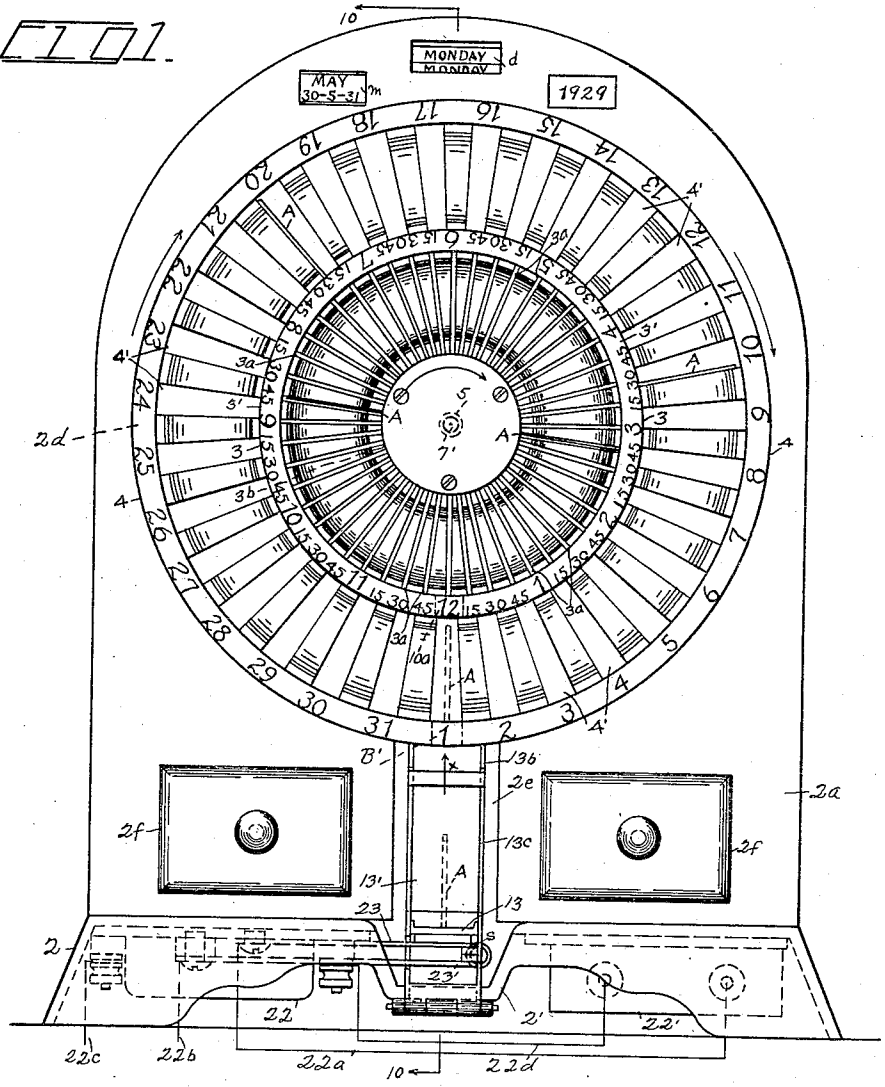
April 28, 1931. E. SCHUYLER 1,802,674

AUTOMATIC REMINDER

Filed July 5, 1929 5 Sheets-Sheet 1

FIG. 1.



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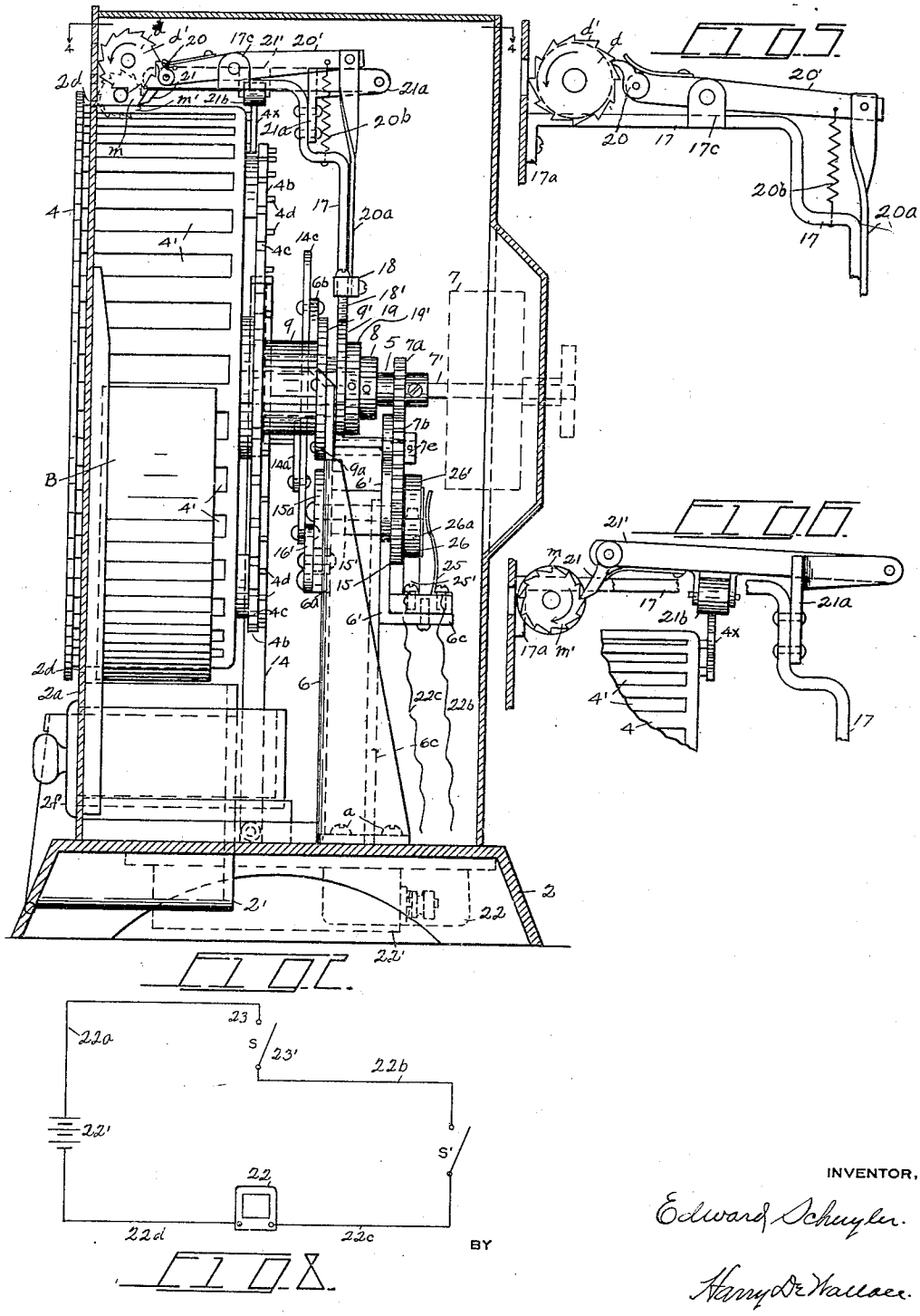
AUTOMATIC REMINDER

Filed July 5, 1929 5 Sheets-Sheet 2



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AUTOMATIC REMINDER

Filed July 5, 1929 5 Sheets-Sheet 3

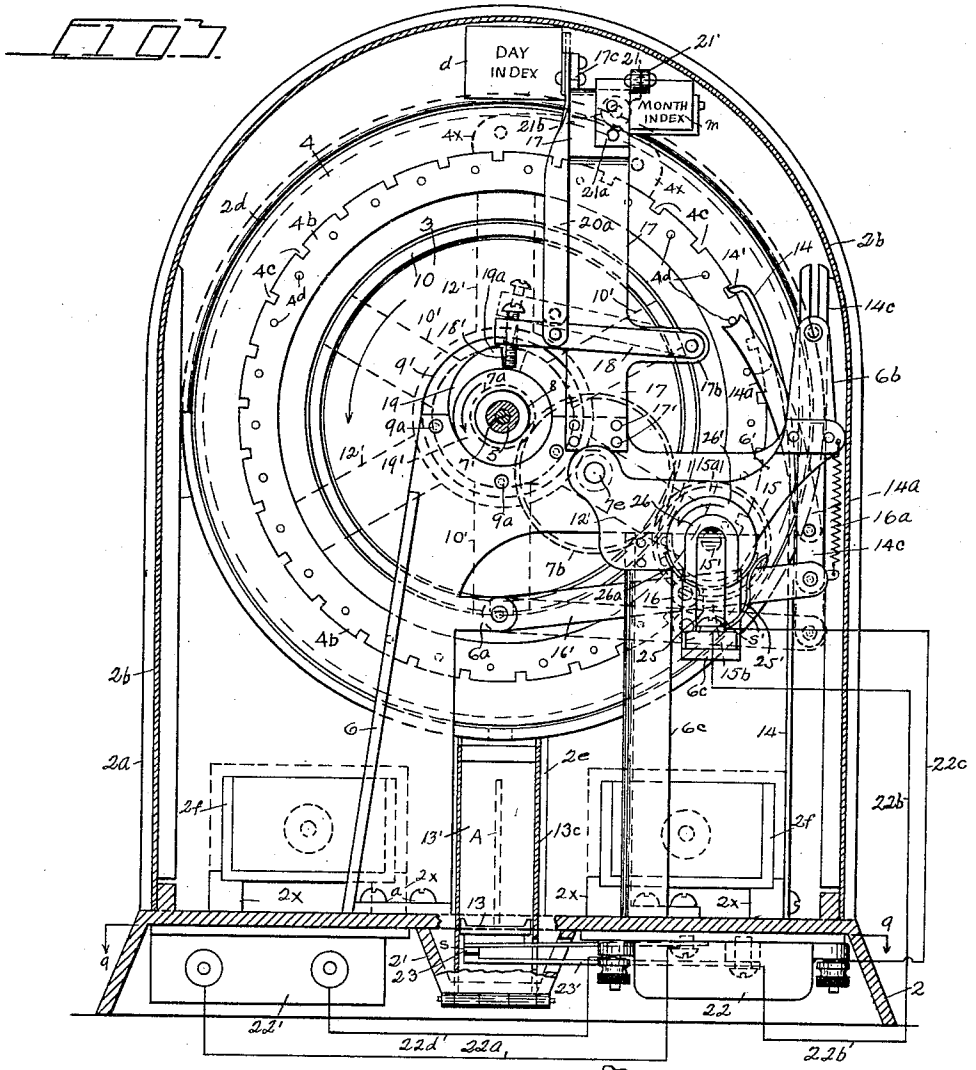

FIG. 1

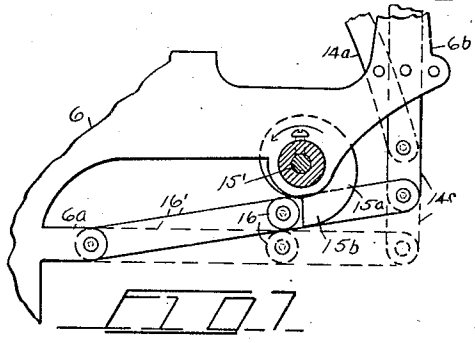

FIG. 7

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AUTOMATIC REMINDER

Filed July 5, 1929 5 Sheets-Sheet 4

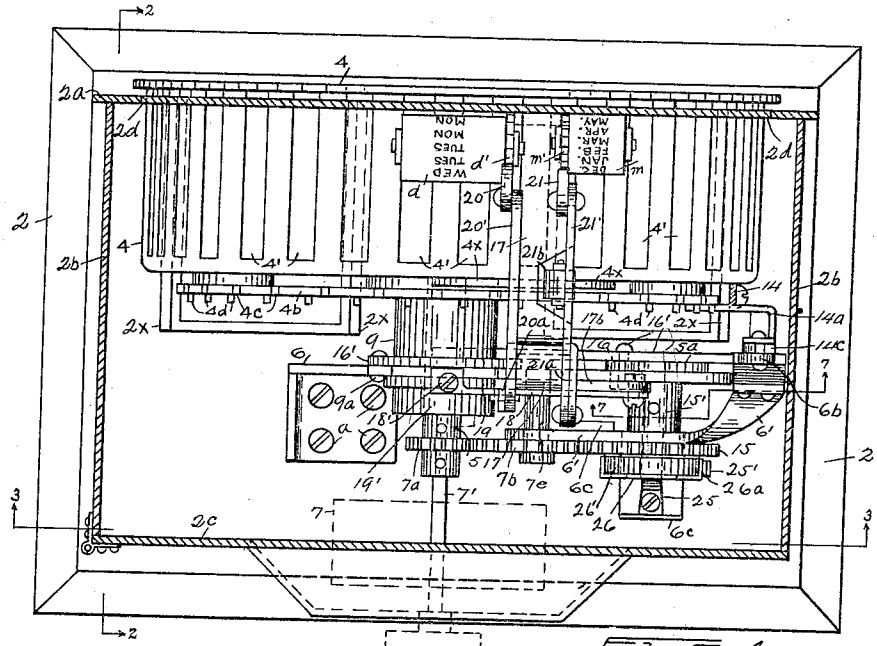

FIG 4.

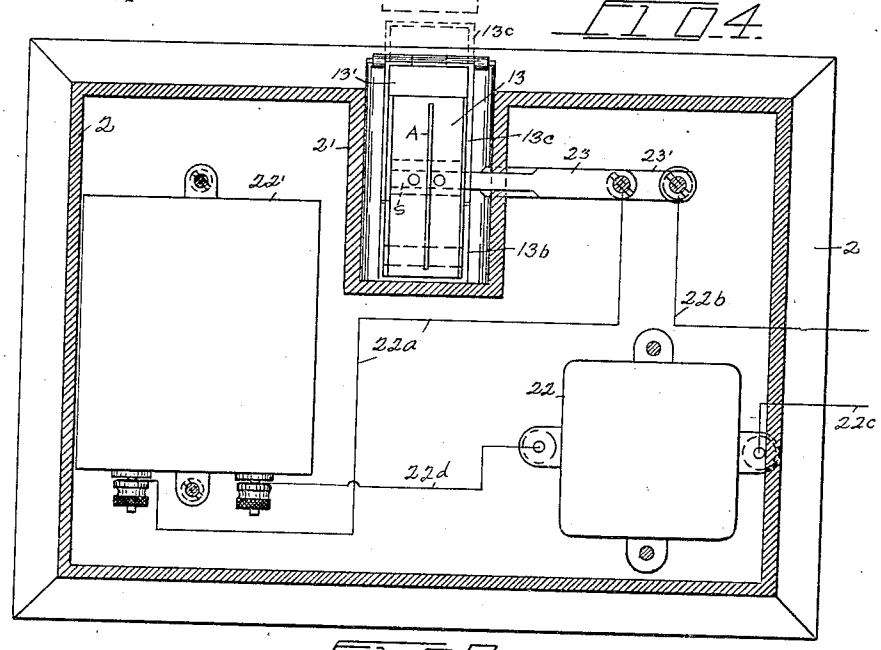

FIG 5.

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Filed July 5, 1929 5 Sheets-Sheet 5

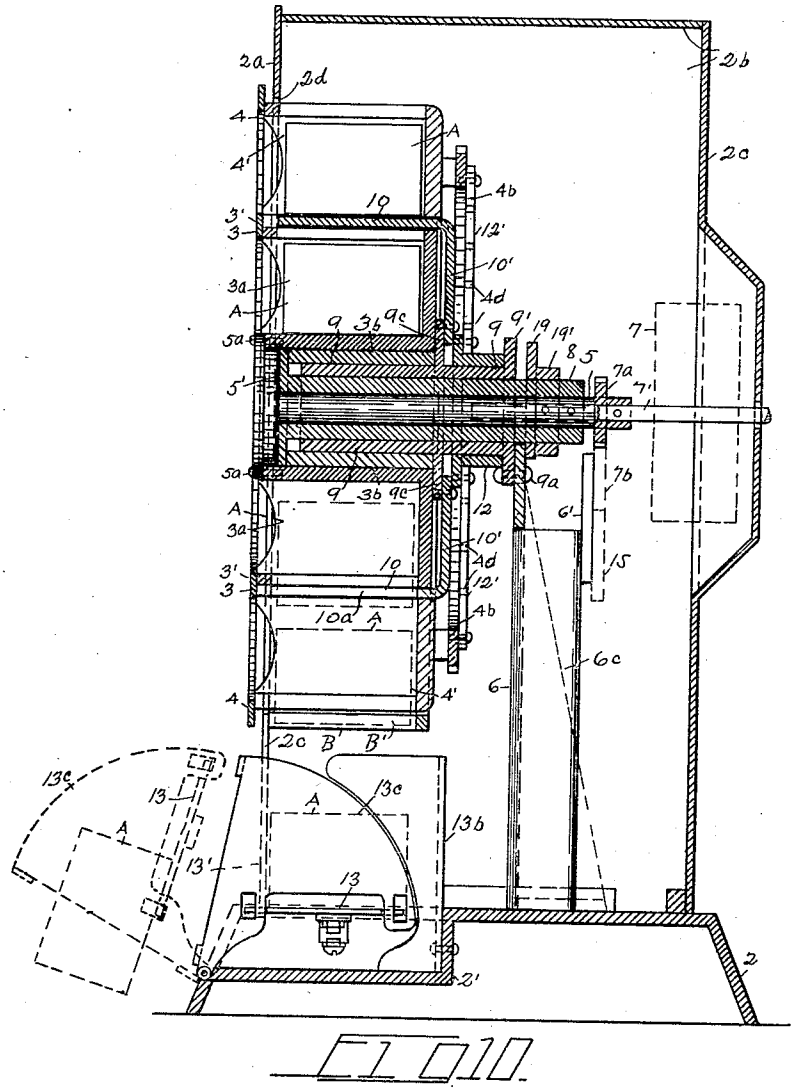

FIG 10

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UNITED STATES PATENT OFFICE

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AUTOMATIC REMINDER

Application filed July 5, 1929. Serial No. 376,128.

This invention relates to an automatic reminder, of the horological type, designed for use by business men, or in business offices, for reminding the occupants of predetermined appointments or engagements, and has for its object to provide a mechanism which is controlled by a time-clock, and operates continuously, to indicate hourly, daily, or monthly periods, and sounds an alarm to call attention of the proper persons to appointments or dates to be kept or certain duties to be performed. A further object is to provide a dial which is operated directly by the hour-hand shaft of a clock, or like mechanism, and makes a complete revolution every twelve hours; the said dial comprising a cage-like arrangement of radial pockets or openings, into which cards, bearing memoranda denoting the time and the character of business or other engagements, may be inserted, and carried around the circuitous path of the dial, to be ejected by gravity after the lapse of the predetermined intervals. A further object is to provide an annular dial, which is arranged concentric to the hour dial and is formed with similar pockets or openings corresponding to the number of days of the longest month, into which cards inscribed with various memoranda may be inserted and ejected at the beginning of the particular days. A further object is to provide an electric signal or annunciator in the nature of a buzzer, or the like, to call attention audibly to the arrival of the hour or day when an appointment is to be fulfilled, the circuit of the buzzer being arranged to be opened to still the annunciator during certain hours of the day when an office or plant is usually closed, and being arranged to automatically announce the engagements evidenced by the collection of memorandum cards that may have been ejected from the dials during the said closed periods, at the hour the office or plant opens. And a further object is to provide means for indicating the hours and fractional parts thereof continuously, and similar means for indicating consecutively the days of the weeks and months.

I attain these objects by the means set forth in the detailed description that follows, and as illustrated by the accompanying drawings, in which—

Figure 1 is a front elevation of the machine, showing the hour and day or month dials. Fig. 2 is a vertical section taken on line 2—2 of Fig. 4, showing the enclosed mechanism in side elevation, certain parts being omitted. Fig. 3 is a transverse vertical section taken on line 3—3 of Fig. 4. Fig. 4 is a horizontal section taken on line 4—4 of Fig. 2. Fig. 5 is an enlarged detailed view of the mechanism that operates the daily index. Fig. 6 is a similar detailed view of the mechanism that operates the monthly index. Fig. 7 is a fragmentary vertical cross-section taken on line 7—7 of Fig. 4, showing the cam that controls the shifting of the month dial from one day to the next. Fig. 8 is a diagrammatic view of the circuit that controls the electric annunciator. Fig. 9 is a horizontal section taken on line 9—9 of Fig. 3, showing the battery, the annunciator, and the switch controlled by the ejected memo cards. And Fig. 10 is a central vertical section taken on line 10—10 of Fig. 1, certain parts being omitted, showing the mounting for the concentric dials, also showing the means for retrieving the memo cards after they have been ejected.

In the drawings, 2 represents a flared hollow base formed with a medial trough-like portion 2′, and from which rises a casing comprising a rigid front 2*a* and a band-like sheet-metal part 2*b* that closes the sides and top (see Fig. 3), and a door 2*c* to close the rear face, that may be hinged to the part 2*b*, as shown in Fig. 4. The front 2*a* is formed with a relatively large circular opening 2*d*, a slot 2*e* that coincides with the trough 2′ and similar openings for drawers 2*f*, the said drawers being adapted to contain a supply of the memo cards, and being supported by guides 2*x* which are rigid to the base. In the opening 2*d* are disposed concentric dials 3 and 4, said dials adapted to rotate clock-wise independently and being mounted upon a common shaft 5, supported by a bracket 6 which is mounted on the base 2. The dial 3 is rotated continuously by a clock mechanism of any suitable make, indicated in shadow at 7, in

Figs. 2, 3, 4 and 10, the hour-hand shaft, as 7′, of the clock being inserted axially partway into and driving the shaft 5. The forward end of shaft 5 is formed with a flanged head 5′ which is rigidly connected to dial 3 by screws 5*a* (see Figs. 1 and 10), and rotates said dial once every twelve hours. Shaft 5 telescopes and rotates a sleeve 8 that extends into a bore 3*b* of dial 3, to provide a relatively long bearing for said shaft, as best seen in Fig. 10. Sleeve 8 telescopes and has its bearing in a similar sleeve 9, the latter being formed at its rear end with a flange 9′, which is rigidly secured to the top portion of bracket 6 by fasteners 9*a*, and is therefore stationary. The barrel of sleeve 9 also extends well into the bore 3*b* and is formed with a medial annular flange 9*c*, which is disposed adjacent and parallel to the rear face of dial 3 (see Fig. 10). Dials 3 and 4 are separated by a stationary thimble 10, which is held rigid by means of radial arms 10′ that are fastened to flange 9*c*, as shown in Fig. 10. Dial 3 rotates loosely in the thimble 10, and dial 4 also rotates loosely on said thimble, and is partially supported by a flange collar 12 which is journaled on sleeve 9 and connects with said collar by radial arms 12′, as may be understood by consulting Figs. 3 and 10. Dial 3 has its front face 3′ inscribed with the hours and certain fractional parts thereof, as best seen in Fig. 1, the time being computed or read when the hour and minute numerals are brought into registry sequentially with an arrow *x*, shown at the bottom of said dials. The hour dial 3 is preferably annular, and is formed with a cage-like arrangement of radial pockets or slots 3*a*, there being preferably four pockets for each hour, as 12:00, 12:15, 12:30, 12:45, and so on. These pockets facilitate the insertion horizontally of cards A, that may bear memoranda denoting appointments, engagements, telephone calls, and the like, which may be inserted in the pockets several hours ahead of the actual or predetermined time when the appointments are to be kept, as shown in Fig. 1. The pockets 3*a* are preferably open at their tops and bottoms and the cards A are held in place and prevented from accidental escape from the pockets by thimble 10, which is open at its opposite ends and is formed with a slot 10*a* at its bottom that coincides with the arrow *x*, for the ejectment by gravity of the cards carried by the pockets 3*a* when the travel of the dial 3 corresponds to the predetermined hours and fractional parts thereof.

The dial 4 is annular and has an opening that loosely receives the guard 10 and is formed with similar radial pockets 4′ which are equidistantly spaced and are numbered from 1 to 31, corresponding to the number of days in the longest months (see Fig. 1). The dial 4 is journaled on the thimble 10 and on sleeve 9, as explained, and is normally freely rotatable in opposite directions, independently of dial 3, but is preferably driven intermittently one step each day, the said movement being effective at each midnight to indicate the start of a new day, as will be later explained. Directly below dial 4 is disposed a stationary semi-cylindrical guard B that loosely receives the lower half of said dial and prevents the escape of the cards A by gravity until they arrive directly opposite the arrow *x*, corresponding with which point the said guard is formed with a slot B′ through which the cards of both dials may finally gravitate to a pallet or plate 13 located in a pocket 13′, to indicate that an appointment is due to be kept or some other duty is to be performed. The pocket 13′ comprises a stationary angular portion 13*b* and a tiltable portion 13*c*, the latter being hinged to the bottom of the trough 2′, as shown in Figs. 1, 2, 3, 9 and 10. The rear faces of dials 3 and 4 are closed, and dial 4 is fitted with an annular rack 4*b* having thirty-one radial teeth or notches 4*c*, that are engaged by a resilient vertically disposed pawl or stop 14, whose lower end is secured to one of the drawer guides 2*x* (see Figs. 2, 3 and 4). The free end of the pawl 14 rides upon the periphery of the rack 4*b* and comprises a tooth 14′ that sequentially engages the notches 4*c* with sufficient tension to prevent accidental rotation of the dial 4. The dial 4 is rotated step by step against the tension pawl 14, by a lever or finger 14*a* that is disposed substantially parallel to the plane of the rack 4*b*, and whose free end portion is normally in engagement with one or more pins or pegs 4*d* carried by said rack and are preferably staggered relatively to the notches 4*c*, as best seen in Figs. 2 and 3. The finger 14*a* is operated for rotating the clock 7, as follows: 7*a* represents a spur-gear mounted on shaft 7′, and through an idler gear 7*b*, operates a gear 15 mounted upon a shaft 15′, the latter being journaled in the bracket 6 and an arm 6′. Gear 7*b* is mounted upon a shaft 7*e* which is also journaled in the bracket members 6—6′. The shaft 15′ supports and operates a cam 15*a*, which engages a roller 16 carried by a lever 16′, said lever being pivoted at one end to a lug 6*a* of the bracket 6 (see Figs. 2, 3 and 7). The gear 7*a* is rotated by the clock 7 once in twelve hours, while the gear 15 rotates but once in twenty-four hours. This causes the cam 15*a* to make one revolution each day. The finger 14*a* is pivoted to a guide member 14*c*, which in turn is pivoted to the free end of lever 16′, so that when the cam depresses said lever, finger 14*a* is correspondingly lowered, as from one pin 4*d* to the next one in order, and said finger drops beneath said next pin, where it remains until the roller 16 becomes disengaged from the throw-point 15*b* of the cam (shown in Fig. 7), which enables a spring 16*a* to jerk the lever 16′ and the

finger 14*a* upwardly for jogging the dial 4, as described. The bracket 6, preferably made of sheet-metal, is anchored to the base 2 by screws *a*. The bracket 6 extends laterally from sleeve 9 parallel to the rear faces of the dials 3 and 4 and terminates in an upturned lug 6*b*, which supports guide 14*c* and spring 16*a*. The bracket 6 is cut away to provide the horizontal lug 6*a*, and also a vertical wing 6*c* which is folded towards the gear 15 and when anchored to base 2, affords a rigid support for bracket member 6′, as best seen in Figs. 2, 3 and 4. 17 is an extension, which is made rigid to bracket 6 by fasteners 17′, said extension rising to and then overlying the top of the dial 4 and having its free end secured to the front 2*a*, as shown at 17*a* in Figs. 5 and 6. The member 17 is formed with a lateral arm 17*b* to which is pivoted a lever 18, the latter being fitted with a screw or like adjustable part 18′, that rides upon a cam 19, which is rigid to a collar 19′ mounted upon and rotated by the sleeve 8 (see Figs. 2, 3 and 4).

The days of the week are inscribed upon a roll *d*, which is rotatably mounted upon the inner face of front 2*a*, the names of the days being shown through an opening in said front. The roll *d* is provided with a ratchet gear *d*′, which is engaged by a pawl 20, the latter being pivoted to the forward end of a lever 20′, which in turn is pivoted to an upright lug 17*c* of the extension 17. The lever 20′ connects with the lever 18 by means of a link 20*a*. Each day of the week is preferably inscribed twice on the roll *d*, as shown in Fig. 4. This enables said roll to be jogged or rotated one step each twelve hours of the day and to continuously show the name of a day through the opening in the front 2*a* during twenty-four hours. The lever 20′ is rocked for shifting the day index, by means of a spring 20*b*, as best seen in Figs. 2 and 5. The raising of the free end of lever 18 by the cam 19 lowers pawl 20 to engage a new tooth of the ratchet *d*′, and when screw 18′ drops off of the throw-point 19*a* of said cam, as at the end of each twelve hour period, the spring 20*b* jerks the lever 20′ in the direction for causing the pawl to rotate said ratchet one step for changing the day of the week at each midnight, as well as, for shifting the roll *d* at each noon hour.

The names of the months to which the dial 4 relates are indicated through a similar opening in the front 2*a* and are imprinted upon a roll *m* which is rotatably mounted adjacent the day roll and is fitted with a ratchet wheel *m*′, that rotates said roll in the opposite direction, as compared with the roll *d*. Roll *m* is actuated by a pawl 21, which is pivoted to one end of a lever 21′, the opposite end of said lever being pivoted to the horizontal arm of an inverted L-shaped bracket 21*a*, which is secured to the extension 17, as best seen in Figs. 2 and 6. The lever 21′ is fitted with a roller 21*b*, which depends from its medial portion into the path of a cam 4*x* carried by the inner end of the dial 4, as shown in Figs. 2, 3 and 6; the latter view showing lever 21′ raised to its highest position, from which the roller 21*b* drops off the throw-point of the cam at midnight of the last day of a month. This allows the lever 21′ to gravitate and pawl 21 rotates roll *m* sufficiently to expose the name of the next month. During the final three or four days of the month, the cam 4*x* gradually lifts the roller 21′ sufficiently to enable the pawl 21 to engage a new tooth of the ratchet *m*, as explained.

In order to call attention audibly to the arrival of the hour or day when an appointment is to be fulfilled, I provide an automatic signal or annunciator 22 of any suitable make or style, such for example, as the well-known buzzer attachment of the ordinary electric doorbell, which is operated by a battery 22′, the said parts being preferably controlled by two switches or circuit-breakers, as *s* and *s*′, shown in Figs. 3, 8 and 9. The switch *s* comprises similar flexible terminals 23—23′ which are normally spaced from each other and whose free ends are disposed in the trough 2′ and pocket 13′ beneath the plate 13, which rests upon terminal 23. The terminal 23 connects with one pole of the battery by a wire 22*a*. The terminal 23′ connects by a wire 22*b* with the switch *s*′, which comprises a brush 25 that is in engagement constantly with a contact 26 carried by a disc 26′ of insulating material, which is mounted upon and rotatable with shaft 15′. The brush 25 is supported by a leg 6*c*, preferably an integral part of the bracket member 6′, which also supports a similar brush 25′, the latter being normally in engagment with the periphery of said disc, the said periphery being partially covered by a portion 26*a* of the contact 26′, as shown in Figs. 2, 3 and 4. The brush 25′ connects by a wire 22*c* with one terminal of the buzzer 22, the other terminal of the buzzer connecting by a wire 22*d* with the other pole of the battery, as best seen in Figs. 8 and 9. According to the present showing, when a card A gravitates from either of the cages 3 and 4 to the plate 13, the weight of the card depresses the plate and also terminal 23, closes the switch *s*, and enables the battery to energize the buzzer 22. The arrangement of the switch *s*′ is such that, the contact 26*a* may only be engaged by the brush 25′ during a portion of each twenty-four hours, as for example, from eight o'clock in the morning until six o'clock in the evening which comprises the usual duration of business or other office hours. By this arrangement, if any of the cards A are ejected from the dials 3 and 4 between 6:00 p. m. and 8:00 a. m. they simply collect in the pocket 13′ without giving any immediate signal.

But when the time arrives for opening the office, the brush 25′ makes contact with the terminal 26*a* (see Fig. 3), and starts the buzzer which will continue to sound until the collector 13*a* that encloses the plate 13 is tilted forwardly for releasing the cards and breaking the circuit of switch *s*, as shown in Fig. 10.

What I claim, is—

1. An automatic reminder including a pair of concentric dials arranged one within the other and each having a circular arrangement of radial pockets in which cards bearing memoranda denoting appointments to be fulfilled at predetermined periods of time are adapted to be received, means to operate one of the dials continuously and for operating the other dial once each day, the continuously operated dial having a pocket for each of the twelve hours and fractional portions thereof and the day dial having a pocket for each day of the longest months, said pockets of the dials having slots which when in register enable a card from the continuously operated dial to gravitate through the registering slot in the day dial, means for controlling the gravitation of the cards from the continuously operated dial into the day dial and means for controlling the gravitation of the cards from the day dial out of the latter.

2. An automatic reminder composed of a pair of dials each having a circular series of pockets to receive memoranda cards therein, the pockets having openings through which the cards are adapted to gravitate, means to rotate one of the dials at predetermined intervals, means to continuously rotate the other dial, means to control the gravitation of the cards through the opening of a selected pocket of one dial into a pocket of the other dial, and means to control the gravitation of the cards from the pockets of said other dial.

3. An automatic reminder composed of an hour dial and a day dial each having a circular series of pockets to receive memoranda cards therein, the pockets having openings through which the cards are adapted to gravitate, means to rotate the day dial once each day, means to rotate the hour dial continuously, said dials being arranged so that a card gravitating from a pocket of one thereof will enter a selected pocket of the other dial, means to control the gravitation of the cards from said first named dial to the other, and means to control the gravitation of the cards from the said other dial.

4. In an automatic reminder, card holding means having openings through which the cards may pass, second card holding means having openings through which the cards of the first holding means are received and further having openings through which the cards may subsequently pass, means to control the movement of the cards from the first card holding means into the second card holding means, means to control the movement of the cards from the second holding means out of the latter, means to operate one of the card holding means at varying intervals of time and means to continuously operate the other card holding means.

5. An automatic reminder including a pair of concentric dials arranged one within the other and each having a circular arrangement of radial pockets to receive memoranda cards, said pockets of the dials having slots which when in register enable a card from one dial to gravitate through the registering slot in the other dial, means for controlling the gravitation of the cards from the one dial into the other, means for controlling the gravitation of the cards from the last named dial, means to operate one of the dials, and means operable by said last named dial for effecting operation of the other dial.

In testimony whereof I affix my signature.

EDWARD SCHUYLER.