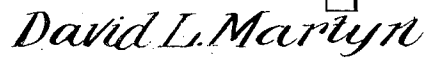


1,243,852.

5 SHEETS--SHEET 1.



By *Geo. P. Kimmel.*

Attorney

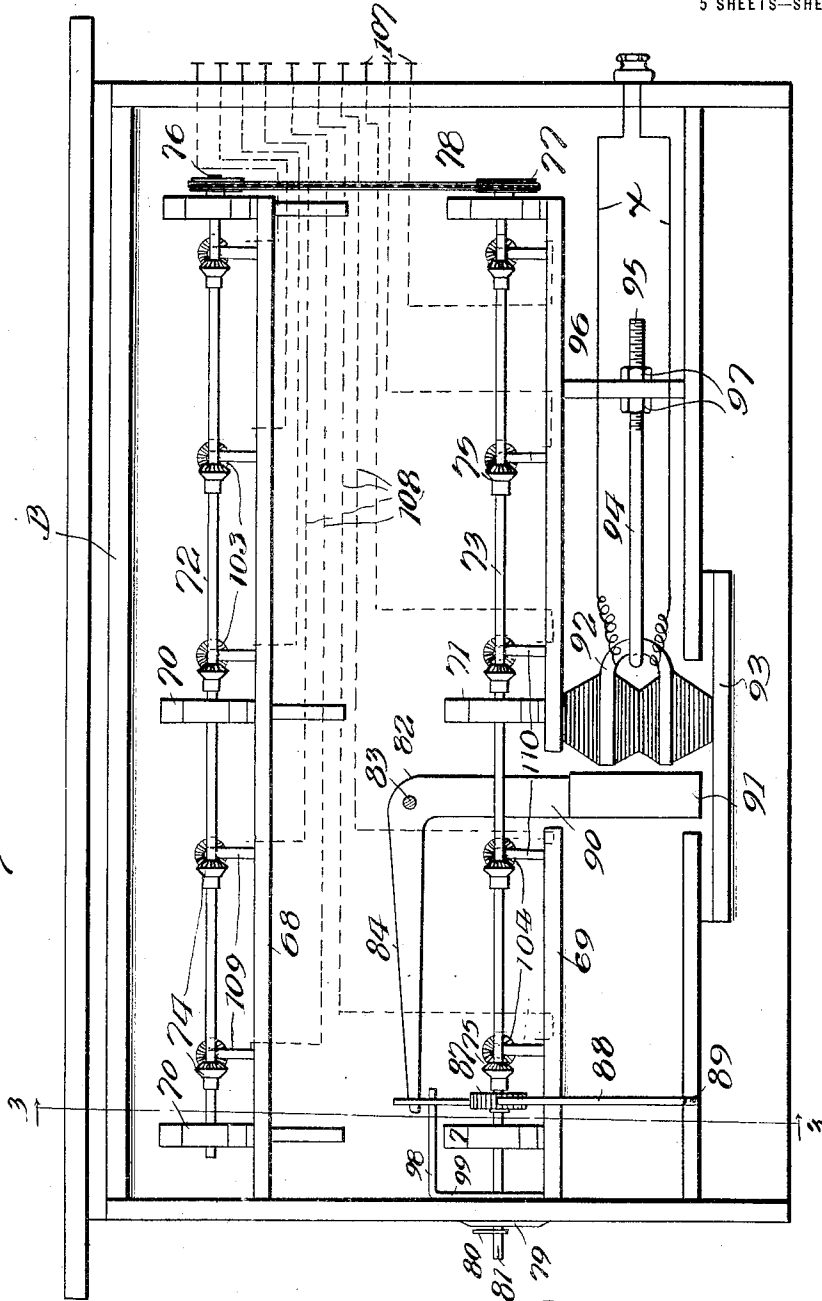
D. L. MARTYN.
MULTITIME SEPARATOR AND DISTRIBUTER.
APPLICATION FILED APR. 6, 1916.

1,243,852.

Patented Oct. 23, 1917.

5 SHEETS—SHEET 2.

Fig. 2.



David L. Martyn

Inventor

By *Geo. P. Kimmel.*

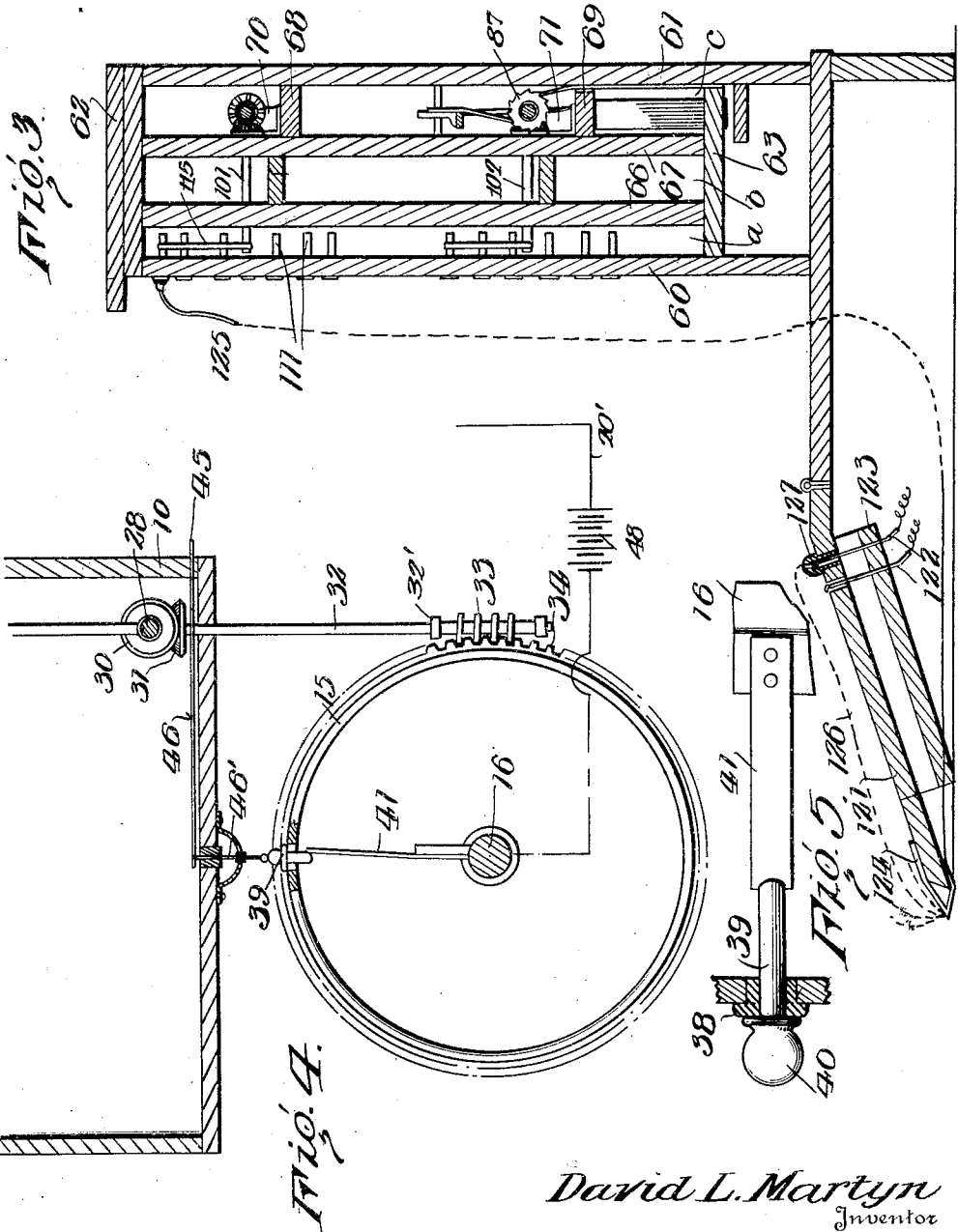
Attorney

D. L. MARTYN.
MULTITIME SEPARATOR AND DISTRIBUTER.
APPLICATION FILED APR. 6, 1916.

1,243,852.

Patented Oct. 23, 1917.

5 SHEETS—SHEET 3.



David L. Martyn
Inventor

334 *Geo. F. Kimmel.*
Attorney

D. L. MARTYN.
MULTITIME SEPARATOR AND DISTRIBUTER.
APPLICATION FILED APR. 6, 1916.

1,243,852.

Patented Oct. 23, 1917.
5 SHEETS—SHEET 4.

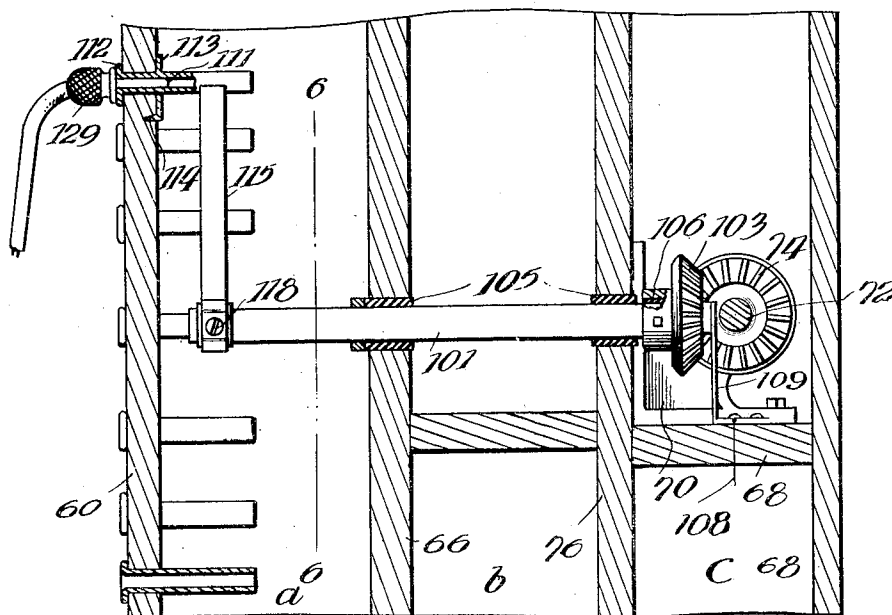


Fig. 6.

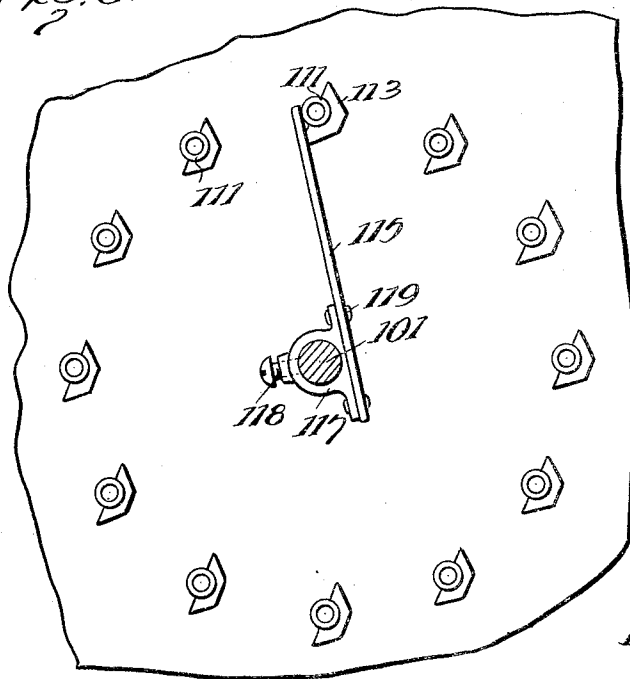


Fig. 7.

David L. Martyn
Inventor

By *Geot. P. Kimmel.*
Attorney

D. L. MARTYN.
MULTITIME SEPARATOR AND DISTRIBUTER.
APPLICATION FILED APR. 6, 1916.

1,243,852.

Patented Oct. 23, 1917.

5 SHEETS—SHEET 5.

Fig. 9.

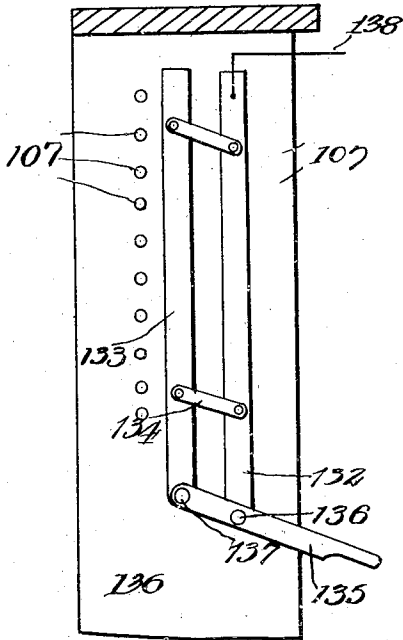


Fig. 11.

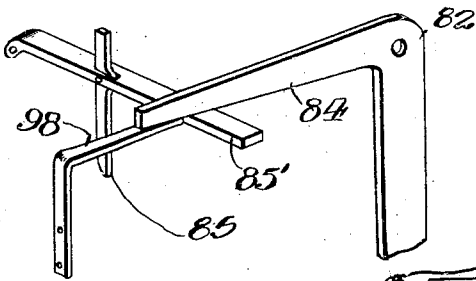
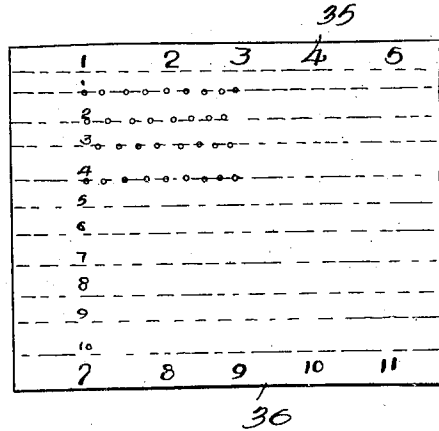
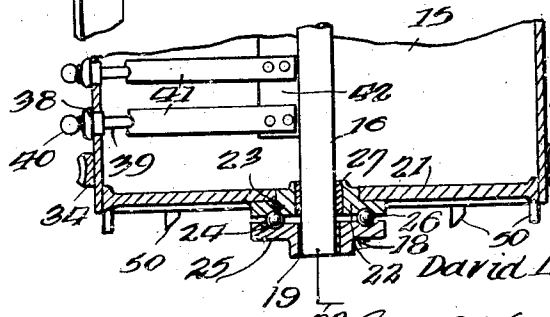


Fig. 10.

Fig. 8.



David L. Martyn
Inventor
By *Geor. Kimmel*
Attorney

UNITED STATES PATENT OFFICE.

DAVID LUCIFER MARTYN, OF NORTH YAKIMA, WASHINGTON.

MULTITIME SEPARATOR AND DISTRIBUTER.

1,243,852.

Specification of Letters Patent.

Patented Oct. 23, 1917.

Application filed April 6, 1916. Serial No. 89,464.

To all whom it may concern:

Be it known that I, DAVID L. MARTYN, a citizen of the United States, and resident of North Yakima, in the county of Yakima and State of Washington, have invented certain new and useful Improvements in Multitime Separators and Distributers, of which the following is a specification.

The present invention relates to annunciating systems and has particular reference to a new and improved arrangement of time controlled mechanism for transmitting messages, producing audible alarms, or otherwise apprising persons at predetermined times that a certain given time has arrived, the device being particularly adapted for use in connection with telephone systems whereby to automatically render an alarm to subscribers at predetermined intervals, or for use in large hotels for arousing those guests which leave instructions to be called at certain hours of the day or night.

The primary object of my invention is to provide a novel and effective annunciating system of the class referred to which is comparatively cheap to manufacture and install and requires but very little attention from the person having control of the same.

Another object of my invention is to provide an alarm call distributor of the class described constructed whereby any number of calls within the capacity of the device may be made simultaneously or successively as desired, means being associated with the operating mechanism to simultaneously close all of the alarm circuits to give a general alarm to all places in connection with the device in the event of fire or for any other reason.

A further object of my invention is to provide an alarm system which will accurately, at predetermined intervals set in motion mechanism for closing a plurality of electrical circuits leading to various points in order to deliver audible signals at such points. When the device is used in connection with a public telephone system, such as in a hotel, hospital or the like, either an independent alarm device embodying the improvements of my invention may be provided in the hospital, hotel or the like, or the telephone system and telephones of the hospital or hotel may be connected with a public alarm station containing a device embodying my invention.

Other objects and advantages to be derived from the use of my improved signaling system will appear from the following detailed description and the claims, taken with an inspection of the accompanying drawings, in which:

Figure 1 is a front elevational view of a signal distributing device embodying the improvements of my invention;

Fig. 2 is an enlarged rear elevational view of the signal separating mechanism, the back cover thereof being removed;

Fig. 3 is a vertical transverse sectional view taken on the line 3—3 of Fig. 2, looking in the direction of the arrow;

Fig. 4 is a transverse horizontal sectional view taken on the line 4—4 of Fig. 1, showing the time controlled circuit closing device;

Fig. 5 is an enlarged fragmental sectional view of the time controlled circuit closing elements shown in Fig. 4, one of the circuit closing members being shown;

Fig. 6 is an enlarged fragmentary sectional view of a portion of the separator shown in Fig. 2;

Fig. 7 is an enlarged vertical sectional view taken on line 7—7 of Fig. 6;

Fig. 8 is an enlarged fragmentary vertical sectional view of the time controlled circuit closing element shown in Figs. 4 and 5, a clock being shown associated therewith;

Fig. 9 is an enlarged fragmentary elevational view of an emergency circuit closer;

Fig. 10 is an enlarged perspective view of a portion of the signal distributing mechanism; and

Fig. 11 is a diagrammatic view of the relative arrangement of the time indicating scales.

Referring more particularly to the drawings, wherein similar characters of reference designate like and corresponding parts throughout the various views, A and B designate in their entirety, respectively, the time-controlling mechanism and signal distributing device.

The time controlling mechanism includes a housing 10 having a chronometer 14 mounted therein. I provide a time dividing cylinder forming a time controlled circuit closer, said cylinder being designated 15 and rotatably mounted on a stationary shaft 16. The shaft 16 is mounted in bearing brackets 17 and 18 carried by the front wall of the

housing 10. Bushings 19 serve to mount the shaft 16 in the brackets 17 and 18 and insulate the same therefrom. The shaft is in communication with one terminal of one side of an electrical circuit, the conductor thereof being designated 20.

The lower end of the cylinder 15 is closed by a plate 21, said plate having a bearing member 22 concentrically carried thereby, grooves 23 and 24 being provided in the bearing member 22 and a flange 25 formed on the bracket bearing 18, whereby to receive a plurality of anti-friction balls 26. A bushing 27 of insulating material prevents electrical contact between the bearing member 22 and the shaft 16.

Motion is transmitted to the cylinder 15 from the chronometer by means of a shaft 28, the lower free end of said shaft 28 having a bevel gear 30 thereon, said gear meshing with a similar gear 31 carried upon a transversely extending shaft 32, said shaft having a clutch 32' interposed therein for an obvious purpose. A worm 33 is carried on the free end of the shaft 32, said worm meshing with a worm gear 34 mounted on the exterior peripheral face of the cylinder 15 adjacent the lower end thereof. The upper end of the shaft 28 connects with the chronometer mechanism in any suitable manner whereby the cylinder and chronometer may rotate synchronously.

A pair of scales 35 and 36 are arranged circumferentially upon the exterior surface of the cylinder 15, said scales indicating hours and minutes or other divisions of time, one of the scales being six hours ahead of the other scale, that is, when reading the cylinder from the front the top scale 35 is to be read, this scale indicating accurately the position of the upper scale and when a given time is about to be arrived at. Thus it will be seen that the upper scale is the true scale and when setting the device for calls it will be used, and not the lower scale. In Fig. 11 a diagrammatic view of the arrangement of the scales 35 and 36 is shown, the upper of the scales shown in this view being the true scale.

A plurality of openings 37 are provided in the peripheral wall of the cylinder 15, said openings being provided with insulating bushings 38 to receive metallic pins 39 having heads 40. Certain of the openings are disposed in alinement with the hour mark of the scale 35, certain others of the openings being disposed on the half-hour mark and quarter-hour mark, this arrangement being partly shown in Figs. 1 and 11.

A plurality of spring arms 41 are carried by an enlargement 42 formed on the shaft 16, said spring arms projecting toward the front wall of the housing 10 for contact with the pins 39 as the same pass.

In the present instance I have provided

ten superposed parallel rows of openings in the cylinder, there being preferably forty-eight holes in each line making 480 in all. Of course, I do not limit myself to the number of openings used nor how divided, this being only one arrangement of the divisions of time found in actual practice to be convenient for the use of my machine. A plurality of conductors 45, preferably equaling in number the number of rows of pins, are provided, the inner free ends of the conductors being connected to spring strips 46 and best shown in Fig. 4. The free ends of the strips engage slidable pins 46' disposed adjacent the path of travel of the heads of the pins 39, whereby to contact therewith, as clearly shown in Fig. 4.

The conductor 20, hereinbefore referred to, communicates with the source of electrical energy designated 48, the continuation of the conductor 20, designated 20', serving as a return wire for all of the signaling apparatus located at various points, the latter not being shown in the drawings. An electric battery has been shown as a source of energy, but of course, it is to be understood that a motor-generator set may be employed for this purpose, a transformer, or any other desirable source of electrical energy. For convenience in describing the circuit further such circuits as are formed by the conductors 45 and 20' will be termed as signaling circuits.

A plurality of projections 50 are mounted on the bottom plate of the cylinder 15, said projections having inclined surfaces for engagement with an upstanding insulated rod 51, said rod being vertically movable in a bracket 52. The lower free end of the rod 51 engages a spring contact arm 54, said spring contact arm being mounted on the front wall of the housing A. When depressed the spring contact arm 54 is adapted to engage a similar arm 55 mounted on the housing A. The purpose of the spring arms will be described in detail hereinafter. The projections 50 are arranged in spaced relation slightly past the hour indications on the lower scale 36 for a purpose which will hereinafter appear.

Referring now to the alarm or signal distributing element associated with the housing B I provide means for separating the divisions of time and means for distributing the divisions separated, this being done by the arrangement of electrical circuits and the mechanism for controlling the same, so that each call is isolated from every other call so as to prevent confusion.

The separator B consists of a front wall 60, a rear wall 61, and top and bottom walls 62 and 63, respectively. A pair of vertical partitions 66 and 67 are mounted within the housing B to provide chambers *a*, *b*, and *c*. A pair of horizontal partitions 68 and 69

are mounted in the chamber *c*, bearings 70 and 71 being carried on said partitions. A pair of shafts 72 and 73 are mounted in said bearings, said shafts carrying a plurality of bevel gears 74 and 75 arranged at predetermined fixed positions thereon. Sprocket wheels 76 and 77 are carried by the shafts 72 and 73, respectively, a sprocket chain 78 being trained over said sprocket wheels. Both of the wheels 76 and 77 are of the same diameter so that both of the shafts will operate synchronously. On one of the end walls of the housing B a dial 79 is mounted, the free end of the shaft 73 projecting through the dial and having an indicating arm 80 mounted thereon for movement across said dial. The dial is graduated in hours. The free end of the shaft 73 is provided with a polygonal portion 81 to permit of application of a crank or the like thereto for setting the apparatus.

A step by step movement is provided for imparting motion every hour or at other predetermined intervals to the shaft 73, said step by step mechanism including a bell-crank lever 82 pivoted on a rod 83 mounted in the chamber *c*. One arm 84 of the bell-crank lever operates a gravity pawl 85 carried by a hinged arm 85' adapted to engage in the teeth of a ratchet wheel 87 mounted on the shaft 73. A spring pawl 88 fastened at 89 to the bottom wall of the housing B normally engages the teeth of the ratchet wheel 87 to prevent reverse rotation of the same. There are preferably twelve teeth in the ratchet wheel, for a purpose which will hereinafter appear. The other arm 90 of the bell-crank 82 is provided with an armature 91 adapted to be influenced by an electro-magnet 92 mounted beneath the bottom 69. The electro-magnet is slidable on a base member 93, by means of a rod 94, having one free end thereof threaded as at 95, said threaded end passing through a partition 96, a plurality of nuts 97 serving to adjust said rod. A circuit *x* supplies electric current to the electro-magnet 92, said circuit *x* being controlled by the spring arms 54 and 55 in a manner which will hereinafter appear. A flat spring 98 fastened at 99 to one of the end walls of the housing B is disposed beneath the free ends of the arm 84 of the bell-crank lever 82 to absorb shock incident to the sudden movement of the bell-crank lever upon energization of the electro-magnet 92.

A plurality of sets of shafts 101 and 102 are provided, said shafts having on the rear free ends thereof a plurality of gears 103 and 104 adapted for meshing engagement with the bevel gears 74 and 75 carried on the shafts 72 and 73, respectively. All of the bevel gears mentioned are of a like size so that upon a rotation of the shaft 73, the shaft 72 will make one revolution as will

all of the shafts designated 101 and 102. The shafts 101 and 102 are mounted in insulating bushings 105 arranged in the vertical partitions 66 and 67, as best shown in Fig. 6. All of the bevel gears 103 and 104 are insulated from their respective shafts as best shown in Fig. 6 at 106.

Each of the shafts 101 and 102 are connected with a binding post, of which there are a plurality, best shown in Fig. 1 and designated 107. Each one of the binding posts 107 are in connection with one of the plurality of conductors hereinbefore designated 45. The connection of the shafts with the binding posts is afforded by means of the conductors 108, spring brush members 109 and 110 connecting with said shafts to provide sliding contacts.

A plurality of separator dials are provided on the front wall 60 of the housing B, said dials being in the form of sets of circumferentially arranged tubular members 111, the arrangement of one of the same being shown in Figs. 6 and 7. Since all of the dials are identical in construction, I shall describe but one of the same. Tubular members 111 project through the wall 60, the outer free ends of the tubular members being rolled as at 112 to prevent inward movement of the members. A plurality of angular plate members 113 are soldered one each to one of the tubes, one of the free corners of the members 113 being bent as at 114 to engage the woodwork of the wall. This arrangement prevents dislodgment of the tubular members. The inner ends of the tubular members project beyond the inner surface of the wall and are adapted for contact successively by spring arms 115 and 116 carried by the forward free ends of the shafts 101 and 102. As shown in Fig. 7 a block 117 is mounted on the shaft to which the spring arms are to be attached and is maintained in adjusted position by means of a set screw 118. The spring arm is connected as at 119 to the block 117.

Time designating numerals may be placed on the outer surface of the front wall 60 of the housing B adjacent the open ends of each of the tubes as best shown in Fig. 1. Each one of the dials so formed has been given a designated number, the number being printed above the dial as shown in Fig. 1. The dial designated by the numeral 1 is connected by one of the conductors 108 to a binding post which affords communication between the given dial and the top row of pins in the cylinder 15 and the remaining dials communicate with said cylinder in succession, that is, the dial 2 communicates with the next row of pins, below the first row, etc.

The time distributor includes a body 121 having ten divisions, containing in the present instance 100 "home" or terminal ends

of alarm circuits in the form of spring members 122 carried in the base board 123. A plurality of brackets 124 are carried by the board 121, said brackets being connected by means of conductors 125 to each of the tubes 111. A plurality of branch conductors 126 are provided, there being ten in the present instance extending from the bracket 124, each conductor having a hollow connecting plug 127 on its free end. Connecting plugs 129 are carried by the free ends of the conductors 125 for facilitating connection and disconnection of the said conductors with said tubes. A semi-diagrammatic illustration of the jumper and branches is shown in Fig. 1 and it will be noted that when the spring arms of the dial 5 reach the tube plugged ten signals will be simultaneously sent through the jumper and branches to ten different places. There is practically no limit to the number of conductors 126 that may be used.

The circuit x is continued as at y in Fig. 1, a battery or other source of electrical energy 130 being interposed in one of the conductors, the other conductor being interrupted by the spring arms 54 and 55. It will be seen that when the arms 54 and 55 contact current will be caused to flow through the electro-magnet imparting movement to the bell-crank lever 82, which latter by virtue of the pawl 85 engages the ratchet wheel 87 and moves up all of the spring arms 115 and 116 one step, which in the present instance would be equal to an hour's time.

In the event that it is desired to give a general alarm, that is, simultaneously and continuously set in motion each and every signal communicating with the device I have provided a switch member including a stationary bar 132 mounted on the outer surface of the end wall of the housing B carrying the binding posts 107. A circuit closing blade 133 is connected with the bar 132 by means of pivoted links 134. A lever 135 pivoted at 136 on said wall is pivotally connected at 137 with the blade 133, said blade being arranged in close proximity to all of the binding posts. The bar 132 is connected by means of a conductor 138 with the main source of electrical energy 48, and it will be seen that when the blade 132 is brought into simultaneous contact with all of the binding posts all of the circuits communicating therewith will be simultaneously energized and a general alarm given. The normal position of the switch is shown in Fig. 9. After closing the switch the shaft 73 is rotated to connect all the places simultaneously.

It is, of course, understood that in drilling the holes in the cylinder 15 any desired arrangement may be provided. Thus, if it is desired to have the cylinder divided into

five minute periods the second row of openings from the top would be drilled five minutes past the hour in each case, the third row ten minutes past the hour, the fourth row fifteen minutes past the hour, having forty-eight holes in each row and as many rows as the time dividing cylinder may demand. It is not essential that the openings in the time dividing cylinder be provided with insulating bushings. It may also be desired to use a clock for running fast or slow; the holes being drilled to suit various durations of time, as for example, a clock may be made to lose or gain six hours in every twelve, and the holes made to correspond with standard time. If desired there may be more or less number of lines of openings and any number of openings operated by a clock mechanism or any horological device.

Referring to the distributing board the ten sections containing circuit terminals are arranged to facilitate the location of a number in the quickest possible time. This is done by the following arrangement: No. 1 square contains ten rows vertically and ten rows horizontally, preferably. On the top row the numbers are 1, 11, 21, 31, 41, 51, 61, 71, 81, and 91. On the second row 101, 111, 121, 131, 141, 151, 161, 171, 181, and 191, the numbers progressing 100 to each row, therefore, no matter what number of room or place is required, if the figure ends with one that number will be found in No. 1, if a two, in square No. 2, so that by the units of a number is indicated the square in which the same will be found. Changes may be made in this arrangement as desired, however, it will be found to be preferred.

In operation each of the ten dials is connected to a plurality of the brackets 124, each tube of each dial being connected to a bracket by means of the conductors 125 hereinbefore referred to. In Fig. 1 only one of the conductors 125 is shown in order to avoid confusion in the drawing. In the arrangement as shown there would be preferably 120 brackets, one for each one of the tubes.

In the operation of my invention I have assumed that but one of the sets of openings has been plugged and that but one section of the distributor has been connected. From an inspection of Fig. 1 it will be seen that the opening 12 in the dial 5 has been connected by the conductor 125 with the distributing board 121. Necessarily the time at which a call or calls may be desired must be determined by the insertion of connecting pins in the cylinder 15. In this instance the dial 5 will be used for giving an alarm on the hour only. The arrangement of the remaining dials is as follows: Dial number 1 is connected for hours only; dial number 2 for fifteen minutes past the hour; dial num-

ber 3 thirty minutes past the hour; and dial number 4 forty-five minutes past the hour. The same relation between the dials 6 to 10 exists as between the dials 1 to 5. Assuming

5 that the fifth row of openings in the cylinder 15 (five from the top) are plugged for each hour it will be apparent that as each one of the pins 39 pass the arms 41 current will flow from the shaft 16 through the arms and pins connected to the spring terminal of the conductor leading to the dial 5. The spring arm of the dial mentioned, being, at this time, in contact with the tube designated 12 o'clock time the various divisions

15 of time made by the cylinder 15 will be transmitted through the conductor 125 to the distributing board and thence to the various places at which the alarm or alarms may be desired.

20 After the cylinder has moved the distance of an hour one of the plugs 50 will engage the pin 51 which in turn will cause the spring arms 54 and 55 to engage, closing the circuits to the step-by-step movement

25 mechanism energizing the electro-magnets 92 and causing all of the dials including the dial 5 to move forward one hour at which time the same are again ready for a series of calls in that hour.

30 All of the openings in the cylinder 15 are plugged, if desired, at various hours or divisions of the same whereby to deliver a plurality of signals. The openings in the dials may also be plugged for given hours.

35 In this manner a plurality of calls, one minute, fifteen, twenty or in fact any number of minutes apart may be obtained, of course the divisions of time being governed by the distance between the openings in the time dividing cylinder.

40 By placing the time dividing cylinder outside of the chronometer case access is obtained to each vertical row of openings with the exception of the vertical row of openings in actual contact and the two adjoining rows. Thus the device may be plugged for a future time five minutes ahead of that time or eleven hours and fifty-five minutes ahead of the time, depending upon

50 the desires of the party to be called.

My invention will be found particularly adapted for use in connection with city telephone systems, the conductors leading from the distributing board being associated with the usual telephone system in which manner a subscriber may be called automatically at predetermined times by means of the telephone. It however does not interfere with the ordinary use of the telephone but is an

60 addition to it.

From the above description taken in connection with the accompanying drawings, it is thought that a clear and comprehensive understanding of the construction, operation and advantages of my invention may be had,

and while I have shown and described the device as embodying a specific structure, I desire that it be understood that such changes may be made in said structure as do not depart from the spirit and scope of the 70 invention as claimed.

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

1. In an annunciating system, the combination of a chronometer, a cylinder synchronously operable thereby, a plurality of trunk circuits controllable by said cylinder, a plurality of signal separators interposed in said trunk circuits, an electro-magnet for 80 operating said signal separators, a circuit closer beneath said cylinder and in communication with said electro-magnet, and means carried by the cylinder engageable with the circuit closer to energize said electro-magnet, to simultaneously move said signal separators.

2. In an annunciating system, the combination of a chronometer, a cylinder synchronously operable thereby, a plurality of 90 trunk circuits controllable by said cylinder, a plurality of signal separators interposed in said trunk circuits, an electro-magnet for operating said signal separators, a circuit closer beneath said cylinder and in communication with said electro-magnet, means carried by said cylinder engageable with the circuit closer to energize said electro-magnet to simultaneously move said signal separators, and signal distributing means communicating with said separators.

3. In an annunciating system, the combination of a time controlling mechanism, a synchronously operable circuit closer, a plurality of trunk circuits, of signal separating 105 apparatus including a pair of parallel arranged shafts, a plurality of shafts inter-gearred with first said shafts, each of the latter communicating with one trunk circuit, a plurality of circuit closing arms carried by second said shafts, circuit terminals disposed in the path of movement of said spring arms, said shaft being operated synchronously, a step-by-step operating mechanism for said shaft, and means associated with said time 115 controlling mechanism to operate said step-by-step-movement.

4. In an annunciating system, the combination with a time controlling mechanism, a synchronously operable circuit closer, a plurality of trunk circuits, of signal separating 120 apparatus including a plurality of inter-gearred shafts, circuit closing arms on said shafts, circuit terminals disposed adjacent the path of movement of said arms, a ratchet 125 carried by one of the shafts, a bell-crank lever, said lever having a pawl engaging said ratchet, shock absorbing means associated therewith, and an electro-magnet controllable by said time controlling mechanism to 130

actuate said bell-crank lever to move all of the same circuit closing arms simultaneously.

5 In an annunciating system, the combination of a time controlling mechanism, a synchronously operable circuit closer and a plurality of trunk circuits, of signal separating means including a plurality of inter-
10 geared shafts, certain of the shafts having spring circuit closing arms thereon, said shafts being electrically independent, a ratchet carried by one of the shafts, a bell-

crank lever, a pawl on one end of the bell-crank lever to engage said ratchet, shock absorbing means for said bell-crank lever, electro-magnets for actuating said lever, and means controlled by said synchronous circuit closer to intermittently energize said electro-magnet. 15

DAVID LUCIFER MARTYN.

Witnesses:

T. L. MARTIN,

B. M. SAWBRIDGE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."