

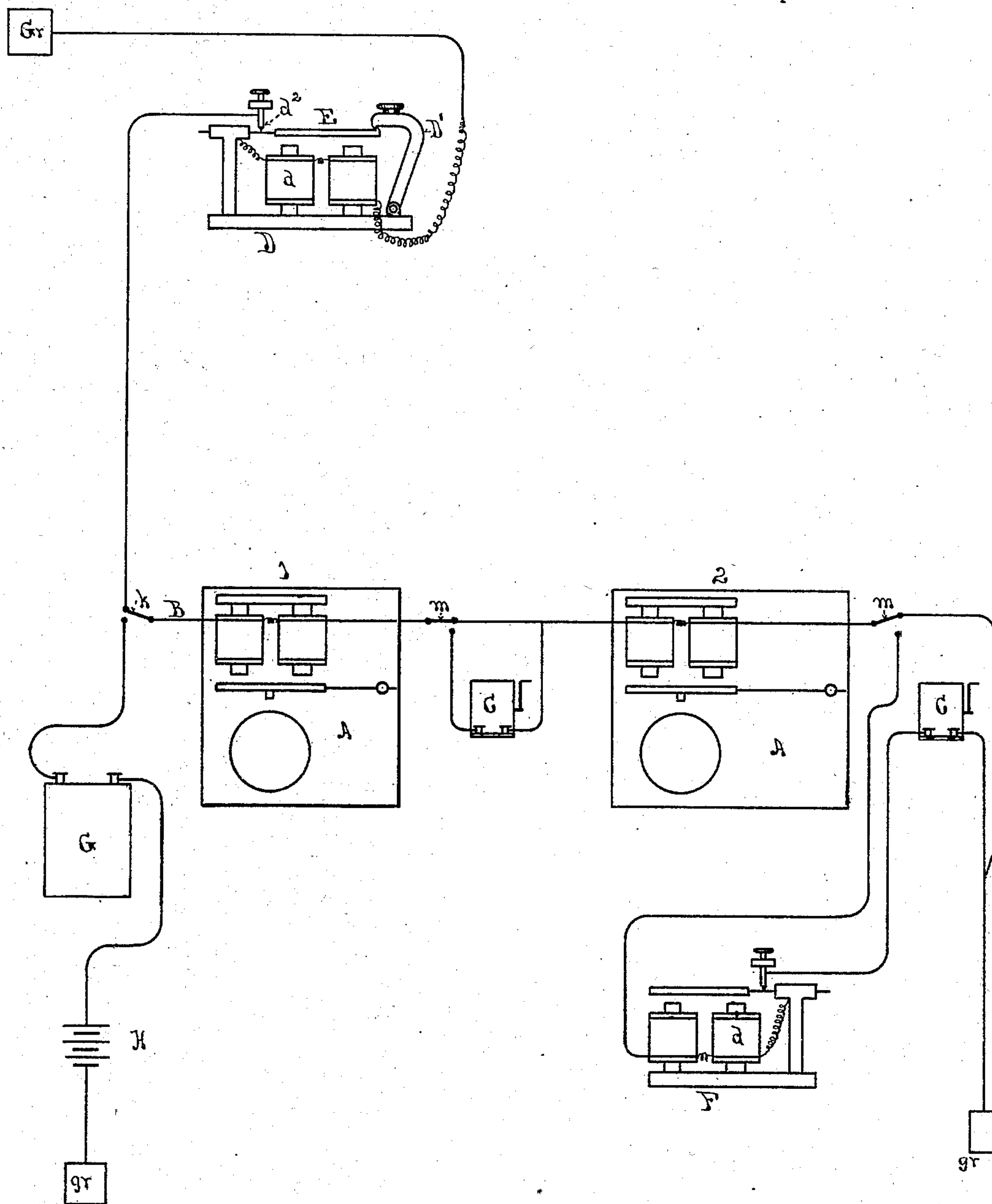
(No Model.)

D. H. & L. C. RICE.

SIGNALING ON ELECTRIC CIRCUITS.

No. 255,814.

Patented Apr. 4, 1882.



Witnesses

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UNITED STATES PATENT OFFICE.

DAVID HALL RICE AND LEPINE C. RICE, OF LOWELL, MASS., ASSIGNORS TO
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SIGNALING ON ELECTRIC CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 255,814, dated April 4, 1882.

Application filed November 14, 1881. (No model.)

To all whom it may concern:

Be it known that we, DAVID HALL RICE and LEPINE C. RICE, both of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Signaling on Electric Circuits and Mechanism therefor, of which the following is a specification.

Our invention relates to circuits on which call-bells like those described in Patent No. 246,374 are used, and on which it is also desirable to use magnetic or electric generators of the ordinary forms of construction. When a magnetic generator of ordinary construction is connected with a line having call-bells with vibrating strikers like those described in said patent, and put into operation, it is found that the undulatory current produced is liable to operate some of the strikers, because its undulations may sometimes follow one another at regular intervals for a sufficient period to accelerate the movement of the vibrating strikers, which strike the bell until the bell will be acted upon.

The objects of our invention are to provide a mechanism which will so divide the undulatory current produced by a magneto-machine as to prevent the undulations from influencing the vibrating strikers of bells like those described in Patent No. 246,374, and to provide such a mechanism as will, while so subdividing the electric or magnetic current, actuate the ordinary drop-button annunciator used at the central office. We accomplish these objects by the mechanism shown in the accompanying illustration, in which the figure shows an electric circuit provided with our improvement.

A A are call-bell mechanisms like those described in Patent No. 246,374, placed at different stations 1 2 on line B.

C C are magnetos, one placed at each station, to enable the person at such station to signal the central office.

D is the drop-button mechanism at the central office, provided with a spring-vibrating armature, E.

F is a vibrator placed at one of the out-stations to make and break the current created by the magneto.

G is a caller similar to those described in said patent to make and break the battery-circuit.

H is the battery.

k is a switch by which the out-line is connected with the battery or the drop-button, as may be desired.

m m are switches, by means of which the magneto at any particular station can be put into the line-circuit.

The operation of our device is thus described: When a person at any station wishes to signal the central office he moves his switch m at his station so as to bring his magneto into circuit, when, by turning the crank of his magneto, a series of electrical impulses are communicated to the line, which, affecting the electro-magnet d at the central office, causes it to attract the armature E, when the drop-button D will fall, while by the same attraction the armature will be moved away from the contact-point d², to which the line B connects, and the circuit will therefore be broken, when, the electro-magnet d ceasing to longer attract the armature, it will be moved back by its spring until the contact-point d² is brought into contact with the armature or the spring portion thereof, when a second attraction of the armature will take place and another break will be made in the circuit. This action will be repeated so long as the magneto is in action at the station signaling the office. The length and strength of the spring and weight of the armature E are different from those of any of the spring bell-strikers at any station on the line, so that no pulsations or undulations can be made to pass over the line which will vibrate the spring-striker at any station.

The vibrator, as well as being placed at the central office, may be placed at the station, as shown at station 2, so that when the magneto of the station is brought into the circuit the vibrator will be also. If the vibrator be placed at the station, as last described, the usual well-known drop-button mechanism now in use can be used, it being only necessary to provide at some point on the circuit when the magneto is in use a vibrator which will divide the current into separate impulses of such frequency as will not substantially correspond

to the time of vibration of any of the spring-
strickers of the call-bells upon the line. When
the operator sees the drop-button fall he
switches his telephone into connection and
5 answers the person calling him. Whenever
the operator desires to call any station on the
line he changes the switch *k*, so as to bring the
battery and caller into the line-circuit, and
calls the particular station he desires in the
10 manner described in said Patent No. 246,374.

When a vibrating circuit-breaker is placed
at the station, as shown at station 2, it need
not be made to vibrate in a different period of
time from the striker of the bell at that sta-
15 tion, as it is immaterial whether a person call-
ing the central office rings his own bell or not,
provided he does not ring the call-bells at any
other stations.

If so desired, the vibrating armature *E* at
20 the central office may be made to strike a bell
and sound an alarm by placing such bell within
the range of its largest vibration.

What we claim as new and of our invention
is—

1. The combination of a circuit having one 25
or more call-bells provided with vibrating strik-
ers having different periods of vibration with
a vibrating circuit-breaker which automati-
cally makes and breaks the electric current
passing over the circuit in an interval of time 30
substantially different from that of any vibrat-
ing striker upon the line.

2. The combination of an electric or mag-
netic circuit having a magnetic generator
placed at one station thereon and a magnet 35
and vibrating striker placed at another sta-
tion thereon with an automatic vibrator which
makes and breaks the current with each vi-
bration and vibrates in a period of time dif-
ferent from that of the striker, substantially 40
as described.

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