

(No Model.)

R. W. WILLSON.

DEVICE FOR SYNCHRONIZING CLOCKS.

No. 267,300.

Patented Nov. 7, 1882.

fig 1.

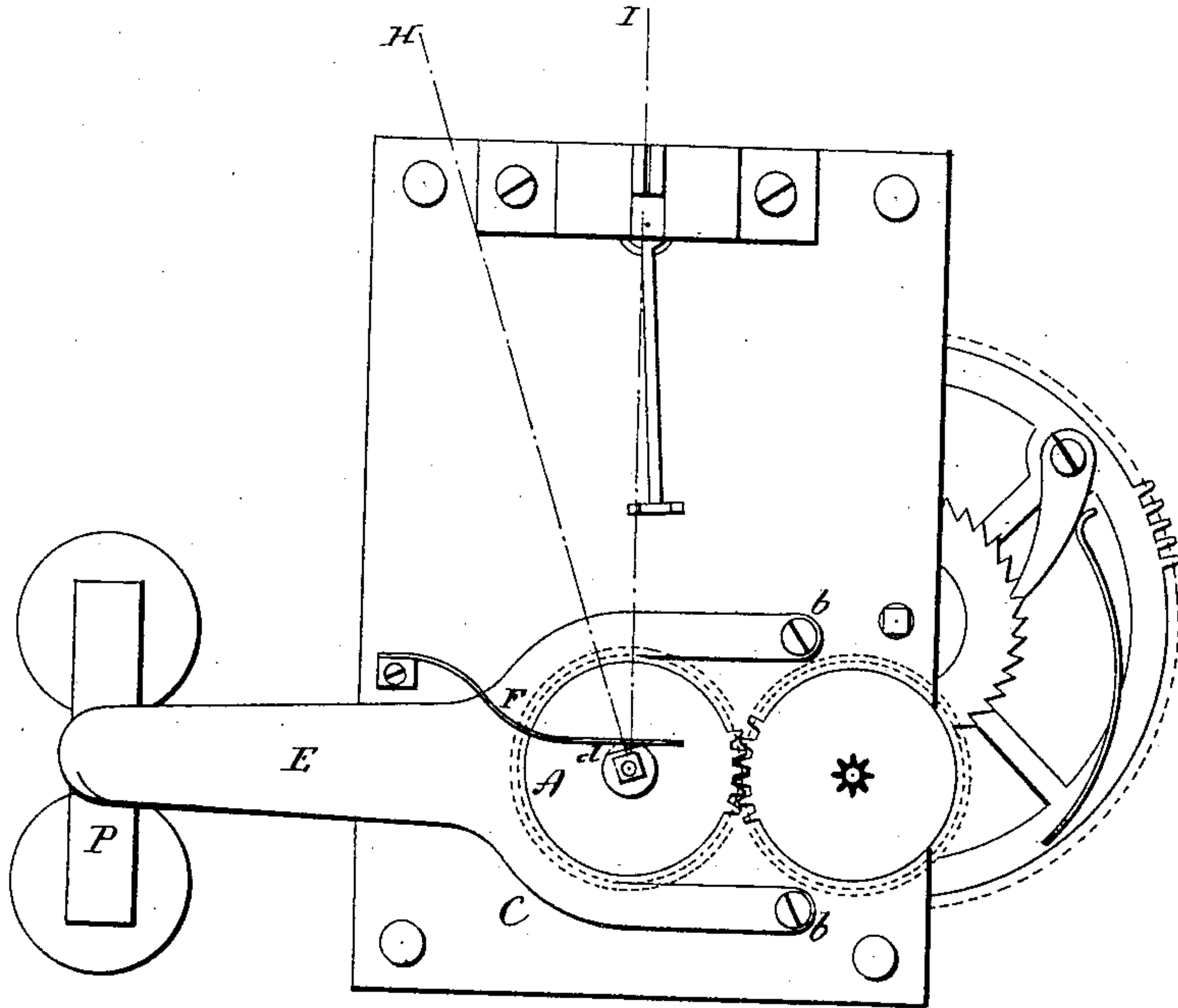


fig 2

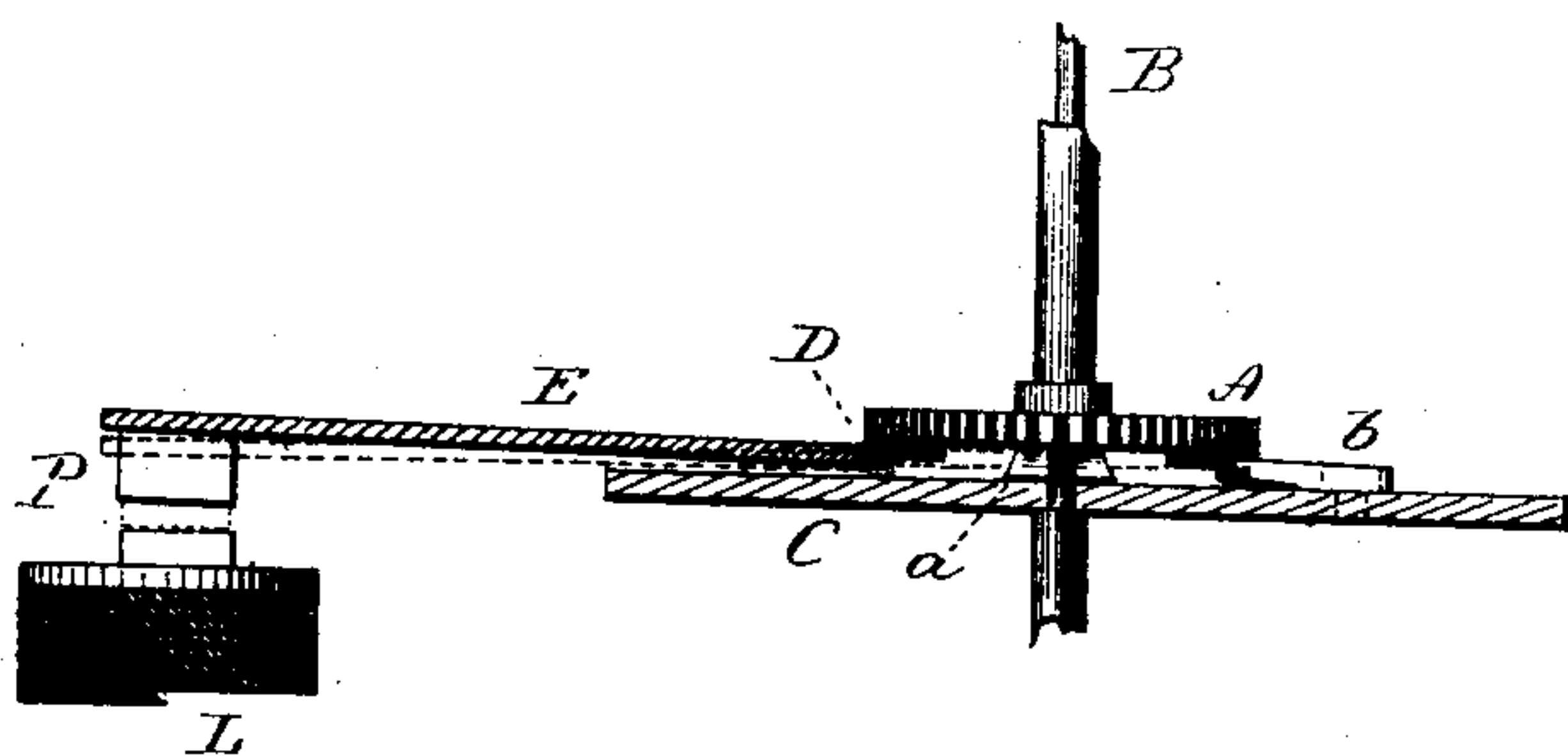
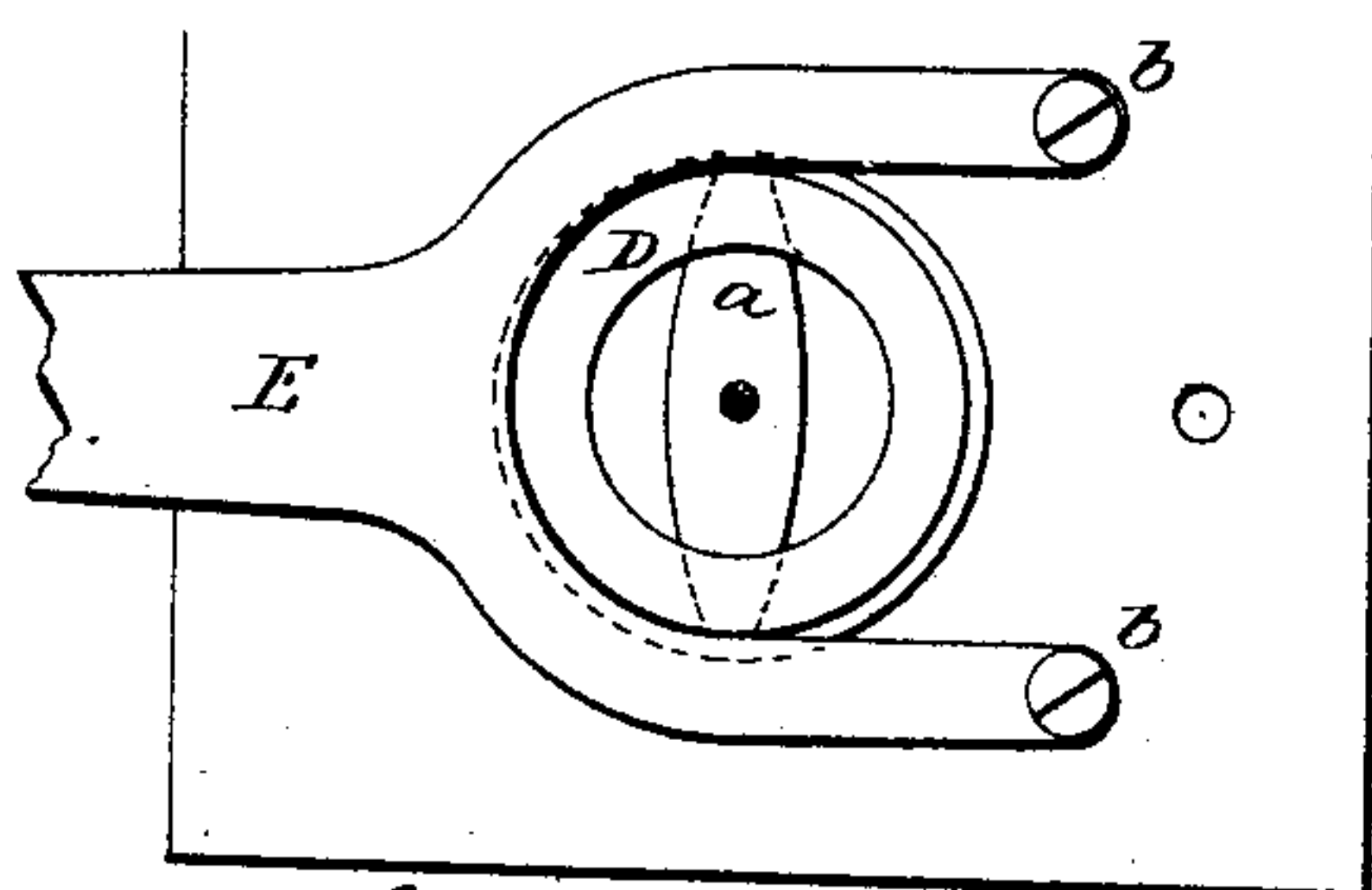


fig 3



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## DEVICE FOR SYNCHRONIZING CLOCKS.

SPECIFICATION forming part of Letters Patent No. 267,300, dated November 7, 1882.

Application filed July 12, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT W. WILLSON, of New Haven, in the county of New Haven and State of Connecticut, have invented new  
5 Improvements in Synchronizing Clocks; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the  
10 same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a front view; Fig. 2, sectional view through the time-wheel; Fig. 3, front view of the frictional plate and lever, the time-  
15 wheel removed.

This invention relates to an improvement in clock-movements, the object of the invention being to bring the pointers to the true time at some predetermined instant by means of an  
20 electric circuit or impulse through some other medium from a regulating-clock or some distant point from which the impulse may be sent to the clock at such predetermined time, commonly called "synchronizing," and to simplify  
25 and cheapen the mechanism whereby such synchronizing is produced, and so that it may be applied to the cheaper class of clock-movements; and it consists in combining with a time-movement a mechanism, in connection  
30 with an electric circuit or other equivalent impulse-giving medium, whereby the power may be taken from the minute or time wheel at a predetermined instant, with mechanism to impart a movement to the time-wheel independent  
35 of the clock-movement, so that should the clock be too slow or too fast the pointers will by such mechanism and at such predetermined instant be brought to the true time, as more fully hereinafter described.

40 The movement represented in the drawings is that known as the "Howard movement," and needs no description. A is the minute-pointer wheel, which runs loosely upon the center-shaft B, and is fitted at its outer end for the attachment  
45 of the minute-pointer, in the usual manner.

Between the wheel A and the front plate, C, a frictional plate, D, is arranged to bear upon the back of the wheel A, forced so to do by a  
50 spring, *a*. The spring *a* is engaged with the center-shaft B, so as to revolve with it, and bears the plate D against the wheel A, pro-

ducing sufficient friction to cause the wheel A to turn with the center-shaft. The friction-plate D is arranged in a lever, E, one end of  
55 which is hung to the front plate, C, as at *b*, the other extending beyond the edge of the plate, as shown. If the lever E be depressed—that is, moved toward the plate C—as indicated in broken lines, Fig. 2, it compresses the spring  
60 *a* and takes the friction-plate D away from contact with the wheel A, in which condition the power of the movement to turn the pointers is removed; but when the lever E is free, the friction is applied and the pointers operate  
65 in the usual manner.

On the hub of the wheel A, I make a flat side, *d*, and on this hub a spring-arm, F, bears. The friction of this spring-arm is not sufficient to interfere with the proper running of the clock  
70 when the friction of the spring *a* is applied; but when the friction is removed by the depression of the lever E, as before described, then, if the flat surface *d* on the hub has come within the influence of the spring-arm F, the  
75 power of that spring-arm will turn that wheel until the flat side *d* of the hub coincides with the corresponding surface of the lever F. The flat surface of the hub and the spring-arm are arranged at the point where the synchronizing  
80 is to be produced—say at twelve o'clock. Supposing at twelve o'clock, true time, the clock be too slow, as indicated by the line H, Fig. 1, the flat surface *d* of the hub being in a corresponding position relatively to the arm F, as shown  
85 in Fig. 1. At just twelve o'clock the lever E is depressed, removing the friction which engaged it with the center-shaft and leaving that wheel free and under the influence of the arm F, which instantly brings the flat surface *d* of  
90 the hub to coincide with the corresponding surface of the arm F, and turns the pointer to the twelve o'clock position, as indicated in broken lines and by line I. As a means for operating the lever, I represent a magnet, L,  
95 with a corresponding armature, P, on the lever E. When the electric circuit is closed at the predetermined time—say twelve o'clock—the armature will be brought into contact with the magnet, and thereby depress the lever, as  
100 indicated in broken lines, Fig. 2; but, as before stated, this movement may be given by any other suitable impulse.

While I prefer the frictional connection be-



tween the center-shaft and the time or minute wheel, that may be a positive connection—say as a clutch—which will be disengaged by the depression of the lever E. This, however, is  
5 not suitable for general use, because it will be difficult to adjust the pointers independent of the lever E.

Instead of applying the engaging and disengaging device to the time-wheel, it may be  
10 applied at any other point or part of the movement, it only being essential that the impulse imparted through the circuit or otherwise shall release the time-wheel upon which is the cam-like surface to be operated upon.

15 I claim—

1. In a clock-movement, the combination therewith of mechanism, substantially such as described, to engage or disengage the time-wheel with the clock-movement, said mechanism arranged in an electric circuit or with other  
20 impulse-giving medium, and a mechanism, substantially such as described, to turn the time-wheel independent of the movement when the

said time-wheel is disengaged from the time-movement, substantially as described. 25

2. In a clock-movement, the combination of a frictional device arranged to operate upon the time-wheel and communicate the power of the movement to said wheel, a lever in connection with said frictional device, and in an  
30 electric or other impulse-giving circuit, the said time-wheel constructed with a flat or cam-like surface and a spring-arm to bear upon said surface, substantially as and for the purpose described. 35

3. In a clock-movement, the combination of the frictional plate D, spring *a*, lever E, time-wheel A, constructed with the cam-like surface *d*, and a spring-arm, F, the said lever E arranged in an electric or other impulse-giving circuit, 40 substantially as described.

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Witnesses:

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