

H. WATSON.
SELF SETTING CLOCK.
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998,819.

Patented July 25, 1911.

Fig. 1.

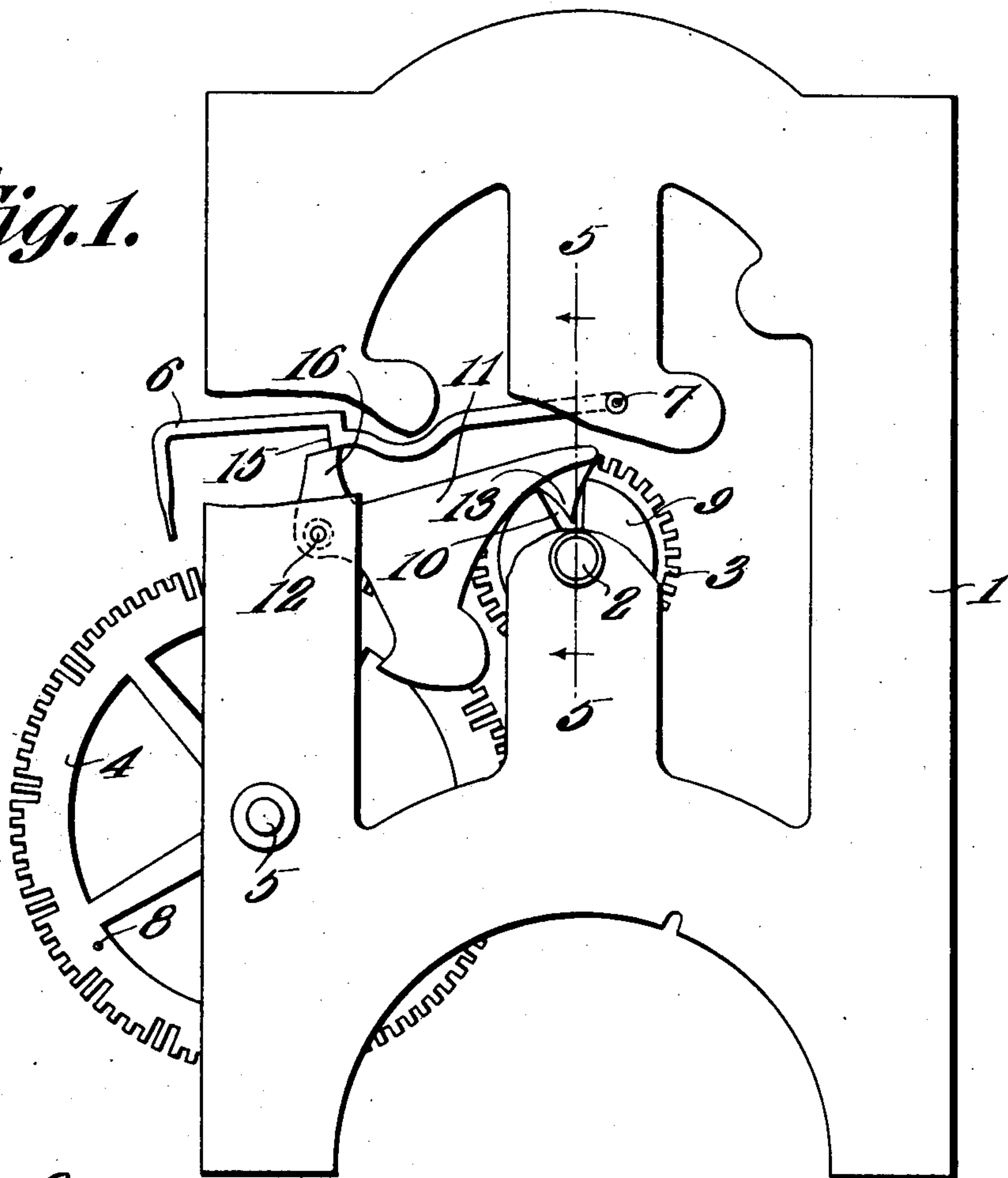


Fig. 3.



Witnesses:

J. J. Conner
R. M. Elliott

Fig. 4.

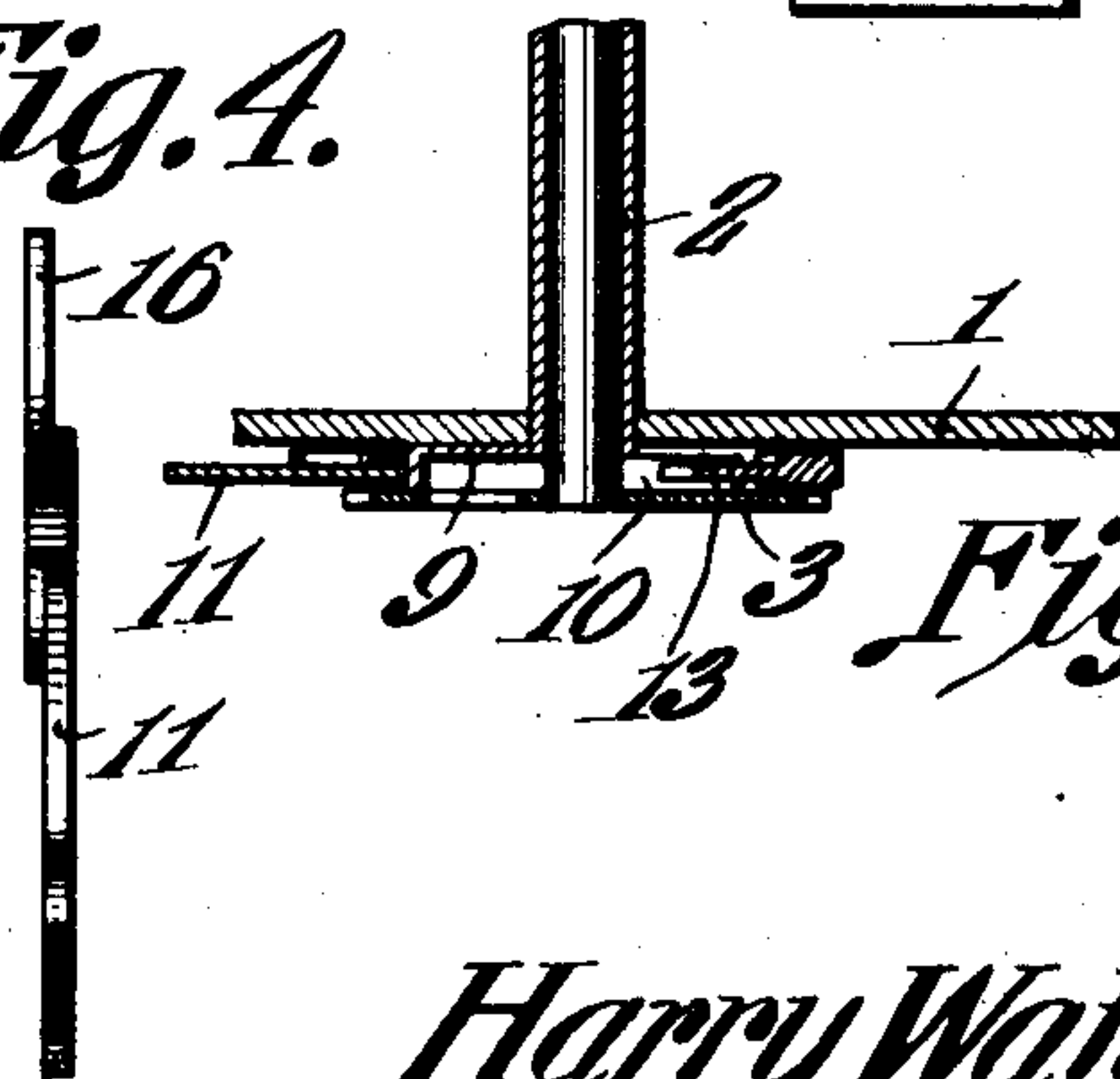


Fig. 2.

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UNITED STATES PATENT OFFICE.

HARRY WATSON, OF BRANDON, MISSISSIPPI.

SELF-SETTING CLOCK.

998,819.

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To all whom it may concern:

Be it known that I, HARRY WATSON, a citizen of the United States, residing at Brandon, in the county of Rankin and State of Mississippi, have invented a new and useful Self-Setting Clock, of which the following is a specification.

This invention relates to self-setting clocks.

The object of the invention is to provide novel means whereby the striking train of a clock movement will be automatically adjusted to proper relation to the time train when for any reason such relation has been disturbed, and to secure this result without requiring any extended or expensive changes in clock movements already in use.

It frequently happens when a clock has run down, or has stopped from any cause, that in resetting, the relation of the time train to the striking train is disturbed, so that consonance between the two trains is temporarily destroyed, and the number of strokes given on the bell or other alarm will thus not agree to the time indications on the clock.

In the present invention provision is made whereby the two trains will be brought into proper relation by the progressive movement of the time train without any attention on the part of the person winding or setting the clock, this result being secured every twelve hours, the self-setting mechanism being otherwise inactive.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a self-setting attachment for clocks, as will be hereinafter fully described and claimed.

In the accompanying drawing forming a part of this specification, and in which like characters of reference indicate corresponding parts: Figure 1 is a view in side elevation of a portion of a clock movement, showing the improvements of the present invention applied thereto, a part of the plate or frame of the clock being broken away for clearness of illustration. Fig. 2 is a view in side elevation of a pawl that coacts with the hour wheel, locking wheel, and count wheel to secure the proper setting of the striking train relative to the time train. Fig. 3 is a view taken from one edge of the pawl. Fig. 4 is a similar view taken from

the other edge. Fig. 5 is a vertical transverse sectional view taken on the line 5—5 Fig. 1, and looking in the direction of the arrow thereon.

Referring to the drawings, 1 designates generally the front plate of a clock frame, such as is commonly employed in time and striking trains, especially of the eight-day type, and as the present invention has to do only with the hour wheel, count wheel, and locking wire, all the other parts have been omitted.

Of the parts illustrated 2 designates the hand arbor, 3 the hour wheel, 4 the count wheel, 5 the count wheel arbor, 6 the locking wire, and 7 the arbor of the locking wire. The count wheel 4 is modified only in so far as being the provision of an outwardly projecting pin 8 for a purpose that will presently appear.

Mounted upon the hour wheel 3 or upon a sleeve surrounding the arbor 2 and made fast to the wheel or arbor, is a disk 9 provided at one point with a notch 10 leading from the periphery toward the axis of the disk, the notch being of wedge shape, or of any other appropriate form, which will answer the function presently to be described.

Pivoted to the frame is a pawl or arm 11 which forms one of the essential features of the present invention, and which is shown in detail in Fig. 2. The pawl at the end remote from its pivot 12 is formed with a tooth 13 arranged to engage with the notch 10 of the disk 9, and at a point about midway of its length is provided with a cam face extension 14 that is arranged in the path of movement of the pin 8.

The locking wire 6 is similar to the type ordinarily employed in striking movements except that it is provided with a shoulder or offset 15 designed to be engaged by a finger or detent 16 upstanding from the pawl at its pivotal point, the finger being of such length that when the tooth 13 is in the notch 10, the locking wire will be held out of contact with the count wheel. The tooth 13 is so related to the notch 10 in the disk 9, and the latter so related to the hour wheel 3 that once in every revolution of the latter, the tooth 13 will drop into the notch if not prevented, and during the remainder of the revolution of the wheel 3, the point of the tooth will ride on the periphery of the disk 7.

The parts are so related that when the pawl 11 has its tooth lodged within the notch of the disk, the finger 16 will under-ride the shoulder or projection 15 of the locking wire, and the latter will be maintained in elevated position with its end out of engagement with the notches of the count wheel, even though in the ordinary operation of the striking train it would fall into some of these notches. The result of this is that the count wheel will continue its rotation and cause the progressive action of the striking train so long as the wire 6 is maintained in its elevated position. Ultimately, however, in the rotation of the count wheel, the pin 8 is brought into contact with the cam face extension 14, and the pawl 11 is moved about its pivot until the tooth 13 is lifted from the notch 8 when the finger 16, moving in an arc about the pivot point of the pawl 11, will escape from beneath the shoulder 15 and so release the locking wire and permit it to drop into locked engagement with the count wheel and thereby arrest its further movement. The notch 10 is of such size and is so located that it has been moved out of the path of the tooth 13 by the progressive movement of the time train before the striking train is again released, and consequently the tooth 13 will remain on the periphery of the disk 9 so that the finger 16 is held out of the path of the locking wire.

When the time and striking trains of the clock are in proper relation, the pin 8 will always engage the cam face extension 14 whenever the notch 10 is coincident with the tooth 13, thus preventing it from dropping into the notch. The pawl 11 is then inert relative to the locking wire, so long as the proper relation is maintained between the two trains of the clock. Suppose, however, that the coöperative relation of the two trains of a clock should be out of consonance, either by reason of the clock running down and of having been rewound or reset without attention to the striking train, or of the clock hands having been moved to such an extent as to cause the two trains of the clock to be out of harmony, and the striking train no longer agrees with the time train. Then when the notch 10 moves into coincidence with the tooth 13, the pin 8 is no longer in such relation to the pawl as to elevate it and therefore the tooth 13 will drop into the notch 10 just as the locking wire is being elevated to release the count wheel, the parts being so adjusted as to cause this order of action. Now when the locking wire 10 is to move downward to a sufficient extent to cause its free end to enter a notch in the count wheel, it is caught by the finger 16 and is prevented from entering the notch and thus stops the striking train, which then continues until the pin is

brought against the cam extension 14, and the pawl is elevated to carry the tooth 13 out of the notch 10 and the finger 16 from beneath the shoulder 15, so that the locking wire may now drop into a count wheel notch, thus arresting the further operation of the striking train. The parts are so proportioned that the striking train and the time train are now in proper relation, and this is maintained until again disturbed by some cause other than the normal operation of the clock movement. Whenever the proper relation of the time and striking trains is disturbed, it is again automatically reestablished within a twelve hour movement of the hour wheel 3 at the longest, but usually this relation is established in much less time.

It will be understood that the showing of the drawing is more or less diagrammatic and is not intended to show any exact relation which will vary with different clock movements.

I claim:

1. In a combined time and striking clock, a count wheel, a locking wire, a detent for the wire, and means controlled by the time train when out of proper relation to the striking train to cause the detent to hold the locking wire inactive relative to the count wheel until the proper relation of the two trains is established.

2. In a combined time and striking clock, a count wheel, a locking wire, a detent movable into and out of operative relation to the locking wire, and means controlled by the time train and coacting with the detent to maintain the latter inactive relative to the locking wire except at predetermined points in the movement of the time train.

3. In a combined time and striking clock, a count wheel, a locking wire, a detent movable into and out of operative relation to the wire, means controlled by the time train to cause the movement of the detent into operative relation to the locking wire, and means controlled by the striking train to render the detent inactive at all times while the time and striking trains are in proper relation.

4. In a combined time and striking clock, a count wheel, a locking wire, a detent movable into and out of operative relation to the locking wire, a pawl carrying a detent movable into and out of operative relation to the wire and provided with a tooth and with a cam face extension, a projection on the count wheel arranged to engage the cam extension, and a disk on the hour wheel with its periphery in the path of the tooth and provided with a notch to receive the same.

5. In a combined time and striking clock, a count wheel, a locking wire having a shoulder, a pivoted pawl provided with a finger arranged to engage the shoulder, and fur-

nished further with a tooth and with a cam
faced extension, a projection on the count
wheel to engage the extension, and a disk on
the hour wheel with its periphery in the
5 path of the tooth and having a notch to re-
ceive the same.

In testimony that I claim the foregoing

as my own, I have hereto affixed my sig-
nature in the presence of two witnesses.

HARRY WATSON.

Witnesses:

SIDNEY L. McLAURIN,
M. E. WORD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
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