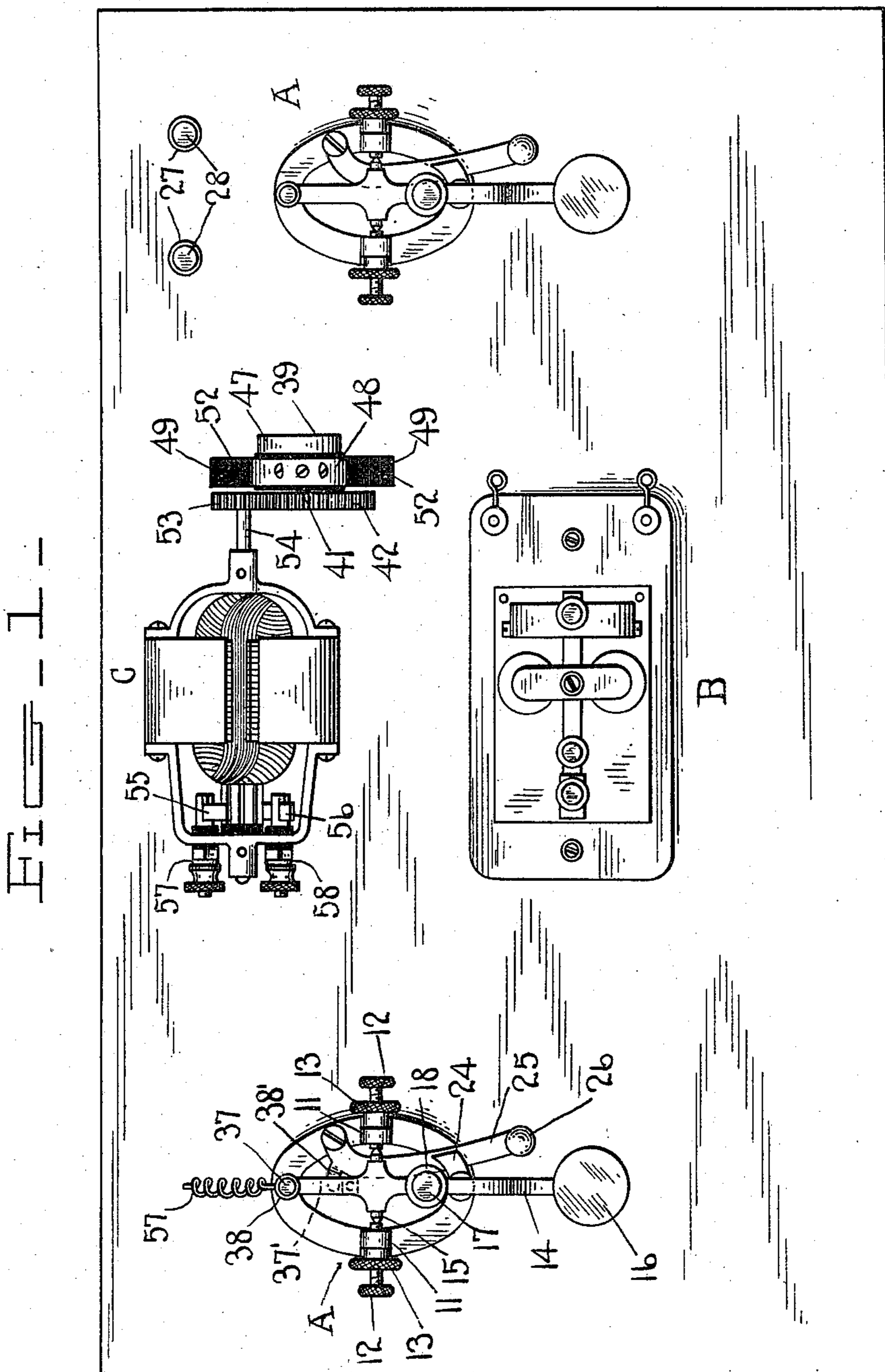


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TELEGRAPH INSTRUMENT.
APPLICATION FILED MAY 12, 1909.

965,417.

Patented July 26, 1910.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

FIG. 4

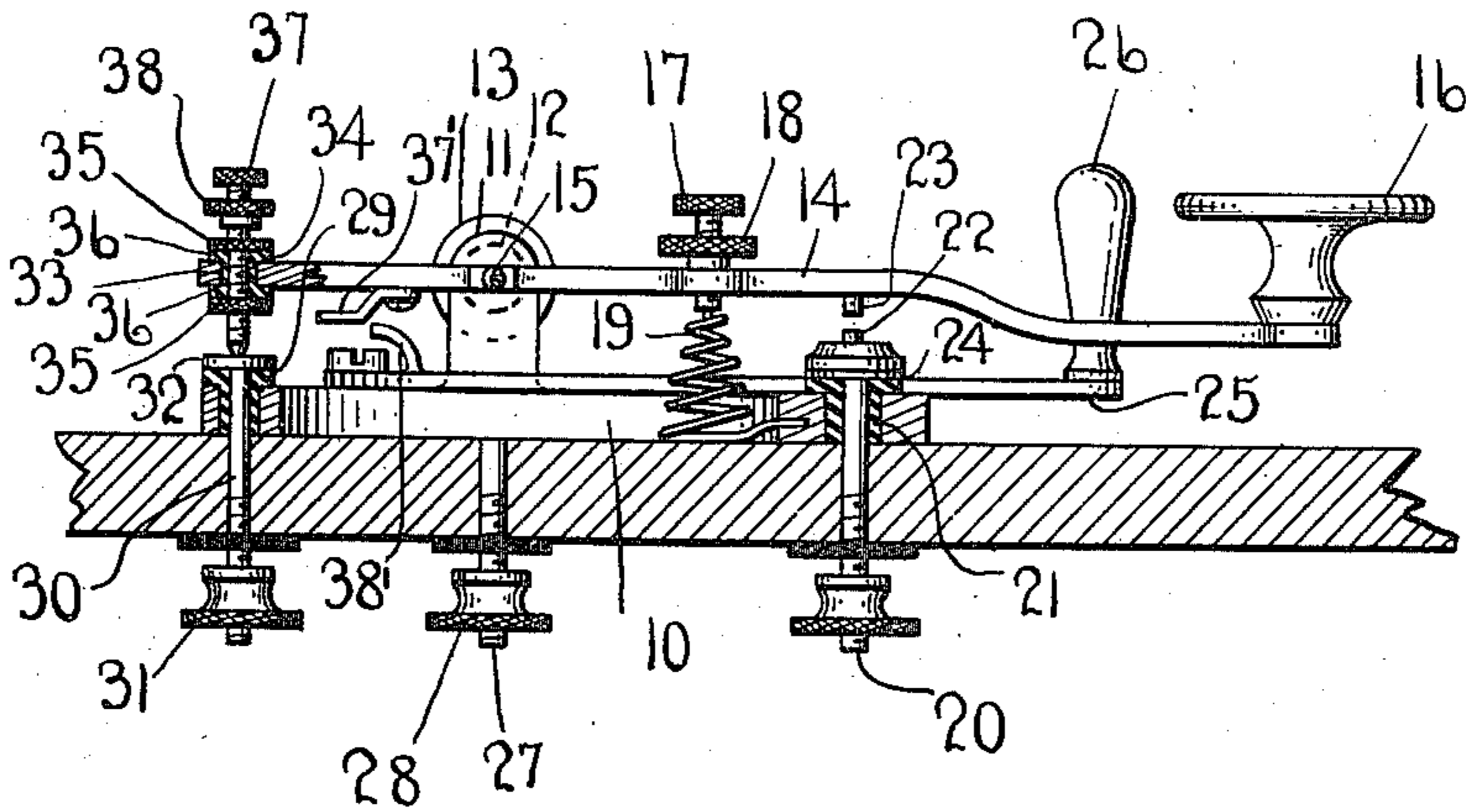
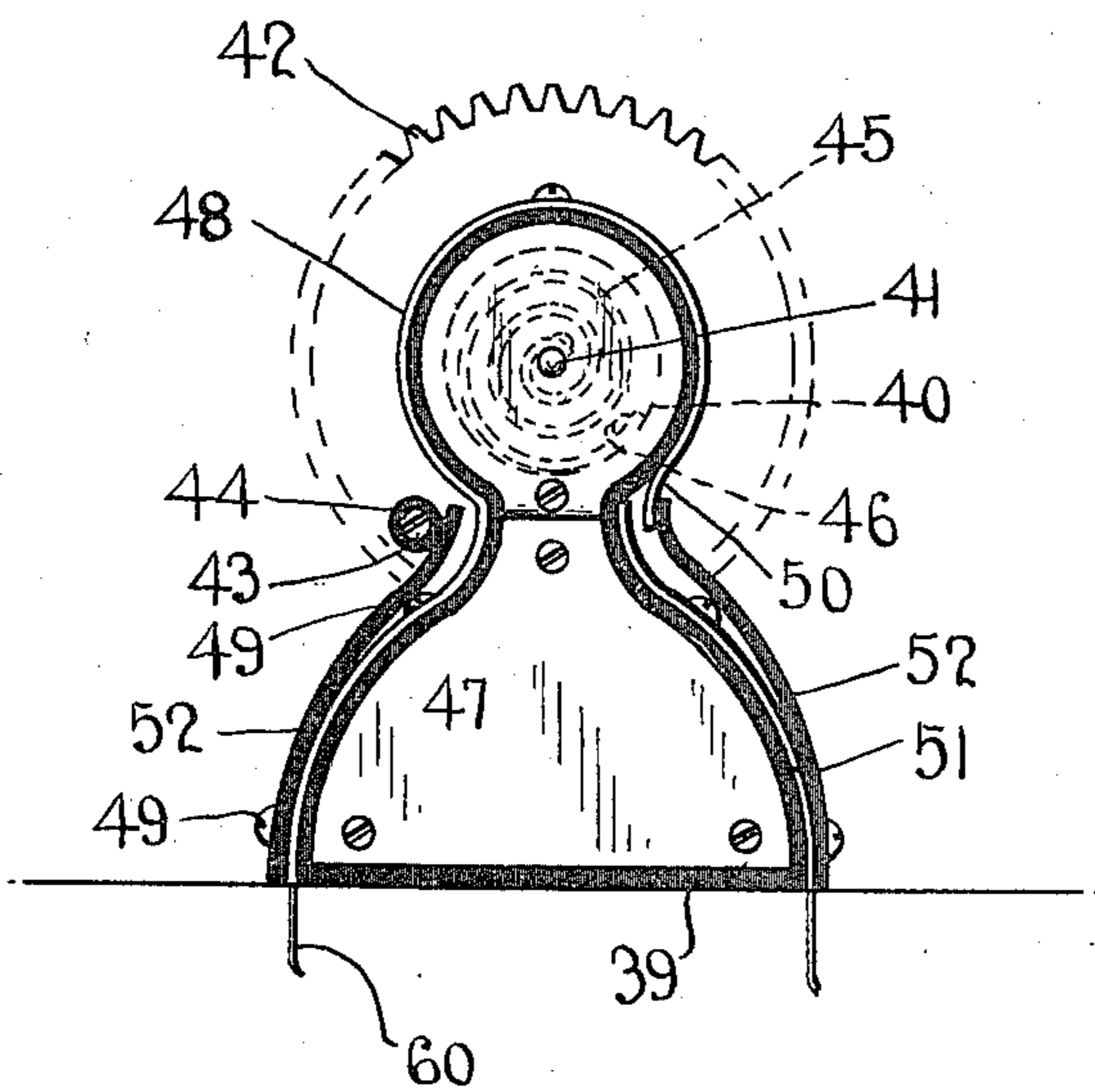


FIG. 2



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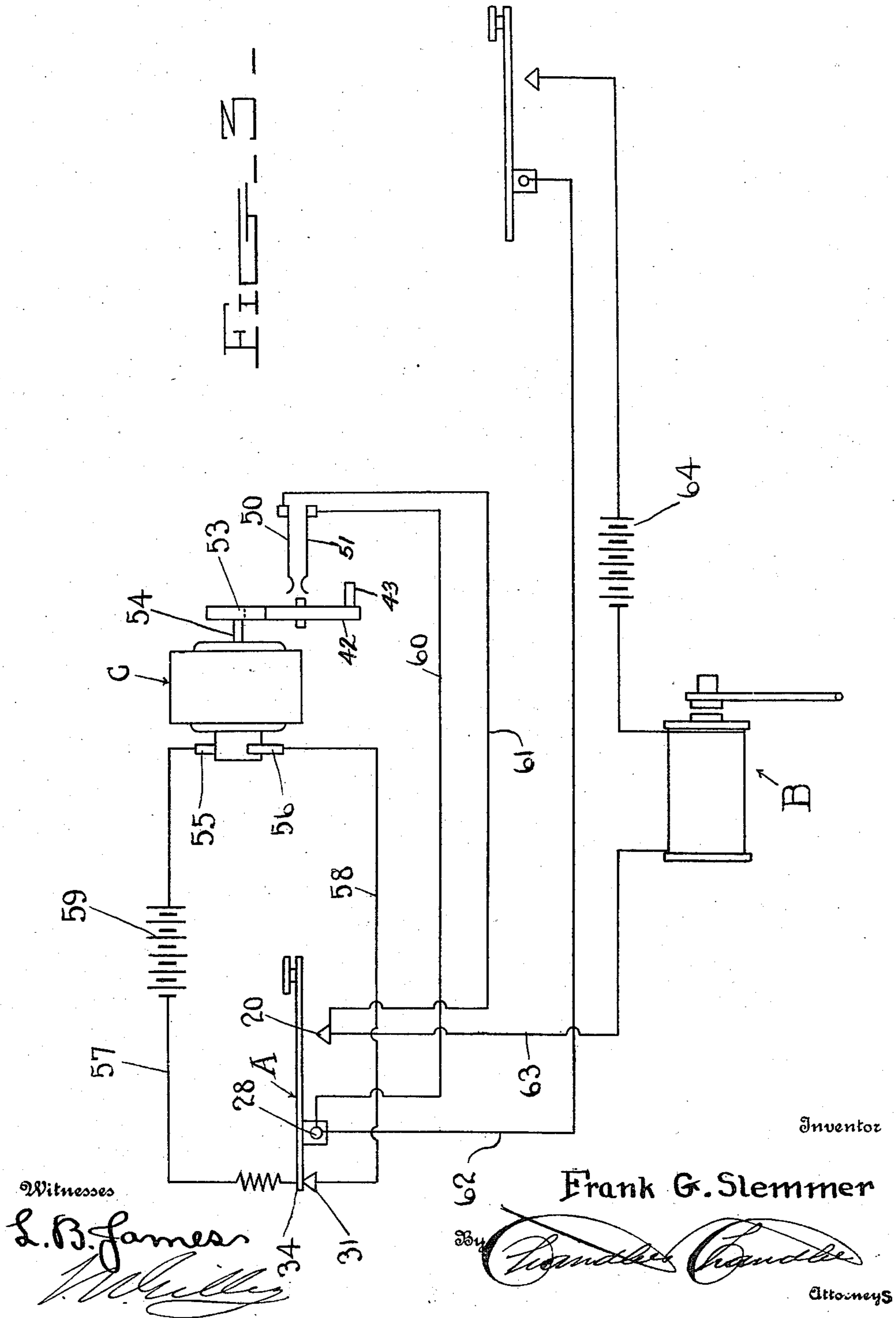
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

FRANK G. SLEMMER, OF GOLDSBORO, MARYLAND.

TELEGRAPH INSTRUMENT.

965,417.

Specification of Letters Patent.

Patented July 26, 1910.

Application filed May 12, 1909. Serial No. 495,446.

To all whom it may concern:

Be it known that I, FRANK G. SLEMMER, a citizen of the United States, residing at Goldsboro, in the county of Caroline, State of Maryland, have invented certain new and useful Improvements in Telegraph Instruments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to telegraphy and has special reference to a novel form of telegraph instrument embracing an improved form of key and auxiliary circuit closer.

One object of the invention is to provide an improved general construction of devices of this character.

A second object of the invention is to provide an improved form of auxiliary circuit closer adapted to be operated by a circuit made through the key when the latter is left open.

A third object of the invention is to provide an improved form of key adapted to be utilized with a second closer.

With the above and other objects in view the invention consists in general of an improved form of key and an improved circuit closer actuated thereby.

The invention further consists in certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically set forth in the claims.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and:—Figure 1 is a top plan view of a set of instruments as constructed in accordance with this invention. Fig. 2 is a side elevation of the circuit breaker used with this invention. Fig. 3 is a diagrammatic view of such a set of instruments as wired up. Fig. 4 is a longitudinal sectional view through the improved form of key.

In the instrument set herein disclosed there is shown a key, a sounder, and the improved form of circuit breaker, these parts being designated in general by the letters A, B and C respectively. It is to be noted that no relay is shown in this arrangement but from what follows it will be obvious that a relay may be employed with this as in the ordinary long distance circuit.

Considering first the novel form of key

used with this invention. This key is provided with a base 10 of any preferred form and this base 10 has opposed upstanding lugs 11 wherethrough pass the usual trunnion screws 12 equipped with lock screws 13. At 14 is a key lever provided with the usual trunnions 15 and knob 16. This key lever is further provided with an adjusting screw 17 and lock nut 18 whereon is supported one end of a coil spring 19, the other end bearing on the base to which the device is attached and the end of the coil spring is received in a suitable aperture made in the key base 10. At the front of the base is provided the ordinary binding screw 20 held to contact with the base by insulation 21 and provided with a contact point 22. Upon the key lever is a contact point 23 which is adapted to strike the contact point 22 when the key lever is depressed. Secured beneath the fixed head of the binding screw 20 is the usual spring contact strip 24 and pivotally mounted on the frame 10 is a contact arm 25 which is so arranged as to be readily swung beneath the contact strip 24 by means of a handle 26.

The parts so far described are those common to the ordinary telegraph key but the key of the present invention is distinguished therefrom in certain particulars now to be described.

Fixed upon the frame 10 and preferably projecting downward therefrom is a post 27 which is threaded at the lower end and provided with a binding nut 28. Held in the rear end of the frame 10 is an insulating bushing 29 and passing through this bushing is a post 30 threaded at its lower end and provided with a binding screw 31. The post 30 further has an enlarged head 32 so that the construction at this end of the frame is somewhat similar to the construction at the front end thereof. Held in a suitable insulating bushing 33 at the rear end of the key lever is a screw 34 provided on each side of the bushing with locking screws 35 which serve to hold in position insulating washers 36. This screw is provided with a head 37 by means of which it may be adjusted through the end of the key lever and below the head 37 is mounted on the screw a binding nut 38. Secured to the under side of the key lever between the trunnions 15 and the rear end thereof is a cam member 37' and formed upon the bar 25 is a projecting member 38' which is so arranged that when the key is

closed by the bar being brought between the contact plate 24 and the frame 10 the member 38' will strike against the member 37' and raise the rear end of the key lever so
 5 that simultaneous with the closing of the key the lower end of the screw 34 will be lifted from the head 32 of the screw 30.

Turning now to the specific form of circuit closer used with this device 39 indicates
 10 a standard of hard wood which is provided at its upper end with a circular recess 40. Through this standard projects a shaft 41 whereon is fixedly mounted a gear 42 provided with a pin or screw 43 projecting laterally therefrom, said pin being surrounded by suitable insulation 44. This pin projects
 15 so that it will strike the standard 39 and limit the movement of the gear wheel 42. Secured to the shaft within the recess 40 is a coil spring 45 and the other end of this coil spring is secured to the side of the recess 40 as indicated at 46. A cover plate 47 closes
 20 in the recess so that the spring cannot escape therefrom and this cover plate may be made in such manner as to receive the spring in an off set portion thereof if desired. Extending upward and around the standard 39 is a contact plate 48 which has its lower end
 25 securely fixed to the standard by means of suitable screws 49 and the free end of this contact plate is spaced from the standard as clearly indicated at 50. Secured upon the other side of the standard is a similar contact plate 51 similarly secured and the end
 30 of this latter plate is arranged to lie beneath and in spaced relation to the end 50 of the former contact plate. Mounted outside of these contact plates are strips of rubber or the like which are used both for insulation
 40 and for the purposes of buffers and these strips are indicated at 52. The end of each of the contact springs or plates 48 and 51 have certain wires soldered thereto which will be hereinafter described. Meshing with
 45 the gear 42 is a gear 53 which is carried on the shaft 54 of a motor C and this motor is provided with brushes 55 and 56.

The sounder or relay used with this invention is of any preferred type and is
 50 simply shown here in a typical manner as the form of this sounder or relay does not constitute any part of this invention.

Considering now the wiring. The binding nut 38 engages a wire 57 which leads
 55 from said binding nut to the brush 55 of the motor. The binding nut 31 engages a wire 58 which leads from that binding nut to the brush 56 of the motor. A battery 59 is located between one of these brushes and the binding nut in order to supply a suitable
 60 source of power. From the binding nut 28 is led a wire 60 which runs to the contact spring or plate 48 and from the binding screw 20 extends a wire 61 which runs to the
 65 contact spring or plate 50. Attached also

to the binding nut 28 is a wire 62 which forms one of the line wires and to the binding screw 20 is attached a wire 63 which passes through the sounder or relay B and thence through a battery 64 to form the
 70 second line wire. It is obvious that either of the line wires may be grounded so that the device may work on a single wire system as is common in telegraphy.

The gear 53 is relatively small when compared with the gear 42 so that it requires a
 75 considerable number of revolutions of the gear 53 to revolve the gear 42 once and the circuit closing post 43 is thus caused to move around in a relatively slow manner. Furthermore the post 43 has considerable lost
 80 motion before it comes in contact with the member 52 to bring the member 50 into contact with the member 51. Now so long as the key is closed the screw 34 will not touch
 85 the head 32 and consequently no circuit will pass through the wires 57 and 58 and the motor C. As soon, however, as the key is opened the spring 19 acts to bring the screw 34 in contact with the head 32 so that circuit
 90 is established from the battery 59 through the wire 57, screw 34, screw 30, wire 58, motor C and back to the battery. If this circuit is allowed to remain closed for a considerable period of time the post 43 will be
 95 moved around and close the end 50 of the contact spring 48 against the contact member 51. When this occurs the line circuit will be closed so that if the key is accidentally left open this circuit will still be closed.
 100 If the key is in use the post 43 will not be moved around to close the circuit for the reason that the momentary closing of the circuit embracing the motor will only suffice to move the post 43 a slight distance and as
 105 soon as this circuit embracing the motor is again opened the spring 45 will act to restore the post 43 to its normal position in a rapid manner since this spring is connected directly to the shaft 41 of the gear 42. In
 110 this manner the key may be used without the instrument being cut off by the members 51 and 50 being brought into contact and so long as this use continues the key will remain open. As soon, however, as the use of
 115 the key stops the circuit will be closed as previously described. By this means it is impossible for a careless operator to leave the key open so that no call may be received over his line, thus making interruption of
 120 service impossible.

There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

It is obvious that minor changes may be
 125 made in the form and construction of this invention without departing from the material principles thereof. It is not therefore desired to confine the invention to the exact form herein shown and described, but it is
 130

wished to include all such as properly come within the scope of the appended claims.

Having thus described the invention, what is claimed as new, is:—

5 1. A telegraph instrument comprising a frame, a line wire binding post on said frame, a key pivoted on the frame and in electrical contact therewith, a contact point supported on the frame and insulated there-
10 from, a line wire binding post connected to said contact point, a second contact point on the frame and insulated therefrom, a local circuit binding post connected to the second contact point, a third contact point on the
15 key and insulated therefrom, a local circuit binding post connected to the third contact point, the second and third contact points being alined for engagement, line wires leading from the line wire binding post,
20 local circuit wires leading from the local circuit binding post, a circuit closer actuating mechanism embraced in the local circuit, and a circuit closer connected to the line wires adapted to be operated by said circuit
25 actuating mechanism.

2. In a device of the kind described, a line circuit including a telegraph key, a circuit

closer on and actuated by but insulated from said key, a local circuit embracing a circuit closer actuating mechanism and the circuit 30 closer on the key, a circuit closer in shunt with the key on the line wire, the last mentioned circuit closer being actuated by the circuit closing actuating mechanism in the local circuit when said key is open. 35

3. In a device of the kind described, a line circuit including a key, a local circuit opened and closed respectively by the closing and opening of said key, a circuit closer actuating mechanism in said local circuit, a 40 circuit closer operable by said mechanism and connected in shunt with the key to the line wires, the last mentioned circuit closer being operable only when the key is open during a time interval greater than the longest time 45 interval of normal opening during signaling.

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

FRANK G. SLEMMER.

Witnesses:

T. ASA AYRES,
J. FRANK LANE.