

R. C. LAIRD & C. E. MILLER.
 PHONOGRAPH ATTACHMENT FOR CLOCKS.
 APPLICATION FILED APR. 7, 1910.

1,059,474.

Patented Apr. 22, 1913

2 SHEETS—SHEET 1.

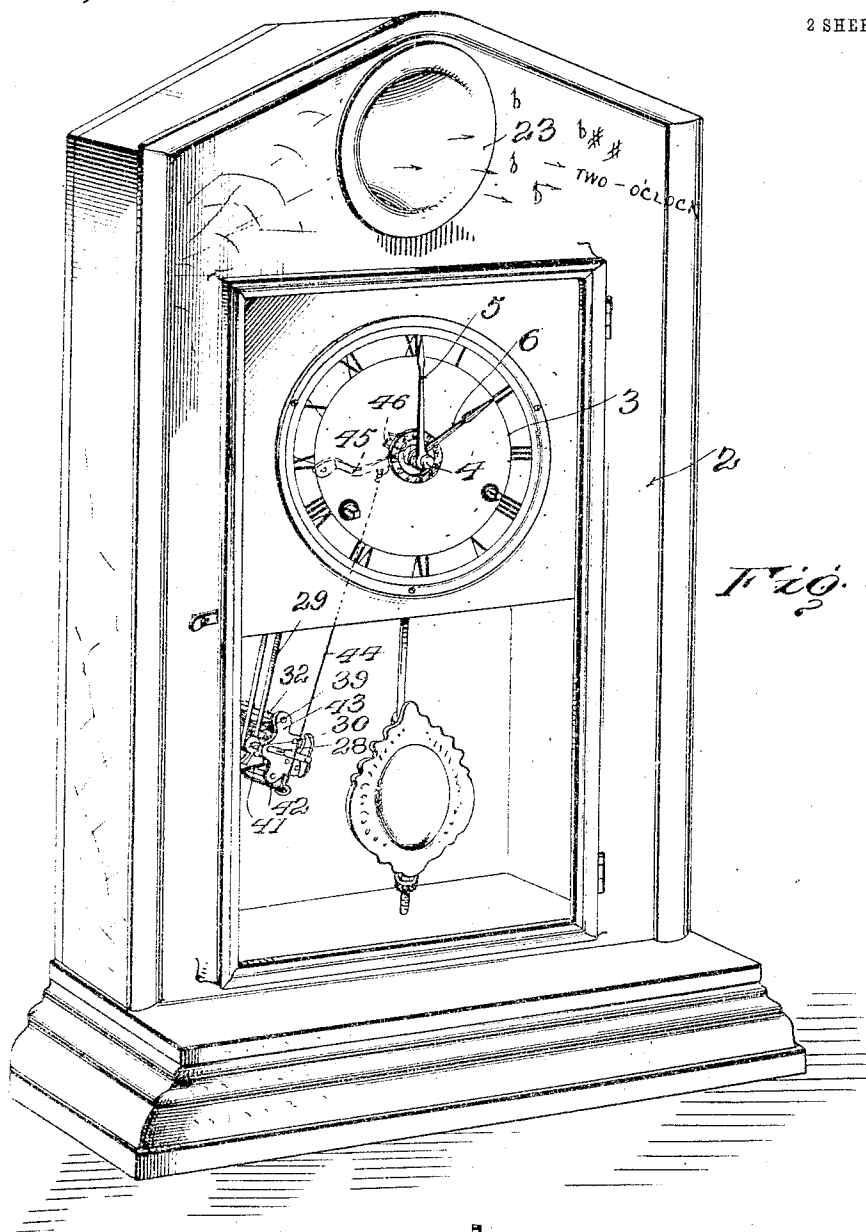


Fig. 1.

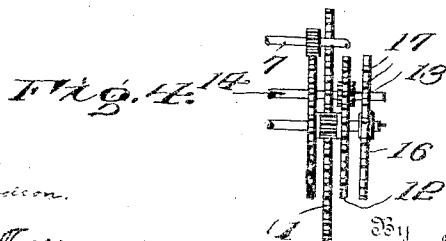


Fig. 2.

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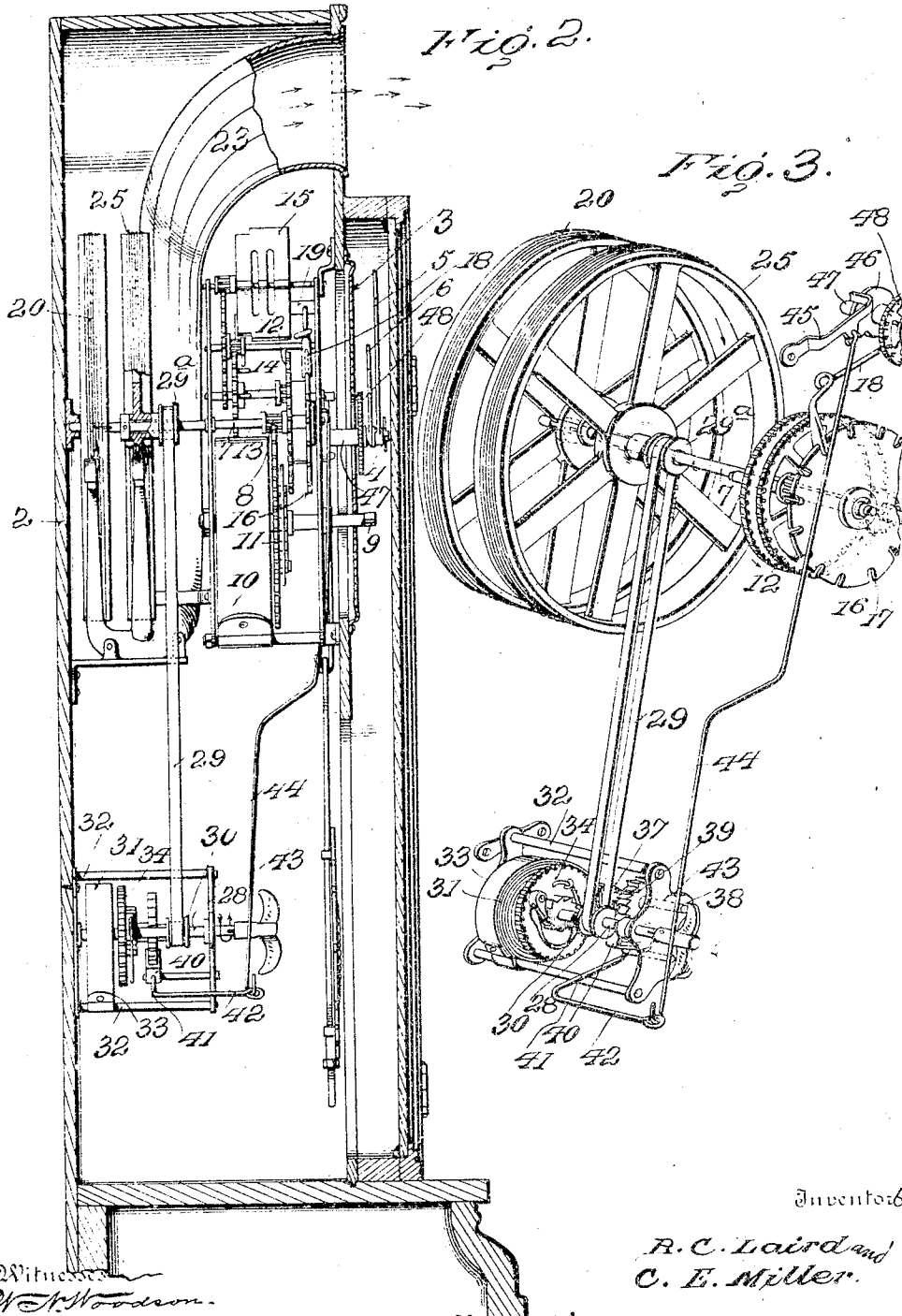
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UNITED STATES PATENT OFFICE.

ROY C. LAIRD AND CHARLES E. MILLER, OF TABOR, IOWA.

PHONOGRAPH ATTACHMENT FOR CLOCKS.

1,059,474.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ROY C. LAIRD and CHARLES E. MILLER, citizens of the United States, residing at Tabor, in the county of Fremont and State of Iowa, have invented certain new and useful Improvements in Phonograph Attachments for Clocks, of which the following is a specification.

This invention relates to clocks and particularly to a phonographic attachment adapted to be applied to clocks of ordinary construction.

The primary object of our invention is to provide a clock with a phonograph attachment to be used in place of the ordinary hour striking mechanism and bell, whereby the hours, and if desired, the half hours, will be called out by the phonograph when the hands of the clock arrive upon the proper points upon the dial.

A further object is to provide a phonograph alarm mechanism operated by the ordinary clock alarm mechanism, whereby at any predetermined time for which the alarm shall be set, the phonograph will utter words, phrases or sounds of an appropriate nature which shall act as an alarm.

The invention consists in the arrangement of parts and details of construction set forth in the accompanying specification and more particularly detailed in the claims appended.

While we may apply our invention to any desired form of clock, we have illustrated the invention as applied to a pendulum clock. Such a clock with our improved attachment is shown in the accompanying drawings, wherein:

Figure 1 is a perspective view of a clock, looking toward the face thereof; Fig. 2 is a vertical section through the clock case, showing the internal mechanism; Fig. 3 is a perspective view of the releasing mechanism for both the hour record and the alarm record; and Fig. 4 is a plan view of gearing.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In these figures, 2 designates a clock casing of any desired description and shown as having a hinged door, and as being provided with the usual dial 3 through which projects the main arbor 4 having mounted thereon the minute and hour hands 5 and 6. These minute and hour hands are driven by the usual clock mechanism which does

not require any description, it being thoroughly understood by those cognizant with the art.

Mounted within the clock case in any suitable manner is the record carrying shaft 7 having thereon a pinion 8.

9 designates the winding shaft for winding up the spring actuating the striking or hour sounding mechanism and 10 designates said spring. This is connected to the shaft 9 in any usual manner so that it may be wound up by turning the shaft in one direction and will reversely move said shaft when released.

Mounted on the winding shaft is the gear wheel 11 which engages the pinion 8 on the shaft 7.

Mounted on the shaft 7 is the gear wheel 12 which engages with a pinion 13 on a shaft 14. This shaft 14 by the usual train of gears to be found in clock mechanism, engages with the governor fan 15 for controlling the speed of the various parts. The train of gears whereby this is accomplished is not specifically described, as it is well known in the art.

Mounted on the shaft 7 is a notched disk 16 having twelve notches therein corresponding to the twelve hours of the day and this disk and the shaft 7 are held from rotation by a detent arm 18 extending from a rock shaft 19 which is raised from its engagement with the notch disk every hour when the hour hand 6 reaches the numeral 12. This is the ordinary releasing mechanism for clock chimes and hence does not require any particular description, it being well understood in the art. At each hour, therefore, it will be seen that the arm 18 will be raised whereupon the spring 10 through the train of gears before referred to, will act to rotate the shaft 7 through a portion of a revolution and until the detent arm 18 again drops into the next succeeding notch.

Mounted upon the shaft 7 to rotate therewith is a record cylinder 20 having thereon a signal record, this record being appropriate to the several hours of the day.

Supported in proximity to the record is a phonographic sound box 21 whose stylus engages the face of the cylinder 20. The sound box is loosely connected by a tubular arm 22 with a horn or megaphone 23 which opens upon the face of the clock case, as shown in Figs. 1 and 2. It will be seen that every hour the shaft 7 will be released, whereupon

the spring 10 will act to rotate the shaft until the detent arm 18 again drops in the notch and that during this rotation the phonograph record will cause the hour to be called or sounded through the horn 23. While we have shown the mechanism as being so arranged that the phonograph record moves only through a small arc of a circle, it will be understood that the construction might be such that while the arm 18 is raised, the shaft 7 would rotate through an entire revolution, or might even rotate several times before the detent arm 18 again drops into the next following notch. The means whereby this can be accomplished are, of course, obvious to those skilled in the art.

In order to provide means for sounding an alarm at any predetermined time, we mount upon the shaft 7 an alarm record 25 with which a stylus on the sound box 26 engages. This sound box is mounted on a tubular arm 27 which is also loosely connected and communicates with the horn 23. The cylinder 25 is loosely mounted on the shaft 7 and is held in place thereon by a collar 25^a. In order to actuate the record 25 at any predetermined time, we connect the disk with a spring actuated alarm shaft which at a predetermined time is released and permitted to rotate. To this end we provide a shaft 23 mounted in the clock casing and driven by an alarm spring, this shaft carrying upon it a pulley 30 over which a belt 29 passes to a pulley 29^a which is attached to the disk 25 to rotate therewith.

While we may actuate the record 25 by any of the various alarm sounding and motor mechanisms which are used in clocks, we have shown the shaft 28 as forming the barrel on which is mounted a spring 31, one end of the spring being fast to rods 32 projecting from a fixed base 33. Carried on the shaft 28 is a gear wheel 34 which carries upon it a pawl 35 which engages with a ratchet wheel 36 on the shaft 28, so that after the spring has been wound by rotating the shaft 28, the unwinding of the spring will act to rotate the gear wheel. This gear wheel 34 engages with a pinion 37 on a shaft 38 which carries upon it an escapement wheel 39 of any usual type engaged by an escapement 40. This escapement is mounted on the extremity of a resilient arm 41 which extends out at an angle to an arm 42 which extends outward beyond the face plate 43 which is mounted on the forward extremities of the rods 32.

Connected to the outer extremity of the arm 42 is the connecting rod 44 which at its upper ends is pivotally connected to a pivoted arm 45 which is supported in a raised position by means of an arcuate cam 46 mounted on a shaft 47. This shaft is tubular and surrounds the usual sleeve upon which the hour hand 6 is mounted. It is, of course independently rotatable and car-

ries upon its outer end the rotatable dial 48. By rotating this dial the sleeve will be rotated which will rotate the cam 46 to any desired position so that at any predetermined time the arm 45 will be released, permitting the rod 44 to drop which will release the arm 42 and this will release one end of the escapement 40, permitting the escapement wheel to rotate, the escapement, however, intermittently engaging said wheel in a manner well known, and thus checking any too speedy rotation of the shaft 28. It is to be understood that while we have shown one means for releasing the shaft 28 and permitting its rotation under the force of the spring 31, we do not wish to be limited to this as there are large numbers of other forms of alarm releasing mechanism which might be used for this purpose. When the shaft 28 is released, it will rotate and this will give a rotation to the record 25. An appropriate record is used upon this cylinder and as this is rotated an alarm call will be sounded through the horn 23. This call will continue to be sounded until such time as the spring 31 runs down.

It will be obvious that many different records might be used for the purpose of calling out or indicating the hours of the day and night, as also for calling out or indicating an alarm signal. Tunes might be played, popular airs reproduced or phrases reproduced for this purpose, and thus a large variety of different sounds be used for indicating the hours in different clocks.

It will be understood that while we have shown a cylinder record in which the record is placed upon the circumference of the cylinder, we do not wish to be limited to this as it is obvious that a disk record might be used, or indeed a record of any other desired form.

Having thus described the invention; what is claimed as new is:

1. The combination with a clock mechanism, of a shaft, a phonographic record fixedly mounted upon said shaft, a phonographic record loosely mounted on a shaft, said records being disposed parallel to each other, a horn, a plurality of tubular arms extending from the horn, a sound box and stylus mounted on each tubular arm, each stylus engaging one of the phonographic records, means operated by the clock mechanism for actuating the record carrying shaft at predetermined intervals throughout the day, an alarm record motor, a connection therefrom to the loose record on the shaft, means for holding the motor from actuation, means actuated by the clock for releasing the motor shaft and permitting the sound alarm record to rotate.

2. The combination with a clock mechanism, of a shaft adapted to be actuated

thereby, an hour sounding phonographic record mounted on the shaft and rotated thereby, an alarm record loosely mounted on said shaft for independent rotation, a
 5 horn, tubular arms connected to said horn, a sound box and stylus mounted on each arm and engaging said records, means operated by the clock mechanism for actuating the record carrying shaft at predetermined
 10 intervals throughout the day, an independent motor for the alarm record, a connection between said motor and the record to rotate the latter from the former, means for holding the alarm record motor from rotation,
 15 and means actuated by the clock mechanism for releasing said alarm record motor and permitting it to rotate the alarm sounding record independently of the shaft.

3. The combination with a clock mechanism, of a shaft adapted to be actuated thereby, fast and loose phonographic records mounted on the shaft, the loose record being independently driven and forming an alarm
 20 record, a horn, tubular arms extending from said horn, a sound box and stylus mounted on each one of the arms, each stylus engag-

ing with one of said records, means operated by the clock mechanism for actuating the hour sounding record at predetermined intervals throughout the day, an alarm record
 30 motor, a shaft extending therefrom, a belt connecting said shaft with the loose record for rotating the latter from the former, means for holding the record supporting shaft and the motor actuating shaft from
 35 rotation and means actuated by the clock mechanism for releasing the record supporting shaft at predetermined intervals and permitting it to rotate and sound an alarm, and means adapted to be set for any pre-
 40 determined time and actuated by said clock mechanism for releasing the motor shaft and permitting it to rotate and operate the alarm sounding record.

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

ROY C. LAIRD. [L. S.]
 CHARLES E. MILLER. [L. S.]

Witnesses:

CHARLES LUTZ,
 DANA WHITE.