(No Model.)

J. A. VINCENT.

COMBINED CLOCK AND GRAMOPHONE.

No. 602,490. Patented Apr. 19, 1898.

FIG. 1.

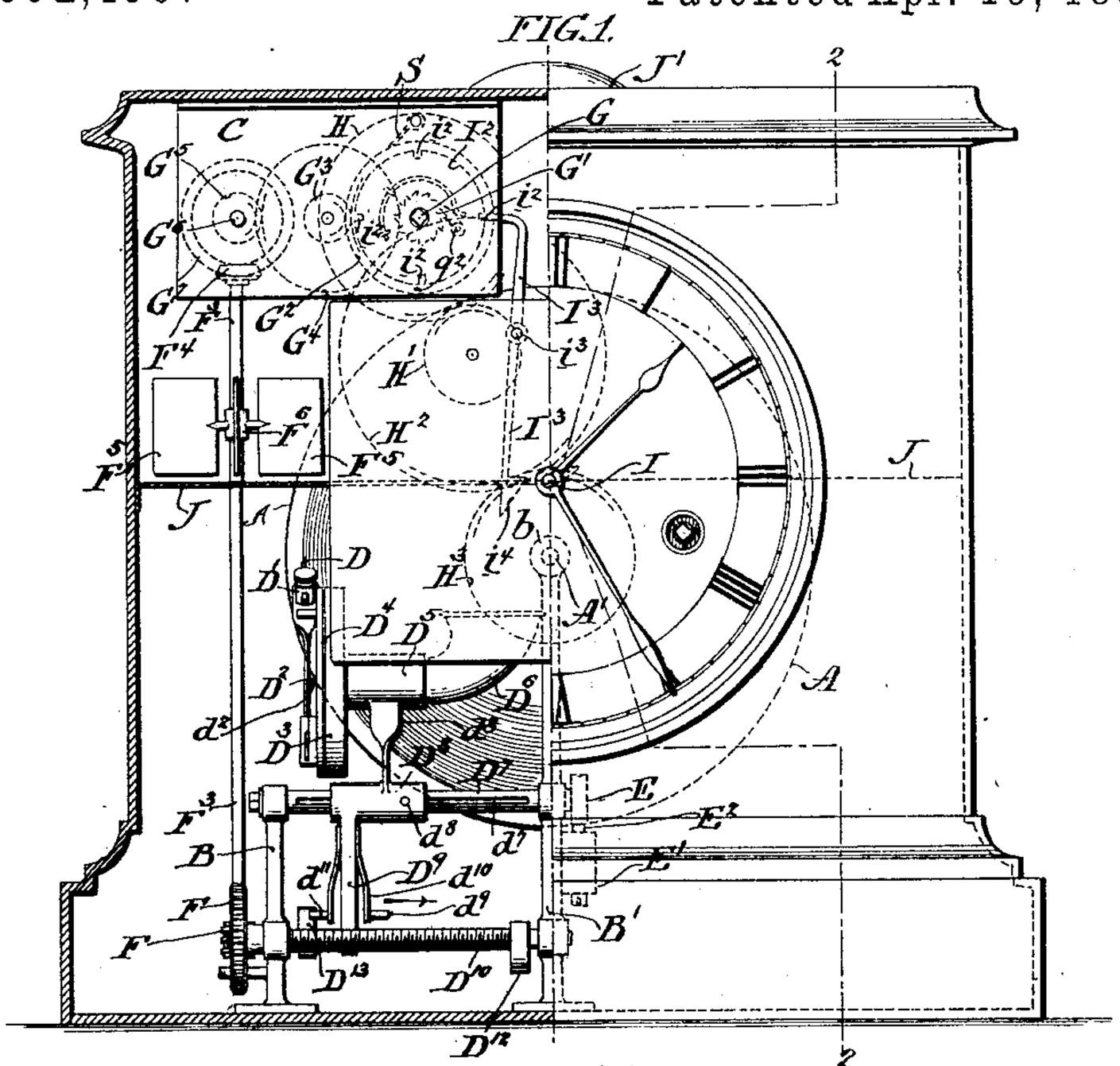
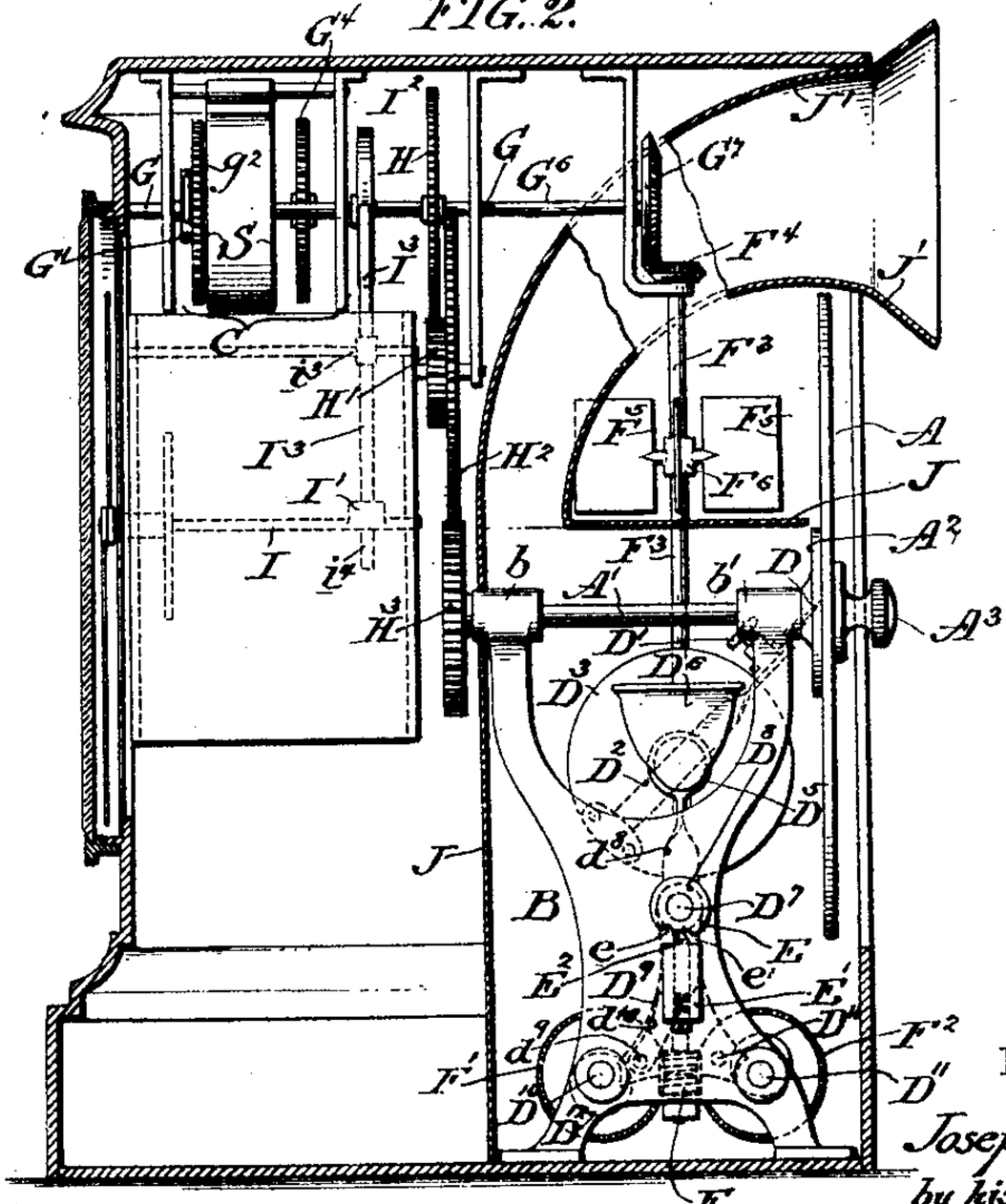


FIG. 2.



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JOSEPH A. VINCENT, OF PHILADELPHIA, PENNSYLVANIA.

COMBINED CLOCK AND GRAMOPHONE.

SPECIFICATION forming part of Letters Patent No. 602,490, dated April 19, 1898.

Application filed February 11, 1897. Serial No. 622,895. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. VINCENT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in a Combined Clock and Gramophone; and I 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.

My invention relates to novel improvements in clocks, the main object being to combine therewith a gramophone, graphophone, or phonograph which will work in unison with the clock mechanism and call out the hour or fraction thereof as the same is registered upon the dial.

My invention further consists in the novel construction and arrangement of the parts comprising the gramophone, which I prefer to use in this connection, and in the manner of controlling the same by the independent mechanism of the clock.

Referring to the accompanying drawings, Figure 1 illustrates a front elevation, partly in section, of a talking clock constructed in accordance with my invention; and Fig. 2 is a vertical section on the line 2 2 of Fig. 1.

Similar letters of reference refer to similar parts throughout the several views of the drawings.

A represents a disk formed of metal, hard rubber, or any suitable material and containing the record.

A′ is a shaft working in bearings b and b', formed upon the bracket B, and is provided with a small face-plate A^2, against which disk A is secured by means of a thumb-screw A^3.

The disk A and shaft A′ are rotated through the medium of a train of gearing operated by a spring-motor C, which is under the control of the clock mechanism, as more fully described hereinafter.

The stylus or needle D, which traverses the spiral groove formed upon the disk A, is held in a binding-post D′, secured to a flat spring D^2, mounted upon the sound-box D^3, which latter is provided with the usual diaphragm D^4, connected to the spring D^2 by a pin d^2.

A tube D^5 projects from one side of the sound-box and is provided with a short horn D^6, the mouth of which is turned upward.

Upon the bar D^7, which has bearings in the brackets B and B′, is a sleeve D^8, connected to the sound-box by a twisted spring d^8, which allows a slight angular movement of the sound-box and parts connected thereto independent of the movement imparted to the sleeve.

The sleeve D^8 has a depending lever D^9, which is caused to travel backward and forward and impart a like movement to the sounding-box and stylus by means of screws D^{10} and D^{11}, the former screw being firmly threaded and adapted to slowly feed the stylus along the grooves of the record, while the latter screw is of steep pitch, causing a quick return of the lever D^9 and parts connected therewith after the same has been carried forward to the full extent of its movement. The shifting of the lever D^9 from one to the other of said screws, which causes the stylus to move into and out of engagement with the spiral grooves of the record, is accomplished in the following manner:

The bar D^7, upon which the sleeve D^8 is guided, is provided with a groove d^7 for the reception of a pin or key d^8, fitted to the sleeve D^8. On the end of the bar D^7 is a cam-plate E, provided with notches e and e', and upon the bracket B is formed a lug E′, provided with a vertical hole adapted to receive a spring-actuated plunger E^2, which is beveled at the end to properly enter one of notches e or e'. As the lever D^9 is fed forward in the direction of the arrow the pin d^9, fastened to a flat spring d^{10}, which in turn is secured to said lever, moves in the path of the cam D^{12}, which forces the lever D^9 out of engagement with the screw D^{10} and into engagement with the screw D^{11}. The plunger E^2 in the meantime being depressed enters the notch E′ as the lever is shifted. At this point the stylus is disengaged from the spiral groove in the record. The screw D^{11} carries the arm D^9 in the reverse direction until the pin d^{11} enters the path of the cam D^{13}, when the arm D^9 is again shifted and the stylus brought in contact with the spiral grooves of the record.

The screws D^{10} and D^{11} are driven by a worm F, mounted on a shaft F^3, which meshes with

the teeth of the worm-wheels F′ and F², secured to the ends of the screw-shafts D¹⁰ and D¹¹, respectively.

Motion is imparted to the vertical shaft F³ by the spring-motor C, which comprises a shaft G, upon which is secured a ratchet-wheel G′. A spur-wheel G² is loosely hung upon said shaft and carries a pawl g^2, which works in said ratchet.

The shaft is caused to rotate by means of a spiral spring S, which, through the medium of the ratchet-wheel G′, imparts motion to the spur-wheel G². A pinion G³ engages the latter, and upon the same shaft is secured a spur-wheel G⁴, which meshes with a pinion G⁵ upon the shaft G⁶, the latter being provided at one end with a bevel-gear G⁷, which engages the bevel-pinion F⁴ upon the shaft F³. The shaft G is also provided with a gear-wheel H, which engages a pinion H′, and upon the same shaft as that which supports the pinion H′ is fastened a gear-wheel H², which meshes with a pinion H³, mounted on the shaft A′.

It will be seen from the above description that motion is given to the disk containing the record, as well as to the sound-box and stylus, by the spring-motor C, through the medium of a train of gears. In order to control to some extent the speed of the spring-motor, I desire to provide a simple form of governor. The one which I have illustrated in Figs. 1 and 2 consists of a series of blades F⁵, mounted upon a central hub F⁶, which is in the present instance secured to the vertical shaft F³, although it will be readily understood that a governor of this type may be secured to any rapidly-moving portion of the motor.

The starting and stopping of the motor C is preferably controlled by the shaft upon which the minute-hand of the clock is mounted, and as the clock mechanism is of the ordinary type it has not been thought necessary to illustrate any of the details of construction. The shaft I, upon which the minute-hand of the clock is mounted, is provided with a dog I′, and upon the shaft G of the motor is a plate I², provided with a number of radial slots i^2. A lever I³ is pivoted at a point i^3. One end of said lever is adapted to rest in one of the slots in the plate I, while the other is provided with an inclined cam-surface i^4, which is directly in the path of the dog I′. As the shaft I revolves the dog strikes the inclined portion of the lever I³ and releases the upper end thereof from the slot in the plate I². The motor is then free to rotate and operates the gramophone until the lever I³ engages the next slot in the plate I², when the spring-motor is locked until the dog on the shaft controlling the minute-hand completes a revolution and is again brought into action.

I prefer to inclose the gramophone in a casing J, extending the full width of the clock, and I provide at the top of said casing a horn J′, through which the sounds produced by the gramophone are conveyed and intensified.

I do not confine myself to this particular arrangement of the parts, as it will be readily seen that the disk may be arranged in a horizontal as well as a vertical position and may be located in any convenient part of the clock-casing without departing from the spirit of my invention. The records, aside from calling out the hour, can be arranged to reproduce anything desired in music, words or songs, and, if desired, can be used for the purpose of reproducing anything in the line of advertising matter.

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

1. A combined clock and gramophone comprising a record-disk mounted upon a rotatable plate, spring mechanism for operating the same, a sound-box provided with a diaphragm and stylus which is adapted to traverse the face of the record, a screw operated by said spring mechanism for conveying the sound-box and stylus across the record-disk in one direction, a second screw for conveying the sound-box and stylus in the opposite direction, cams, one on each of said screws for shifting the parts carrying the sound-box and stylus out of engagement with one and into engagement with the other of said screws, the clock mechanism, a dog mounted upon a shaft of the clock mechanism, a lever controlled thereby, and a notched wheel operated upon by said lever and dog to unlock the spring mechanism of the gramophone.

2. A combined clock and gramophone comprising the clock mechanism, spring means for operating the same, a lever controlled by said clock mechanism, a record-disk mounted upon a rotatable plate, spring means for operating the same, a sound-box provided with a diaphragm and stylus which is adapted to traverse the face of the record, a screw for conveying the sound-box and stylus across the record-disk in one direction, a second screw for conveying the sound-box and stylus in the opposite direction, cams one on each of said screws for shifting the parts carrying the sound-box and stylus from one to the other of said screws and a notched plate secured to the main shaft of the spring mechanism of the gramophone and operated upon by the above-mentioned lever for locking said spring mechanism.

3. A combined clock and gramophone comprising a record detachably secured to a rotatable plate mounted upon a horizontal shaft, a sound-box and stylus acted upon by said record, a lever depending from said sound-box, a screw for acting upon said lever to move the sound-box and stylus in one direction, a screw acting upon said lever to move it and its connecting parts in the opposite direction, pins upon said lever, a cam upon each of said screws for acting upon said pins to shift the lever from one to the other of said screws, a spring-motor connected to said screws through a train of gearing for operating the same, and in like manner to the shaft

carrying the record, a disk carried by the main driving-shaft of said motor provided with a series of notches, a pivoted lever having one end adapted to the notches of said plate, the clock mechanism, a dog mounted upon the minute-hand shaft of the clock mechanism and adapted to act upon said lever, substantially as specified.

4. A gramophone comprising a disk containing the record secured to a plate mounted upon a rotatable shaft, a sound-box and a stylus controlled thereby, a traveling support for the sound-box and stylus flexibly connected to a sleeve guided upon a horizontal bar, said sleeve having an arm depending therefrom, a screw adapted to feed the traveling support in one direction, a cam mounted upon the screw and adapted to a pin upon the depending arm for disengaging said arm from said screw, a screw adapted to feed the traveling support in the opposite direction, a cam upon said screw for acting upon a pin on said arm to disengage the same from the last-mentioned screw and move said arm into engagement with the opposite screw, and means controlling the bar upon which traveling support is sleeved for holding the depending arm into engagement with one or the other of the screws with a yielding tension.

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

JOSEPH A. VINCENT.

Witnesses:
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