D. G. MEIKLE,

ALARM CLOCK.

APPLICATION FILED OCT. 5, 1916.

1,228,039. Patented May 29, 1917.

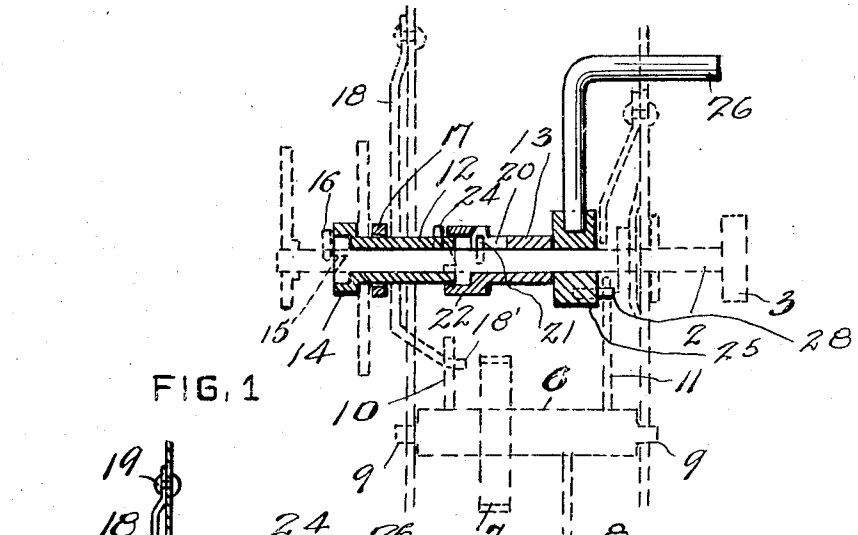


FIG. 1

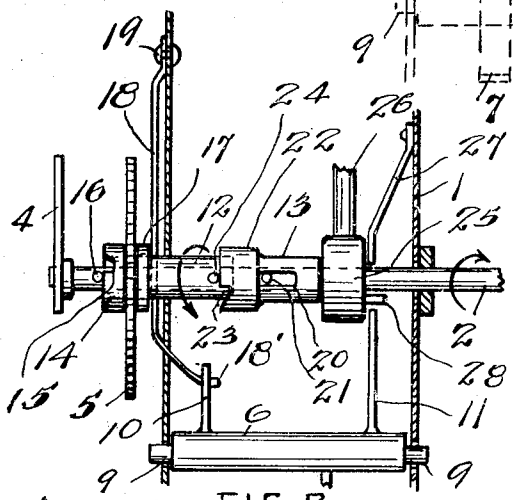


FIG. 2

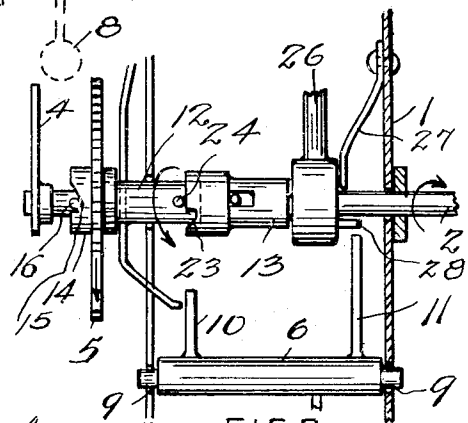


FIG. 3

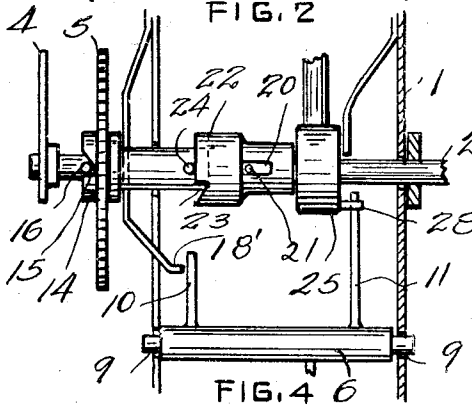


FIG. 4

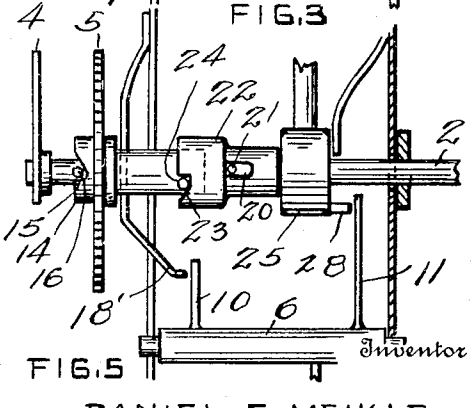


FIG. 5

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ALARM-CLOCK.

1,228,039. Specification of Letters Patent. Patented May 29, 1917.

Application filed October 5, 1916. Serial No. 123,941.

To all whom it may concern:

Be it known that I, DANIEL G. MEIKLE, a subject of the Kingdom of Great Britain, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Alarm-Clocks, of which the following is a specification.

The present invention relates to improvements in alarm clocks, particularly of the repeating type, and is designed to be incorporated in an alarm clock as it is being manufactured, or it may with equal facility be attached to and form a part of existing clocks now on the market and in common use. The primary object of the invention is the provision of means whereby the alarm mechanism may be released and the alarm actuated for the first time, and then after the alarm mechanism has been shut off, at the expiration of a suitable interval of time the alarm is automatically repeated. The first alarm is designed to be shut off manually, but the second alarm remains energized until the mechanism runs down, so that the sleeper when wakened by the first alarm may shut it off and take a little longer nap, say fifteen minutes feeling confident that he will be aroused by the second alarm, which is released automatically. The invention consists in certain novel combinations and arrangements of a pair of clutches or clutch devices on the usual alarm setting spindle of this type of clock, as will hereinafter be more specifically pointed out and claimed.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention, constructed according to the best mode I have so far devised for the practical application of the principles of my invention.

Figure 1 is a sectional view of the novel features of my invention, showing in dotted lines so much of an alarm clock as is necessary to illustrate the adaptation thereto of my invention, the parts being locked.

Fig. 2 is a view in elevation of the device showing also the rocking arbor and connections of the alarm mechanism, the hammer or alarm mechanism being locked by the main clutch only.

Fig. 3 is a similar view showing the alarm released from both the main and the secondary clutch mechanisms.

Fig. 4 shows the parts in position where the main alarm device is released and the secondary or repeating device is locked, and

Fig. 5 illustrates the position of parts after both alarms have been set off.

As before stated my invention is equally adaptable for newly manufactured clocks or for clocks now in use and on the market, and in the preferred embodiment of my invention as depicted in the drawings I have utilized the usual frame plates 1, the alarm setting spindle 2, with its turning knob 3 and setting hand 4, all as are usually found in alarm clocks of well known type. The spindle 2 is provided with the driving gear 5, and the rocking or oscillating arbor 6 with its escapement 7 and hammer 8, are journaled as usual at 9 9 in the frame. The rocking arbor is equipped with a pair of stop arms 10 and 11, the latter being longer than the former and both arms located near the bearings of the arbor.

As thus far described the parts are all well known and in use in commercial clocks of well known make, and I will now proceed to describe the construction and operation of my novel device and its connections.

As an essential part of the device I employ a pair of elongated hubs 12 and 13 loose on the spindle 2 and alined with each other. The hub 12 is formed with a hollow clutch head 14, notched at 15 to engage a stud or pin 16 projecting from the spindle 2, and the hub 12 also has thereon, next to the driving gear 5, a loose collar 17 against which a flat spring 18 bears, the spring being riveted at 19 to the frame of the clock. The spring has a tendency to force the hub to the left in the figures causing the edge of the round head 14 to engage the pin 16, and when the hub has turned to proper position, this spring forces the hub to the left so that notch 15 incases the pin 16.

The hub 13 is slotted at 20 and a pin 21 fixed in the spindle 2 and projecting into the slot permits longitudinal movement of the hub 13 on the spindle and also causes the hub 13 to revolve with the spindle when in operative position shown in the drawings. However, it will be observed that the head 22 of the hub 13 is hollow to permit the small end of the hub 12 to fit therein. This head 22 is notched at its edge as indicated at 23 and the notch is adapted to receive a pin 24 fixed to and projecting from the hub 12.

From this description it will readily be understood that the notched heads and pins or studs form a pair of clutches, designed to be engaged, successively, with the lapse of a predetermined interval of time between them. Thus, the main clutch involving the hub 12 and its connections, in Fig. 2, is set so that the alarm will be set off at a predetermined hour. The gear 5 is revolved clockwise, by the time mechanism (not shown) carrying with it the hub 12, and as the notched head 14 revolves the pin 16 soon enters the notched portion 15, whereupon the spring 18 forces the loose collar 17 and hub 12 to the left as shown in Fig. 3. In this movement the bent end 18′ of the spring 18, which has previously been holding the short arm 10 locked, releases the arm and the alarm is set off. The alarm remains active until it either runs down or is shut off. For the purpose of shutting off the alarm I utilize a slide collar 25 movable on the spindle at the end of the hub 13, and provided with a handle 26. A flat spring 27 fixed to the plate 1 bears against this collar, and the collar is provided with a pin 28 adapted to engage the long arm 11 of the arbor 6. Thus to shut off the first alarm the collar 25 is turned from position Fig. 3 where both arms 10 and 11 are free and the alarm is being rung, to the position in Fig. 4 with the pin 28 engaging the arm 11 and holding it in locked position. Now the time mechanism for the alarm continues in operation and the hub 12 turns clockwise with the gear 5 until the stud 24 rides along the edge of the head 22 and encounters the notch 23. The spring 27 now forces the hub 13 and slide collar 25 to the left until pin 28 is disengaged from the long arm 11 in Fig. 4 and the alarm is again actuated as shown in Fig. 5, and will continue to ring until the mechanism runs down.

The time mechanism may then be wound again and the alarm set again as in Fig. 2, whereupon the performance will be repeated, the main clutch releasing the first alarm and the secondary clutch releasing the repeating alarm after the predetermined interval has elapsed. The length of the interval between the two alarms may be adjusted according to the position of the pin 24 with relation to the notch 23.

In setting the alarm the clock is set say fifteen minutes ahead of the time desired to arise from sleep, and then the sleeper is permitted to secure another nap before the time of actual rising. It will be seen that the notch 15 is inclined so that the spindle may be turned counterclockwise without interfering with the gear 5 or other mechanism, when setting the alarm, and the notch 23 is so inclined that the hub 12 can turn clockwise as shown and can slip into the head of the hub 13 and out again without interfering with the hub 13.

What I claim is:—

1. The combination with a time mechanism and an alarm mechanism of a spindle having a hub thereon and a gear on the hub actuated from the time mechanism, means on the hub whereby the hub is permitted to move laterally on the spindle as the gear is actuated to release the alarm mechanism, manual means for shutting off the released alarm mechanism, and means on the spindle for automatically and subsequently releasing the alarm mechanism.

2. The combination with a time mechanism and an alarm mechanism, of a spindle having a pin and a slidable notched hub thereon and a gear on the hub, a spring detent held in position by said hub to lock the alarm mechanism, said mechanism being released when the notch in the notched hub engages the pin, manual means for shutting off said released mechanism, and means for automatically releasing the locked mechanism.

3. The combination with a time mechanism and an alarm mechanism and a spindle with a pin thereon, of a loose slidable hub notched to engage the pin and a gear on the hub, a second slidable hub rotatable with the spindle and formed with a notched head, and a pin on the first hub to engage said notched head, a spring detent held in operative position by the first hub to lock the alarm mechanism and released when the notch in the said second hub engages the pin, and manual means for locking the released alarm mechanism.

In testimony whereof I affix my signature in the presence of two witnesses.

DANIEL G. MEIKLE.

Witnesses:

NORMAN R. SCOVILL,

VIOLA P. FAUSER.

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