

(No Model.)

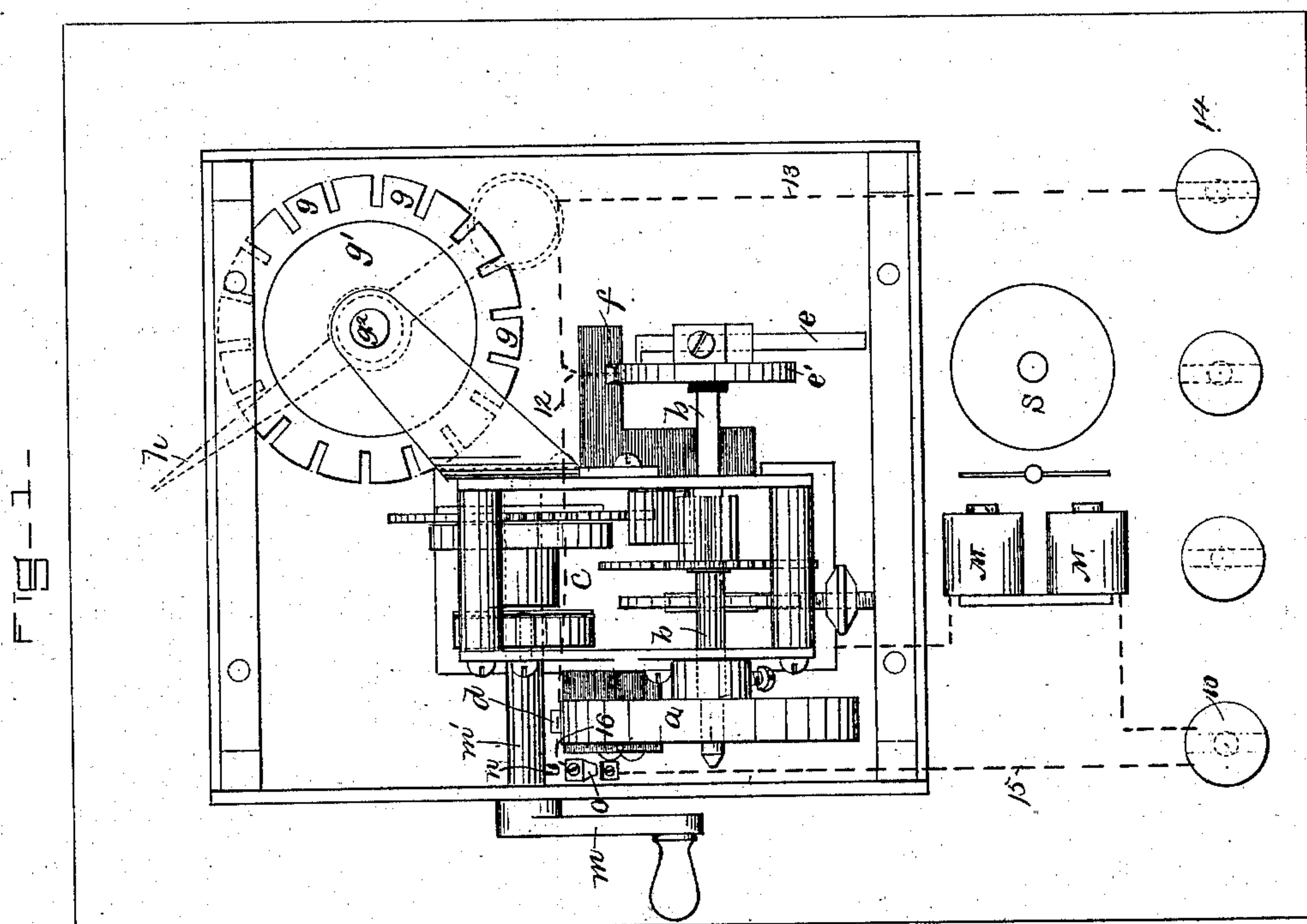
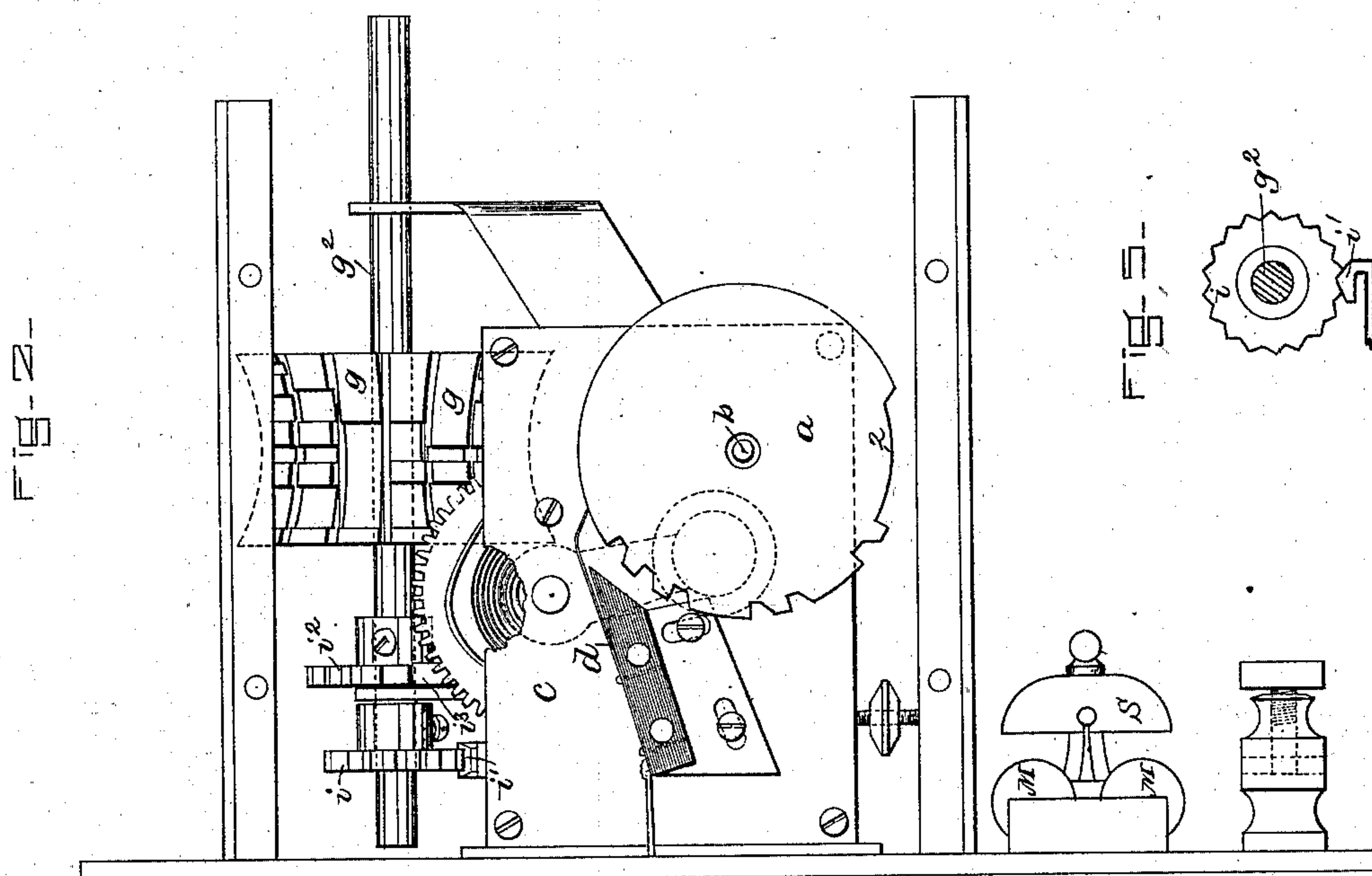
2 Sheets—Sheet 1

J. C. WILSON.

MULTIPLE SIGNAL BOX FOR FIRE AND DISTRICT TELEGRAPHS.

No. 284,527.

Patented Sept. 4, 1883.



Witnesses.
Fred A. Powell
W. H. Sigston.

Inventor.
John C. Wilson
by
Crosby & Gregory Attys.

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FIG-3-

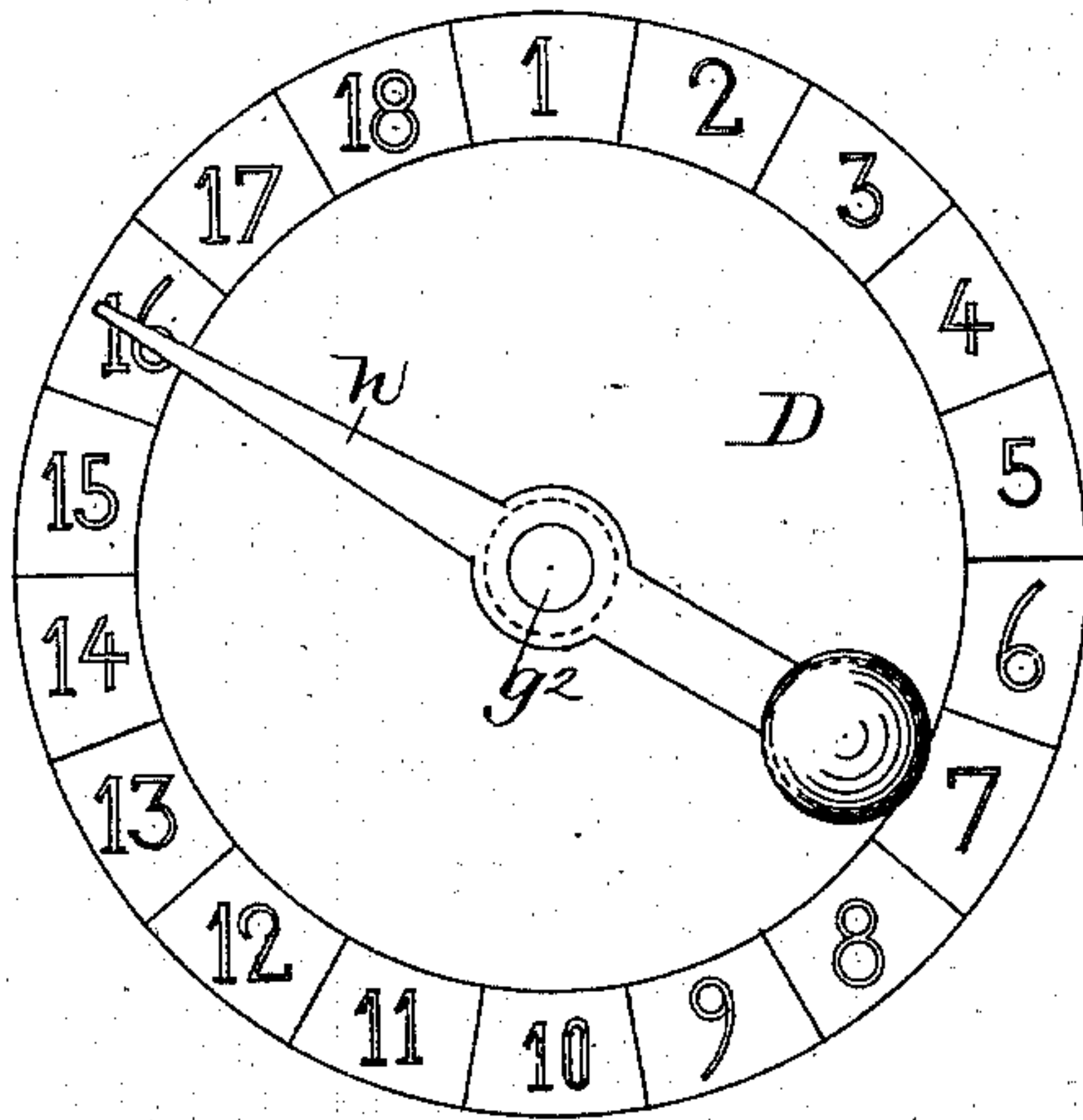
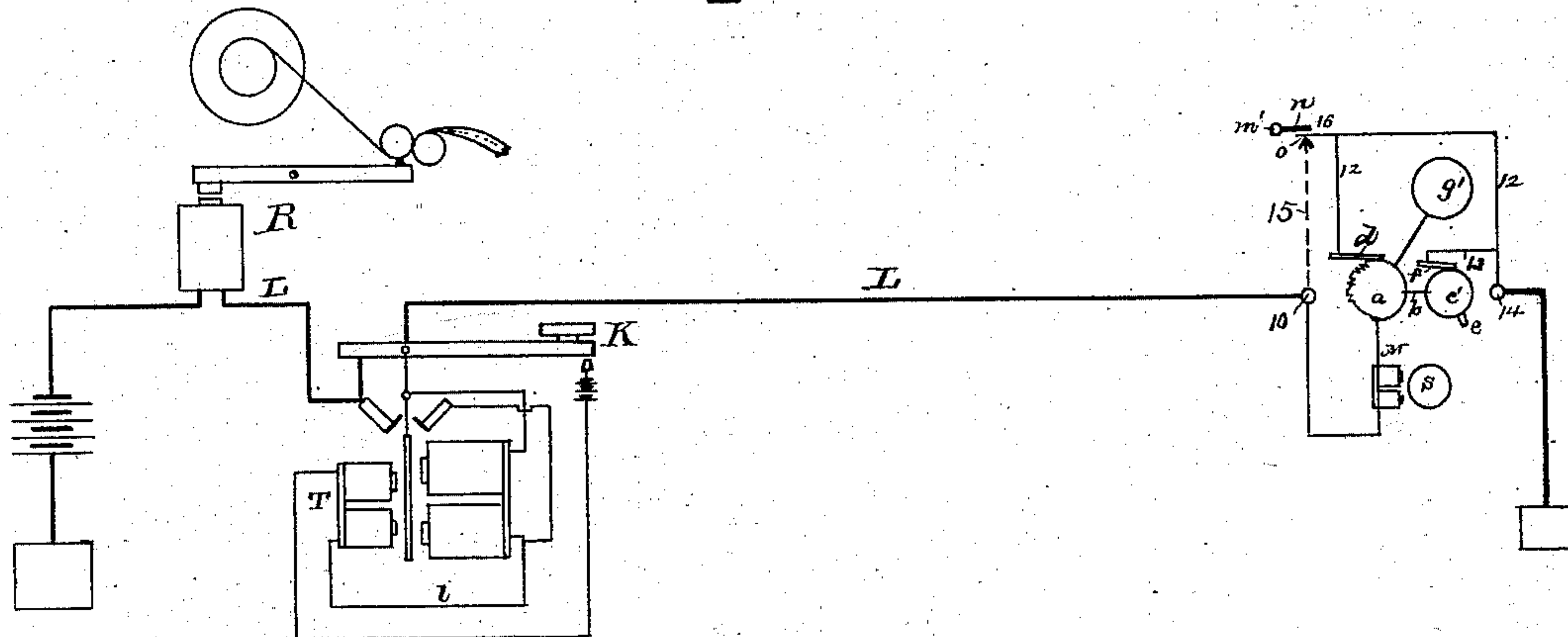


FIG-4-



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UNITED STATES PATENT OFFICE.

JOHN C. WILSON, OF BOSTON, MASSACHUSETTS.

MULTIPLE SIGNAL-BOX FOR FIRE AND DISTRICT TELEGRAPHS.

SPECIFICATION forming part of Letters Patent No. 284,527, dated September 4, 1883.

Application filed April 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. WILSON, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Multiple Signal-Boxes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to a multiple signal-box, such as employed for district-telegraph systems, of that class in which a large number of different signals may be sent from a single box.

The invention consists, mainly, in the combination, with the usual break-wheel for sending a signal that indicates the number of the box or station from which the signal is sent, of a novel multiple signal device consisting of a drum having concave sides composed of a series of circuit-controlling devices of different form adapted to give different signals, and means to place any desired one of the said devices in position to control the circuit and send its signal, it being operated by the same motor that actuates the break-wheel for indicating the number of the box. The said signaling devices are shown as notched metallic surfaces arranged around the periphery of a drum adapted to rotate on a shaft at right angles to the shaft of the break-wheel, which latter shaft is provided with a pen or contact-spring that passes over one of the said surfaces determined by the position of the drum, the said pen being so arranged with relation to the main break-wheel that it reaches the signaling-surface on the drum before or after the main break-wheel has sent its signal and placed the circuit under the control of the said pen. The drum having the different circuit-controlling surfaces is provided with a hand or pointer, by which it may be rotated to bring the desired surface in proper position to govern the circuit, the said pointer being moved by the operator over a dial preferably having large contrasting characters for indicating the different signals, it being sometimes desirable to make a portion of the said dial, or the characters thereon, of some luminous or phosphorescent material.

Figure 1 is a front elevation of a signal-box

embodying this invention, the front plate of the box and dial thereon being removed to show the mechanism inside; Fig. 2, a side elevation thereof; Fig. 3, a front elevation of the dial; Fig. 4, a diagram showing the circuit; and Fig. 5 is a detail to be referred to.

The signal-box contains a break-wheel, *a*, mounted on a shaft, *b*, adapted to be rotated by a clock-work or motor, *c*, in the usual manner, the main circuit being continued from the periphery of the said wheel *a* to the pen or contact-spring *d*, except when in the rotation of the said wheel the notches pass the end of the said spring, when the said circuit is broken in the usual manner. It will be seen, referring to Fig. 2, that the wheel is in this instance notched to produce the signal 321, which is the number of the box, and shows at the central station from what box or station the signal was received. Succeeding the notches for producing this signal there is a long notch, 2, upon the periphery of the wheel *a*, thus leaving the main circuit open between the wheel *a* and pen *d* for an interval of time, during which another signal is to be sent. This signal is produced by a contact-spring or pen, *e*, carried by the shaft *b* of the break-wheel *a*, and insulated therefrom, but connected with a disk, *e'*, having a spring, *f*, bearing on its periphery, so that the said spring *e* is electrically connected with the spring *f*, but insulated from the remainder of the box mechanism during the greater part of its rotation. When the notch 2 of the break-wheel *a* arrives at the contact-spring *d* in the revolution of said wheel, the spring *e* arrives at one of the signaling-surfaces *g*, arranged about the periphery of a drum, *g'*, mounted to rotate on a shaft, *g''*, at right angles to the shaft *b*, the contact-surfaces *g* being concave, as shown in Fig. 2, and being notched, so that the spring *e* in its revolution with the shaft *b* will wipe over one of the said surfaces *g*, making electrical connection therewith, except at the portions that are cut away or removed to form the notches. The said notches are of different lengths and arrangement at each of the surfaces *g*, so that each one will produce a distinct character when the current passing between it and the spring *e* acts upon a receiver

ing-instrument of usual construction—such, for instance, as a self-starting register. By arranging the signaling-surfaces around the periphery of a drum, as shown, a very large number of different signals may be produced by a comparatively small device or drum, making the apparatus much more compact than when it is attempted to make the said signaling devices on a flat surface, especially if they radiate from a common center or point.

It will be seen that by rotating the drum g' , with its shaft g^2 , any desired one of the surfaces g may be brought into proper position to co-operate with the spring e , and the signal produced by the said surfaces may represent any of the usual signals that are desirable for district or police systems—one, for instance, representing the word "Fire," another a call for men, another a call for an ambulance, and so on. This shaft g^2 is provided with a pointer, h , (shown in Fig. 3 and in dotted lines, Fig. 1,) the said pointer co-operating with a suitable dial, D , having spaces corresponding in position with the different surfaces g , and distinguished by different characters, (shown in this instance as numerals,) although it is obvious that instead of these the signal, or an abbreviation therefor, may be used at each of the spaces. The shaft g^2 is also provided with suitable friction devices, (shown as a notched disk, i ,) co-operating with a yielding finger, i' , (see Fig. 5,) which causes it to be stopped and held with one of the surfaces g in the path of the spring e . The shaft may be provided with a ratchet, i^2 , and pawl i^3 , limiting its movement to one direction.

When the box is in operation, the main line L , entering at the binding-post 10, passes through the coils of the electro-magnet M of a signal, S , and is connected with the entire metallic mechanism of the box, including the wheel a and the drum g' , with its notched surfaces g , and the springs d and f are connected by wires 12 and 13 with the binding-post 14 and line leading out or away from the said station toward the next box or station on the line. Thus, while the shaft b is rotating, the circuit is, during a portion of the time, completed from the disk a to the spring d , permitting the current to pass, except when the notches of the said disk pass under the said spring, when the circuit is broken. At the time, however, when the long notch 2 of the disk a is passing under the spring d , the spring e is passing over one of the surfaces g , and thus opening and closing the circuit in accordance with the shape of the notches of the said surface, and thus producing a signal differing from the short breaks produced by the notches of the wheel a . All the said signals may be received and recorded upon a suitable instrument—such, for instance, as a self-starting register, (indicated at R , Fig. 4.) After the spring e has passed the surface g , the circuit remains closed between the spring d and disk A , the periphery of which is unnotched beyond the

notch 2, thus affording an opportunity for a current sent from the main office to pass through the magnet M , in order to operate the signal S . The armature of the said magnet M is mounted on a reed adapted to vibrate at a certain rate, and provided with a bell-hammer to strike the bell when the vibrations have reached sufficient amplitude. A single impulse of the magnet M will not, however, move the armature sufficiently to cause the bell to be struck, so that it will remain silent while the signals produced by the disk a and surface g are being sent.

The central office (see Fig. 4) is provided with a transmitting apparatus, T , of any usual construction, for sending a vibrating or intermittent current, its variations being in harmony with the vibrations of the reed carrying the armature of the magnet M . The said transmitter is thrown into the main line L by a key, K , which also closes the local circuit l of the magnets of the transmitter T , which is of well-known form and requires no description, as of itself it forms no part of the present invention. Thus after a signal is received at the main or central station the operator at the said station immediately depresses the key K , causing a pulsatory current to be transmitted, which will set the armature of the magnet M in vibration, thus notifying the sender at the box that the signal has been received. These parts for giving a return-signal or answer are not claimed in the present application, but will form the subject of another application for Letters Patent.

The crank or handle m , by which the box is set in operation, is mounted on a shaft, m' , which is partly rotated to wind the actuating-spring of motor c , by which the shaft b is rotated. When the said shaft m' is released, the spring turns it back and actuates the motor in the usual manner, the movement of the said crank and shaft m' being limited by suitable stops, and thus always remaining in the same position when the box is at rest.

I claim—

1. The break-wheel and its actuating-motor, and the contact-spring revolved by the said motor, combined with the multiple signal drum mounted on an axis substantially at right angles to that of the said contact-spring, and provided with a series of signaling-surfaces, each adapted to co-operate with the said contact-spring, substantially as and for the purpose described.

2. The break-wheel and contact-spring co-operating therewith, and adapted to leave the circuit open between them for an interval of time during its rotation, combined with the series of signaling-surfaces, any one of which is adapted to control the circuit and transmit one of a series of definite signals while the circuit is open at the break-wheel, substantially as described.

3. The actuating-motor and a contact-spring revolved thereby, combined with the multiple

signal drum mounted on an axis substantially at right angles to that of the said spring, and provided with a series of concave signaling-surfaces and means to move the said drum, 5 whereby any desired one of the said surfaces may be placed in the path of the said contact-spring to co-operate therewith, substantially as described.

4. The actuating-motor and a contact-spring 10 moved thereby, combined with the multiple signal drum mounted on an axis substantially at right angles to that of the said spring, and provided with a series of concave signaling-surfaces, and a pointer and dial co-operating

with the said drum, whereby they may be 15 moved to present any desired one of the said surfaces to the said spring, in order to send a signal corresponding with the one then indicated by the pointer on the dial, substantially as described. 20

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN CORNELIUS WILSON.

Witnesses:

JOS. P. LIVERMORE,
W. H. SIGSTON.