

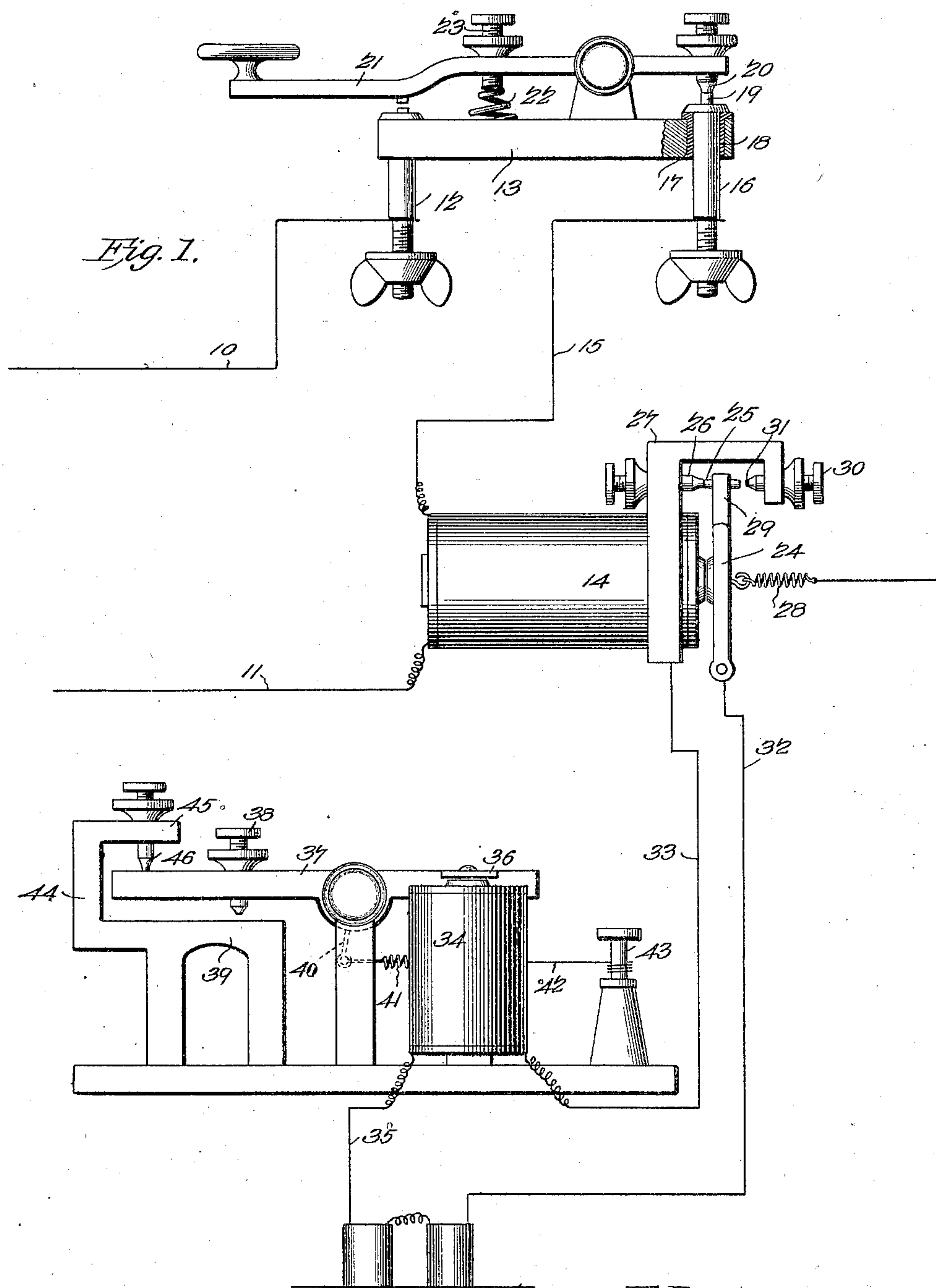
No. 725,214.

PATENTED APR. 14, 1903.

C. E. BUNKER.
TELEGRAPH INSTRUMENT.
APPLICATION FILED MAY 23, 1901.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

E. F. Sewall

Geo. H. Chandler.

Carey E. Bunker, Inventor

by

Chas. Snowden

Attorneys

No. 725,214.

PATENTED APR. 14, 1903.

C. E. BUNKER.
TELEGRAPH INSTRUMENT.
APPLICATION FILED MAY 23, 1901.

NO MODEL.

2 SHEETS—SHEET 2.

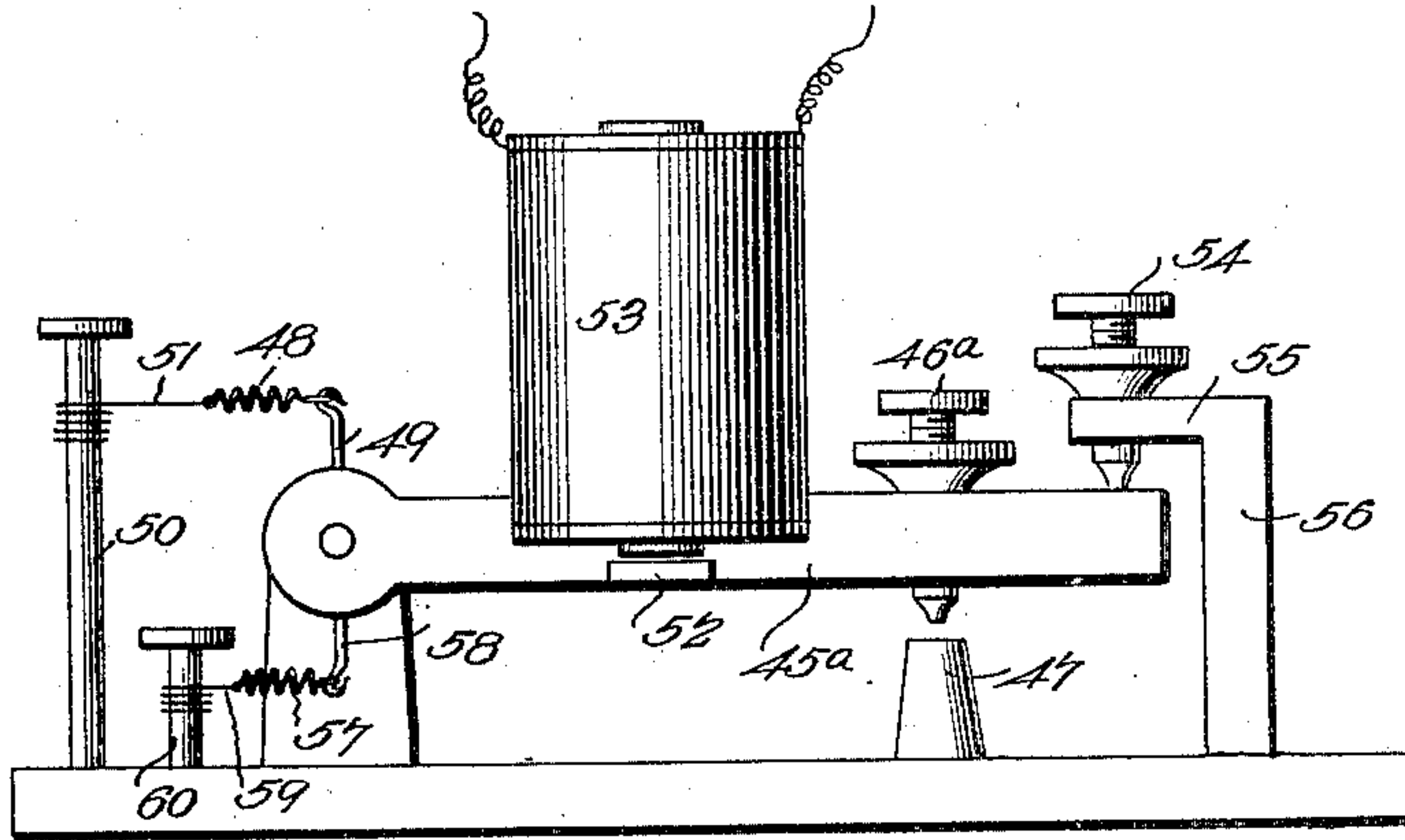
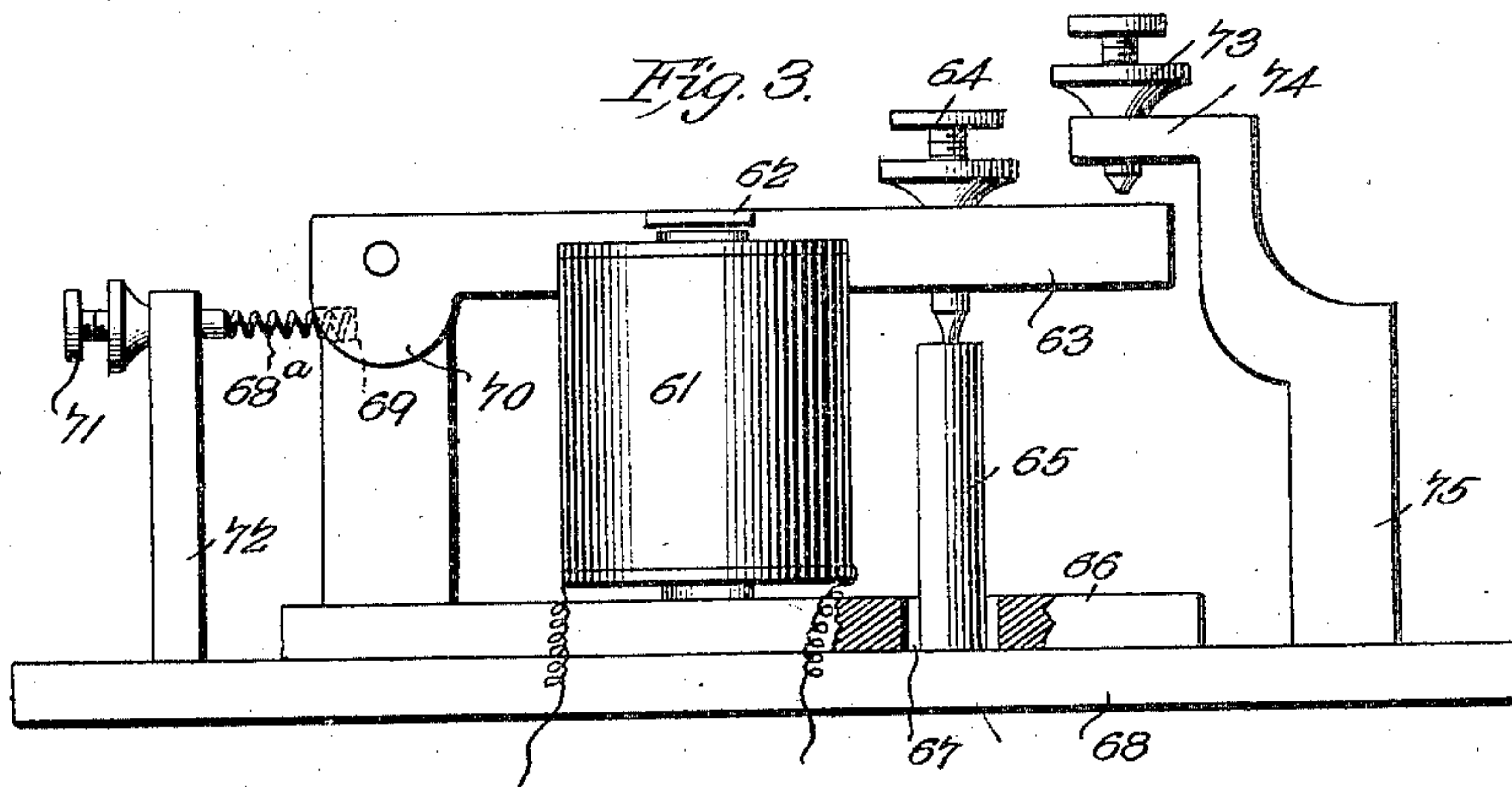


Fig. 2.



Witnesses
C. J. Stewart
Geo. H. Chandler.

Carey E. Bunker, Inventor
by C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

CAREY E. BUNKER, OF OREGON, MISSOURI.

TELEGRAPH INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 725,214, dated April 14, 1903.

Application filed May 23, 1901. Serial No. 61,635. (No model.)

To all whom it may concern:

Be it known that I, CAREY E. BUNKER, a citizen of the United States, residing at Oregon, in the county of Holt and State of Missouri, have invented a new and useful Telegraph Instrument, of which the following is a specification.

This invention relates to telegraph instruments; and it has for its object to provide a construction of key and sounder wherein the line-circuit will be opened when the key is depressed instead of being closed, as is usual, and wherein the sounder will give out its heavier sound when released by the electromagnet thereof instead of when attracted, further objects and advantages of the invention having reference to specific details, which will be understood from the following description.

In the drawings forming a part of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a view showing a key and a sounder constructed in accordance with the present invention, the sounder being in a local circuit controlled by a relay in the main line, the circuits being shown in diagram. Fig. 2 is a side elevation of a second form of sounder. Fig. 3 is an elevation showing a third form of sounder.

Referring now to the drawings, and more particularly to Fig. 1 thereof, there is shown a main line including wires 10 and 11, of which one may be a ground-wire, and which wire 10 is connected to an attaching-post 12, depending from the base or frame 13 of a key, the other wire 11 being connected to one terminal of the winding of a relay-magnet 14. The opposite terminal of the winding of the relay-magnet is connected by means of wire 15 with the second attaching-post 16 of the key, and which post is passed downwardly through an opening 17 in the base of the key, from the metal of which base it is insulated by means of the insulating-bushing 18, against the upper end of which the head of the post is disposed. The head of the post 16 is provided with an upwardly-directed contact 19, which is normally engaged by the contact 20, in the form of the usual screw and which is engaged with the rear end of the key-lever 21, which is mounted in the usual manner be-

tween spaced bearing-screws. The key-lever is held normally and yieldably with the contact-screw thereof in engagement with the contact 19 by means of a conical spring 22, which is disposed with its lower larger end upon the base of the key and the upper end of which is engaged with an adjusting-screw 23, which is screwed through the key-lever and by means of which the tension of the spring may be adjusted to the proper degree to hold the lever normally with the contacts in engagement and the line-circuit closed through the relay. The relay is of the common form and includes besides the magnet referred to the vibratory armature 24, carrying the contact 25, which is adapted for engagement with the end of the contact-screw 26, which is engaged through the frame 27 of the relay when the armature is attracted by the relay-magnet. The armature is withdrawn when released by the magnet by means of the helical spring 28, attached thereto and to a suitable support, which need not be illustrated. In its retracted position the upper end of the arm 29, which carries the contact, rests against the stop-screw 30, having the insulating end 31. The armature is connected by means of wire 32 with one pole of a local battery, while the frame of the relay is connected by wire 33 with one terminal of the winding of a sounder-magnet 34, the other terminal of the winding of said magnet being connected by wire 35 with the second pole of the battery. Thus when the relay-magnet is energized the sounder-magnet is energized, and as the line-circuit is normally closed the relay-magnet and therewith the sounder-magnet is energized. The sounder-magnet is provided with an armature 36, which is attached to the lever 37 of the sounder, which latter is pivotally supported in the usual manner, and beyond the mountings of the lever from the armature is a hammer-screw or sounding-screw 38, which is adapted to strike upon the anvil 39 when the lever moves with the armature away from the magnet. To move the lever with the armature away from the magnet when the magnet is deenergized, the lever is provided with the usual depending finger 40, having a hook with which is engaged a helical spring 41, the opposite end of which has a cord 42 attached thereto and wound upon

the adjusting-spindle 43, which may be rotated to wind a more or less amount of the cord to increase the tension of the spring in the usual manner. From the anvil there extends an arm 44, having an overhanging portion 45, which projects over the lever and is provided with a back-stop screw 46 for engagement by the lever when moved under the influence of the electromagnet. It will thus be seen that the heavy sound of the sounder is given out when the magnet is deenergized and the lever is moved by the spring, while the lighter sound is given when the lever is moved by the electromagnet, the movement by the spring being against the anvil. With this arrangement, furthermore, it will be seen that each time the main-line circuit is broken—that is, each time the key is depressed—the local circuit is broken and the sounder gives forth its heavy sound, being just the reverse of the usual arrangement with the exception of the fact of the depression of the key-lever. By thus constructing the parts and connecting them no closing-switch is required for the key, as always when the key is left the circuit is closed.

In Fig. 2 of the drawings is shown a modification of sounder wherein the lever 45^a is pivoted at one end and has a hammer-screw 46^a near to its opposite end and which is adapted to strike upon an anvil 47 upon the base of the sounder when moved under the influence of a helical spring 57, attached to a depending arm 58 at the pivot of the lever and connected with the tension-spindle 60 by means of the cord 59. The armature 52 in this instance is secured transversely of the under side of the lever and in the field of an electromagnet 53, which is supported thereabove to move the lever away from the anvil when the magnet is energized, this latter movement of the lever bringing it into contact with its end against a stop-screw 54, engaged with the laterally-projecting head 55, of a post 56, mounted upon the base of the sounder. To assist in this backward movement of the lever, a second helical spring 48 is provided and is attached at one end to the upwardly-directed arm 49 at the pivotal end of the lever and having a cord 51 attached thereto and to an adjusting-spindle 50. With this construction also it will be seen that when the magnet is energized the lighter sound will be given forth, while the heavier sound will be given when the magnet is deenergized and the lever is moved under the influence of its spring.

In Fig. 3 of the drawings there is shown a construction somewhat similar to that in ordinary use, the electromagnet 61 and its armature 62 being disposed between the pivot-

ed end of the lever 63 and the hammer-screw 64 and the magnet being disposed to draw the lever downwardly to engage the striking-screw against a post 65, which, however, in the present instance instead of being mounted directly upon the metal base 66 of the sounder is passed through an opening 67 therein and is secured to the wooden bottom 68 of the sounder, so that when the hammer-screw hits it it gives forth a light sound. The lever is moved in an opposite direction when released by the magnet by means of the helical spring 68^a, engaged with a recess 69 in the depending lug 70 of the pivotal end of the lever and with an adjusting-screw 71, mounted in the post 72 on the wooden bottom of the sounder. When moved under the influence of this return-spring, the outer end of the sounder-lever strikes against a screw 73, adjustably engaged in the head 74 of a post 75, mounted upon the metal base of the sounder, so that when the lever hits the screw a much louder sound is given forth than when the lever moves under the influence of the electromagnet.

It will be understood that in practice various modifications of the invention may be made and that any suitable proportions and materials may be used for the various parts without departing from the spirit or sacrificing any of the advantages of my invention.

What is claimed is—

A telegraph system comprising a normally closed main line including a key and a relay, the key being constructed to automatically and normally hold the main line closed and to open the line when depressed, and the relay being provided with a circuit-closing front stop normally engaged by the relay-armature, a closed local circuit of which the front stop of the relay and the armature form terminals, and a sounder included in the closed local circuit, said sounder comprising an electromagnet, an armature normally attracted thereby, a sounder-lever, a stop-screw for limiting the upward movement of the lever, an anvil disposed below said lever and a spring for moving the lever into contact with the anvil when the local line is opened by the deenergizing of the relay, the arrangement of the sounding-stops being such as to permit the louder reading-sound of the lever on the deenergizing of the sounder-magnets.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CAREY E. BUNKER.

Witnesses:

W. A. PETREE,
GEORGE LEHMER.