

G. B. OWEN.  
Lock-Work for Clock-Movements.

No. 216,215.

Patented June 3, 1879.

Fig. 1.

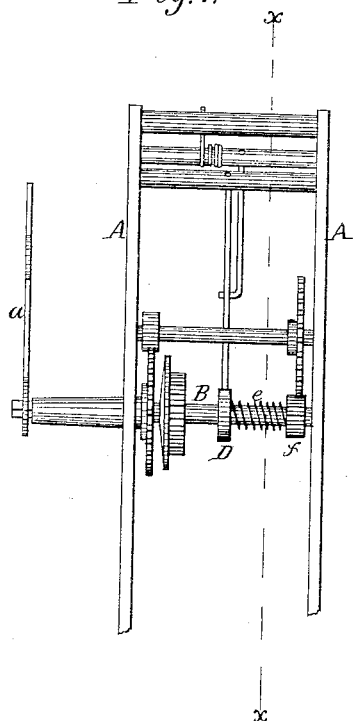


Fig. 2.

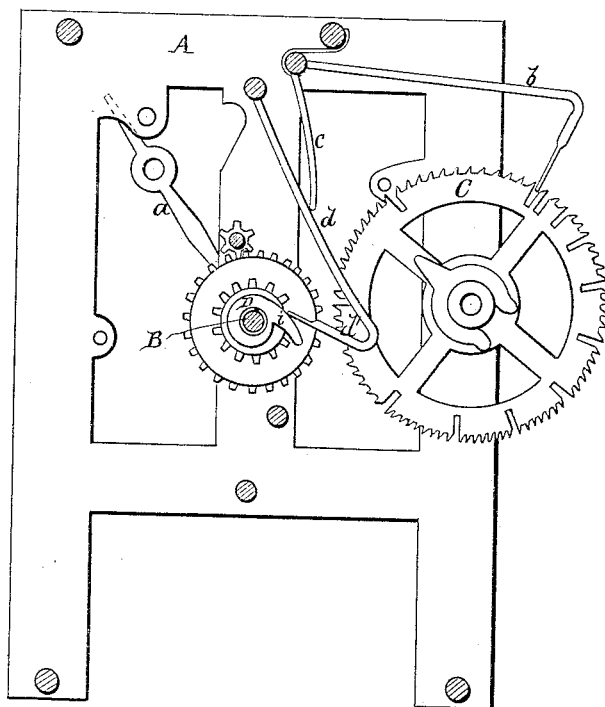


Fig. 4.

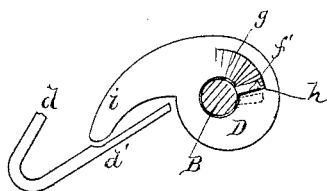


Fig. 3.

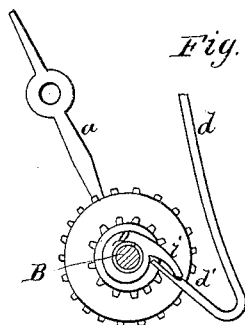
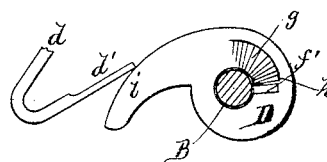


Fig. 5.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE B. OWEN, OF WINSTED, CONNECTICUT.

## IMPROVEMENT IN LOCK-WORKS FOR CLOCK-MOVEMENTS.

Specification forming part of Letters Patent No. **216,215**, dated June 3, 1879; application filed December 13, 1878.

*To all whom it may concern:*

Be it known that I, GEORGE B. OWEN, of Winsted, in the county of Litchfield and State of Connecticut, have invented a new and useful Improvement in Clock-Movements, of which the following is a specification.

This invention relates, specifically, to an improvement in the striking mechanism of clocks, the object whereof is to insure the striking of the proper hour after the hands have been turned back.

It consists in providing the striking-cam with a clutch adjustment, so that when the minute-hand is turned forward a pin on the shaft clutches the cam and turns it against the crooked wire lever that actuates the pawl controlling the striking-wheel; but when the hand is turned back any distance less than one hour the shaft is disengaged from the cam, moving around independently until the hand is set back far enough; but when allowed to move forward again the pin does not engage the cam until the hand passes the hour last struck, after which it clutches it and moves it as before, so as to operate the striking mechanism in time for the following hour.

In the accompanying drawings, Figure 1 is an end view of a clock-movement provided with my improvement. Fig. 2 is a side view of the same. Figs. 3, 4, and 5 are details of the arrangement.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the frame of the movement. B is the shaft which carries the minute-hand *a*. C is the striking-wheel. *b* is the pawl controlling the same, having an extension, *c*, bearing against the lever *d*, the bent hook portion *d'* whereof is in contact with the face of the striking-cam D on shaft B. On one side of cam D a spiral spring, *e*, is wound around shaft B, one end bearing against the pinion *f*, and the other against the side of the cam. On the opposite side of the cam a stud or pin, *f'*, is inserted in the shaft B. The cam is thus held in line with the part *d'* of lever *d*, between the stud or pin *f'* and the end of the spiral spring. In the side of the cam adjacent to the pin *f'* is a segmental spiral groove, *g*, of a less radius than the cam, and sufficiently deep at its inner end,

*h*, to form a secure bearing for the pin at this point.

The spiral spring bearing against the cam presses it against the pin *f'*, so that when the shaft rotates to the right the pin enters the slot, and, bearing against the end, rotates the cam with it; but when rotated to the left the pin travels out of the slot, pushing the cam back, (the spring yielding for this purpose,) and moves around independent of the cam, which is held by the hook *d'*, as shown in Fig. 4.

The operation of my invention is as follows: When the clock is going the pin *f'* bears against the end *h* of the spiral groove *g*, and carries the cam around with it, so that every revolution carries the eccentric hook *i* of the cam against the hook *d'* of lever *d*, lifting the latter, and through it the pawl *b*, and allowing the striking-wheel to rotate the proper distance to strike the hour, and then dropping the pawl into the mortise on the striking-wheel by the hook *d'* dropping abruptly from the eccentric face *i* into the position shown in Fig. 4. This is the usual operation of the striking mechanism; but when the hands are turned back my invention comes into operation, and will now be described.

When the clock has struck, say, the hour of 1, the hook-cam and pin on the shaft B occupy the relative positions shown in Fig. 4. Now, if it is wished to set the clock back any distance less than one hour, the minute-hand is turned back, rotating shaft B; but the hook *d'* engages the eccentric *i*, and prevents the cam from turning; hence the pin *f'* travels out of the spiral slot *g*, and moves around to the position indicated by the dotted lines, nearly one entire revolution, and just short of falling into slot *g*, where it remains; and as the shaft moves around the friction causes it to rotate the cam at the same time until the eccentric *i*, pressing against the hook *d'*, is held by the friction, and the pin travels on along the face of the cam, the cam, hook, and pin being in the relative positions shown in Fig. 5 when the cam stops its movement; but by this time the hands have again reached the hour of 1 without striking it, as there is no force exerted upon the cam to cause it to lift the striking mechanism; hence the pin travels along the face of the cam and makes an entire revolu-

tion before it reaches the end of slot *g*. When it reaches this point the hands are about to indicate the next hour, (2,) when the pin, striking the end *h* of the slot, actuates the cam and again operates the striking mechanism.

From this it will be understood that after the clock has struck one hour, if the hands be set back, when the same hour is reached again the striking mechanism remains inert until that hour is passed and the succeeding one reached.

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

1. As an improvement in the striking mechanism of clock-movements, the cam *D*, with

spiral groove *g*, to engage and disengage the pin *f'*, for the purpose of governing the striking mechanism, substantially as described.

2. The pin *f'* on shaft *B*, in combination with the spiral groove *g* in cam *D*, and spiral spring *e* on shaft *B*, substantially as described.

3. The combination and arrangement, for the purpose set forth, of the cam *D*, spiral groove *g*, pin *f'*, spring *e*, and hooked lever *d*, for regulating the striking mechanism of a clock, and to insure the striking of the hours in regular order, substantially as described.

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Witnesses:

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