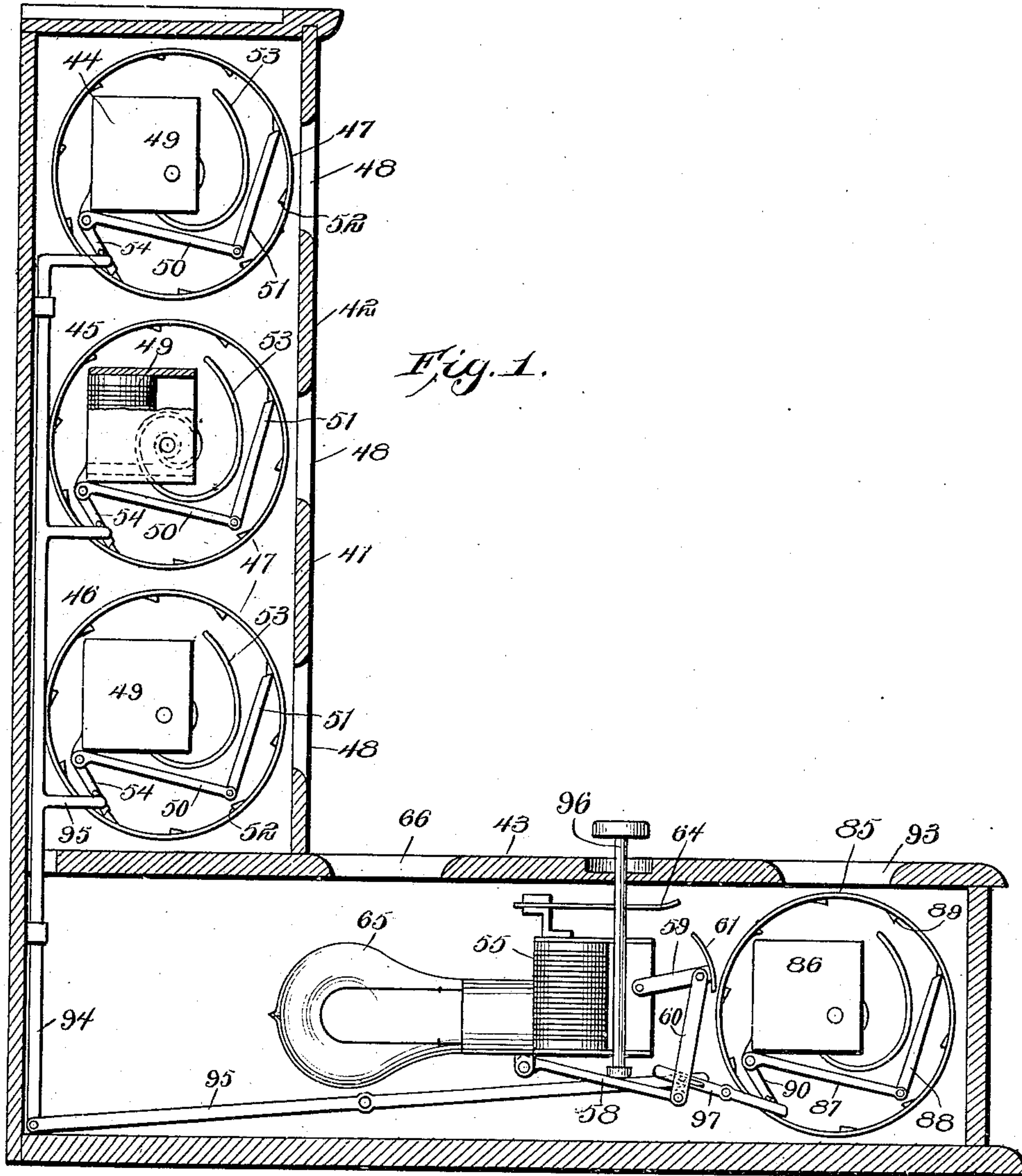


No. 862,723.

PATENTED AUG. 6, 1907.

W. E. EBERT.
ANNUNCIATOR SYSTEM.
APPLICATION FILED MAY 19, 1906.

3 SHEETS—SHEET 1.



Witnesses

Louis R. Heinrichs
H. Allen.

W. E. Ebert ^{Inventor}

By Victor J. Evans.

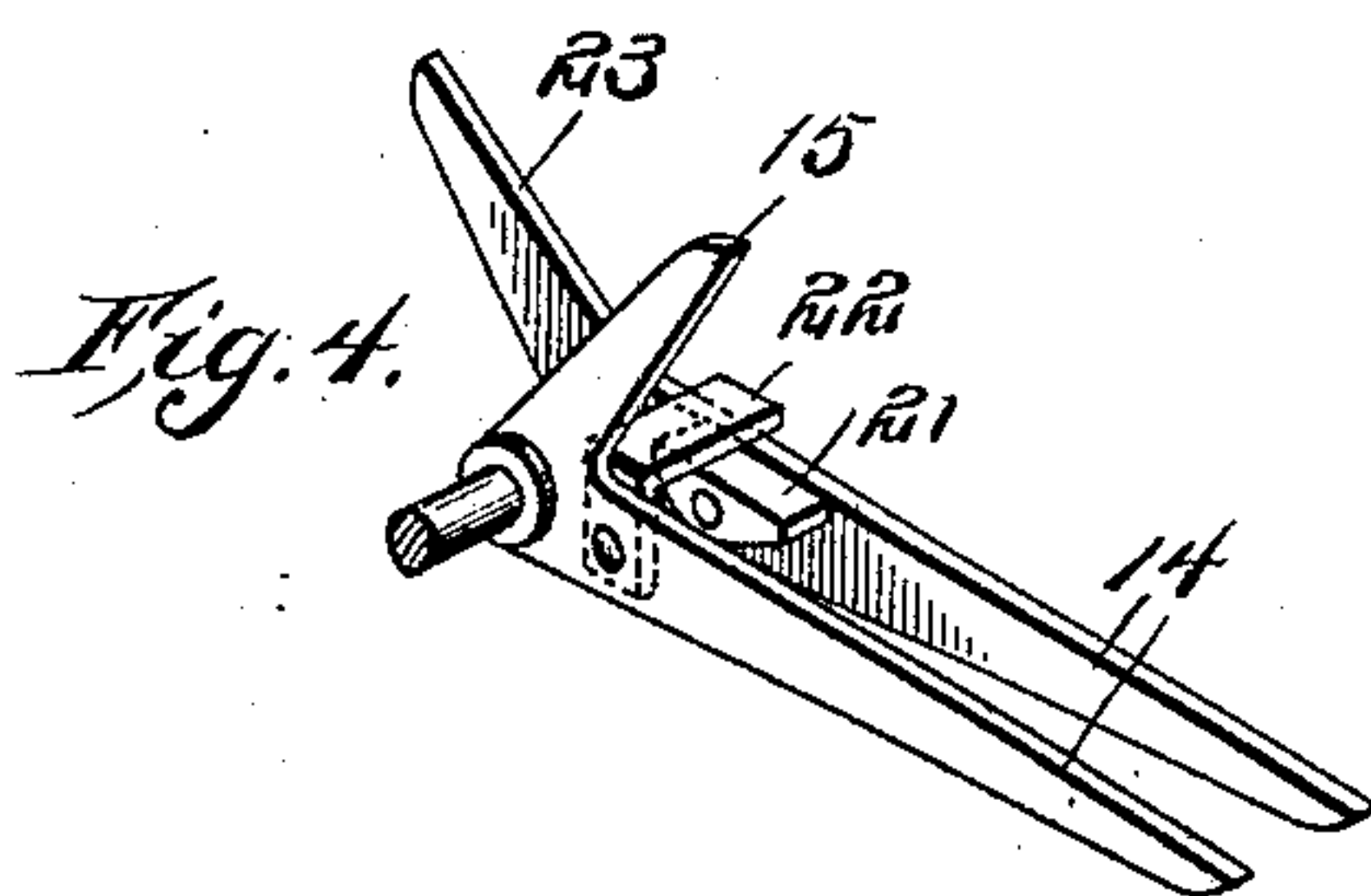
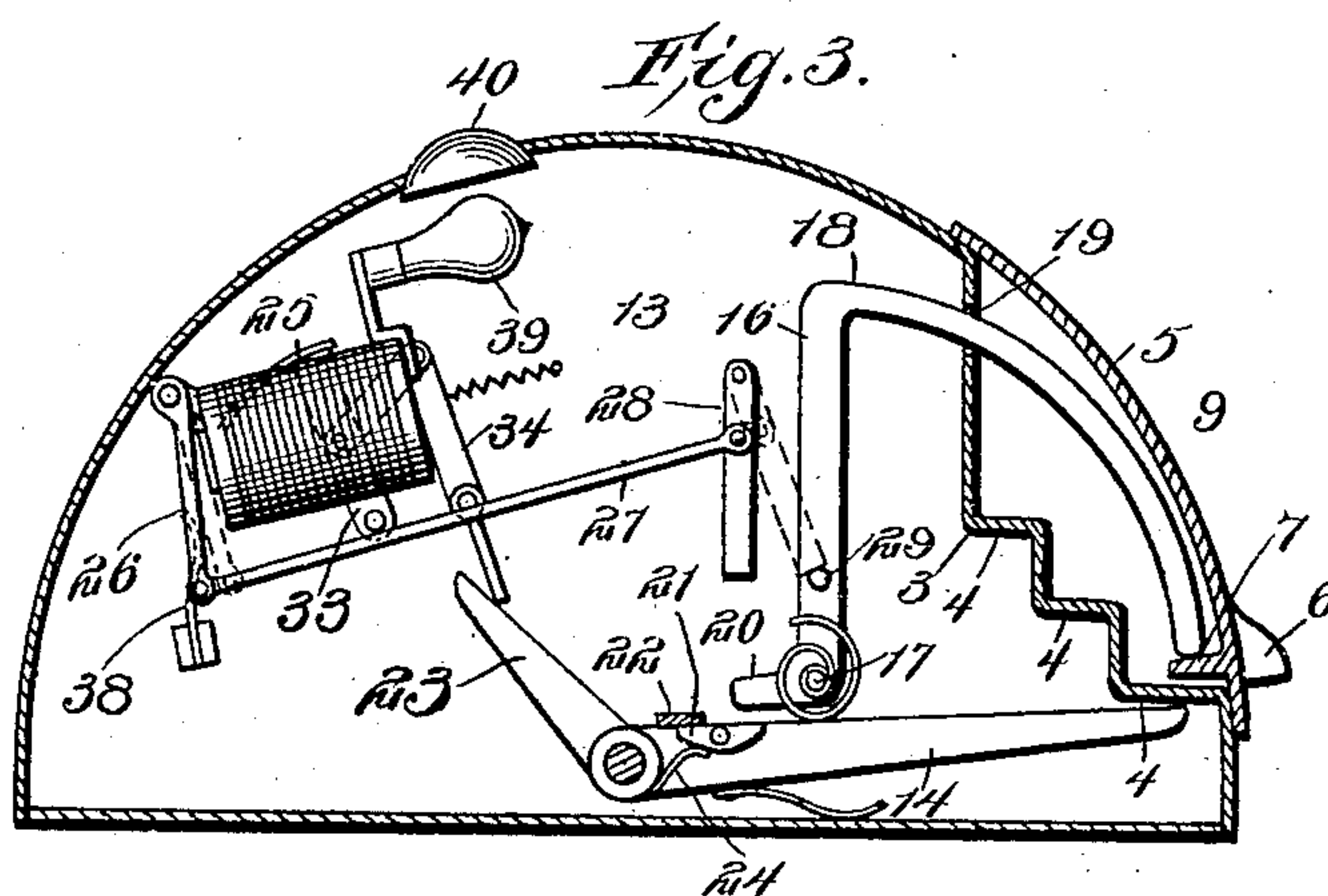
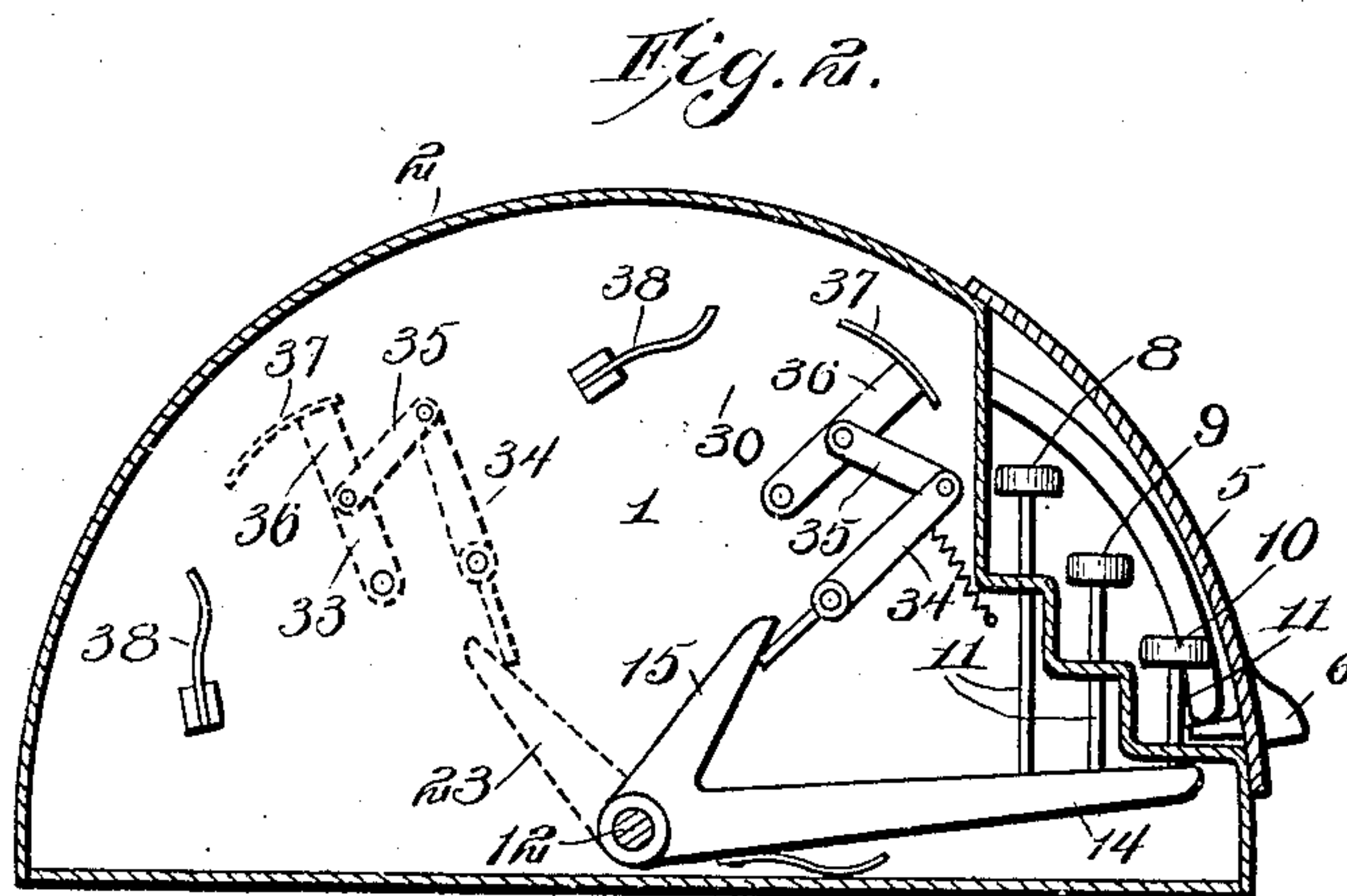
Attorney

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3 SHEETS—SHEET 2.



Witnesses

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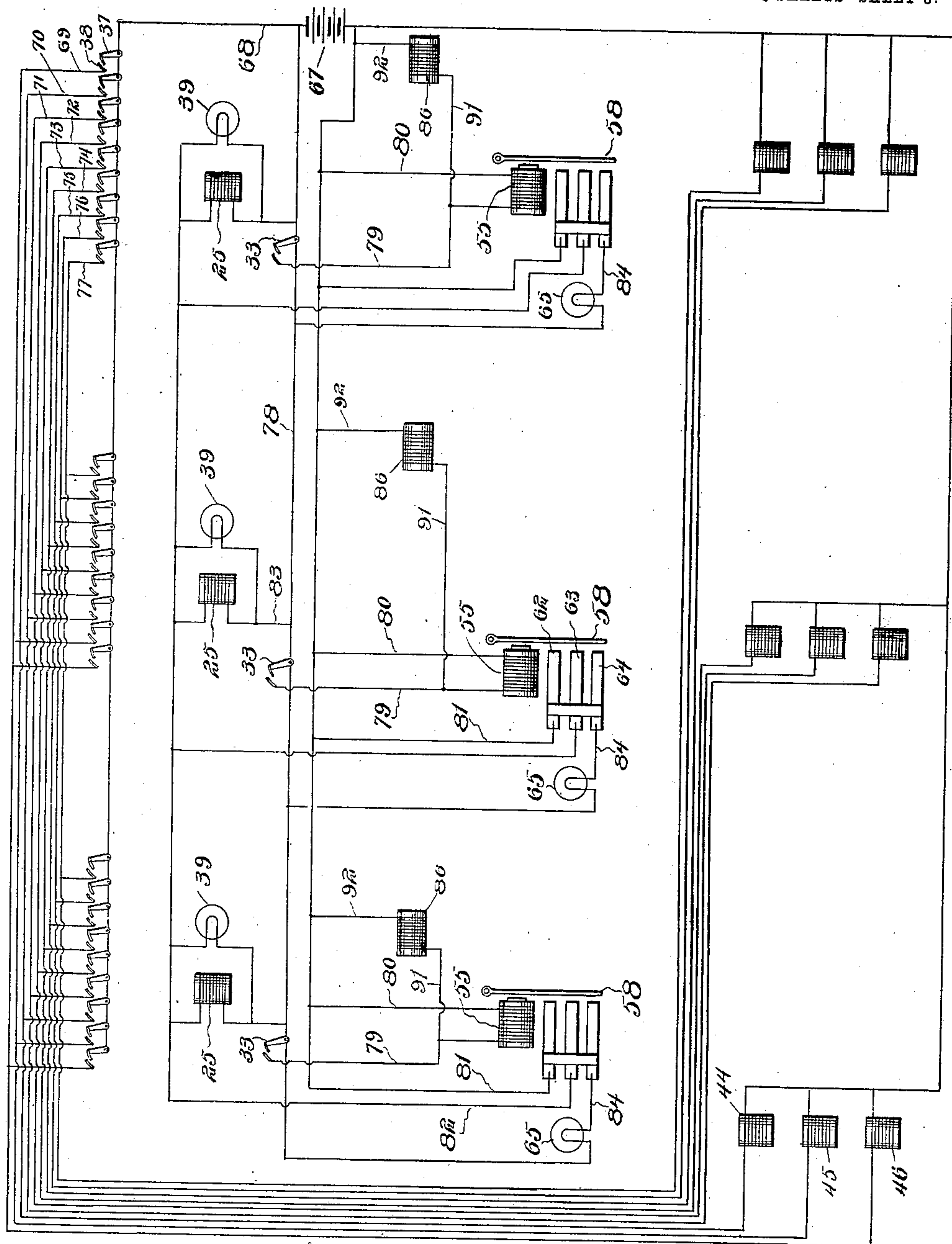
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3 SHEETS—SHEET 3.



Witnesses

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Fig. 5.

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34

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UNITED STATES PATENT OFFICE.

WOLFGANG E. EBERT, OF ST. LOUIS, MISSOURI.

ANNUNCIATOR SYSTEM.

No. 862,723.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed May 19, 1906. Serial No. 317,838.

To all whom it may concern:

Be it known that I, WOLFGANG E. EBERT, a subject of the Emperor of Germany, residing at St. Louis, State of Missouri, have invented new and useful Improvements in Annunciator Systems, of which the following is a specification.

The invention relates to an improvement in annunciator systems designed primarily for use in indicating orders or the like.

10 The main object of the present invention is the production of an annunciator carrying a series of indicators adapted to be independently operated from any one of a given number of controlling fields, the arrangement providing for the automatic locking out of
15 all controlling fields with the exception of the one in use.

The invention will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

20 Figure 1 is a longitudinal section through the annunciator casing, Fig. 2 a cross section of one of the controlling machines, the parts being shown in operative position, Fig. 3 is a similar view of the machine taken at another point and showing the machine locked
25 in operation, Fig. 4 is a detail perspective, illustrating the construction of the operating arms of the controlling machines, Fig. 5 is a diagrammatic view illustrating the electrical connection between the controlling machines and the annunciator.

30 In the present invention the system is shown as specifically adapted for hotels, restaurants and the like, being arranged to enable the waiters to transmit to a central point the orders taken at the different tables, it being understood that the controlling machine is located within convenient distance of a group
35 of tables, for the use of the waiter while the annunciator proper is located at the central or distributing point. While primarily constructed for this particular purpose it is obvious that the invention is equally
40 applicable to other uses and such are contemplated as within the scope of the present invention.

45 The controlling machines are identical in construction, and are in electrical connection with the central or annunciator device, so that appropriate operation of any one of the controlling machines will indicate the desired order upon the annunciator.

50 The controlling machine comprises a casing 1, preferably formed with a rounded upper wall 2 which at the forward portion of the casing is bent inwardly to provide a counter 3 having a step-by-step formation 4. A cover 5 is arranged to slidably cover the counter portion of the casing, preferably approximately coinciding with the normal plane of the upper wall 2. The cover is operated through the medium of a hand
55 hold 6 projecting outwardly therefrom and is provided on the inner side with an inwardly extending

lip 7, for a purpose to be later described. In each of these steps 4 is mounted for vertical reciprocation a row of keys 8, 9 and 10 respectively, the stems 11 of said keys projecting through the steps and within the casing, being preferably arranged in parallel relation, while the heads of the keys are arranged above the steps but within the plane of the cover when in closed position. The shaft 12 is fixed in the lower central portion of the casing, being supported in the side walls 13 thereof, and on this shaft is loosely mounted a series of arms 14, which are equal in number to the keys of the particular machine and arranged respectively so that their free forward ends are beneath and in contact with the lower ends of the stems of said keys. The rear end of each arm 14 is provided with a relatively fixed finger 15 projecting at an angle to the plane of the arm and adapted in operation to set the switch mechanism to be later described. A locking lever 16 is pivotally supported upon a stud 17 fixed in the casing walls forward of the shaft 12, said lever including an upright portion normally extending vertically from the stud 17 and a curved section 18 projecting forwardly from the upper end of the upright section and passing through an opening 19 in the counter wall of the casing, said member 18 curving approximately concentric with the cover 5 with its lower free end in contact with the lip 7 projecting inwardly from said cover, as clearly shown in Fig. 3. The locking lever is provided with a rearwardly projecting finger 20 extending from the lower end of the upright section and overlying one of the arms 14, hereinafter termed the locking arm. The locking arm pivotally supports a pawl 21, the forward end of which underlies the rear end of the finger 20, while the rear end underlies and is maintained in normal contact with a cross strip 22 projecting from the adjacent arm 14 and overlying the locking arm. A finger 23, corresponding in size and shape to the fingers 15, projects from the locking arm, but normally in a direction at an angle to the fingers 15. A leaf spring 24 is secured to the pivotal point of the finger 23, with its free end resting beneath and in contact with the pawl 21. In the rocking of the locking lever on its pivot the finger 20 engages the forward end of the pawl 21, tending to rock said pawl upon its pivot. As the cross arm 22, however, prevents such rocking movement the effect of the described movement of the finger 20 is to depress the forward end of the locking arm and thereby move the finger 23 in the desired direction.

An electro-magnet is supported within the casing, the pivoted armature 26 of which is connected at its free end with a rod 27 extending forwardly within the casing and terminally connected to a pivoted link 28, the free lower end of which is adapted under movement of the armatures due to the energization of the magnet

to move forward and overlies a pin 29 projecting laterally from the upright section of the locking lever, so that when said link is in operative position the movement of said locking lever upon its pivot stud is prevented, thereby, of course, preventing operation of the cover 5 of the casing. It will be noted that the arrangement of the armature 26 and the locking link 28 is such that energization of the electro-magnet causes a movement of these parts to one side of their normally pendent position and that upon deenergization of the magnet these parts return to normal or unlocking position by gravity.

Mounted within the casing is a series of switches 30, 31 and 32, adapted for respective operation by the fingers 15 of the arm 14, and an extra switch 33 adapted for operation by the finger 23. These switches are identical in construction each comprising a lever 34 pivotally supported within the casing with the lower end arranged in the operative path of the finger, the upper end of said lever being connected by a link 35 to pivot switch point 36, carrying at its free end a shoe 37 arranged for contact in the operative position of said points with a fixed point 38. A lamp 39 is arranged in circuit with the electro-magnet 25, being positioned near the wall 2 of the casing, the light from the lamp being visible from a bulls-eye 40 fixed in said wall, all as clearly shown in Figs. 2 and 3.

The annunciator comprises a casing 41 including a vertically arranged housing 42 and a horizontally arranged housing 43. The vertical housing carries a series of indicators, arranged respectively in horizontal and vertical rows relative to said housing. The number of indicators in the horizontal housing correspond to the number of controlling machines in use and the number of indicators in the vertical housing to the number of keys on each controlling machine.

The indicators within the housing are identical in construction, each comprising a drum 47 bearing upon its face suitable indicating data which in the described step-by-step operation of the drum is visible through an opening 48 in the forward wall of the housing. Within the drum is arranged an electro-magnet 49, the armature 50 of which is pivotally secured at one end to the electro-magnet frame and carries at the opposite end beyond said electro-magnet a pawl 51, the free end of which normally rests in contact with the interior surface of the drum wall and is adapted to engage with a series of rectangularly arranged teeth 52 fixed at determinate distances upon said interior surface of the drum, so that energization of the electro-magnet will impart a step-by-step operation to the drum. A coil spring 53 is arranged interiorly of the drum and adapted to be put under tension by the operation of the drum, whereby upon disconnection of the operating parts the drum will be automatically returned to normal position under the influence of the spring. An arm 54 projects from the armature 50 near the pivotal connection of the latter with its free end arranged to engage the adjacent tooth 52 of the drum and prevent retrograde movement of the latter in operation.

The horizontal housing of the annunciator casing contains an electro-magnet 55 for each controlling machine. The armatures 58 of these electro-magnets are pivotally supported at one end and connected at the opposite end with a switch bar 59 through the medium

of a link 60, the switch bar carrying a shoe 61 arranged to engage a plurality of switch points 62, 63 and 64, Fig. 5, arranged in circuit respectively with the respective controlling machines, as hereinafter described. A lamp 65 is in circuit with the electro-magnet described, the light therefrom being visible through an opening 66 in the upper wall of the horizontal housing, so that upon energization of the particular lamp the operator stationed at the annunciator will be advised as to which particular controlling machine is being operated.

In Fig. 5 is illustrated the electrical connection between the respective controlling machines and the annunciator casing. A source of energy 67 is arranged at a convenient point from which leads a conductor 68 including in series the movable points 37 of each of the switches within the controlling machines and operated by the fingers 15. The fixed points 38 of these switches being connected by conductors 69, 70, 71, 72, 73, 74, 75, 76 and 77 with the electro-magnets of the annunciator, a conductor 72 leading from said electro-magnets to the source of energy. The switch 33 of each controlling machine, that is that switch operated by a lockout lever is connected with the source of energy by a conductor 78, the fixed points of this switch leading through a conductor 79 to a particular electro-magnet in the horizontal housing of the annunciator casing, each switch 33 of one of the controlling machines being connected, of course, to its particular electro-magnet within said housing. The current is led through said electro-magnets, through conductor 80 to a conductor 81 having connection with the source of energy and with the fixed switch points 62 of each of the series of switches in the housing 43 of the annunciator, the connection being made through conductor 81. The switch point 63 of each of said series is connected by a conductor 82 with the electro-magnets 25 in each controlling machine, the lamp 39 thereof being, of course, in this series so that energization of the electro-magnet will light the lamp. The circuit through the electro-magnet is completed by a conductor 83 leading to the conductor 78. The switches 64 of the series within the horizontal housing of the annunciator casing are connected by a conductor 84 through the lamp 65 and to the conductors 78.

In the horizontal housing of the annunciator is arranged a drum 85, similar in all respects to the drum 47 in the vertical housing, having the interiorly arranged electro-magnet 86, the armature 87 of which is pivotally secured to the electro-magnet frame and carries a pawl 88 to engage the teeth 89 upon the interior of the drum. The holding arm 90 of the drum 85 is arranged to prevent a retrograde movement of the drum, as previously stated in connection with the drums 47. The electro-magnets 86 of the drums are in parallel circuit with the lockout switch 33 of each controlling machine through the medium of conductors 91 and 92 connected respectively to the conductor 79 leading from the fixed points of the switch and to the source of supply terminal conductor 81.

Assuming for example with the parts constructed and arranged as described it is desired to indicate a certain order upon one of the drums of the annunciator. The operator by raising the cover 5 of the particular machine will, through the operation of the locking lever, move the finger 23 and close the switch 33 of that particu-

lar machine. Assuming such machine to be the first one indicated in Fig. 4 such operation will at once energize the electro-magnet 55, thus closing the switches 62, 63 and 64 in a particular row of indicators within the annunciator casing. This closing of the switches energizes the electro-magnet 25 of each and every controlling machine, serving to energize the lamps 39 therein, and also operating the link 28 in all machines, with the effect to arrange said link in all machines with the exception of the one operated to lockout and prevent movement of the locking levers of said machines. This operation, of course, will prevent movement of the covers 5 of the remaining machines and thereby prevent the sending of an order on any machine except the one initially operated. The contact through the switch points 64 also energizes the lamp 65 indicating to the operator stationed at the annunciator the particular controlling machine being operated. The operator at the controlling machine will now press the key which is marked to indicate the desired order, with the effect to energize the electro-magnet within the drum corresponding to said key and advance the drum a step-by-step movement in accordance with the number of times the key is operated, whereupon the drum will be positioned to display through the opening 48 the number of orders desired at the particular controlling machine, it being understood, of course, that each drum corresponds to a single particular order, as a specific edible or beverage, so that the number appearing upon the drum through the opening 48 will indicate to the operator at the annunciator the number of such orders desired at the particular controlling machine. The operation of the lockout switch of the particular controlling machine being operated will, through the conductors 91 and 92 energize the electro-magnet 86 corresponding to the particular controlling machine, with the effect to operate said drum and display the data thereon through the opening 93 in the upper wall of the casing. By this arrangement the operator at the annunciator is advised as to which particular controlling machine is being operated, the data on the drum 85 serving to notify the operator of the number of times the particular machine has been operated in giving the order.

A resetting device for the drums of the annunciator is provided whereby the operator may simultaneously reset all of the drums previously operated. This resetter comprises a series of perpendicularly arranged bars 94 slidably supported within the annunciator and which is provided with a series of arms 95 projecting forwardly therefrom and engaging the holding arms 54 of the drums 47, it being understood that the bars 94 preferably operate respectively with the vertically aligned drums, so that one bar 94 operates all drums in one vertical row. The number of bars would correspond to the number of vertical rows. The lower end of the bars 94 are connected to a forwardly projecting lever 95 pivotally mounted within the horizontal portion of the casing and engaged at the forward or free end by a push pin 96 projecting beyond the upper wall of the horizontal casing for convenient operation. The extreme forward end of the lever 95 is connected to the rear end of a secondary lever 97 pivotally supported within the casing and engaging at its forward end the holding arm 90 of the drum 85, each of said drums be-

ing, of course, provided with an individual lever 97. By this construction the operator by depressing the push rods 96 will withdraw the holding arms from locking engagement with the teeth on the drums and permit the springs arranged within the drums to return the latter to normal position, in an obvious manner.

It will be noted in the apparatus as described that the operator of one controlling machine is enabled to advise the operator at the annunciator of the particular controlling machine being operated, of the order and number thereof desired at such controlling machine, and to lock out and prevent operation of any other controlling machine. The arrangement of the drum operating mechanism wholly within the contour of the drum provides for the convenient use of the maximum number of such elements in the minimum space, thereby increasing the efficiency and possibilities of the apparatus.

It is to be understood that as constructed and described the system is devised primarily for the use of the waiters, to enable the latter to indicate orders desired without leaving the table at which the guest is seated, thereby insuring accuracy in the order and expediting its delivery. It is equally obvious, however, that the system without material modification is applicable to a number of other situations, all such are to be considered within the spirit or scope of the invention.

Having thus described the invention what is claimed as new, is:—

1. An annunciator system comprising an annunciator carrying a plurality of indicators, controlling machines, means carried by said machines for operating each of the indicators, a cover for each machine normally inclosing the operating means thereof, and means actuated in the movement of the cover of one machine for locking the covers of the remaining machines against movement.

2. An annunciator system comprising an annunciator carrying a plurality of indicators, controlling machines, a series of keys mounted in each machine and adapted to operate each indicator, covers carried by the machines and normally closing the keys against access, and means actuated in the initial movement of the cover of any one machine for locking the cover of any other machine against opening movement.

3. An annunciator system comprising an annunciator having a plurality of indicators, a series of controlling machines, a series of keys carried by each machine and each adapted to operate one of the indicators, a cover for each machine normally inclosing the keys thereof, a locking lever actuated by the cover, and means operated in the movement of the locking lever of one machine to secure the locking levers of the remaining machines against movement.

4. An annunciator system comprising an annunciator provided with a plurality of indicators, a series of controlling machines, a series of keys carried by each machine, said keys corresponding in number to the number of indicators and being respectively in electrical connection therewith, a cover for each controlling machine arranged to normally inclose the keys thereof, and means operated in the opening movement of the cover of any one machine to lock the covers of all remaining machines against movement.

5. An annunciator system comprising an annunciator provided with a plurality of indicators, a series of controlling machines, a series of keys carried by each machine, said keys corresponding in number to the number of indicators and being respectively in electrical connection therewith, a cover for each controlling machine arranged to normally inclose the keys thereof, means operated in the opening movement of the cover of any one machine to lock the covers of all remaining machines against movement, said means comprising a locking link, an electro-

magnet for moving the link to operative position, a normally open circuit including said electro-magnet, and means for closing said circuit upon the opening movement of the particular cover.

- 5 6. An annunciator system including an annunciator provided with a plurality of indicators, a series of controlling machines, keys carried by each machine and each adapted to operate one of the indicators, the keys of each machine being normally inclosed against operation, and
10 independent locking means carried by each machine adapted upon operation of the key inclosing means of one machine to operate the locking means of all other machines and prevent operation of the key closing means of all the other machines.
- 15 7. An annunciator system including an annunciator provided with a plurality of indicators, a series of controlling machines, each of the machines having means to operate all of the indicators, and a machine indicator carried by the annunciator and arranged for actuation only
20 on the operation of the connected machine.

8. An annunciator system including an annunciator provided with a plurality of indicators, a series of con-

trolling machines, switches carried by said machines and in circuit with the indicators, means carried by the machines to permit manual operation of the switches, and
25 means adapted in the operation of any one of the machines to present a visual indication of such operation in each of the other machines and simultaneously lock said other machines to prevent movement of the switches.

9. An annunciator system including an annunciator
30 provided with a plurality of indicators, a series of controlling machines each in circuit with all of the indicators, a signal carried by the annunciator in circuit with each machine, a signal carried by each machine, and means
35 adapted in the operation of a particular machine to energize its signal on the annunciator and the signal of each of the machines.

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

WOLFGANG E. EBERT.

Witnesses:

ROSA ROSS,
C. W. OWEN.