

No. 639,630.

Patented Dec. 19, 1899.

A. TUCKER.
CLOCK WINDING INDICATOR.

(Application filed June 15, 1898.)

(No Model.)

Fig. 1.

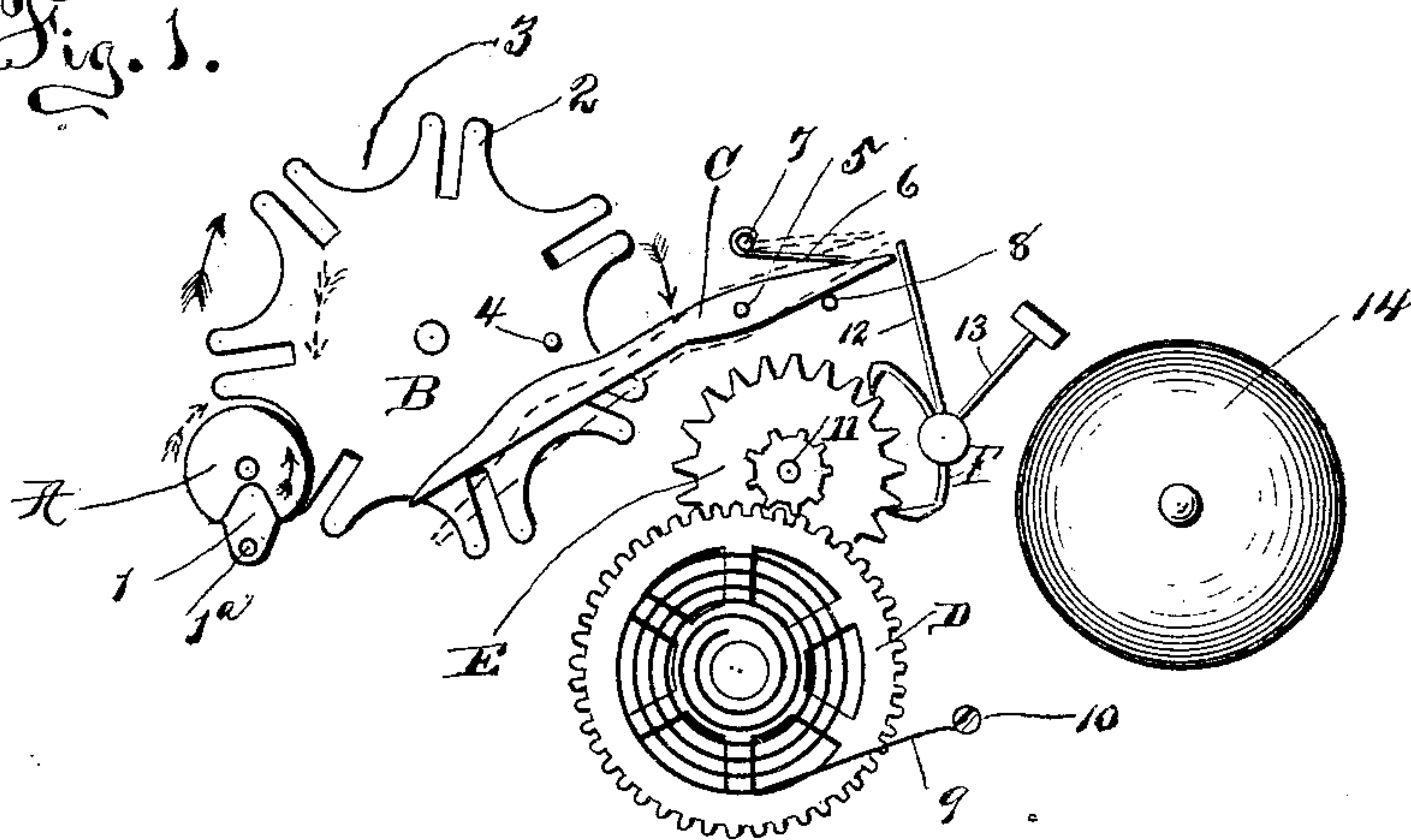
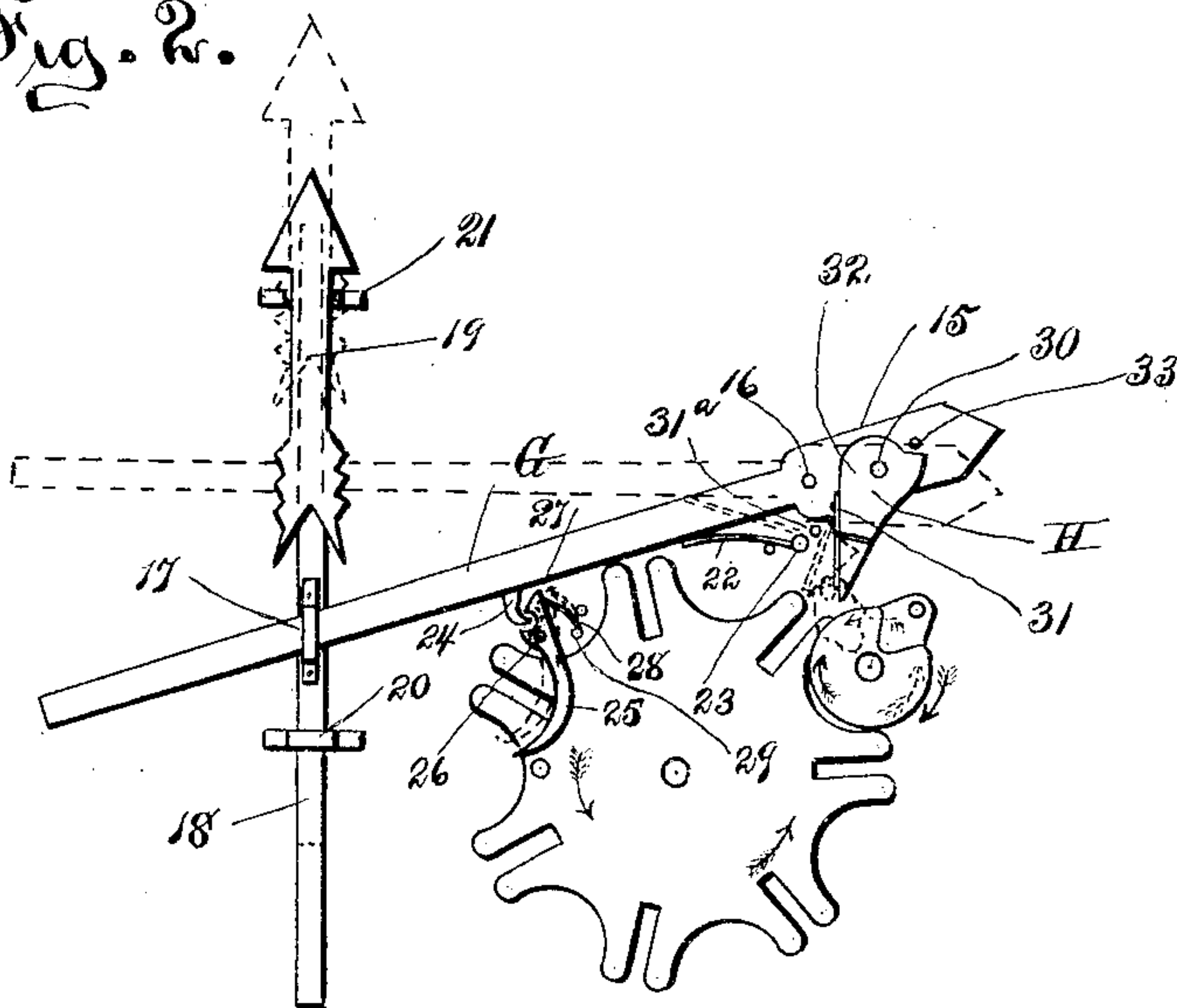


Fig. 2.



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ALFRED TUCKER, OF HASSAN, MINNESOTA.

CLOCK-WINDING INDICATOR.

SPECIFICATION forming part of Letters Patent No. 639,630, dated December 19, 1899.

Application filed June 15, 1896. Serial No. 595,578. (No model.)

To all whom it may concern:

Be it known that I, ALFRED TUCKER, a citizen of the United States, residing at Hassan, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Clocks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to clock-movements, and more particularly to a movement for indicating when rewinding is necessary.

My object is the provision of improved, simple, and highly-efficient mechanism which will indicate when a clock needs rewinding.

Having this object in view, the invention consists of those novel features and combinations which will appear more fully hereinafter.

In the accompanying drawings, Figure 1 is a view of my improved audible indicating mechanism, dotted arrows representing the direction of rotation of the parts during winding and full arrows indicating the direction during unwinding, while the abnormal portion of the tripping-lever is shown in dotted lines; and Fig. 2, a view of my improved visible indicating mechanism in which the different arrows designate the direction of rotation, as in Fig. 1, and the abnormal positions of the parts are designated by dotted lines.

I will first describe the audible indicating mechanism. (Shown in Fig. 1.) A designates a pinion having a depressed cam 1 and a stud 1^a. This pinion is secured on the spindle of the drive or ratchet wheel of the clock. B is a trip-wheel, being provided with slotted teeth 2, between which are semicircular recesses 3, in which the periphery of the pinion fits, while the slots in the teeth are adapted to receive the stud 1^a on the cam 1 as the pinion rotates. This trip-wheel is provided with a stud 4. This construction being identical with that of the visible mechanism, I will not describe it again. C designates a tripping-lever which is pivoted on a stud 5 and is pressed by a flatspring 6, connected to a post 7; but a second stud 8 is provided to limit the short spring-pressed arm of the lever. The long arm of this lever is located

in such juxtaposition to the tripping-wheel and stud thereon that the rotation of said wheel during rewinding causes the stud to trip the lever, as shown in dotted lines. D represents a drive-wheel actuated by a spring 9, whose outer end is connected to a post 10. E designates an escapement-wheel having a pinion 11 in mesh with the teeth of drive-wheel D. The pallets-arbor F is provided with an arm 12, which normally rests on the end of the tripping-lever, and also has a hammer 13, adapted to strike a gong 14.

The action is as follows: As the clock unwinds the cam-pinion is turned and rotates the trip-wheel until the movement is almost run down, whereupon the stud on the tripping-wheel comes into engagement with and trips the tripping-lever, releasing the escapement and setting off the alarm to call attention to the fact.

In Fig. 2, G designates a main lever which is provided with an enlarged head 15 and is pivoted at 16. The free end of the lever passes through a strap or guide 17 on a slide-bar 18, which carries an indicating-arrow 19 and is mounted for movement in guides 20 and 21. This arrow and slide-bar are so disposed that the arrow is projected in front of the clock-dial when the lever G is moved upwardly, as shown in dotted lines. A spring 22, connected to a post 23 and having its free end bearing on the main lever, exerts a normal tendency to raise the lever, slide, and arrow; but this tendency is checked by catch mechanism consisting of a hook 24, connected to the main lever, and a tripping-lever 25, pivoted at 26 and having a catch-head 27, being pressed into engagement with hook 24 by a spring 28, connected to a post 29 and having its free end bearing on the trip-lever. The free end of the tripping-lever is curved, as shown, and adapted to be tripped by engagement with the stud on the tripping-wheel. A peculiarly-shaped dog H is pivoted at 30 to the enlarged end of the main lever. The lower pointed portion of this dog is separate from the main portion, but is connected thereto by a spring 31, said lower portion being adapted for engagement with the stud on the cam of the cam-pinion. A stop 31^a limits the movement of the dog. This dog is provided with a head 32, which is adapted for en-

gement with a stud 33 on the enlarged head of the main lever when the clock is being wound.

The operation is as follows: When the clock is nearly unwound, the stud on the tripping-wheel comes into engagement with the tripping-lever and trips the catch connection between the latter and the main lever, whereupon the presser-spring for said lever forces it upward, shooting the arrow across the dial of the clock and indicating that the latter needs rewinding. When the clock is rewound, the stud 1^a on the cam-pinion comes in engagement with the lower portion of the dog and rocks said dog until its head comes in engagement with the stud 33, whereupon the main lever is retracted and again caught in position by the tripping-lever for the operation to be repeated.

It will be noted that the cam-pinion is free to move during unwinding, as it then merely trips the spring-connected lower end of the dog.

Having thus described the invention, what is claimed as new is--

1. In a mechanism of the class described, the combination with a cam disk or pinion secured to and actuated by a clock-shaft and having a laterally-projecting stud or pin, of a tripping-wheel having slotted teeth adapted to receive said stud, said wheel being also provided with a stud, a tripping-lever actuated by the tripping-wheel stud, a spring-actuated and pivoted second lever normally coupled to the tripping-lever, but released therefrom when said tripping-lever is actuated by the tripping-wheel, and an indicator-slide connected to and actuated by said second lever when the latter is released from the tripping-lever, substantially as described.

2. In a mechanism for indicating when rewinding is necessary in clock-movements, the combination with a cam-pinion on the drive-spindle of the clock-movement, of a tripping-lever actuated by the cam-pinion, a spring-

pressed main pivoted lever connected to the tripping-lever but adapted to be tripped by the latter, a dog pivoted to the main lever, a stop on the main lever, and indicating mechanism operated by the main lever when the latter is released by the cam-pinion actuating the tripping-lever during unwinding of the clock-movement, the pivoted dog being rocked against the stud on the main lever and the latter retracted when the cam-pinion comes in contact with the dog during rewinding, substantially as described.

3. In a mechanism for indicating when rewinding is necessary in clock-movements, the combination with a cam-pinion on the drive-spindle of the clock-movement, of a tripping-lever actuated by the cam-pinion, a spring-pressed main pivoted lever, connected to the tripping-lever but adapted to be tripped by the latter, a dog pivoted to the main lever and having a detached portion connected to the main portion of the dog by a spring, a stop on the main lever adapted to limit the movement of the dog in one direction, a stop adapted to limit its movement in the opposite direction, and indicating mechanism operated by the main lever when the latter is released by the cam-pinion actuating the tripping-lever during unwinding of the clock-movement, the cam-pinion being adapted to idly rock the detached portion of the dog during unwinding and positively rock said dog against the stud on the main lever and retract the latter and the indicating mechanism during rewinding, substantially as described.

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

ALFRED TUCKER.

Witnesses:

LOUISA BERNING,
MARY BERNING.