

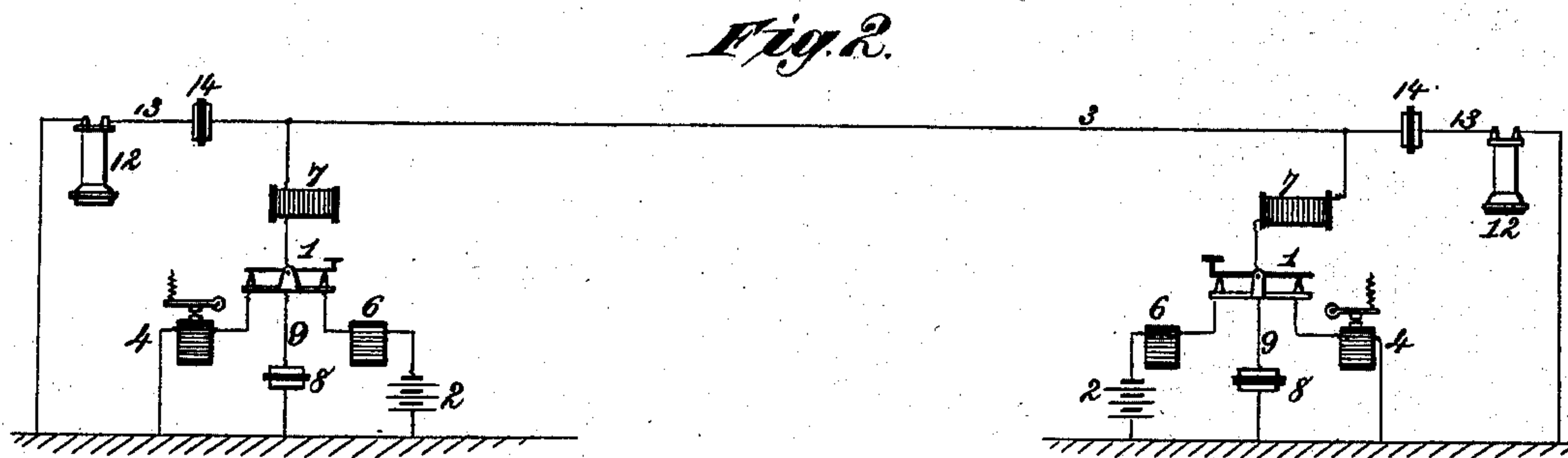
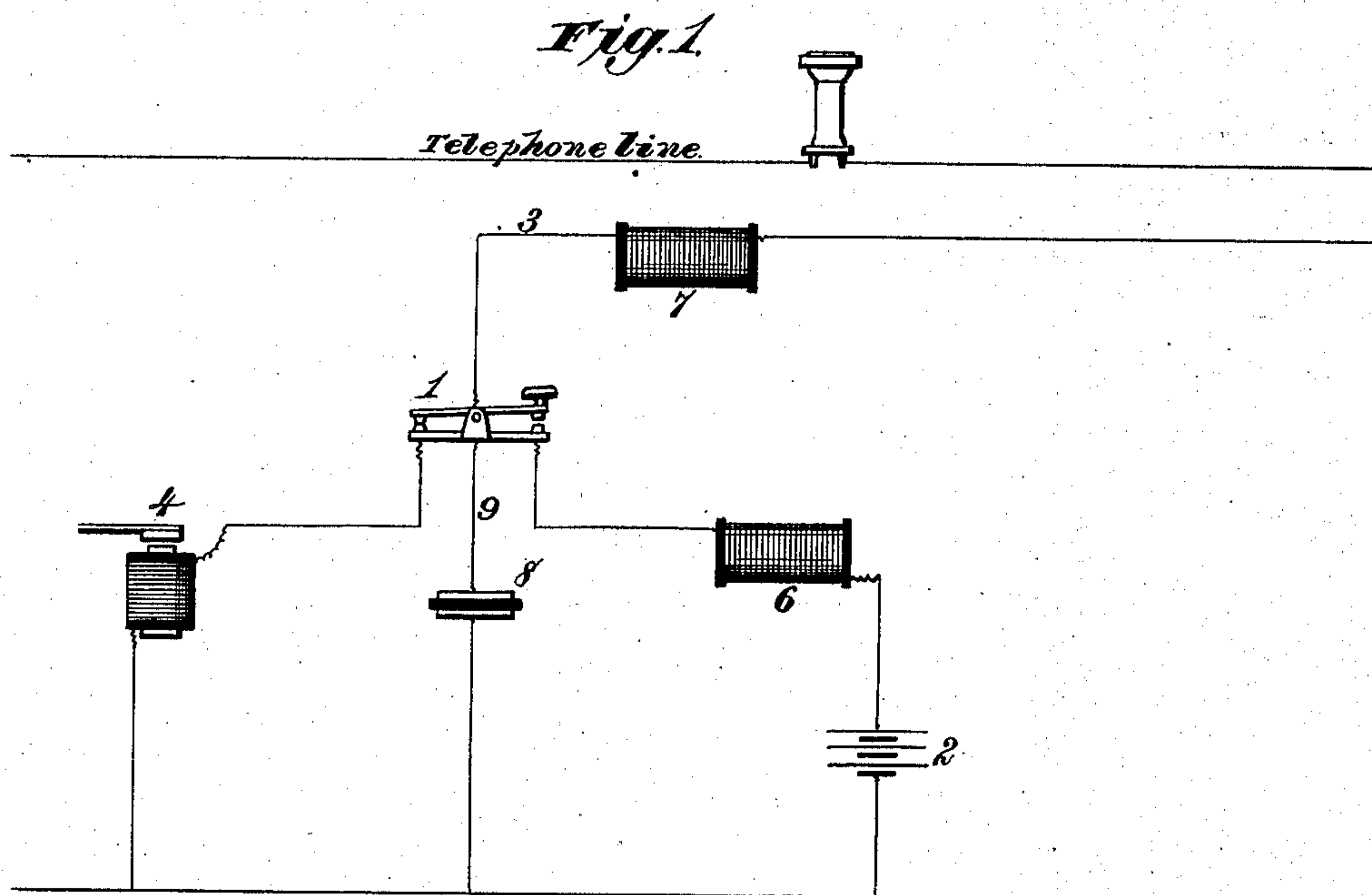
(No Model.)

F. VAN RYSELBERGHE.

MEANS FOR PREVENTING INTERFERENCE IN COMBINED TELEGRAPHIC
AND TELEPHONIC SYSTEMS.

No. 322,333.

Patented July 14, 1885.



Witnesses,

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Atty.

UNITED STATES PATENT OFFICE.

FRANÇOIS VAN RYSELBERGHE, OF SCHAERBEEK, BELGIUM.

MEANS FOR PREVENTING INTERFERENCE IN COMBINED TELEGRAPHIC AND TELEPHONIC SYSTEMS.

SPECIFICATION forming part of Letters Patent No. 322,333, dated July 14, 1885.

Application filed June 6, 1885. (No model.) Patented in Germany June 9, 1882, No. 22,633; in Belgium November 16, 1883; in France November 16, 1883; in England November 23, 1883; in Luxemburg December 8, 1883; in Italy December 31, 1883; in Portugal January 18, 1884; in Canada January 24, 1884; in India January 29, 1884; in Sweden February 12, 1884; in Spain April 23, 1884; in Denmark June 18, 1884; in Brazil July 5, 1884; in Argentine Republic July 19, 1884; in Austria September 13, 1884, and in Uruguay December 12, 1884.

To all whom it may concern:

Be it known that I, FRANÇOIS VAN RYSELBERGHE, a Belgian subject, residing at Schaerbeek, Belgium, have invented new and
5 useful Improvements in Telegraphic and Telephonic Apparatus, (for which I have obtained the following Letters Patent, viz: Germany, June 9, 1882, No. 22,633; Belgium, November 16, 1883; France, November 16, 1883; Great
10 Britain, November 23, 1883; Italy, December 31, 1883; Austria, September 13, 1884; Canada, January 24, 1884; Portugal, January 18, 1884; India, January 29, 1884; Spain, April 23, 1884; Sweden, February 12, 1884; Den-
15 mark, June 18, 1884; Luxemburg, December 8, 1883; Brazil, July 5, 1884; Argentine Republic, July 19, 1884, and Uruguay, December 12, 1884,) of which the following is a specification.

20 This invention relates to an improved system or arrangement of devices for producing the gradual telegraphic currents required in carrying out my method of simultaneous telegraphy and telephony, which forms the sub-
25 ject-matter of prior patents, and depends upon the removal of the effects of induction between telegraph and telephone lines by retarding the rise and fall of the prime telegraphic currents, whereby the same line wire or wires or the
30 same net work or system of wires can be used for the transmission of telephonic and telegraphic messages, and the effects of such telegraphic currents are not perceptible in the telephone-instrument, telegraphic sounds be-
35 ing no longer audible in such telephone.

The invention consists in introducing permanently into the circuit of a telegraph system a pair of magnets and a condenser, as will be hereinafter described and claimed.

40 In the drawings, Figure 1 is a diagram view of a telegraph system provided with my improved means of retarding the rise and fall of the telegraphic current, and showing a telephone-wire arranged in the vicinity of the
45 telegraph-wire. Fig. 2 is a similar view showing the use of the same line-wire for the transmission of telegraphic and telephonic mes-
sages.

The reference-numeral 1 designates the ma-

nipulator or transmitting-key for opening and
closing the circuit of the battery 2, and send- 50
ing to the line 3, each time the key is closed, a current of the same polarity, and interrupt-
ing it when opened. The numeral 4 repre- 55
sents a telegraphic receiving-instrument, the electro-magnet of which must have a resist-
ance of not less than five hundred ohms.

The above parts constitute the ordinary Morse telegraphic system, and require no spe-
cial description. 60

For the purpose of graduating the emission and extinction of the currents, or reducing the sudden rise and fall of such currents, I place an electro-magnet, 6, of about five hundred ohms
65 resistance, between the battery and the manipulator, and I introduce a second electro-magnet, 7, between the manipulator and the main line, said magnet 7 offering the same degree
of resistance as the magnet 6. I also place a
condenser, 8, of two micro-farads, between the 70
two electro-magnets 6 7, one of the faces of said condenser being connected with a wire,
9, in derivation of the main line, and the other
face being connected with the earth by the
wire 10. 75

It is evident that when the key of the transmitting-instrument is depressed the current from the battery passes into the two magnets and the condenser introduced between them
80 in derivation of the main line. In this manner the current is caused to pass to the main line in a gradual manner, or is retarded in its passage to the main line, since it is evident that the magnets and condenser are first charged
and that the initial strength of the current 85
emitted upon manipulating the key is never carried to the main line. When the manipulating-key is raised, the connection with the battery is broken and the charge of the con-
denser and the magnet introduced into the 90
main line passes to the latter in the form of a current, whose extinction is as gradual as was its emission upon the original depression of the transmitting-key.

I have found by experience that the best ar- 95
rangement of devices for producing gradual telegraphic currents is the two electro-magnets and condenser arranged between the same,

these parts serving to bring into existence an electro-current which gradually increases in strength until it reaches its maximum stage, and then decreases in strength until its extinction. In patents heretofore granted to me I have broadly claimed the working of telegraph-lines with electric currents whose emission and extinction is gradual, so as to overcome the effects of induction and allow wires used solely for telephonic purposes to be located in the neighborhood of telegraph-wires; and I have also contrived and patented several systems of using such gradual currents upon a single wire or wires used for the simultaneous transmission of telegraphic and telephonic messages.

In Fig. 1 is exemplified the first-mentioned system, and in Fig. 2 is shown the adaptation of a single line-wire for carrying out the second method. In this latter instance the telephone 12 is placed in a derived or branch line, 13, and is separated from the telegraph-line by a condenser, 14, of about one-half micro-farads.

It is evident that the devices herein shown and described serve most effectually to produce telegraphic currents which may be com-

pared when in operation to a gentle wave ascending to the full potential of the current, and descending gradually to the ordinate which represents the zero-point.

The function and mode of using such currents has heretofore been fully described by me, and it need only be incidentally mentioned here that the well-known telegraphic rattle in telephones is avoided by their use, since the diaphragm is only slightly bent and not allowed to vibrate.

What I claim is—

In a system for the transmission of telegraphic and telephonic messages over adjacent wires or the same line wire or wires, the combination, with the manipulator at each transmitting-station, of two electro-magnets arranged, respectively, between the battery and line, and a condenser placed between the two electro-magnets in derivation on the line, substantially as described.

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

FRANÇOIS VAN RYSSELBERGHE.

Witnesses:

A. M. TANNER,

J. A. RUTHERFORD.