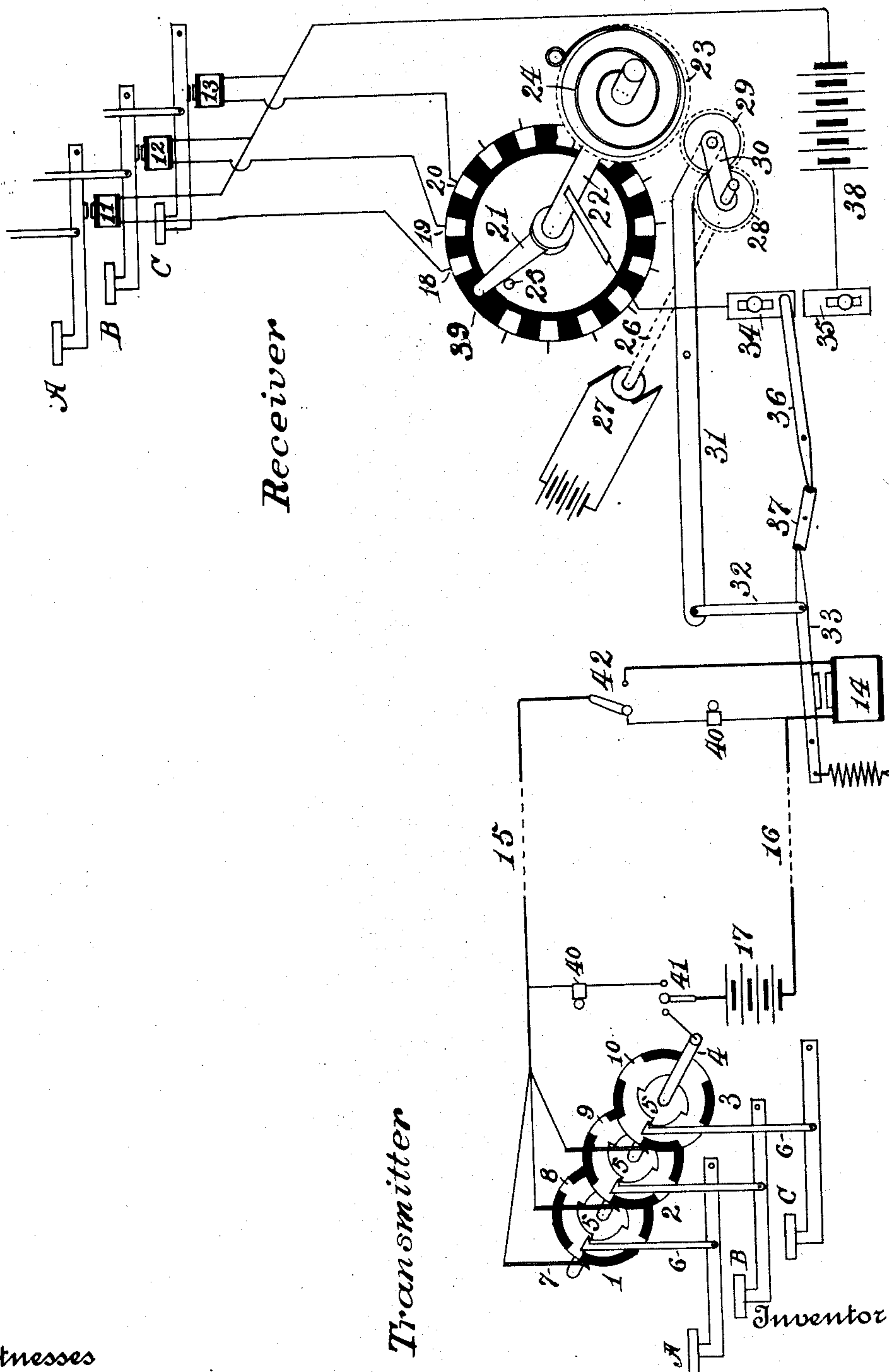


No. 875,660.

PATENTED DEC. 31, 1907.

F. J. HAIG.
PRINTING TELEGRAPH.
APPLICATION FILED AUG. 30, 1908.



Witnesses

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Transmitter

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UNITED STATES PATENT OFFICE.

FREDERICK J. HAIG, OF HYATTSVILLE, MARYLAND.

PRINTING-TELEGRAPH.

No. 875,660.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed August 30, 1906. Serial No. 332,578.

To all whom it may concern:

Be it known that I, FREDERICK J. HAIG, a citizen of the United States, residing at Hyattsville, in the county of Prince George and State of Maryland, have invented a new and useful Improvement in Printing-Telegraphs, of which the following is a specification.

This invention relates to an improvement in printing telegraphs and particularly to that class of printing telegraphs in which the transmitter and receiver closely resemble in structure and in operation the commercial typewriting machines.

The objects of this invention are to simplify the structure of the receiver and of the system in which it is used and to render the operation thereof accurate and certain.

To that end, the invention consists in the structure and combination of parts substantially as herein set forth and claimed.

In the accompanying drawing which forms a part of this specification, the invention is graphically represented, many of the parts being conventionally typified.

This system operates on a code consisting of "dashes" or impulses of varying lengths, each character being represented by a single impulse. For example A is represented by an impulse of a certain length, B by a longer impulse and C by one still longer, and so on. The transmitter sends these impulses by the simple depression of the respective keys and sends them over a single circuit to the receiver in which a selector acts to direct each impulse to the respective key of the typewriting machine there used to print the characters in response to the transmitter.

At the left in the drawing, a transmitter having a bank of keys similar to those of a commercial typewriter is typified by three key levers, which may be the A, B and C keys of the instrument. Character wheels corresponding to these keys are represented at 1, 2 and 3 on shaft 4 and by the side of each is a ratchet wheel 5 with which engages a pawl 6 attached to its respective key lever for the rotation of the character wheel. These character wheels may be of any desired construction. They are here represented as metal disks with strips of insulation set into the periphery whereby there are provided one or

more separated contact surfaces for cooperation with suitable brushes or contacts 7. These contact surfaces are of different lengths in the different wheels as seen at 8, 9 and 10 respectively. The character wheels are idle on shaft 4 and current may be conveyed thereto through said shaft as indicated.

At the right in the drawing, is represented the receiver, the printing portion of which is typified by three levers, those of keys A, B and C, for instance, of a commercial typewriter. These levers, or their typebars, are operated, respectively, by magnets indicated at 11, 12 and 13.

The selector is an oscillating one and makes circuit to the desired printing magnet during the return stroke. It is controlled by a magnet 14 energized over line circuit 15—16 from the source of current indicated by 17 at the transmitter. In the form of selector shown, a ring of contacts as 18, 19, and 20 is provided over which travels a brush or spring contact finger 21. This contact is mounted on a shaft 22 which carries a gear wheel 23 and has a spring 24 for returning the finger to its initial position against stop 25. This gear wheel and contact may be set into rotation by any suitable power driven clutch. One form of such clutch is typified, of which the power shaft is indicated at 26 as driven by an electric motor 27. On this shaft is a gear 28 in mesh with an idle gear 29 mounted in an arm 30 hinged on the shaft. Connected to the idle gear 29 is a lever 31 which is joined by link 32 to the armature lever 33 of magnet 14. Lever 33, in addition to controlling the clutch, operates also the circuit controller acting in conjunction with the contact finger 21. This controller is represented as consisting of two adjacent adjustable contact plates 34 and 35, from one to the other of which the contact lever 36 passes when magnet 14 is energized or deenergized. An oscillating lever 37 transmits motion from armature lever 33 to contact lever 36 and is employed to give the desired amplitude of movement to said contact lever.

The source of current for the printing magnet is indicated at 38 and from it a wire leads to the bus-wire to which said magnets are connected. From each of these magnets a

wire leads to a contact plate of the selector, only three being here shown and they lead to contact plates 18, 19 and 20. From the shaft 22 connection is made with contact 34 while contact 35 is connected directly with battery 38.

Operation of the transmitter is effected by simply depressing a key, for instance key A, when pawl 6, in engagement with ratchet 5, rotates wheel 1 so that one of the contacts 8 will pass under brush 7 and current will flow to the receiver during that interval. Operation of the receiver is effected by this current, which draws down armature lever 33, thereby coupling the constantly operating power clutch to the gear 23 and rotating the contact finger 21, against the tension of spring 24 and placing it upon the contact plate 18 in circuit connection with magnet 11 whereby the printing of A is to be effected. The same movement of armature lever 33 throws contact lever 36 across the gap between contact plates 34 and 35 and before contact finger 21 leaves its initial spot of insulation 39. So soon as circuit is broken at the transmitter by the passage of contact 1 from under brush 7, armature lever 33 makes its back stroke and disengages the power clutch, thereby allowing contact finger 21 to start back under action of spring 24, and also throws contact lever 36 across the gap between plates 34 and 35. In the transition of this lever across said gap the printing circuit is completed, magnet 11 energized and the type controlled thereby operated. If finger 21 has contact plates to pass on its return from that selected, as would be the case with all but the first character, it can not complete any of the other printing circuits because of the break formed between plates 34 and 35 by the recession of lever 36 before said finger reaches any other of said contact plates. The initial crossing of said lever is also completed before finger 21 reaches the first contact plate thereby leaving the circuit open during the passage of the finger to the desired position.

A calling or signaling system of any suitable sort may be used between transmitting and receiving stations. A simple call system is here indicated. A bell or buzzer 40 may be located at each station and each provided with a switch as 41 and 42.

When a message is to be sent switch 41 which normally stands open is thrown to the bell circuit and current flows through both bells, switch 42 standing normally on the bell circuit. When the operator at the receiver is throwing switch 42 over to the circuit of magnet 14 the transmitter bell stops, then the operator at the transmitter throws switch 41 to line and sends his message as he would operate a type writer. By leaving switch 42 to line a message may be sent without calling

and received without the presence of an operator at the receiver.

The invention claimed is:—

1. In a telegraph receiver, the combination of a contact-maker for closing circuit to character-actuating magnets, means for actuating said contact-maker, a motor, a clutch for coupling the motor to said actuating means, a switch for making and breaking the main circuit of said magnets and means for simultaneously operating the said clutch and said switch. 65
2. In a telegraph receiver, the combination of a spring-returned contact-maker, a series of contacts connected to character-actuating magnets, means for giving to the contact-maker its advance movement, a switch in the main circuit of said magnets, and means for closing said switch only during the period that said contact-maker is on the last contact reached in its advance movement. 75
3. In a telegraph receiver, the combination of a circuit selector, character actuating magnets connected thereto, a main circuit branching to said magnets, a switch in said main circuit, and means for permitting the selector to return to zero and also by the same actuation closing said switch and closing it only during the period that said selector closes the last circuit reached by it in its advance movement. 85
4. In a telegraph receiver, the combination of a contact-maker returnable to zero after each actuation, a series of contacts over which it passes connected respectively to character-actuating magnets, a main circuit branching to said magnets, means for actuating the contact-maker, a motor, means for completing said main circuit only during the period that said contact is returning over the farthest contact reached by it, and a magnet controlled from a transmitter for simultaneously coupling the motor to the contact-actuating means and operating the means for completing said main circuit. 95
5. In a telegraph receiver, the combination of a series of character-actuating magnets, a selector for said magnets, a circuit controller in the main line of the printing circuit containing said magnets, a power clutch, a motor driving said clutch, and means for simultaneously engaging the clutch with the selector shaft and for operating the circuit controller. 100
6. In a telegraph receiver, the combination of printing magnets, a selector for completing the circuit thereto individually, means for operating the selector, a circuit controller in the main line of the printing circuit, and means for simultaneously controlling the operation both of the selector and the circuit controller. 105

7. The combination of a series of electro
magnets, a current selector therefor, a circuit
controller common to said magnets and inde-
pendent of the selector, mechanism for driv-
5 ing the selector forward, and means for con-
trolling said mechanism and for maintaining
the common circuit open at the controller
during the forward movement of the selector
and for actuating the controller to make and
10 break said common circuit while the circuit

at the selector is closed at the beginning of
the return movement thereof.

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

FREDERICK J. HAIG.

Witnesses:

GERTRUDE MANNING,
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