being bored in true concentric relation with respect to the axis of the motor-shaft.

A special adaptation of a construction of motor-support, such as above described, is in the use thereof in connection with direct-connected hoisting mechanism for elevators. In this case the motor-supporting ring or band A is suitably bolted or otherwise permanently secured to the frame N, but insulated therefrom, as shown at P, and the power shaft K is provided with a worm or other gear Q for driving the hoisting-drum. (Not shown.) In such construction the hoisting-motor and the entire supporting-frame may be properly assembled and then bolted or otherwise secured to the ceiling of the building or in any other convenient relation. It is desirable by reason of economizing space to support the hoisting-motor from the ceiling; but difficulty has heretofore been experienced in the erection and maintenance of ceiling-supported hoisting-motors because of the inaccessibility of the motor for inspection, repair, or renewal of parts thereof, as heretofore it has been necessary to remove or take down the greater part of the entire structure for such purpose. With my invention as above described, however, these difficulties are overcome, as the motor may be readily and easily removed without disturbing the other parts or insulation by simply disconnecting the shaft thereof from the power-shaft and then loosening the clamping band or ring.

Many variations and changes in the details of construction and arrangement would readily occur to persons skilled in the art and still fall within the spirit and scope of my invention. I do not desire, therefore, to be

limited or restricted to the exact details shown and described; but,

Having now set forth the object and nature of my invention and a construction embodying the principles thereof and having described such construction, its purpose, function, and mode of operation, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is—

1. The combination with a motor having a cylindrical exterior surface, of a supporting-ring therefor, the exterior surface of said motor and the interior surface of said ring being concentric with the axis of the motor-shaft, whereby the motor may be readily inserted through or into or removed from its supporting-ring, as and for the purpose set forth.

2. The combination with a motor, of a split ring forming a support therefor, said ring arranged to encircle said motor, and having its interior surface concentric with the axis of the motor-shaft, and means for clamping said split ring upon said motor, as and for the purpose set forth.

3. In a mounting for electric motors, the combination with a motor and a frame or casing therefor, said frame or casing having a cylindrical exterior surface concentric with the motor-shaft axis, of a supporting ring or band adapted to receive and encircle said cylindrical surface, whereby the motor may be readily inserted in or removed from said supporting-ring, as and for the purpose set forth.

4. The combination with a motor having a frame or casing, the exterior surface of said casing or frame being cylindrical and turned to concentric relation with respect to the motor-shaft axis, and having bearings for the motor-shaft, said bearings being also concentric with the motor-shaft axis, of a supporting ring or band adapted to snugly receive the cylindrical exterior turned surface of the motor frame or casing, whereby the motor may be readily inserted in or removed from said supporting-ring, as and for the purpose set forth.

5. The combination with a motor having a cylindrical exterior surface concentric with the motor-shaft axis, of a clamping ring or band adapted to snugly receive such cylindrical surface to support the motor, whereby the motor may be readily inserted in or removed from said ring or band, a support for said ring or band, and means for insulating said motor-supporting ring or band from its support, as and for the purpose set forth.

6. In a mounting for electric motors, the combination with a supporting ring or band, of a motor having a cylindrical casing, said casing adapted to be removably received, and suspended in said ring or band, as and for the purpose set forth.

7. In a mounting for electric motors, the combination with a split ring or band, and means for supporting the same, of a motor

suspended in said ring, as and for the purpose set forth.

8. The combination with a supporting ring or band, of a motor having a cylindrical casing removably received, and suspended therein in concentric relation thereto, and a power-shaft to which said motor is connected, as and for the purpose set forth.

9. The combination with a supporting ring or band, of a frame or casing supported therein in concentric relation thereto, said frame or casing having journal-bearings in true concentric relation with respect to the geometric axis of said ring and frame, and a motor having the shaft thereof arranged in said journal-bearings, as and for the purpose set forth.

10. The combination with a supporting ring or band, of a motor having a cylindrical casing removably received, and suspended therein, and a power-shaft arranged in alinement with the motor-shaft, and to which the motor-shaft is connected, as and for the purpose set forth.

11. The combination with a frame having journal-bearings, a ring or band supported on said frame, the geometric axes of said bearings and ring or band being in alinement, and a power-shaft arranged in said bearing, a motor having a cylindrical casing removably received and suspended in said ring and having its shaft arranged in line with said power-shaft and adapted to be connected thereto, as and for the purpose set forth.

12. The combination with a split ring or band, of an electric motor comprising a field-magnet frame and an armature, the armature-shaft being journaled in said frame, the ex-

terior surface of said frame being turned to concentric relation with respect to said ring and shaft, and adapted to be received in said ring, as and for the purpose set forth.

13. The combination with a motor having a cylindrical exterior surface turned to concentric relation with respect to the motor-shaft, and a support for said motor, said support arranged to receive said cylindrical surface, whereby the motor may be bodily removed from or inserted in said support, as and for the purpose set forth.

14. The combination with a motor and a support therefor, said motor adapted to be removably received in said support, the engaging surfaces of said motor and its support bearing a fixed and definite relation to the motor-shaft axis, whereby whenever said motor is withdrawn from its support and replaced in position, it will always occupy the same relation and position as before, as and for the purpose set forth.

15. The combination with a motor, a supporting-ring in which said motor is removably suspended, a supporting-frame for said ring, said ring being permanently insulated from said supporting-frame and means for withdrawing or removing the motor from its support without disturbing such insulation, as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 1st day of October, 1900, in the presence of the subscribing witnesses.

THOMAS W. EATON.

Witnesses:

FRANK T. BROWN,
S. E. DARBY.