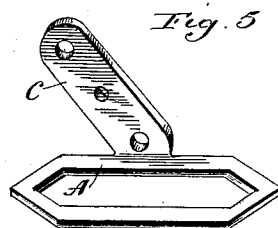
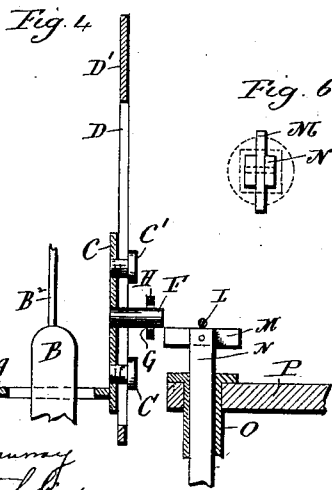
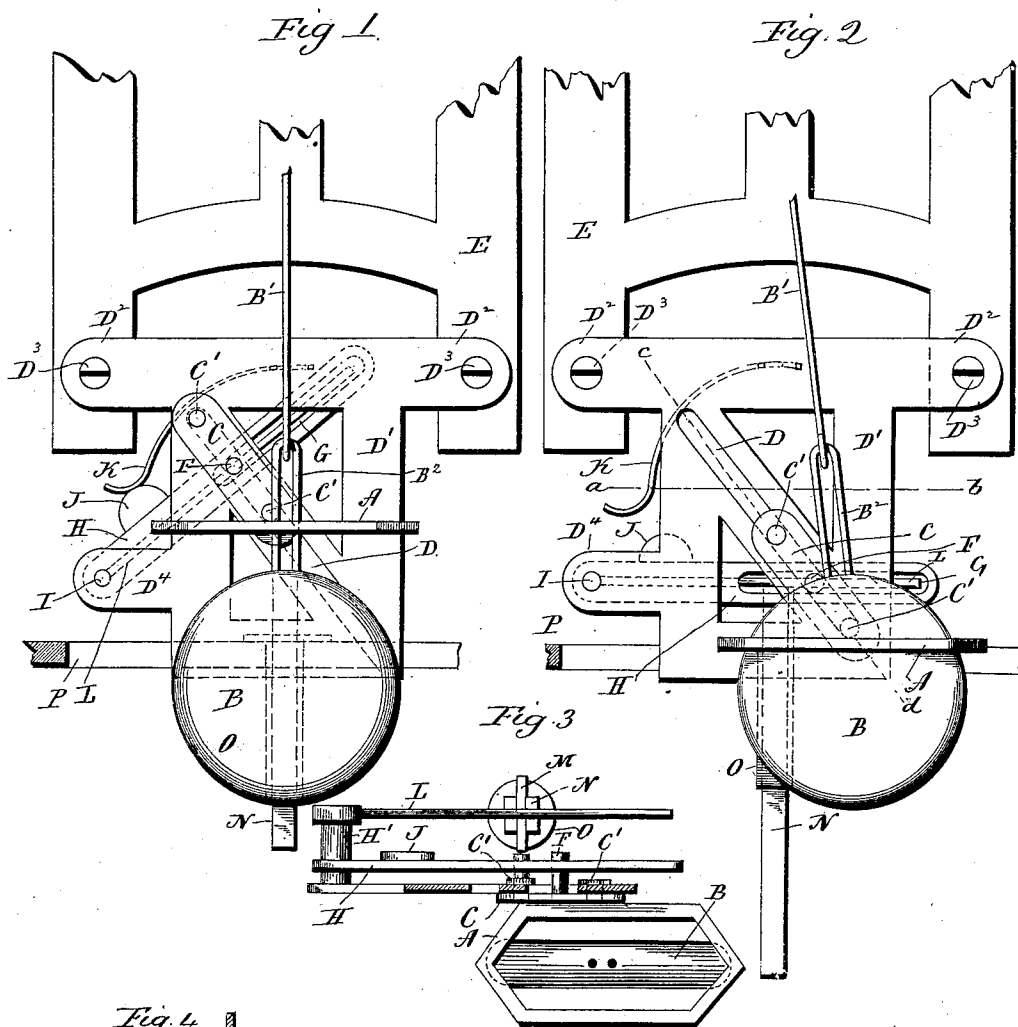


(No Model.)

W. E. PORTER.
PENDULUM CLAMP FOR CLOCKS.

No. 549,744.

Patented Nov. 12, 1895.



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Inventor.
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UNITED STATES PATENT OFFICE.

WILSON E. PORTER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE
NEW HAVEN CLOCK COMPANY, OF SAME PLACE.

PENDULUM-CLAMP FOR CLOCKS.

SPECIFICATION forming part of Letters Patent No. 549,744, dated November 12, 1895.

Application filed March 22, 1895. Serial No. 542,769. (No model.)

To all whom it may concern:

Be it known that I, WILSON E. PORTER, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Pendulum-Clamps for Clocks; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a broken view, in front elevation, of one form which a pendulum-clamp constructed in accordance with my invention may assume, the clamp being shown in its retired position; Fig. 2, a corresponding view showing the clamp engaged with the pendulum-ball, which is held to one side by it; Fig. 3, a view, partly in plan and partly in transverse section, on the line *a b* of Fig. 2; Fig. 4, a sectional view on the line *c d* of Fig. 2; Fig. 5, a detached perspective view of the clamp and slide; Fig. 6, a detached plan view of the plunger, the bearing or socket of which is indicated by broken lines.

My invention relates to an improved pendulum-clamp for clocks, and constitutes, in fact, an improvement upon the devices disclosed in my pending application, filed January 14, 1895, and serially numbered 534,847, the object being to produce a pendulum-clamp of superior effectiveness.

With these ends in view my invention consists in a horizontally-arranged pendulum-clamp, in combination with means for moving the same diagonally, so as to constantly maintain it in a horizontal position.

My invention further consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In carrying out my invention as herein shown I employ an oblong clamp *A*, constructed with pointed ends and having an oblong opening also having pointed ends and considerably wider than the pendulum-ball *B* is thick, but shorter in length than the diameter of the same.

I do not limit myself to making the clamp exactly as shown; but the construction illus-

trated I have found to be very effective, inasmuch as by forming the ends of the clamp as described it is well adapted to grip and take hold of the edges of the pendulum-ball.

This clamp is rigidly secured by its inner side bar and in a horizontal position to the lower end of a slide *C*, which extends upward in an inclined position and in a plane at a right angle to the plane of the clamp. The said slide is provided with two screws *C' C'*, which pass through a long inclined slot *D*, formed in a vertically-arranged bracket *D'*, the upper end of which is furnished with horizontal lugs *D² D²*, which receive screws *D³ D³*, by means of which the bracket is secured to the rear movement-plate *E* of the clock-movement, which may be of any approved construction. The heads of the screws *C' C'* exceed in diameter the width of the slot *D* and engage with the side walls thereof on the inner face of the bracket *D'*, the shanks of the screws extending forward through the slot and entering the ends of the slide, which they thus connect with the bracket and guide in diagonal movement up and down upon the same. It will thus be seen that although the clamp, which is attached to the slide, moves up and down and passes to a considerable distance on opposite sides of a plumb-line drawn through the pendulum-ball *B* and the pendulum-rod *B'* it is also maintained in a horizontal position, in which it operates with the greatest effect in gripping the pendulum-ball, for obviously if the clamp is inclined one way or the other, and thus made to approach the plane in which the ball swings, its clamping action will be impaired proportionally to the degree of its inclination, and, moreover, the farther the clamp is from the plumb-line of the pendulum-ball when it acts thereupon the greater its effect will be in the automatic starting of the clock.

The said clamp carries an inwardly-projecting operating-pin *F*, which extends into an elongated slot *G*, formed in the outer end of an operating-lever *H*, the inner end of which is secured to a hub *H'*, which rocks on a horizontal inwardly-projecting stud *I*, rigidly secured in an arm *D⁴*, offsetting from the bracket *D'*. Near its inner end the said lever is furnished with a small plate or finger *J*, upon

which bears the lower end of the operating-spring K, the upper end of which is rigidly connected with the upper portion of the bracket D', near the center thereof, as shown in Figs. 1 and 2. The said spring exerts a constant effort to depress the operating-lever, and, acting through the pin F, exerts also a constant effort to depress the slide, and hence the pendulum-clamp. If desired, the finger J might be made integral with the lever or the spring otherwise arranged and adapted to act to depress the clamp. The hub H' also carries an operating-arm L, made, as herein shown, of wire and arranged parallel with the operating-lever H. This rod is engaged by a cross-head M, arranged at a right angle to and below it and mounted in the upper end of a vertically - arranged plunger N, square in transverse section and mounted in a bearing O, located in the bottom P of the clock-case, through which its outer end projects. This plunger is constructed in length so that when the clock is set in running position on a shelf or table the outer end of the plunger will engage with the surface upon which the clock rests, whereby the plunger will be forced inward against the tension of the spring K for such a distance that its cross-head will lift the operating-rod L, and hence the lever H, which in turn will lift the operating-pin F, and hence the slide C and the pendulum-clamp A, into the positions in which they are shown in Fig. 1, which represents the clamp lifted above the pendulum-ball into a position directly over the same and so as not to interfere with the free oscillation thereof, inasmuch as the opening of the clamp gives ample clearance to the stem B², connecting the pendulum-ball B with the pendulum-rod B'. It will be understood that the plunger is maintained in its retired inwardly-projecting position against the tension of the spring K by the weight of the clock coacting with the surface upon which the clock rests; but the moment the clock is lifted or tipped, so as to cause the outer end of the plunger to be freed, the spring immediately acts, through the medium of the operating-lever H and the pin F, to depress the slide C and the pendulum-clamp A. As the said parts move downward the diagonally-arranged slot D will cause them to move in a straight inclined path, whereby the clamp will engage with the pendulum-ball and swing it considerably to one side of its plumb position and there hold it firmly. If now the clock is handled or shipped, no harm can come to it, because the pendulum is firmly held. I thus avoid the injury to the clock generally incurred by leaving the pendulum-ball attached to the pendulum-rod and avoid the inconvenience of disconnecting the ball from the rod, as is commonly done. Then when the clock is set into running position again and the plunger is retired the clamp will be lifted and the pendulum allowed to swing back into its plumb position. In thus swing-

ing back it will acquire enough inertia to swing beyond its plumb position and start. So the clock does not require to be started further than to set it down wherever it is desired to be run. I may say, however, that if the clock is set down with extreme caution the retirement of the clamp will be so slow that the pendulum will not acquire enough inertia when released to start vibrating.

It is apparent that in carrying out my invention some changes from the construction shown and described may be made, and I would therefore have it understood that I do not limit myself thereto, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A clock provided with a horizontally arranged pendulum clamp constructed to engage directly with the pendulum and hold the same against movement, and means connected with the clamp for moving it up and down in a diagonal path without deflecting it from a horizontal position, substantially as set forth.

2. A clock provided with a horizontally arranged pendulum clamp constructed to engage directly with the pendulum and hold the same against movement, a slide with which the clamp is connected, a bracket containing an inclined slot through which the slide is connected with the bracket, a plunger, means for connecting the slide with the same to elevate the slide and move the clamp diagonally when the plunger is retired or pushed inward, and a spring acting in opposition to the plunger, substantially as set forth.

3. A clock provided with a horizontally arranged pendulum clamp constructed to engage directly with the pendulum and hold the same against movement, a slide to which the clamp is secured, a bracket adapted to be connected with the clock movement, and containing a long inclined slot through which the slide is connected with the bracket, and which guides the movement of the slide up and down, an operating pin extending inward from the slide through said slot, an operating lever containing a slot receiving the said pin, an operating rod connected with the said lever, a plunger mounted in the clock case and adapted at its inner end to engage with the operating rod, and a spring acting in opposition to the plunger for depressing the slide, and hence the clamp, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILSON E. PORTER.

Witnesses:

WALTER C. CAMP,
EUGENE CARTIER.