W. C. CUTLER.

APPOINTMENT CLOCK.

APPLICATION FILED SEPT. 22, 1913.

1,091,486.

Patented Mar. 31, 1914.

3 SHEETS—SHEET 1.

Fig. 1

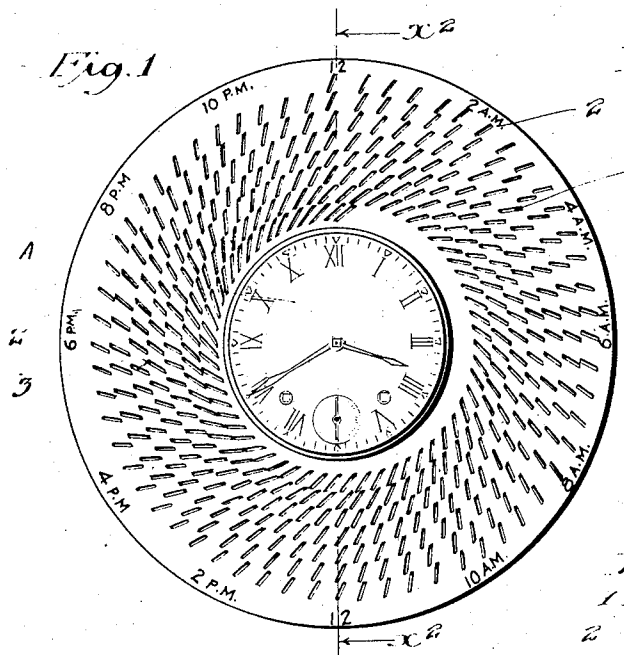


Fig. 2.

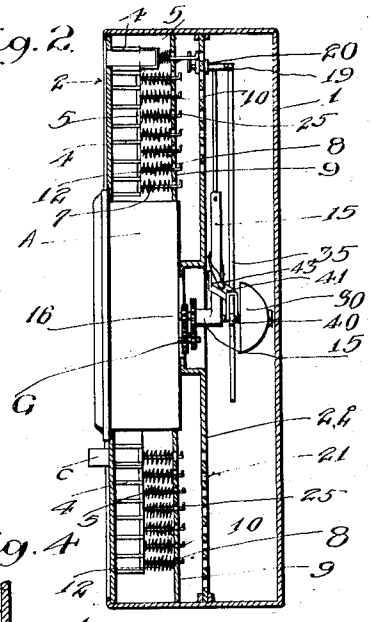


Fig. 3.

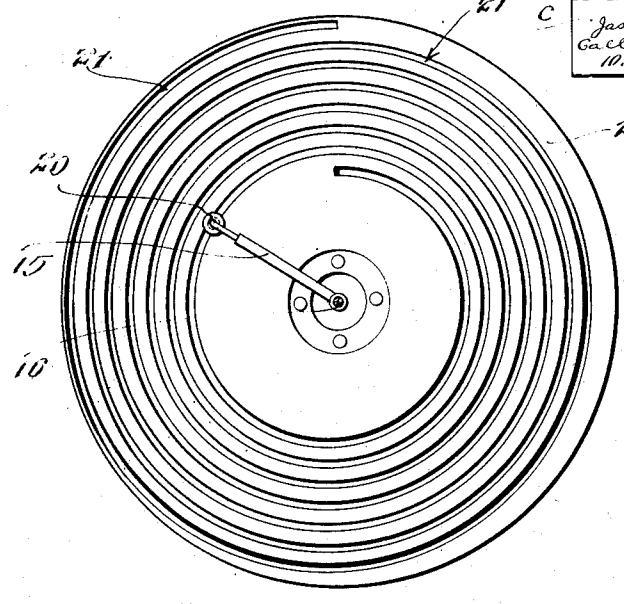


Fig. 4

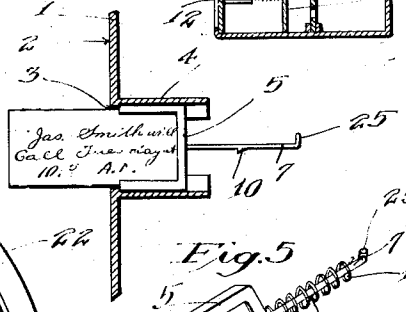


Fig. 5

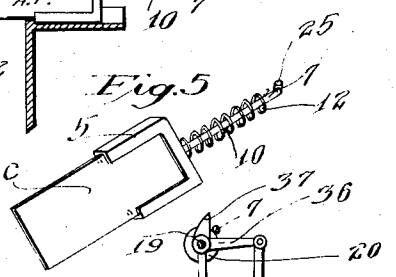
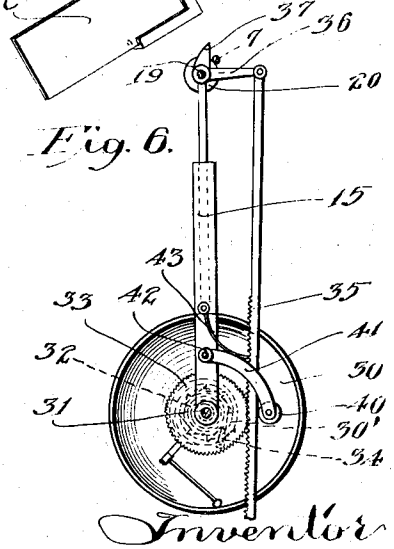


Fig. 6.



Witnesses:

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3 SHEETS—SHEET 2.

Fig. 7

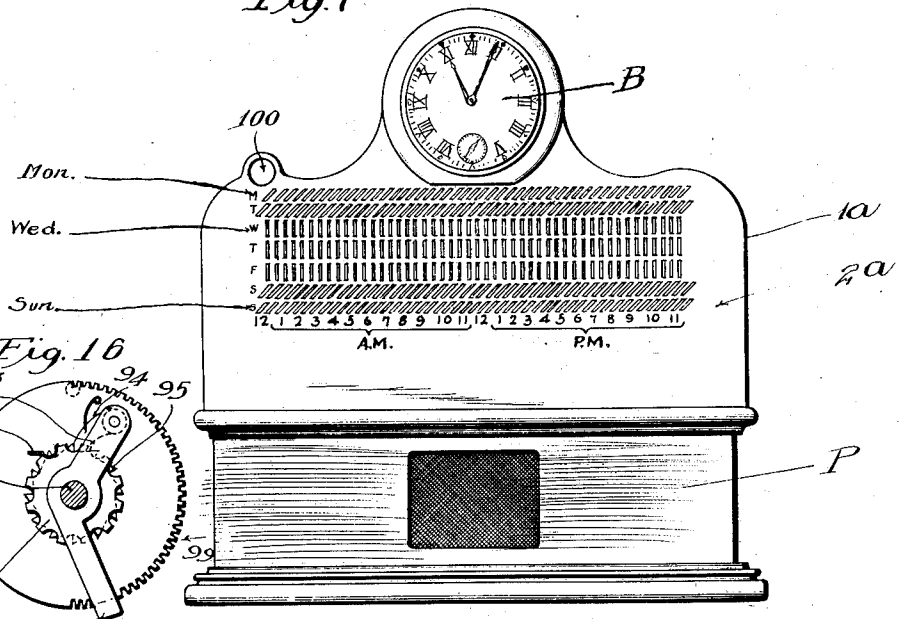


Fig. 16

Fig. 8

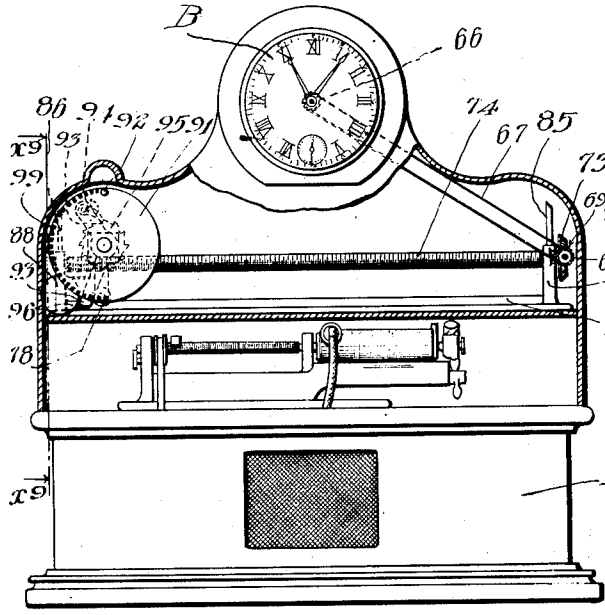


Fig. 9

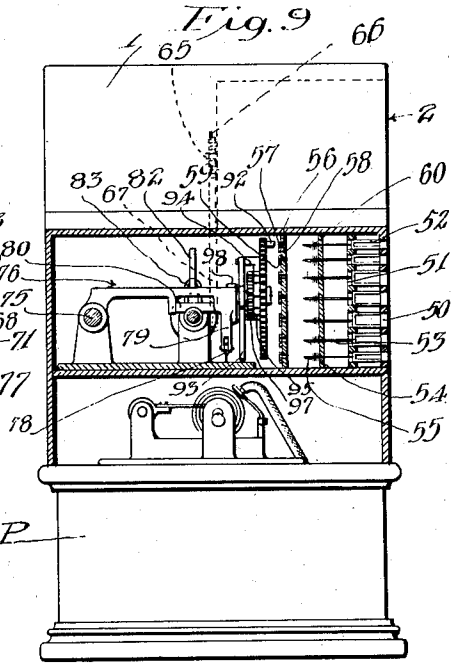


Fig. 10



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3 SHEETS—SHEET 3.

Fig. 11

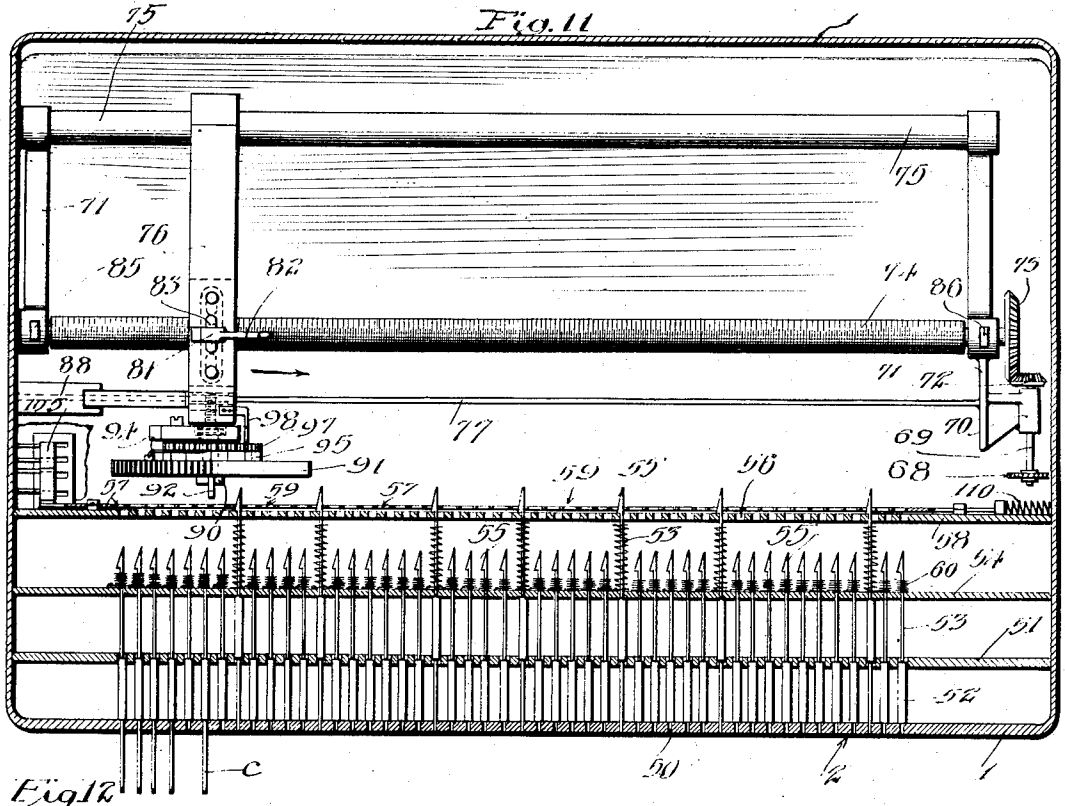


Fig. 12

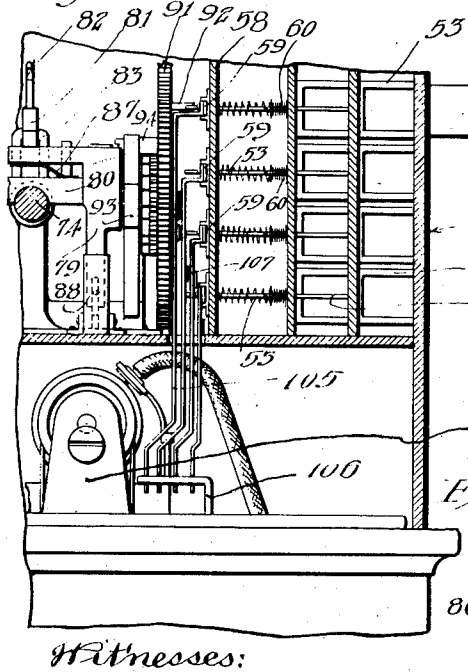


Fig. 13.

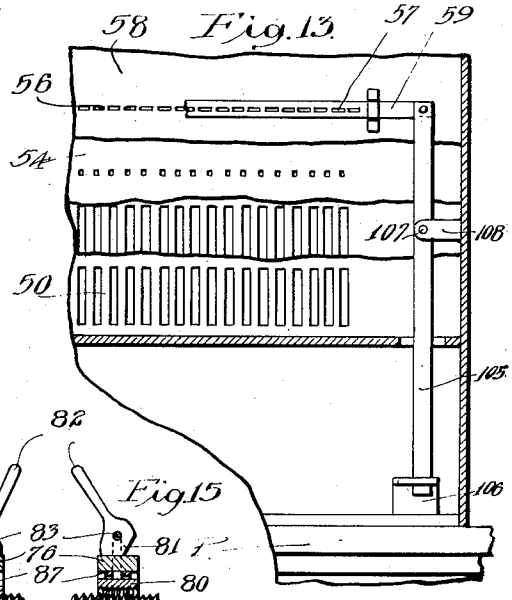


Fig. 14

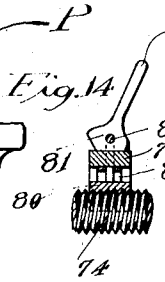


Fig. 15

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UNITED STATES PATENT OFFICE.

WILLIAM C. CUTLER, OF SAWTELLE, CALIFORNIA.

APPOINTMENT-CLOCK.

1,091,486. Specification of Letters Patent. Patented Mar. 31, 1914.

Application filed September 22, 1913. Serial No. 791,026.

To all whom it may concern:

Be it known that I, WILLIAM C. CUTLER, a citizen of the United States, residing at Sawtelle, in the county of Los Angeles and State of California, have invented a new and useful Appointment-Clock, of which the following is a specification.

The general object of the invention is to provide a machine which will automatically exhibit selected information and audibly announce the exhibition of such information at a predetermined time.

A more particular object of the invention is to provide a machine in which are arranged a plurality of card holders for receiving cards containing selected information, such for example, as notices of appointments at different times and provided with automatically operating means for actuating said card holders to project into view a card containing the desired information at a predetermined time, which may be a few minutes before the time of the appointment indicated on the projected card so that the person will be notified somewhat in advance of the appointment.

Other objects of the invention will appear from the following description.

My invention is illustrated in the accompanying drawings in which:

Figure 1 is a front elevation of one form of my invention. Fig. 2 is a transverse vertical section on line x^2—x^2, in Fig. 1. Fig. 3 is a rear view of a spiral disk and telescoping arm and roller, working in conjunction with said disk, which constitutes part of the mechanism of my invention illustrated in Figs. 1 and 2. Fig. 4 is a sectional view illustrating the guide for the card holder. Fig. 5 is a view of the card holder and card used with my invention. Fig. 6 is an enlarged view of the enunciator or bell actuating mechanism of my invention illustrated in Figs. 1 to 5 inclusive. Fig. 7 is a front elevation of another form of my invention. Fig. 8 is a view partly in front elevation and partly in section of the form of my invention illustrated in Fig. 7. Fig. 9 is a cross sectional view on line x^9—x^9, in Fig. 8. Fig. 10 is a view of the key used in returning the mechanism of my invention, illustrated in Figs. 7 to 9 inclusive, to its initial position. Fig. 11 is an enlarged horizontal sectional view taken on line x^{11}—x^{11}, in Fig. 9. Fig. 12 is a sectional view taken on line x^{12}—x^{12}, in Fig. 11 illustrating the mechanism for actuating the enunciator. Fig. 13 is a vertical sectional view taken on line x^{13}—x^{13}, in Fig. 12. Figs. 14, 15 and 16 are views illustrating details of the mechanism.

My invention illustrated in Figs. 1 to 4 inclusive is associated with a wall clock A and is adapted for use as a wall clock. The mechanism of the machine is inclosed in a casing 1 which also incloses all except the face of the clock. The front wall 2 of the casing 1 is provided with a plurality of slots 3 arranged in the form of a spiral with relation to the center of the clock, there being seven coils to the spiral corresponding to the days of the week. The slots are each adapted to represent a definite time of a particular day. The slots of the various coils of said spiral which represent a corresponding time of the day are arranged in alinement with each other in rows radial to the center of the spiral. Characters as shown in Fig. 1 of the drawings, indicating various times of the day are placed on the front wall of the casing 2 adjacent the rows of slots corresponding to such times, so that one may locate the slot representing a particular time of a particular day, by first referring to the character indicating such time, then to the coil representing such day and then locating the slot which is in both said coil and in the row or slots indicated by said character.

Slidably mounted in guides 4 are a plurality of holders 5 which register with the slots 3 in the front wall 2 of the casing 1 and are adapted to receive the exhibits, which comprise cards C. Rods 7 project from the rear of said holders through slots 8 in a plate 9 and are provided with catches 10 adapted to engage the plate 9 to hold the holders in their rearward positions, and the cards C within the casing 1 out of view. Springs 12 surround the rods 7 between the holders and plate 9 and are adapted to project the holders and cards forwardly in the manner and for the purpose hereinafter described. A telescoping arm 15 is loosely mounted upon the rear portion of the hour hand shaft 16 of the clock A and is geared to said shaft by gearing G to rotate one revolution every twenty-four hours. In the upper end of said arm is mounted a roller shaft 19 upon which is loosely mounted a grooved roller 20 which rolls in a spiral slot 21 in a

plate 22 in the casing 1. The spiral formed by the slot 21 registers with the spiral formed by the slots 3 in the front wall 2 of the casing 1 so that as the roller 20 is caused to travel in the slot 21 by the rotation of arm 15 with the shaft 16 said roller will engage the rods 7, when the holders 5 rest in their rearward positions and release the catches 10 from plate 9 to enable the springs 12 to project the holders and cards forwardly. The rods 7 are provided with lugs 25 at their ends which engage the plate 9 and limit the forward movement of the holders 5 and card C. An enunciator, which in the present form of my invention comprises a bell 30, is adapted to be sounded by the means about to be described, each time a card is projected through a slot 2. On the bell shaft 31 are mounted a ratchet 32 and pinion 33. A spring pawl 34 is pivoted on the pinion 33 and is adapted to engage the ratchet 32 when the pinion 33 is rotated in one direction to cause the shaft 31 to rotate with the pinion. The pinion 33 meshes with a rack 35, the upper end of which is connected to an arm 36 on the rear end of roller shaft 19. A dog 37 is secured on the forward end of the roller shaft 19 and is adapted to engage the holder rods 7 to set the bell mechanism for operation in the manner hereinafter described. A roller 40 journaled in arm 41 pivoted on arm 15 at 42 engages the rack 35 under tension of spring 43 secured to arm 15 and normally maintains the rack in mesh with the pinion 33.

The operation of my invention as above described is as follows: Assuming that it is the beginning of Monday morning and it is desired to start the machine at this time, the clock key is first applied to the minute hand shaft which shaft is constructed to receive the key, and the key is turned, turning with it the clock hands and arm 15 until the roller 20 on said arm comes to the outer end of the spiral slot 21 and the clock hands register with the clock numeral XII, during which movement of the arm 15, the rack 35 moves outwardly, the spring pressed roller 40, and arm 41 yielding so as to permit the rack to escape the pinion. The clock is then wound and the machine is ready for use. When the person who is using the device makes an appointment, he places a card C in the slot corresponding to the time of the appointment or in advance of that time if he desires a preliminary warning. He may write upon this card the name of the person with whom the appointment is made or any other memoranda. If he has several matters of which he wishes to remind himself at certain hours of the day or on different days, he may insert several cards at once in slots corresponding to such times. Cards for other appointments or reminders may be inserted from time to time. As each card is inserted the card holder which receives it is forced back against the tension of spring 12 until the rear end of the rod 7 rests in the path of travel of roller 20 and the catch 10 engages the plate 21 in the casing 1 until the rod 7 is engaged by the roller 20 on arm 15. As the hands of the clock rotate to indicate the time and come to the time of the interview or appointment when the desired card is to be projected into view, the roller 20 engages the end of the rod 7 of the card holder in which said card is held and releases the catch 10 from the plate 9, whereupon the spring 12 acting upon the card holder projects said card through slot 2 beyond the front wall of the casing into view. As the roller 20 engages the holder rod 7, the dog 37 also engages said rod, whereupon the bell shaft 31 is rotated in one direction through the medium of ratchet 32, pawl 34, pinion 33, rack 35, arm 36 and shaft 19, winding the spring of the bell ringing mechanism 30′ located within the bell 30, so that when the card holder and card are projected forward and the dog 37 is released from the holder rod 7, the spring of the bell ringing mechanism rotates the bell shaft 31 in the opposite direction and causes said mechanism to ring the bell and enunciate the projection of the card.

My invention as illustrated in Figs. 7 to 13 inclusive is adapted for use as a desk clock. The mechanism as in the previous described embodiment of my invention, is inclosed in a casing 1^a which also incloses all of the seven-day clock B except the face thereof. The front wall 2^a of the casing 1^a is provided with a plurality of slots 50 arranged in seven horizontal rows corresponding to the days of the week, and spaced apart at a distance representing any desired unit of time within a day. The slots are each adapted to represent a definite time of a particular day. The slots of the various horizontal rows, which represent a corresponding time of the day, are arranged in alinement with each other in vertical rows. Characters, as shown in Fig. 7, of the drawings, indicating various times of the day are placed on the front face of the casing wall 2^a adjacent the rows of slots corresponding to such times, so that one may locate the slot representing a particular time of a particular day by first referring to the character indicating such time, then to the horizontal row representing such day and then locating the slot which is in both said horizontal row and in the vertical row of slots indicated by such character. Slidably mounted in guide plate 51 are a plurality of card holders 52 which register with the slots 50 in the front wall of the casing and are adapted to receive the cards C. Rods 53 project rearwardly from the holders 52 through openings in a plate 54 and are

adapted to slide in said plate as the holders 52 slide in plate 51. Catches 55 are provided at the ends of the rods 53 which are adapted to project through slots 56 and 57 in plate 58 and the enunciator actuating universal bar 59 and to engage the plate 58 to maintain the holders 52 in their rearward positions and the cards C, within the casing 1 out of view. Springs 60 surround the rods 53 and are connected at their respective ends to the rods 53 and plate 54, the purpose of which springs is to project the holders 52 and cards C forwardly and the cards beyond the front wall 2^a of the casing 1 as soon as the catches 55 are released from the plate 58 in the manner hereinafter described. Mounted upon the hour hand shaft 65 of the clock B is a sprocket 66 around which passes a chain 67 which also passes around another sprocket 68 on one end of a shaft 69 journaled in bearing 70 on frame 71. A bevel pinion 72 is secured on the other end of shaft 69, which meshes with a similar pinion 73 on the end of screw shaft 74 journaled in frame 71. A carriage 76 is slidably mounted on rod 75, of frame 71, and on track 77 by means of roller 78 at the lower end of arm 79 depending from the carriage, which roller is adapted to roll along said track. A half nut 80 slidably mounted in the carriage 76 is adapted to engage the screw shaft 74 to cause the carriage to travel along the rod 75 and track 77 in the direction of the arrow, (Fig. 11) as the screw shaft 74 rotates. A cam 81 provided with arm 82 is pivoted in the upper part of the carriage 76, on a yoke 83 which extends through the upper carriage frame member and is connected to the half nut 80. Lugs 85 and 86 located on the respective ends of the frame 71, are adapted to be engaged by the cam arm 82, as the carriage approaches the respective limits of its travel toward said lugs, whereby the cam is tilted and engages the carriage frame to lower or raise the half nut 80 into or out of engagement with the screw shaft 74. A spring 87 on the carriage frame engages the half nut 80 and assists the engagement of said half nut with said screw shaft 74. A spiral tape spring 88 is connected to the carriage 76 and is adapted to wind and draw the carriage to the limit of its travel at the left end of the screw shaft 74, when the carriage has traveled to the limit of its movement at the right end of said screw shaft and the cam 81 has disengaged the half nut 80 from the screw shaft by the engagement of cam arm 82 with lug 86. Rotatably mounted on a stud 90 projecting forwardly from the carriage 76 is a disk 91 provided with a pin 92 adapted to engage the latches 55, as the carriage moves along the screw shaft 74 in the direction of the arrow, (Fig. 11), as will be hereinafter more fully described. A pawl lever 93 is pivotally mounted on the stud 90 and is provided with a spring pawl 94 for engaging a ratchet 95 on the disk 91. The lower end of the pawl lever 93 is adapted to engage a lug 96 at the left of the machine, (see Fig. 8) whereby said pawl lever 93 is tilted and the ratchet 95 rotated the distance of one tooth, and the disk 91 rotated so that the pin 92 will be moved out of alinement with one row of catches 55 and brought into alinement with the row of catches 55 immediately below the first mentioned row. A star wheel 97 which is rigid with the ratchet 95 and disk 91 is engaged by a spring arm 98 on the carriage 76, to provide sufficient resistance against the rotation of the disk 91, to prevent said disk being turned by the engagement of pin 92 with catches 55, when the pin is below the center of the disk. The disk 91 is provided with teeth 99, half way around its periphery and the casing 1 is provided with an opening 100, the walls of which opening form a bearing for a pinion key 101 adapted to be inserted through said opening into mesh with the teeth 99 of disk 91 at the end of every seven days, when the clock has run down, to rotate the disk 91 to bring the pin 92 into its initial position in alinement with the catches 55 of the holders 52 for the first day of the week.

An enunciator, which in this form of my invention comprises a phonograph P of the intermittent type, *i. e.*, a phonograph which rotates its record a predetermined number of revolutions each time its controlling arm releases its spring, and then automatically stops, is located within the casing 1 of the machine, and is operated to enunciate the projection of the cards C by the engagement of the actuating levers 105 with the controlling arm 106 of the phonograph, which actuating levers are pivoted at 107 on brackets 108 in the casing 1 and are connected to and operated by the universal bars 59 against the tension of springs 110, as hereinafter more fully described.

The operation of my invention as above described is as follows: Assuming the clock to have run down at the end of the week and it is desired to start the machine at the beginning of the next week. At this time the carriage 76 is at the left end of screw shaft 74 and the nut 80 in engagement with said screw shaft. The pin 92 on disk 91 is in a lower position and the teeth at the forward end of the row of teeth 99 on the periphery of the disk 91 are adjacent the inner end of the key opening 100. The key 101 is inserted through the opening 100 until the pinion end of the key meshes with the teeth 99 adjacent the inner end of the key opening. The pinion key is then turned in a counter clockwise direction and the meshing of the pinion key with the disk teeth causes the disk 91 to rotate in a

clockwise direction, the escapement of the pawl 94 and spring arm 98 from the ratchet 95 and star wheel 97 respectively permitting such rotation of the disk, until the pin 92 on the disk is elevated to its uppermost position, at which time the pinion key engages the last tooth 99, at the rear end of the row of said teeth, and the disk 91 stops with the pin 92 in said uppermost position and in alinement with the row of catches 55 on the card holders for the first day of the week. The clock should then be wound and the device is then ready for use. The use of this form of the invention is similar to that described in the previous form. The user inserts the cards C in the respective slots 50 and card holders 52 corresponding to the times when the cards are to be exhibited, and pushes the cards and holders inwardly until the catches 55, on the rods 53 of the card holders, are projected through the slots 56 and 57 in plate 58 and universal bar 59, respectively, whereupon the catches engage the plate 58 in the path of travel of the pin 92 and retain the cards C within the casing 1 out of view. As the clock operates the screw shaft 74 is rotated by the clock through the medium of sprocket 66 on the hour hand shaft of the clock, chain 67, sprocket 68, shaft 69, and bevel pinions 72 and 73. As the screw shaft is rotated the engagement of the half nut 80 therewith causes the carriage 76 to travel in the direction of the arrow (Fig. 11) and the pin 92 to engage the catches 55 of the card holders 52 of the first day of the week, and release said catches from the plate 58 at the times when it is desired to exhibit the cards, whereupon the springs 60 project the holders 53 and cards C forwardly and exhibit the cards in front of the casing 1 at the desired times. As each catch 55 is engaged by the pin 92 and released to allow the card to be exhibited, the catch engages the universal bar 59 associated with said catches and draws said bar slightly to the right against the tension of a spring 110, whereby the enunciator actuating lever 105 connected to said bar is oscillated and engages the phonograph controlling arm 106, which causes the phonograph P to operate and enunciate the projection and exhibition of the card. As the card is projected and the catch of the projected card holder disengages the bar 59, said bar, lever 105 and controlling arm 106 are returned to their initial positions by the spring 110. When the carriage 76 reaches the end of its travel to the right end of the screw shaft 74, after the pin 92 has engaged every catch 55 of the card holders 52 of the uppermost row of holders for the first day of the week, which were set to be projected to exhibit cards, the cam arm 82 engages lug 86 on frame 71 and the cam 81 elevates the half nut 80 out of engagement with screw shaft 74, whereupon the tape spring 88 draws the carriage 76 to the left end of said screw shaft. As the carriage 76 is drawn to the left end of the screw shaft 74, by spring 88, the end of pawl lever 93 engages the lug 96 and the pawl 94 advances the ratchet 95 one tooth, and rotates the disk 91 sufficiently to lower the pin 92 into alinement with the catches 55 of the holders 52, in the row of holders for the second day of the week, which row is immediately below the row of holders for the first day of the week. As the carriage 76 is drawn to the left end of the screw shaft 74 by the spring 88, and the pin 92 is lowered into alinement with the next row of catches 55, the cam arm 82 engages the lug 85 and the cam 81 lowers the half nut 80 into engagement with the screw shaft 74, whereupon the carriage again travels to the right end of the screw shaft and the pin 92 engages the catches 55 of the holders, of the row for the second day of the week, which are set in position to project and exhibit cards.

The carriage continues to travel from one end of the screw to the other, and the pin 92 is successively lowered into alinement with the catches of the successive superposed rows of holders for the successive days of the week, until the pin 92 has been lowered into alinement with the catches of the lowermost row of card holders for the last day of the week, and has engaged the catches of every holder for the last day which was set to project and exhibit a card. At this time every card which was to be exhibited has been exhibited and the clock is run down and the machine stopped. The machine may again be set and the clock wound to operate the machine for another seven days as above described.

What I claim is:

1. In combination, a case provided with a plurality of openings which respectively correspond to different times, cards adapted to be placed in said openings, clock mechanism, and means controlled by said clock mechanism for causing a card to protrude from its opening while being retained at a time corresponding to the opening in which the card lies.

2. The combination with a clock mechanism, of a casing provided with slots, cards adapted to contain written memoranda and to be manually placed in the slots, and means operated by said clock mechanism for projecting each card from its slot at a time corresponding to the position of the slot, said cards adapted to protrude from the slots when projected.

3. The combination with a clock mechanism, of a plurality of exhibits, means controlled by said clock mechanism for exposing said exhibits at predetermined times,

and a phonograph, controlled by said clock mechanism, for enunciating the exposure of each exhibit.

4. The combination with a clock mechanism, of a casing provided with a plurality of slots, a plurality of card holders in registration with said slots, a plurality of cards adapted to be inserted through said slots into said card holders, and means operated by said clock mechanism for actuating said card holders to project the cards through said slots at predetermined times, said cards adapted to protrude from the slots when projected.

5. The combination with a clock mechanism of a plurality of card holders arranged in rows, projecting means for each card holder adapted to be set to project the respective card holders and the cards within said holders, an engaging element adapted to travel successively along each row of projecting means, and adapted to engage each of said projecting means which is set to enable said means to project the card holder with which it is associated forwardly and the card holder within said holder into view at a predetermined time, and means for bringing said engaging element back to the beginning of the first row of projecting means after said engaging element has traveled along all of said rows of projecting means.

6. The combination of a clock mechanism of a casing provided with a plurality of slots arranged in rows for receiving cards, a projecting element located in the rear of each of said slots adapted to be set to project a card through its associate slot, engaging means adapted to travel successively along each row of said projecting elements, and to engage each of said elements which is set to enable said element to project a card through the slot, with which said element is associated, at a predetermined time, and means for bringing said engaging means back to the beginning of the first row of projecting elements after said engaging means has traveled along all of said rows of projecting elements.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 20th day of September, 1913.

WILLIAM C. CUTLER.

In presence of—

WILLIAM A. LEE,

JOHN V. MIX.