(No Model.) 3 Sheets—Sheet 1.

E. R. WILDER.

ELECTRIC ANNUNCIATOR SYSTEM.

No. 495,127. Patented Apr. 11, 1893.

Fig. 1

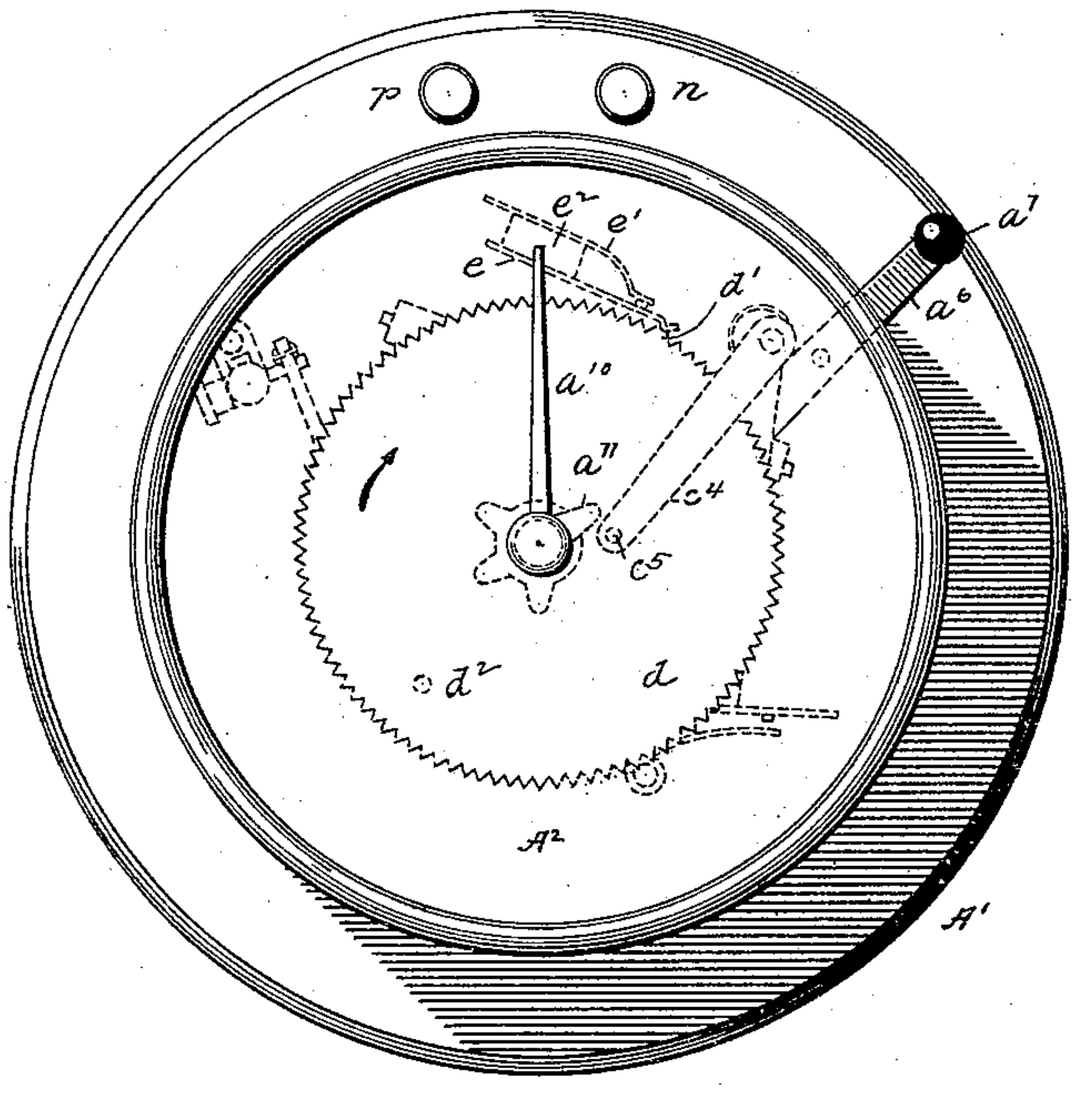


Fig. 2

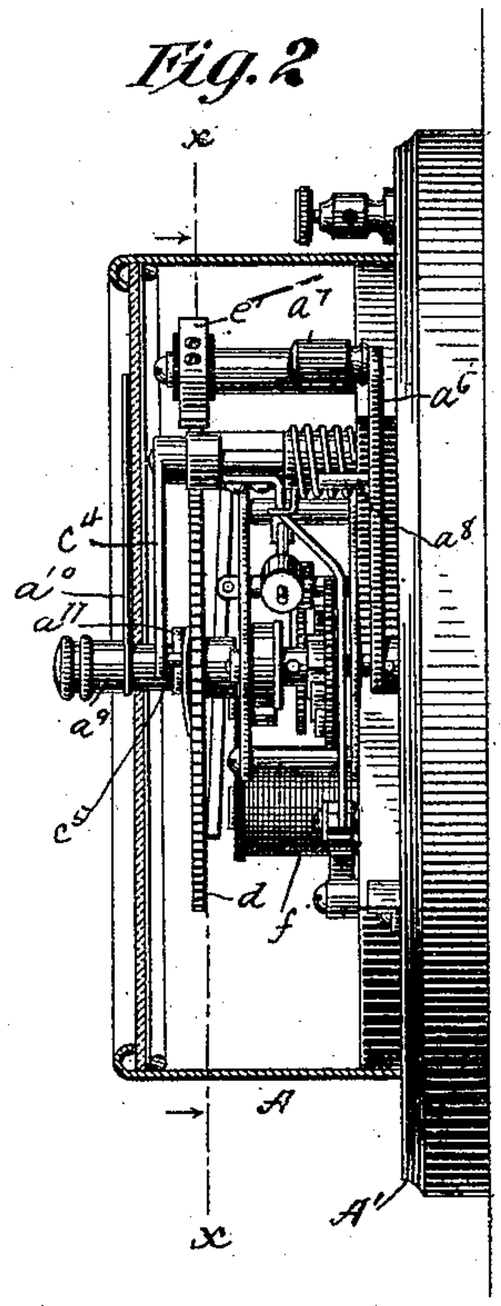
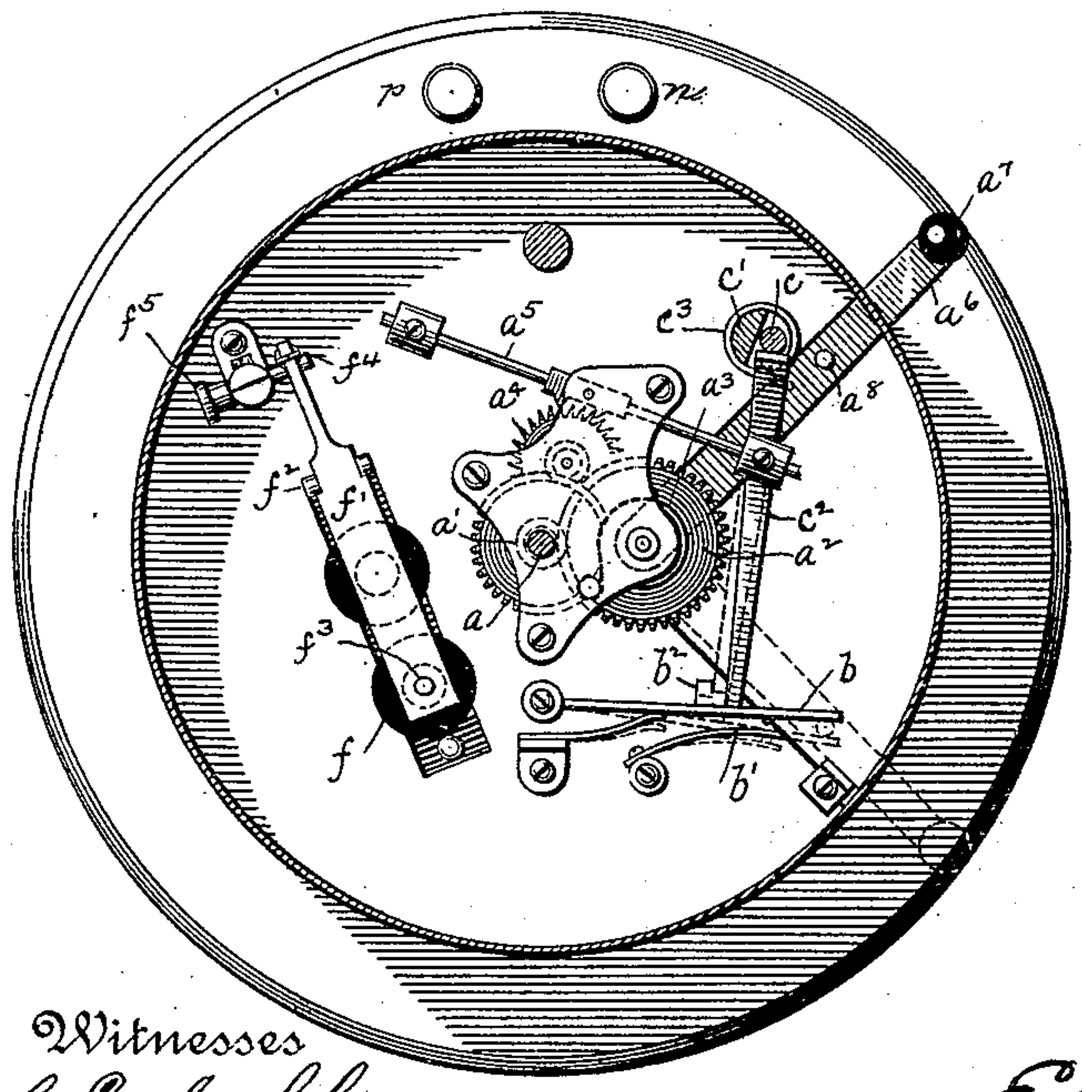


Fig. 3.



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No. 495,127. Patented Apr. 11, 1893.

Fig. 3,

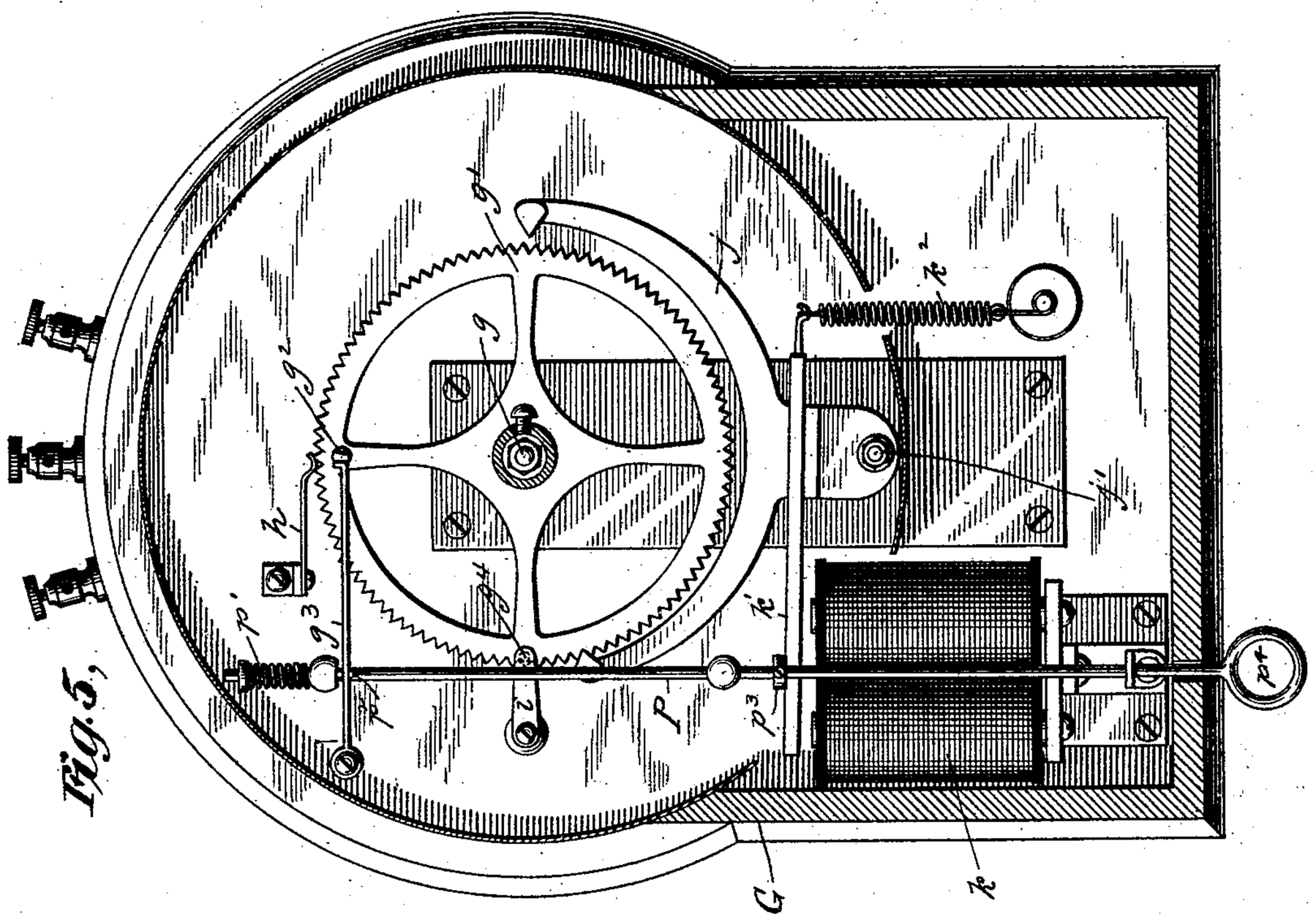
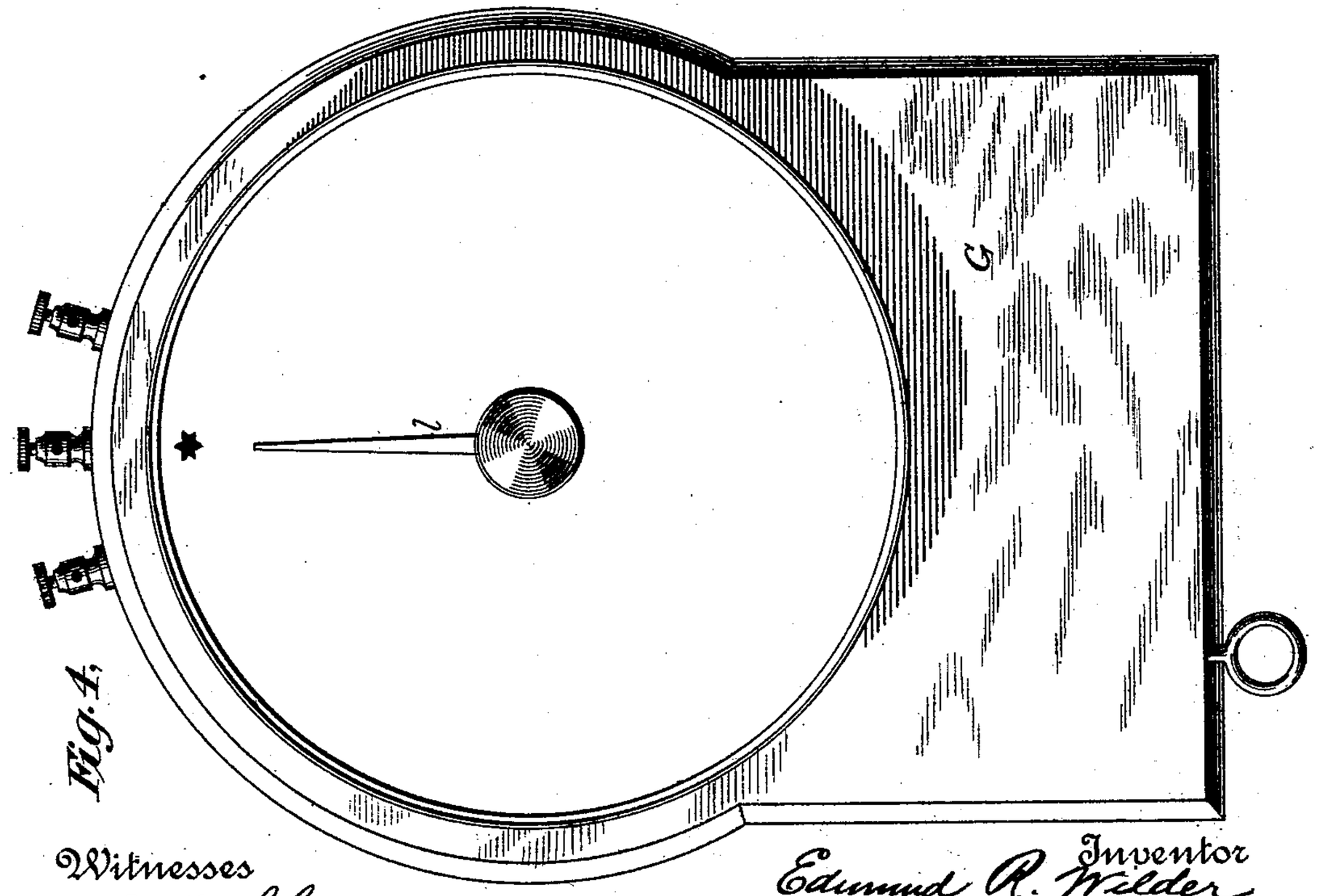


Fig. 4,



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(No Model.) 3 Sheets—Sheet 3.

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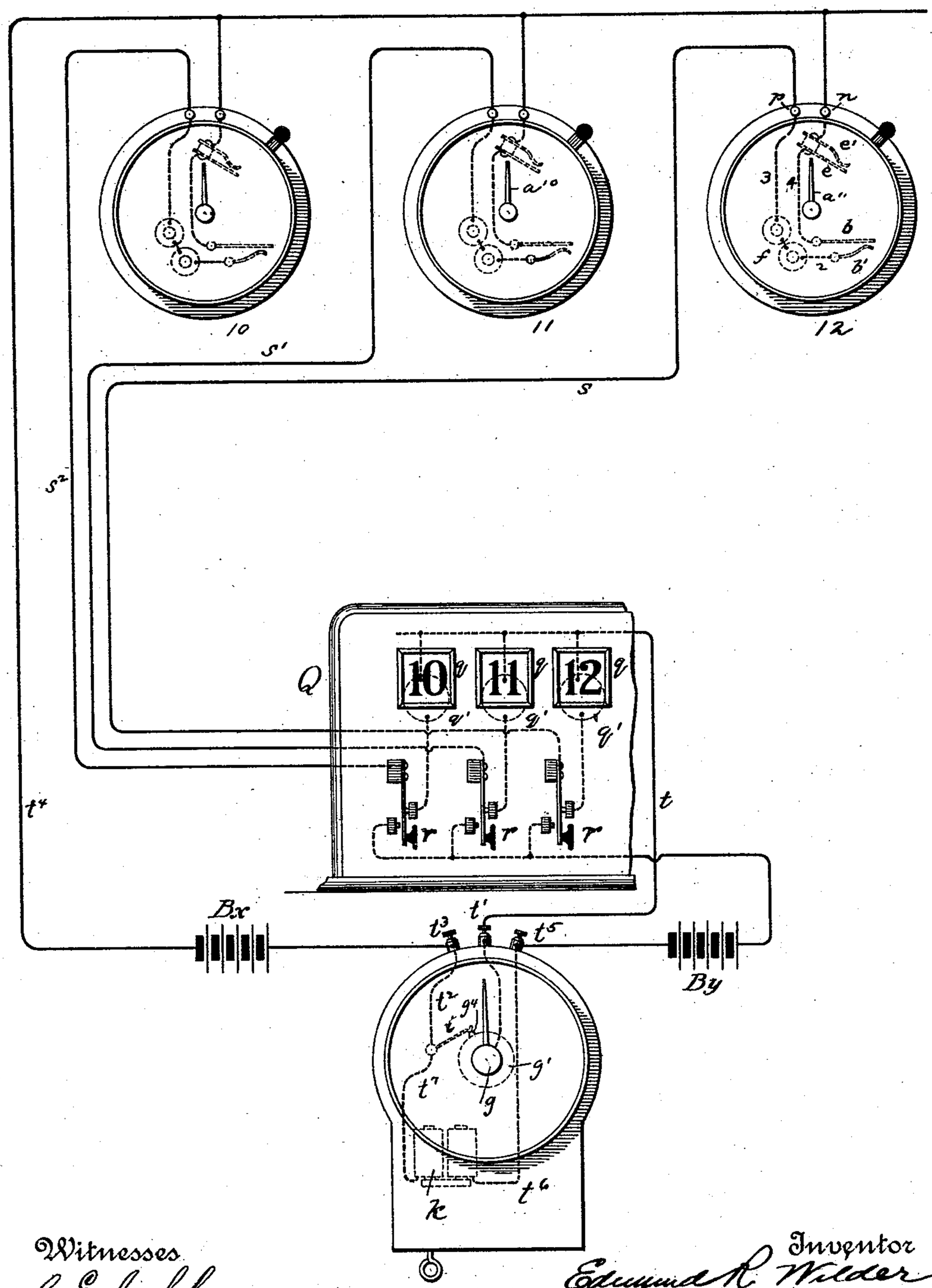
Fig. 6



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UNITED STATES PATENT OFFICE.

EDMUND R. WILDER, OF KANSAS CITY, MISSOURI.

ELECTRIC-ANNUNCIATOR SYSTEM.

SPECIFICATION forming part of Letters Patent No. 495,127, dated April 11, 1893.

Application filed June 23, 1892. Serial No. 437,726. (No model.)

To all whom it may concern:

Be it known that I, EDMUND R. WILDER, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Electric-Annunciator Systems, of which the following is a full, clear, and exact description.

This invention relates to electric annunciator systems specially adapted for hotels and apartment houses. Its object is to provide in a simple form a system by means of which the occupant of a room or apartment may call the office and indicate what he wants.

In general the invention consists of the combination of a transmitter, a receiver and an annunciator so constructed and operated that any want out of a number of different wants or calls may be transmitted and received at the office after the attention of the clerk or operator at the office has been attracted.

The details of the invention will now be described with reference to the accompanying drawings, in which

Figure 1 represents a face view of the transmitter showing portions immediately back of the dial plate in dotted lines. Fig. 2 is a vertical section of the transmitter. Fig. 3 is a section of the transmitter taken on line $x\,x$ of Fig. 2. Fig. 4 is a face view of the receiver. Fig. 5 is a similar view of the receiver, the front of the casing, the dial plate and the index being removed, and Fig. 6 is a diagram of the entire system showing the annunciator at the office, several transmitters and the receiver, conventionally.

The transmitter is inclosed within a cylindrical case A mounted upon a circular base A′ and having a dial A^2 upon which is pasted or otherwise attached a circular sheet of paper having printed upon it around its edge a series of points, and adjacent to each point a word indicating a want, such for instance as "Ice water," "Boot-black," "Cocktail," "Porter," &c. The dial is stationary. Centrally mounted in the box is a shaft a carrying a pinion a' forming the last wheel of a train, the first wheel of which is a^2. A coiled spring a^3 on the shaft with the wheel a^2 is adapted to be wound up and when freed to rotate the wheels of the train and the shaft a. An escape wheel a^4, and a weighted pallet a^5 is also provided to regulate the movement of the train. To the shaft carrying the spring a^3 is rigidly secured a hand-lever a^6 provided with a handle a^7 which projects outside of the cylindrical case and is adapted to move in a slot in said case through an angle of about ninety degrees. The normal position of this handle is shown in Fig. 3 in full lines and the extent of its movement is shown by the dotted lines. When the handle is moved downward, the spring is wound up, while the wheels remain stationary and on the return movement of the handle which is effected by the power of the springs, the wheels rotate and turn the shaft a one complete revolution. The lever a^6 carries a pin a^8 which engages with a spring-arm b at the lower end of its movement and forces said spring-arm into contact with another spring-arm b'. Arm b carries a shouldered lug b^2.

c is a shaft mounted loosely in bearings formed in a post c'. The shaft carries an arm c^2 which extends into close proximity to the arm b. The spring c^3 which is wound about the post c' bears at one end against the arm c^2 and tends to force it to the left. When the handle a^6 is in its normal position, the arm b bears against the end of arm c^2, but as soon as the handle a^6 has moved the arm b against the arm b', the lever c^2 is forced over on to the shoulder of the lug b^2 and thus locks the arm b in contact with the arm b'. The outer end of the shaft c carries a lever c^4 which is parallel to the dial and immediately behind it. At the extremity of this lever there is a pin c^5 pointing inward. The central shaft a carries a large wheel d, the periphery of which is regularly notched as shown in Fig. 1, and upon this periphery the toe of a metallic spring e bears. One of the teeth of this wheel is made with a broad surface as shown at d' and when the parts are in their normal positions the spring e is resting upon this tooth, and when in such position is held in contact with a second spring e'. When the toe of the spring e is in one of the notches in the periphery of the wheel the connection between the two springs is broken. The springs are mounted upon a block of insulating material e^2 properly supported. Wheel d is provided with a hole d^2. Upon the base of the appa-

ratus directly back of the wheel d is mounted an electro-magnet f whose armature f' is pivoted at f^2. The outer face of the free end of the armature carries a pin f^3 which is adapted to enter the hole d^2 in wheel d. The opposite or tail end of the armature is connected with a spiral spring f^4 and winding screw f^5 by means of which the amount of pull necessary to be exerted by the magnet may be regulated. The outer end of the shaft a carries a sleeve or cap a^9 to which is rigidly secured an index a^{10} in front of the dial and a finger a^{11} back of the dial and in the same plane with pin c^5 in the end of the lever c^4. The sleeve fits friction-tight upon the shaft so that it will be carried around with the shaft, but the fit is sufficiently loose that the end of the sleeve or cap may be grasped in the fingers and twisted independent of the shaft for the purpose of setting the index at any point on the dial. The electric conductors connected with this box lead to the posts p and n, respectively, thence from post p through the electro-magnet f, to spring arm b', to arm b, to spring e, to spring e' and to the post n. When the box is in its normal condition the circuit is broken between the arms b' and b and closed between the springs e and e'.

I now refer to the receiving apparatus illustrated in Figs. 4 and 5. The apparatus is inclosed in a casing G, the upper part of which is cylindrical and the lower part rectangular, as shown. In the center of the cylindrical part is mounted a shaft g, upon which is secured a wheel g' whose periphery is provided with the same number of notches as the wheel d in the transmitter. This wheel carries a lug g^2 which bears against a dog g^3 when the parts are in their normal position, the index hereinafter described, being at zero. A spring h bears upon the periphery of the wheel g' and acts as a brake. A metallic pin g^4 projects from the face of the wheel and a spring contact arm i attached to the frame normally rests upon the end of this pin. j represents a verge pivoted to the frame at j' and embracing a portion of the periphery of wheel g'. Its dogs work in the notches of said wheel and with each vibration of the verge on its pivot the wheel is turned the space of one notch. k is an electro-magnet whose armature k' is fastened to the verge as shown. The magnet acts upon one end of the armature and a coiled spring k^2 acts upon the other end of the armature in opposition to the magnet. P is a rod mounted in suitable bearings and surrounded at its upper end by coil spring p' which tends to lift the rod. The rod carries two pins p^2 embracing the dog g^3. It also carries a lug p^3 located just above and in line with the armature k'. The lower end of the rod projects through the casing and is provided with a ring or handle p^4 by means of which it may be pulled downward. The front of the cylindrical portion of the case is covered by a dial having the same marks and "wants" upon it as appear on the dial of the transmitter before described and located in a similar position. The shaft g extends through the dial and carries an index l and a small wheel or nut by which the shaft may be rotated by hand.

Referring now to Fig. 6, Q represents an annunciator frame fitted with drops q, an electro-magnet q' operating the same, there being one drop for each room or point where a transmitter is located. These drops are shown conventionally but it will be understood they may be of any preferred construction. r, r, r, represent keys or circuit changers, each having a front and a back stop and normally resting in contact with their back stops. 10, 11, and 12 represent the transmitters in three different rooms of a hotel; their corresponding annunciator drops are shown in frame Q. Wires s, s' and s^2 connect the transmitters with the respective keys r and from these keys the circuit leads normally through the annunciator drops, thence out by wire t, to post t' on the receiver, thence to shaft g of the receiver, to wheel g' of said shaft, pin g^4, arm i, wire t^2, post t^3, and finally through battery B^x and wire t^4 to the transmitters. When a key r is closed the circuit through the annunciator drop is broken and a new circuit completed through battery B^y, to post t^5, wire t^6, magnet k, wire t^7, wire t^2 and back to the transmitter through battery B^x as before described, thus throwing batteries B^x and B^y into series on the same circuit.

The operation of the system is as follows: The normal condition of all the parts is shown in the drawings. If the occupant of room 12 wishes to send in a call for ice water, he proceeds to the transmitter in his room and turns the index a^{10} until it points to "Ice water." He then pulls the hand lever down to the full extent of its movement and lets go. This puts the springs b b' into contact and the arm c^2 falls into the shoulder of lug b^2 and locks the two contacts together. This completes the following circuit: spring b', wire 2, magnet f, wire 3, post p, wire s, key r, back stop of key, annunciator drop 12, wire t, post t', shaft g, wheel g', pin g^4, arm i, wire t^2, battery B^x, wire t^4, post n on the transmitter, spring e', spring e, wire 4 and spring b. Battery B^x then causes the annunciator to drop but it is not sufficiently strong to make magnet f in the transmitter pull down its armature. The clerk at the office knows that a call has been sent in from room 12 and in order to find out what is wanted he goes to the receiver and pulls down the rod P. This removes the dog g^3 from the stop g^2 and turns the wheel g' the space of one notch by reason of the movement which is imparted to the armature by the rod. This breaks the circuit between the spring i and pin g^4. He then closes the key r corresponding to annunciator drop 12 and thereby throws battery B^y into circuit with battery B^x and the electro-magnet k of the receiver. This additional battery is sufficient to release the transmitter by causing magnet f to pull down

its armature thereby removing the pin from the hole d^2. The spring which has been wound up by the movement of the lever then turns the train of wheels causing the central shaft with the index to make one complete revolution. We will assume that the want "Ice water" is marked upon the dial of the transmitter a distance of twenty-five notches or teeth from the broad tooth d'. The same word appears on the dial of the receiver at the position to which its index would be moved when the circuit has been successively closed and opened twenty-five times. Now as soon as the index of the transmitter has rotated until the circuit has been opened and closed twenty-five times by the springs e, e' the trip a^{11} strikes the arm c^4 and releases the contacts b, b' thus opening the circuit permanently and stopping the index of the receiver at the word ice-water. The index of the transmitter meanwhile finishes its revolution and stops with the tooth d' under spring e and with the arm a^6 at its highest point. After the call is noted the clerk turns the index back to the position of zero to be ready for another call.

Having thus described my invention, I claim—

1. In an electric signaling system, the combination of a transmitter, a receiver, an annunciator, a generator and circuit normally including the transmitter and annunciator only, a make and break switch in said circuit, a second generator and circuit including the transmitter and receiver only, and a switching apparatus adapted to cut out the annunciator and put the transmitter and receiver into circuit with both generators, substantially as described.

2. A transmitting apparatus consisting of a motor train and winding arm therefor, a signaling circuit completed by "pulling" said arm, a signal setting device moved a prescribed distance by the motor after being set, and a circuit breaker operated by the signal setting device during said prescribed movement, a receiving apparatus consisting of an electro-magnetic motor in the signaling circuit and an index moved by said motor, all in combination with an annunciator in the signaling circuit, a manually operated make and break switch in the annunciator circuit, and a second manually operated switch for simultaneously cutting the annunciator out of circuit with the transmitter, and putting the receiver into circuit therewith, and two electric generators located respectively in the circuits of the receiver and annunciator, said switches when operated adapted to put both generators into circuit with the receiver and transmitter.

3. In a signaling system, the combination of a transmitter having a signal sending train and a detent therefor, with a receiving instrument having a motor and a detent therefor, means for manually releasing the detent of the motor, a manually operated switch, a battery and connections whereby the switch may be operated to throw increased battery on to the circuit for the purpose of releasing the detent of the transmitter train, as set forth.

4. In a transmitter, the combination of a motor train, a lever for winding the same, a circuit closer operated by said lever, a lock for said circuit closer, an index or signal setting device carrying a trip, and making a complete rotation at each movement and a signaling circuit, the said trip being adapted to remove the lock from the circuit closer when the signal has been sent in, during the rotation of the index substantially as described.

5. The combination with the winding train of a transmitter, of a winding lever for the same, the circuit closer b, b', locking arm c^2, spring c^3 moving the locking arm in one direction, lever c^4 connected with arm c^2, a signal setting device moved by the train and a trip a^{11} carried thereby, the trip adapted to strike the lever c^4 and move the locking arm c^2 against the power of the spring for the purpose set forth.

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

EDMUND R. WILDER.

Witnesses:

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JAMES F. KAVANAGH.