(No Model.) 2 Sheets—Sheet 1.

J. D. HUNTINGTON.

DEVICE FOR SUPPORTING MACHINERY.

No. 346,106. Patented July 27, 1886.

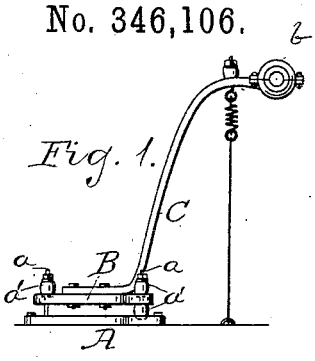

Fig. 1.

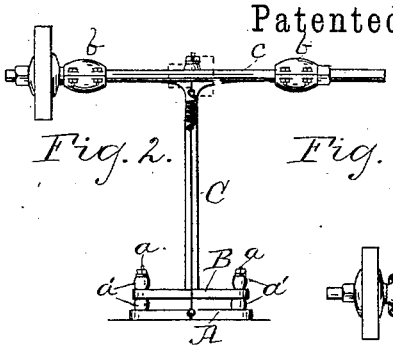

Fig. 2.

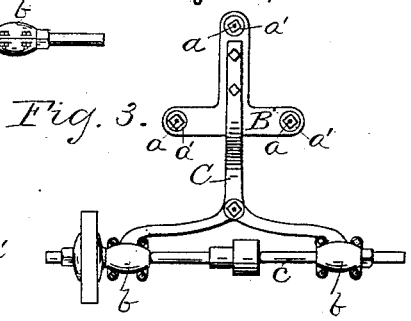

Fig. 3.

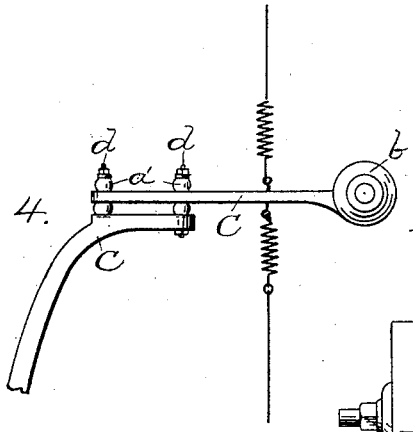

Fig. 4.

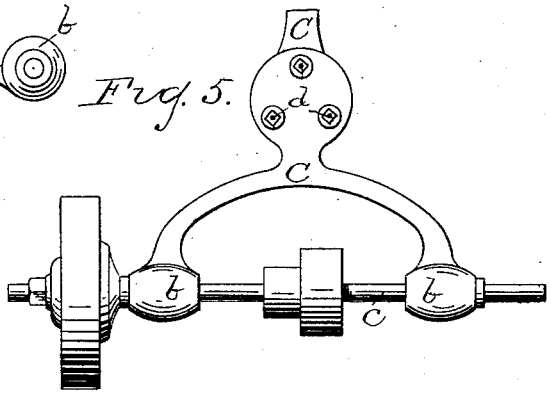

Fig. 5.

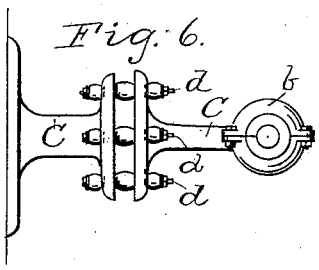

Fig. 6.

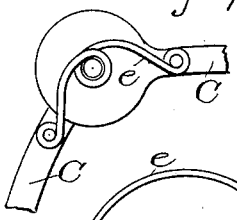

Fig. 7.

Fig. 8.

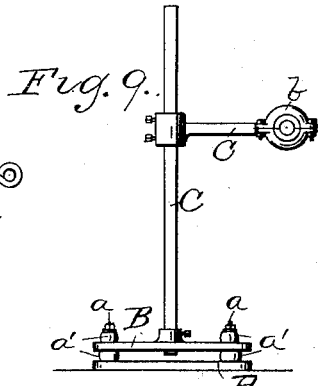

Fig. 9.

Witnesses;
Edward W. Schirach
Chas. G. Meyer

Inventor;
Joseph D. Huntington
by James H. Coyne.

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

(No Model.) 2 Sheets—Sheet 2.

J. D. HUNTINGTON.

DEVICE FOR SUPPORTING MACHINERY.

No. 346,106. Patented July 27, 1886.

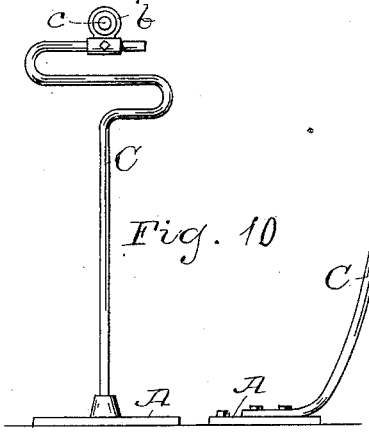

Fig. 10

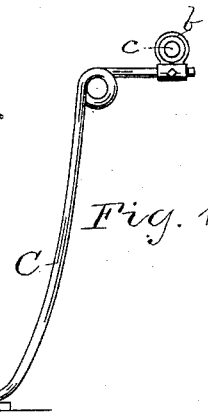

Fig. 11.

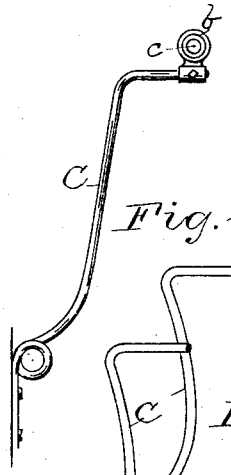

Fig. 12.

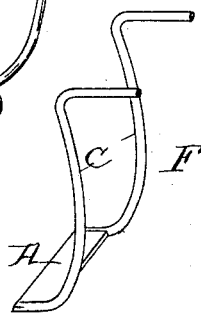

Fig. 16.

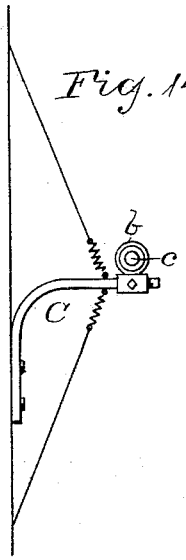

Fig. 14.

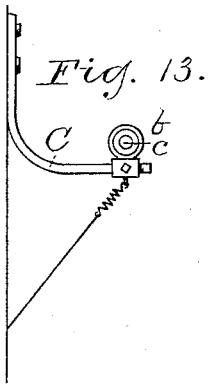

Fig. 13.

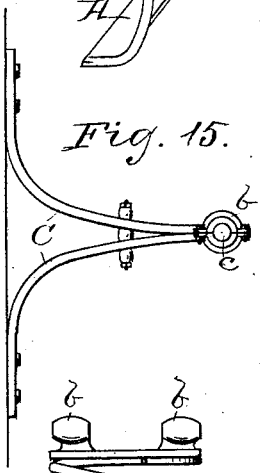

Fig. 15.

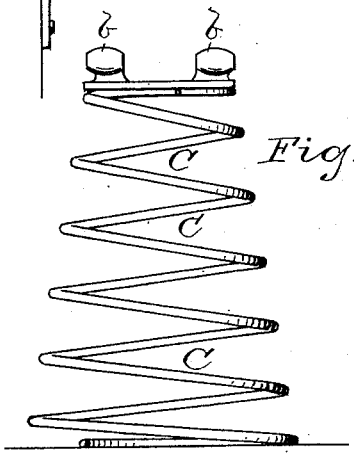

Fig. 17.

Witnesses;
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Chas. G. Meyer

Inventor;
Joseph D. Huntington.
by James N. Coyne,
Atty

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UNITED STATES PATENT OFFICE.

JOSEPH D. HUNTINGTON, OF CHICAGO, ILLINOIS.

DEVICE FOR SUPPORTING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 346,106, dated July 27, 1886

Application filed December 2, 1885. Serial No. 184,462. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH D. HUNTINGTON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Devices for Supporting Machinery; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of my invention is to provide means for so cushioning and supporting the bearings of rapidly-revolving shafts that they will be free to seek a natural center of revolution. This I accomplish by means of a frame secured to the wall or to the floor, which may be elastic or made so by the assistance of other devices, so that the bearings may have a limited movement in every direction, substantially as shown and described.

In the drawings, Figure 1 is a side elevation of my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a plan view thereof. Fig. 4 shows a side elevation of the supporting-frame divided into two sections which are swiveled together. Fig. 5 is a plan view of the modification shown in Fig. 4. Fig. 6 shows a modified form of my invention, in which the supporting-frame is secured to and projects from the wall or upright timber, and is divided into sections which are so connected that the outer section is capable of a limited movement in any direction. Fig. 7 is a detail view showing a modified form of pivoting the two parts where the supporting-frame is divided. Fig. 8 shows a modification of the spring used in Fig. 7. Fig. 9 shows a modification of my invention in the bearing-supporting bracket—is adjustable vertically on a vertical post, which latter is planted and projects from a cushioned plate. Figs. 10, 11, 16, and 17 show modified forms of elastic supporting-frames which rest on and are secured to the floor; and Figs. 12, 13, 14, and 15 show modified forms thereof which project from and are secured to vertical surfaces.

Reference being had to the drawings, A represents a plate secured permanently to the floor.

B represents a T-plate, supported horizontally over plate A by means of bolts *a a a* and rubber cushions or washers *a'*. These rubber washers surround the barrel of the bolts *a* between the plates and above plate B; or, if desired, those bolts only that pass through the extremity of the lateral arms may be so insulated, and the bolt in the extremity of the longitudinal arm of plate B may have a rubber cushion around its barrel above the said plate. If desired, however, plate B may be insulated by metal springs instead of rubber.

C represents an elastic flexible frame or standard, which from a side view, as shown in Fig. 1, is somewhat S-shaped, and has its upper end bifurcated and provided with bearings *b b* in or on its extremities of the bifurcated ends, in which is journaled the spindle *c*. This spindle is provided with a speed-pulley between the bearings *b b*, and with suitable grinding, polishing, or other wheels at one or both ends. The relative positions of the pulleys and grinding, polishing, or other wheel may be reversed, however.

As intimated in the statement, the design of my invention is to furnish the spindle with a limited movement in every direction, so that, as stated in Letters Patent No. 290,056, granted to me December 11, 1883, "the rapidly-revolving particles may be free to find a common center of rotation." To this end it is immaterial how or in what manner the frame C is constructed; for instance, it may be constructed as in Fig. 10, where it is shown secured in a floor-plate, A, and has its upper end describe an S, with the bearings made integrant with or secured on the upper horizontal end. It may be constructed as shown in Fig. 11, in which it will be observed the lower end is rigidly secured to the floor-plate A, and at its upper angle or bend it describes a coil having the bearings resting on the horizontal projecting end; or it may be constructed as shown in Fig. 12, wherein the lower end is permanently secured to the wall or vertical timber, is provided with a coil as it leaves the wall, and supports the bearings on its upper horizontal stretch.

In Fig. 16 is shown another modification of frame C, in which the lower ends are rigidly connected to the floor-plate, the S shape of said supporting-frames affording sufficient

elasticity for the bearings which are placed on the upper horizontal arms thereof.

It will be understood that one or two of the frames C, or of the modifications thereof just described, may be used, as occasion or preference requires. If there are two such, they are arranged parallel to each other, in the manner shown in Fig. 16. If, on the contrary, only one frame is used, its upper end is bifurcated, as illustrated in Figs. 2 and 3.

If desired, frame C may be perfectly stiff, and other devices used in conjunction therewith be substituted to give the play to the spindle hereinbefore spoken of. Thus in Fig. 4 the upper end of the frame is divided, and its contiguous articulating ends flattened transversely and horizontally, so as to permit bolts *d d* to pass through them vertically and be thoroughly insulated by rubber cushions in substantially the same manner shown in Fig. 3 of the Letters Patent No. 297,133, granted to me April 22, 1884. By such construction the bearings can have a limited lateral and vertical motion sufficient in some particular kinds of work for all practical purposes.

Fig. 7 shows a modified form of the jointed supporting-frame illustrated in Fig. 4. In this case the articulated end of the divided frame C is flattened vertically and longitudinally, and has its pivotal pin project beyond the bearings sufficiently to fulcrum a flat spring, *e*, one end of which is secured to the lower section of frame C, and the other to the upper horizontal section supporting the bearings.

Fig. 8 shows a modified form of the spring used in Fig. 7. Instead of a metal spring being used in conjunction with the devices illustrated in Fig. 7, bolts and cushions might be fixed laterally through the flattened ends, as illustrated in Fig. 4. It will be observed that if frame C is made stiff it could, without a departure from the spirit of the invention, be secured, in the manner shown in Fig. 6, to a vertical wall or timber. In this event the articulating ends might be flattened vertically or laterally, and connected by bolts and rubber cushions, as shown; or they might be connected as shown in Fig. 4, 5, or 7.

In Figs. 13, 14, 15, and 17 are shown other modifications of frame C. In Fig. 13 the frame is L-shaped, is reversed, and the end fastened to the wall above the horizontal plane of the bearings. Fig. 14 shows a frame, C, corresponding in shape to that shown in Fig. 13, but bolted to the wall or vertical timber below the horizontal plane of the bearings. Fig. 15 shows a combination-frame constructed of frames similar to those shown in Figs. 13 and 14, the free ends of which support the bearings. The horizontal stretch of these frames is bolted and insulated by rubber cushions. Fig. 17 shows the bearings supported by a coiled-spring frame, which may be helical or other shaped.

In Fig. 9 I show a still further modification of my invention. In this the frame or standard C is stiff, and is placed upright in a suitable boss of a frame, B, which is secured and insulated above plate A in substantially the same manner as in Fig. 1. Adjustable vertically on this standard or post is a horizontal arm, in or on the ends of which the bearings of the spindle are located. This horizontal arm is bifurcated similar to the extremity of frame C in Figs. 1, 2, and 3.

Reference being had to the drawings, it will be observed that in Figs. 1, 2, 3, 4, 13, and 14 I show stays which are similar to those described and claimed in Letters Patent heretofore granted me, which are for the purpose of aiding frame C, or of controlling, to a certain extent, the independent movement of the spindle. These stays may consist of rods, cables, ropes, chains, springs, or their equivalents. They may be anchored to a point below the bearings to the floor or wall, or they may assist in sustaining the machine, and connect to the wall or ceiling above the plane of the bearing, and one or more may be used either from above or below, as desired. These stays may be used in conjunction with auxiliary springs of one kind or another, and if it is desired to regulate their tension turn-buckles may be used.

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

1. The combination, with the bearings and shaft journaled therein, of an elastic frame secured to the floor or wall.

2. The combination, in devices for suspending machinery of the bearings and shaft journaled therein, of a standard or frame, in or near the ends of which said bearings are located, so constructed as to give said bearings a limited play in every direction.

3. The combination, in devices for suspending machinery, of the bearings and shaft with a standard or frame divided into two sections so connected as to permit a limited motion of the bearings in every direction, which latter are in or near the free end of the outer section, as set forth.

4. The combination, in devices for suspending machinery, with the bearings and shaft journaled therein, of a standard or supporting-frame divided into two parts, the articulating ends of which are so connected as to give the said bearings a limited play in every direction.

5. Devices for suspending machinery, consisting of the bearings and shaft journaled therein, in combination with an elastic supporting-frame or standard and one or more suitable stays, as set forth.

6. Devices for suspending machinery, consisting of the bearings and shaft journaled therein, in combination with an elastic supporting-frame or standard and a floor-plate.

7. Devices for suspending machinery, consisting of the bearings and shaft journaled therein, in combination with a supporting-frame or standard and a cushioned plate, to

which said supporting-frame is secured, as set forth.

8. The combination, with the bearings and shaft journaled therein, of a supporting-frame or standard, a cushioned plate, to which said frame is secured, and a floor-plate.

9. The combination, with bearings and shaft journaled therein, of an elastic supporting-frame or standard, the upper end of which is bifurcated, and so constructed as to give the bearings sustained thereby a limited movement in every direction.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

JOSEPH D. HUNTINGTON.

Witnesses:
JAMES H. COYNE,
FRANK D. THOMASON.