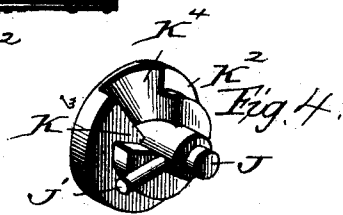
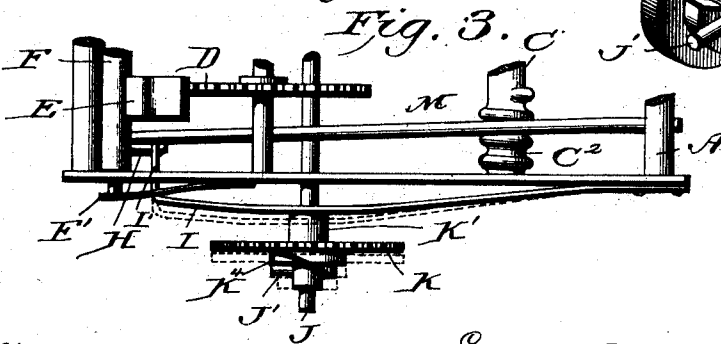
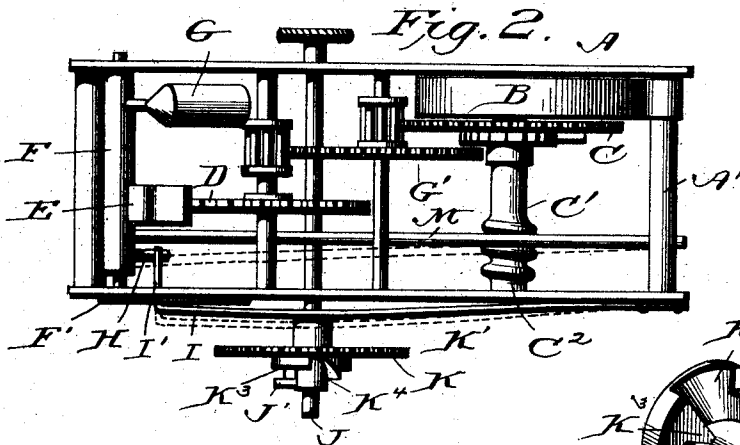
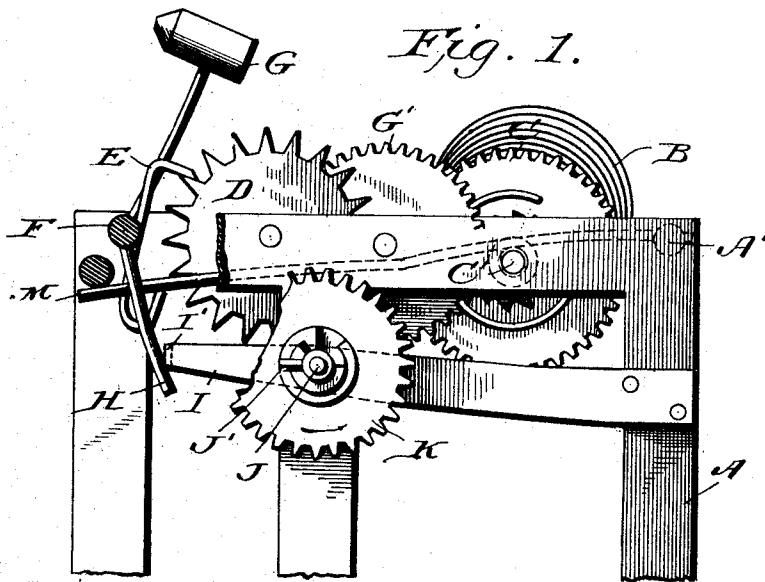


(No Model.)

E. R. MASON & A. O. SNOW.
ALARM CLOCK.

No. 505,115.

Patented Sept. 19, 1893.



Witnesses
Wm. H. H. H.
W. H. H.

Inventors:
Edward R. Mason
Alb. O. Snow
By Attorneys
Wm. H. H. H.

UNITED STATES PATENT OFFICE.

EDWARD R. MASON AND ALT O. SNOW, OF BINGHAMTON, NEW YORK.

ALARM-CLOCK.

SPECIFICATION forming part of Letters Patent No. 505,115, dated September 19, 1893.

Application filed May 1, 1893. Serial No. 472,604. (No model.)

To all whom it may concern:

Be it known that we, EDWARD R. MASON and ALT O. SNOW, citizens of the United States, residing at Binghamton, in the county of Broome and State of New York, have invented certain new and useful Improvements in Alarm Mechanism for Clocks; and we do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to those alarm clocks in which the alarm is stopped for a short interval and then allowed to resume in order to more effectually awaken the sleeper. Clocks of this kind have been used in connection with the alarm mechanism, a device adapted to engage detents on the arbor of one of the time wheels, so that the rotation of the latter would cause the arrest and release of the alarm mechanism to intermittently stop and sound the alarm. This old form of mechanism interferes to a considerable extent, with the free movements of the time mechanism; and it is the purpose of our invention to reduce the amount of such interference to a minimum by providing connections between the alarm and time mechanism, which will not materially affect the time-keeping qualities of the clock, but which will be just as effective in sounding the several separate and distinct alarms.

To this end our invention comprehends the peculiar features and combinations of parts more fully described hereinafter and pointed out in the claims.

In the accompanying drawings: Figure 1 represents a front elevation of the ordinary alarm mechanism to which our improvements are applied; Fig. 2, a top view thereof in which dotted lines show the changed position of parts; Fig. 3 a top detail view; Fig. 4 a perspective detail view.

The reference letter A represents the customary casing or frame in which the mechanism is mounted; B the alarm actuating spring; C the gear actuated thereby; D the escapement wheel; E the escapement verge;

F the rock-shaft; and G the clapper fixed thereto. Motion is transmitted from the gear C to the shaft F by way of an intermediate gear G'.

The alarm is normally held out of action by means of a downwardly extending arm H fixed to the clapper and escapement verge shaft F and intercepted by the free intumed end I' of a trip I. The normal position of the shaft F is shown by Fig. 2, and this is insured by the spring F' which is fixed to the frame A and operates to push the shaft F as far to the rear as possible. The trip is resilient and has its fixed end secured to the opposite side of the framing A. In the present instance the trip is made of flat sheet brass and secured to have a tendency to spring outward. It is provided with a hole near its central portion through which the center-arbor of the timepiece J passes. On the end of the center-arbor and outside the trip, is loosely mounted an hour wheel K. The trip I presses constantly against the small sleeve K', attached to and revolving with the gear K, and the latter is retained on the spindle by a pin J'.

To release the trip I from the arm H and allow the alarm mechanism to act, the gear K is provided with a cam having two recesses K³ and K⁴ in its outer side to receive the pin successively as the gear revolves on the spindle in the direction denoted by arrows. The second recess K⁴ slopes gradually outward to the face of the cam, in order to offer the least possible resistance to the rotation of the gear K as the pin passes out of the recess. When the pin comes to and enters the first recess K³, the gear through the resiliency of the trip I, is urged outward and allows the intumed end I' of the trip I to move away from the arm H and permit the pawl to vibrate and the alarm to sound.

To stop the alarm mechanism before it runs down and to sound a second alarm shortly afterward, mechanism acting independently of the time-mechanism is provided. This consists of a long spring shifting-rod M having one end fixed to one of the cross bars A' of the frame, and extending over the main-spring shaft C', and its free end passes between the arm H and the verge E attached to the clapper-shaft F. This shaft F is al-

lowed a limited amount of endwise play in its bearings in order to permit it to be moved back and forth, and hence thrown in and out of engagement with the trip. This action is produced by means of a worm C^2 on the main-spring shaft C' , which worm engages the rod M and gradually forces its free end against the arm H , thereby moving the latter opposite the end of the trip as shown in dotted lines Fig. 3, which again stops the vibrations of the arm and hence the action of the alarm. The cam K^2 continues to revolve until the pin J' enters the second notch K^4 , whereupon the resiliency of the trip will a second time urge the hour wheel K farther outward and allow the internal end I' of the trip to fly away from and release the arm H , as shown in dotted lines in Fig. 3, and again liberate the alarm mechanism to sound a second time. Now when the alarm spring is re-wound in the resetting operation, the revolution of the main-spring shaft C' will reverse the movement of the screw and draw the shifting rod M back to its original position, as shown in full lines Fig. 2. During this backward movement the shaft F returns to its normal position under the influence of spring F' . Hence it will be seen that when the time mechanism brings the first recess K^3 beneath the pin J' , the alarm sounds until the screw on the shaft C' moves the shifting rod forward and throws the arm H opposite the trip which stops the alarm mechanism. But this action does not affect the action of the cam which continues to revolve until the second recess K^4 allows the gear K and hence the trip I , to fly outward and liberate the alarm mechanism. The length of the intermissions between the alarms can be regulated by the distance between the notches, for the greater the distance the longer the intermis-

sion. A greater number of notches in the cam will cause a greater number of intermissions.

While the form shown is by preference the one adapted to illustrate our invention, yet it is manifest that other equally as successful ones could be devised by those skilled in the art, without departing from the spirit and scope of our invention. Therefore we do not limit ourselves to the exact construction herein shown and described, but consider ourselves entitled to all such variations as come within the spirit and scope of our invention.

Having thus described our invention, what we claim is—

1. In an alarm mechanism for clocks, the combination with the main-spring shaft, of a worm, a verge-shaft having endwise movement and connected to be actuated back and forth by the said worm, an automatic trip arranged to engage connections on said verge-shaft and means, substantially as described, for intermittingly disengaging the trip from said connections whereby two separate alarms are sounded, as set forth and described.

2. In an alarm mechanism for clocks, the combination with the main-spring shaft, of a worm thereon, a shifting rod actuated by the worm, a verge shaft having endwise movement and provided with an arm engaged by the rod, a strip adapted to engage said arm, and a driven cam acting in conjunction with the trip to intermittingly move it away from the arm, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

EDWARD R. MASON.
ALT O. SNOW.

Witnesses:

HENRY A. SNOW,
JAMES F. PETTIT.