

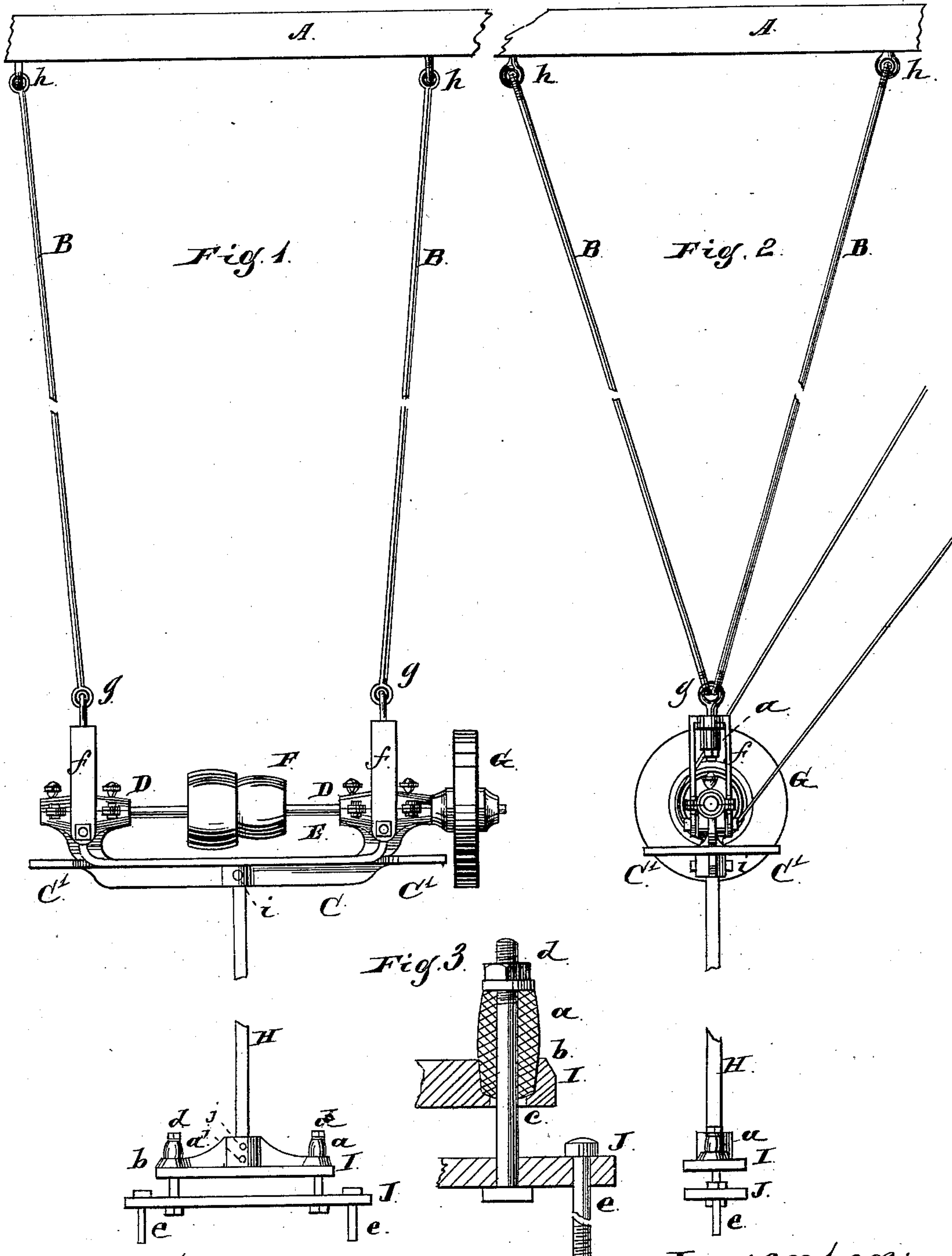
(No Model.)

J. D. HUNTINGTON.

DEVICE FOR SUSPENDING MACHINERY.

No. 297,133.

Patented Apr. 22, 1884.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH D. HUNTINGTON, OF CHICAGO, ILLINOIS.

DEVICE FOR SUSPENDING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 297,133, dated April 22, 1884.

Application filed March 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH D. HUNTINGTON, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements for Suspending Machinery, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation; Fig. 2, an end elevation; and Fig. 3, an enlarged detail, showing a spring and the connecting parts in section.

The object of this invention is to improve the construction and operation of devices for suspending machinery, to prevent vibration and noise, to enable the revolving parts of machinery to find rotating centers, and to improve the construction of apparatus designed to be used in accordance with my previous patent, No. 290,056; and its nature consists in the several improvements and combinations hereinafter set forth and claimed as new.

In the drawings, A indicates the ceiling-timbers or floor, to which the upper attachments are made; B, suspending-rods; C, the frame for supporting the moving parts; D, bearing-boxes; E, shaft; F, driving-pulley; G, the polishing or grinding wheel; H, under-supporting or suspending bar; I, spring-plate; J, floor-plate; *a*, springs; *b*, sockets for the reception of the springs; *c*, bolt passage or opening; *d e*, bolts; *f*, brackets; *g h*, eyebolts; *i*, fastening-bolts; *j*, set-screw.

The frame C in its simplest form is made of cast-iron, as shown in Fig. 1, which is a single bar having its ends turned upward to provide for the bearing-boxes of the shaft E. This frame may also be provided with plates or arms C', which serve as rests for the article to be operated upon, or as tool-rests. The boxes D are in the usual form of half-boxes, and are provided with suitable oilers or oil-holes. The brackets *f* are attached to this frame, as shown in Fig. 1, and at their upper ends they are provided with recesses or cups for the reception of the end of a rubber spring similar to that shown at *b* in Fig. 3. The eyebolts *g* pass through the bracket and the spring, as shown at Fig. 2, a washer and screw-nut being applied to the lower end of the bolt, in order to secure it and to adjust the tension of

the spring. The rods B are attached to the eyebolts *g* at their lower ends, and to the eyebolts *h* at their upper ends. The eyebolts *h* pass into or through the joist, or through a cross-piece attached to the joist, and they are held by screw-nuts. These bolts *h* may have springs attached to them at their upper ends, if desired; but ordinarily it will not be necessary; and if it is desired to avoid metal contact to prevent noise, these eyebolts *g* and *h* may be lined with soft metal or other suitable material.

As shown, the rods B are provided with eyes at their ends; but instead of eyes, hooks may be used, and for ordinary purposes they will be sufficient. The rods B may be made of common round iron, and are usually made of this material when hooks are used; but they may be made of wire rope, chain, or wood, provided with metal ends.

In the form here shown, the frame C is supported from below by a single bar, H, and by preference this bar is made angular or square in cross-section, and is attached to the frame C by a socket fitted to receive it and the bolt or pin *i*. At its lower end the bar is attached to the plate I, which is provided with a suitable socket in the middle for its reception, and is fastened therein by the bolt *i*; and in order to prevent its turning, I also provide a set-screw, *j*, which is made to press against the bar, so as to prevent any turning or vibration of the rod or machine at its fastenings. A similar set-screw may be used at the upper end; or the bar may be fastened entirely by set-screws, omitting the bolts *i*.

The plate I is usually cast with the socket for the reception of the bar H in the middle and the sockets *b* at the ends, with a strengthening flange or fin between the sockets, as shown in Fig. 1. The socket *b* may be made of a greater or less depth, according to the amount or portion of the spring it is desired to hold therein, and is provided with a hole, *c*, which is larger than the bolt passing through it and the spring, so as to avoid metal contact and prevent noise; and a sufficient portion of the spring is placed within the socket to prevent lateral vibration or displacement of the bolt. The bolts *d* pass through the opening *c* of the plate I and through the spring *a*, and

are provided with a collar or washer adapted to fit the end of the spring, and with a screw-nut, by which the compression of the spring and the strain of the bar H can be regulated or adjusted. Two of these springs and bolts, as shown at Fig. 1, are sufficient to keep the plate I in position and to prevent it from turning; but for heavy machinery, or where greater certainty is desired, four may be used by locating one at each corner of the plate.

The floor-plate J is a simple plate made of cast or wrought iron, and is bolted to the floor by bolts *e*. This plate J holds the lower ends of the bolts *d* firmly in position, and when it is attached to the floor the frame C is suspended between the floor and the ceiling, as shown, and the bracing position of the rods B and the bar H, being firmly held as described, prevents the frame from turning when any pressure is exerted against the side of the wheel G, while it has sufficient play to find its proper center of rotation.

The simple construction of the frame and method of suspending it between the ceiling and the floor make it a cheap and desirable device for use and for preventing noise and jar; and this method of suspending machinery enables me to use machines in buildings where the jar of machinery would be injurious; and it also enables me to use them in places where otherwise the noise would be a serious objection; and I do not confine myself to the use of these suspending devices with grinding or polishing machinery, as they will be found useful in suspending a great variety of other machinery; and they can be applied to machinery having reciprocating or jarring movements; and they will take off the jar, so as to avoid the use of large quantities of material, which have heretofore been used for such purpose.

These suspending devices can also be used to a limited extent for tightening the belt, as the suspended machine can be somewhat raised or lowered; and they are also useful in leveling a machine wherever that may be necessary.

It will be understood that the shaft E may project, so as to be utilized at both ends; that the frame C is to be changed in its form whenever necessary to adapt it to different uses, or for machines having reciprocating movements; and that in some locations the bolts *d* may be extended through the floor or foundation, so as to make the use of a floor-plate unnecessary.

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

1. The combination of the frame C and brackets *f* with the suspending-rods B, substantially as specified.

2. The combination of the frame C and bar H with the plate I, substantially as described.

3. The combination of the frame C and brackets *f* with the rods B, bar H, and plate I, substantially as set forth.

4. The combination of the plate I, springs *a*, and bolts *d* with the plate J, substantially as specified.

5. The combination of the plate I, having the recess *b* and enlarged opening *c*, with the spring *a* and bolt *d*, substantially as described.

6. The combination of the frame C and brackets or yokes *f* with the springs *a*, bolts *g*, and rods B, substantially as specified.

7. The combination and arrangement of the frame C, shaft E, and pulleys F with the rods B, single supplanting-bar H, and yielding plate I, substantially as described.

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Witnesses:

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