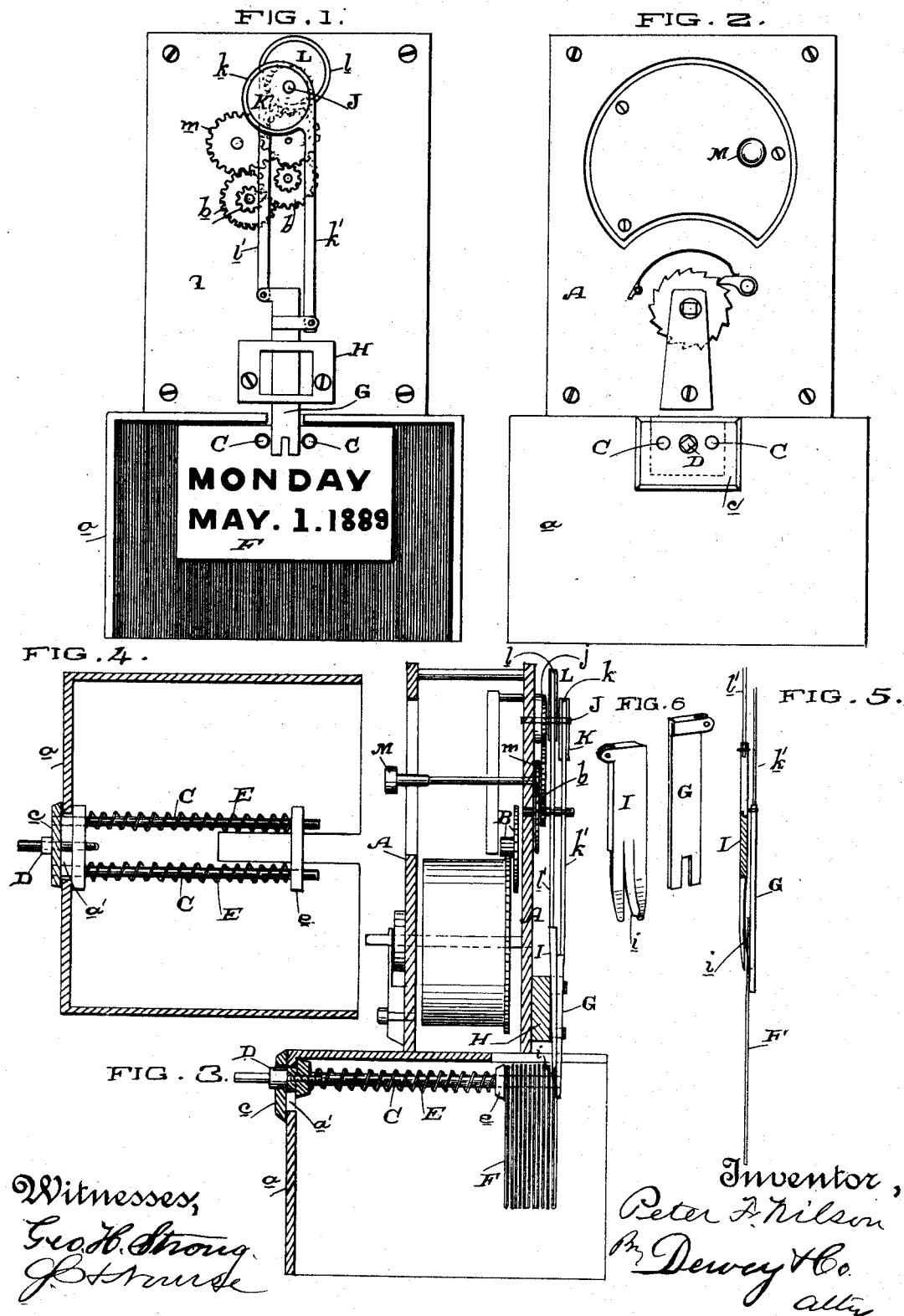


(No Model.)

P. F. NILSON.  
CALENDAR CLOCK.

No. 420,519.

Patented Feb. 4, 1890.



# UNITED STATES PATENT OFFICE.

PETER F. NILSON, OF PHOENIX, ARIZONA TERRITORY.

## CALENDAR-CLOCK.

SPECIFICATION forming part of Letters Patent No. 420,519, dated February 4, 1890.

Application filed June 10, 1889. Serial No. 313,757. (No model.)

*To all whom it may concern:*

Be it known that I, PETER F. NILSON, of Phoenix, Maricopa county, Arizona Territory, have invented an Improvement in Automatic Calendar Attachments for Clocks; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of automatic calendars, and especially to that class used in connection with clock mechanism; and my invention consists in fixed guides or supports on which are mounted separate calendar cards or tags, springs tending to force said tags or cards forward, and oppositely-reciprocating guard-plates operated by the clock for holding the cards or tags upon the guides and relieving them in such a way that one shall be forced off the track every twenty-four hours, all of which, together with details of construction, I shall hereinafter fully describe.

The object of my invention is to provide a simple and effective calendar attachment for clocks.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a front elevation of my attachment. Fig. 2 is a rear elevation of same. Fig. 3 is a vertical section. Fig. 4 is a bottom view. Fig. 5 is a side view showing the operation of guards G and I on the calendar card or tag. Fig. 6 is a perspective view of each of said guards.

A is the clock-frame, of which *a* is the base.

B represents the clock mechanism generally, the particular parts not being necessary to describe.

In the base *a* of the clock are the horizontal guides or supports C, here shown as two parallel rods. The rear ends of these guides are secured to a cross-plate *c*, and this plate receives a set-screw D, which passes through from the back of the base and is adapted to tighten the cross-plate in its vertical position. The back of the base is slotted, as shown at *a'*, and by loosening the set-screw the cross-plate may be moved so as to alter the vertical position of the guides. Fitted upon the guides is a sliding cross-head *e*, actuated by springs E.

F represents the several cards or tags, each

bearing its own date, there being three hundred and sixty-five of these, representing every day of the year and properly marked. These cards or tags are mounted on the guides C in front of the cross-head *e*, and the tendency of the springs E is to force them forwardly off to the free ends of the guides.

G is the main guard-plate mounted in the fixed guide H above and adapted to slide up and down in said guide, so that its lower end, passing down through the top of the base *a*, lies in front of the cards or tags. Behind this main guard-plate, and mounted in the same guide, is the supplementary guard-plate I, the lower end of which is sharpened down and is provided with a forwardly-acting spring-tongue *i*. This supplementary guard-plate is also adapted to have a vertical movement, so that its lower end passes down behind the outermost card or tag and in front of the following one.

The movements of the two guard-plates are effected by the following mechanism: J is a small shaft on the clock-frame, and on this shaft is mounted the gear *j*, which is connected with the gear-train *b* of the clock mechanism, of such a character as to impart to it a revolution in twenty-four hours. Upon this same shaft J is mounted an eccentric K, fitted with an eccentric-strap *k* and connecting-rod *k'*, the lower end of which is attached to the top of the main guard-plate G. Upon the same shaft J is mounted a second eccentric L, fitted with an eccentric-strap *l* and a connecting-rod *l'*, the lower end of which is connected with the top of the supplementary guard-plate I. The relative position of these eccentrics is such that the movements which they transmit to the guard-plates are oppositely reciprocating—that is to say, while the main guard-plate is moving up the supplementary guard-plate is moving down, and vice versa.

The operation of the calendar is as follows: In order to place the cards or tags in position, the set-screw D at the back of the base is loosened, so that the guides C may be dropped down to a lower plane, thus freeing their other ends from the guard-plates. The cards or tags are now slipped upon the guides, so that they occupy about the whole length thereof,

compressing the actuating-springs E. The guides are then elevated to their former position and there held by tightening-screw D, so that all the cards or tags are held upon them by the action of the main guard-plate, which fits its lower end over the foremost one of the series. As the clock mechanism works, the main guard-plate gradually rises and the supplementary guard-plate moves down, fitting its lower end behind the foremost card or tag and in front of the following one. This takes place before the main guard-plate has entirely moved up away from the cards or tags, and consequently as soon as the main guard-plate rises high enough to free the cards or tags the outermost one is flipped off by means of the little spring tongue of the supplementary guard-plate, and said guard-plate holds all the rest of the cards or tags in position. Thus one card or tag is dropped every twenty-four hours, exposing the next one. Then the main guard-plate descends and the supplementary guard-plate moves upwardly, and when the latter has removed itself from the cards or tags the former is down in position to hold them, and the springs E force them all forward against it. A thumb-shaft M, used to set the hands by means of a pinion *m*, meshing with the gear-chain *b*, also operates the guard-plates through the gear *j*, so that if the clock has been stopped the calendar-cards may be successively dropped to catch up with the date.

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

1. A calendar attachment for clocks, consisting of the combination of a guide having one end free, a series of separate calendar cards or tags mounted upon said guide, a reciprocating main guard-plate operated by the clock mechanism for holding all the cards or tags on the guide, and an oppositely-reciprocating supplementary guard-plate operated by the clock mechanism for holding all the said cards or tags but the foremost one, whereby said one, when relieved of the main guard-plate, is dropped from the guide, substantially as described.

2. The calendar attachment for clocks, consisting of the combination of a guide having a free end, a series of separate calendar cards or tags mounted upon said guide, a spring for forcing forwardly said cards or tags to the free end of the guide, a main guard-plate operated by the clock mechanism for holding the cards or tags on the guide, and a supplementary guard-plate operated by the clock mechanism for retaining all but one of the cards or tags, whereby said one, when freed of the main guard-plate, is dropped from the guide, substantially as described.

3. A calendar attachment for clocks, consisting of the combination of the guides, the separate calendar cards or tags mounted thereon, the reciprocating main guard-plate op-

erated by the clock mechanism for holding the cards or tags on the guides, and the oppositely-reciprocating supplementary guard-plate operated by the clock mechanism for holding all the cards or tags but the foremost one, said plate having a spring-tongue, whereby said foremost card or tag is flipped off the guides when relieved by the main guard-plate, substantially as described.

4. A calendar attachment for clocks, consisting of the combination of the guides, the series of separate calendar cards or tags on said guides, the springs on the guides for forcing the cards or tags forward, and the oppositely-reciprocating main and supplementary guard-plates operated by the clock mechanism, the latter having a spring-tongue, whereby said cards or tags are held to the guides and relieved, so as to drop the foremost card or tag at intervals, substantially as described.

5. A calendar attachment for clocks, consisting of the combination of the guides, the series of separate calendar cards or tags thereon, the springs for forcing them forward, the main guard-plate for holding them on the guides, the supplementary guard-plate for holding them all but the foremost card or tag, and the connections for reciprocating said guard-plates in opposite directions, consisting of the oppositely-located eccentrics having eccentric-straps and connecting-rods, and the gear *j*, connected with clock mechanism for operating said eccentrics, substantially as described.

6. A calendar attachment for clocks, consisting of the combination of the guides having a vertically movable and adjustable support, whereby the guides may be adjusted to receive the calendar cards or tags and raise them to place, the series of separate calendar cards or tags mounted on said guides, the springs for forcing them forwardly, the oppositely-reciprocating guard-plates for holding the cards or tags and relieving and dropping the foremost one, and the connections and eccentrics for operating the guard-plates, all arranged and adapted to operate substantially as described.

7. A calendar attachment for clocks, consisting of the guides, the calendar cards or tags, the springs, and the oppositely-reciprocating guard-plates acting to drop one of said cards or tags at intervals, in combination with the eccentrics and connections for operating the guard-plates, the shaft J and gear *j*, for operating the eccentrics, the gear-chain *b*, and the thumb-shaft M and pinion *m*, for setting the gear chain and calendar attachment, substantially as described.

In witness whereof I have hereunto set my hand.

PETER F. NILSON.

Witnesses:

GEORGE F. SPANGENBERG,  
JOHN W. JEFFRIES.