(No Model.)

C. LAMBDIN.

ELECTRIC SIGNAL SYSTEM.

No. 360,025. Patented Mar. 29, 1887.

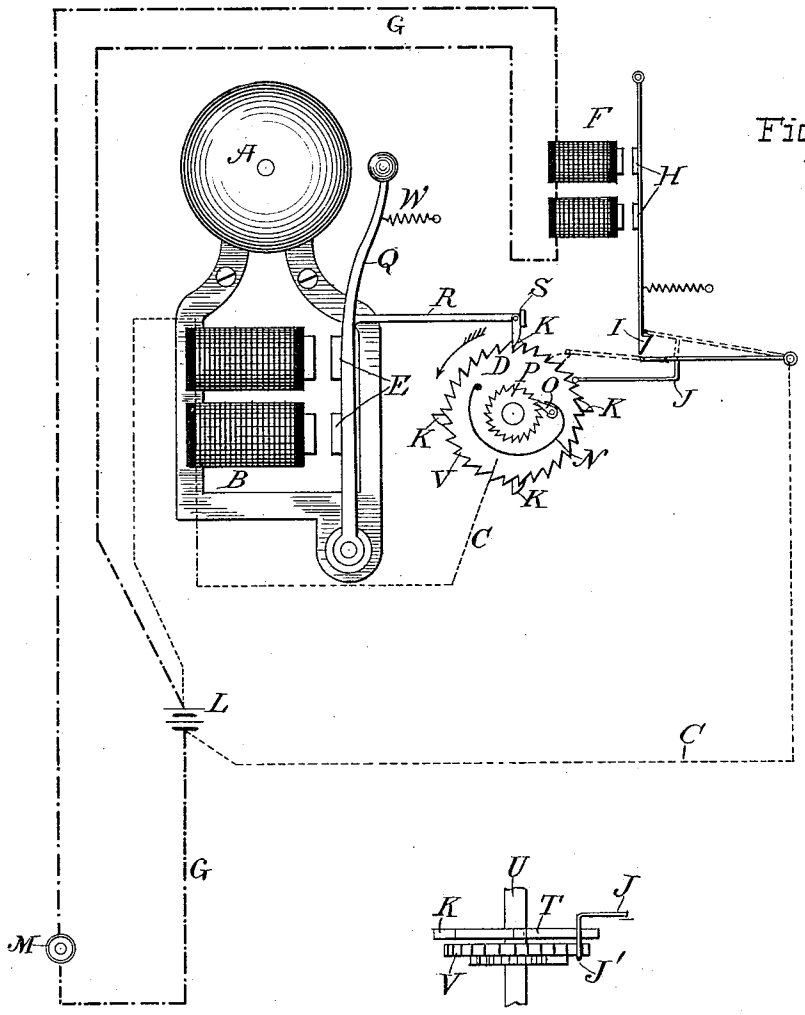

Fig. 1.

Fig. 2.

ATTEST:

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UNITED STATES PATENT OFFICE.

CARVOSSO LAMBDIN, OF WILMINGTON, NORTH CAROLINA.

ELECTRIC SIGNAL SYSTEM.

SPECIFICATION forming part of Letters Patent No. 360,025, dated March 29, 1887.

Application filed August 23, 1886. Serial No. 211,668. (No model.)

To all whom it may concern:

Be it known that I, CARVOSSO LAMBDIN, a citizen of the United States, and a resident of Wilmington, in the county of New Hanover and State of North Carolina, have invented certain new and useful Improvements in Electric Signal Systems, described, claimed, and shown in the following specification, claims, and drawings.

The invention relates to a device for giving signals, and may be employed in telephony, in hotel signal systems, in fire-alarm systems, the push-button being replaced by a thermostat, or in any similar departments of electrical engineering.

The invention consists of the combination of elements, as hereinafter more fully and accurately described and claimed.

In order to illustrate the practical manner of carrying out the invention, and to enable others skilled in the art to which the invention appertains to make and use the same, drawings are hereunto annexed and described, in which similar letters represent corresponding elements, and in which each part referred to is designated by a single character.

Figure 1 shows a view, partly in diagram, of the circuits and electro-magnetic devices. The main circuit is distinguished by alternate heavy dashes and dots, while the local circuit is represented by fine short dashes. Fig. 2 shows a detail view.

By the term "gear" and its derivatives is to be understood the idea of an operating connection, whether by toothed wheels, by levers, by ratchets and pawls, or by any similar means usually employed for communicating or checking motion.

The system consists of the combination of an electric bell, A, or similar signal, whose operating-magnet B is in a local circuit, C, a ratchet-wheel, D, geared to the armature E of said magnet, a second magnet, F, in a main circuit, G, containing a magnet, F, an armature, H, therefor, having operating connection by means of a catch, I, with a drop, J, or circuit-closer, said circuit-closer gearing into said ratchet-wheel, and projections K, additional to the teeth of said wheel gearing with said drop by means of the extensions J′, (see Fig. 2,) but not with the armature of the first magnet, said projections having a rigid connection with said ratchet-wheel.

There is but one battery, L, from the poles of which pass both the main circuit and the local circuit, so called because located at the operating-instruments themselves, while the main circuit is supposed to extend to a distant station, where there is a circuit-closer—such as a push-button, M. Strictly speaking, they are branch circuits to each other.

The ratchet-wheel is provided with the usual spring, N, pawl O, and ratchet-wheel P, to prevent motion of wheel D in but one direction, the direction of motion being indicated by an arrow.

The one circuit, G, passes from the battery to the push-button M, through the magnet F, and back to the battery L. The other circuit passes from the same battery, through the bell-magnet B, through the ratchet-wheel D, through the drop J, normally open, as shown dotted, and back to the battery, the said ratchet-wheel being of electrical conducting material.

The vibrator or gong-lever Q, which carries armature E, is pivoted at its lower end, and has a projection, R, provided with a pawl, S, which gears into the ratchet-wheel D. Referring particularly to Fig. 2, which is a top view, principally, of the ratchet-wheel D, the additional projections K, above referred to, may be seen. They project from a wheel, T, located rigidly upon the same axle U as that of the ratchet-wheel D. The said projections K are longer than the teeth V of the ratchet-wheel. There may be but one of the projections, or there may be several, according to the nature of the signal to be given; but there should not be a greater number than there are teeth upon the ratchet-wheel. The wheel shown has four.

When the push-button M, normally open and of ordinary internal construction, is operated so as to close the circuit G, the magnet F attracts the armature H and releases the drop J, as shown in full lines. The extension J′ of this drop falls upon the ratchet-wheel D and closes the circuit C, which passes through the magnet B, so as to attract the armature E. This attraction causes the bell to ring and simultaneously rotates the wheel. The cir-

cuit C thereby becomes broken at the extension J'. The armature E and ratchet S are pulled back by the retractile spring W. The circuit is again closed at the extension J', which falls upon the next tooth in order. The bell again rings, the wheel again rotates, and the circuit C is again broken and again closed, and so on until one of the projections K comes against the extension J' and replaces the drop J upon the catch I. Successive pushes of the button would sound the bell the same number of times, the projections K being equally distant upon the circumference of the wheel T. The momentum of the part Q is sufficient to carry the wheel D the distance of one tooth, although the circuit at the point J' is only momentarily broken.

The invention is not limited to the precise construction hereinbefore described and shown, as it is evident that many modifications may be made therein without departing from the spirit of the invention. It is evident that the projections K need not be equally spaced; also, that the drop J may serve as a shutter or visual signal of an annunciator. When in its lower position, it would indicate a call from the person at the push-button M.

Having now stated the title, object, and nature of the said invention, having described its practical realization by reference to the accompanying drawings, and having particularly ascertained the manner in which the same operates to accomplish the said object, what I consider to be novel and original, and therefore claim as my invention, is—

1. In an electric signal system, the combination of a main circuit and local circuit, both normally open, the said main circuit being provided with a circuit-closer and electro-magnet, the local circuit including a bell-magnet, a make-and-break wheel geared to the bell-magnet armature or striker, a circuit-closer normally restrained by the armature of the main-circuit magnet and making contact when tripped with the make-and-break wheel, and a device connected with said wheel for automatically resetting the circuit-closer and thereby breaking the local circuit at the termination of the signal, substantially as and for the purposes set forth.

2. In an electric signal system, the combination of a main or signaling circuit and a local or receiving circuit, both normally open and containing but one battery, an annunciator included in the local circuit, a normally-restrained circuit-closer for said latter circuit, and an electro-magnet included in the main circuit for tripping said circuit-closer, substantially as and for the purposes set forth.

3. In an electric signal system, the combination of a main or signaling circuit and a local or receiving circuit, both normally open and containing but one battery, an annunciator included in the local circuit, a normally-restrained circuit-closer for said circuit, an electro-magnet included in the main circuit for tripping said circuit-closer, and a resetting device for the circuit-closer, operated by and connected with the annunciator mechanism, substantially as and for the purposes set forth.

4. In an electric signal system, the combination of a main and local circuit, the former containing a push-button and magnet and the latter a combined drop, and a circuit-closer having operating connection with the armature of said magnet and gearing into a ratchet-wheel which is geared to an electro-magnetic rotating and alarm or signal device located in said local circuit, said rotating device being provided with an automatic local-circuit breaker, substantially as and for the purpose described.

5. In an electric signal system, the combination of a main circuit containing an electro-magnet, a local circuit containing an electric bell, and a ratcheted make-and-break wheel having an actuating pawl connected with the bell hammer or armature, a circuit-closer normally restrained by the main-circuit magnet, but adapted to rest upon the ratchet-wheel when tripped, and a second wheel connected with the ratchet-wheel axle and provided with fewer teeth than said ratchet-wheel for raising and resetting the circuit-closer drop, substantially as and for the purposes set forth.

Witness my signature this 3d day of August, 1886.

CARVOSSO LAMBDIN.

Witnesses:
W. R. SHAW,
WM. L. SMITH, Jr.