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TELEGRAPHY.

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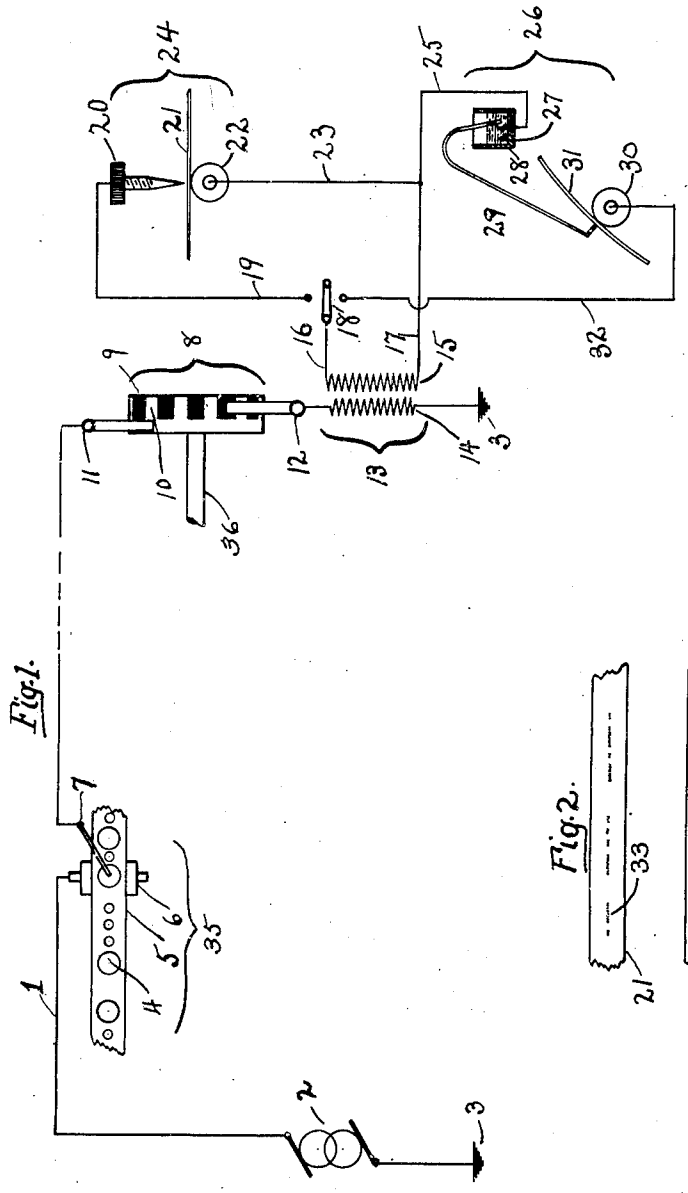

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TELEGRAPHY.

1,097,131. Specification of Letters Patent. Patented May 19, 1914.

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To all whom it may concern:

Be it known that I, ISIDOR KITSEE, citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Telegraphy, of which the following is a specification.

My invention relates to an improvement in telegraphy.

My invention is applicable to different systems but its great advantages are more apparent in rapid telegraphy and I will describe my invention as applied to such systems.

The drawing illustrates one form my invention may take, and in this drawing, Figure 1 is a diagrammatic view illustrating a telegraphic system according to my invention, and in Fig. 2 are plan views of different tapes with the received characters thereon.

In this drawing: 1 is the line of transmission; 2 is the source of current; 4 the transmitting signals.

In rapid telegraphy, the clearing of the line is of the greatest importance so as to prevent all "trailings" at the receiving end, and it is, therefore, a great advantage if the signaling or telegraphing can be accomplished with the aid of an alternating or phase current; the different signs of the cycles or phases of which are of equal intensity and duration. For this purpose, I elected to have as the source of current in my invention, an alternating generator, but it is obvious that if this invention is applied to any other than rapid telegraphy, uni-direct currents may be employed. The number of alternations per minute should differ with the different length or capacity of the line,—short lines may be connected with alternators giving a greater number of cycles per minute than long lines, and the operator may adjust his alternator in such manner as to suit the line.

3 is the ground for the source of current 2; 35 is the transmitting device as an entirety, here shown as to comprise the conductor 6 connected to one part of the line and the brush 7 connected to the second part of the line, and also to consist of the tape 5 provided with the perforations 4. The working of these parts is so well understood that it does not require further explanation. It may only be stated that other automatic and manually operated devices may be substituted therefor.

The dynamo or generator 2 is supposed to generate the cycles or phases continuously, no matter if connected conductively to the line or not, and it is, therefore, seen that the impulse impressed upon the line for a character does not need to coincide with the beginning of the cycle and, in reality, the impulse impressed upon the line will at one time be part of the positive half of the cycle and at another time part of the negative half of the cycle, and it may sometimes consist of parts of both halves.

Referring now to the receiving end, 13 is a converter of which 14 is the primary and 15 the secondary. 8 is a communicating device comprising the conducting parts 10, the non-conducting parts 9 and the brushes 11 and 12. This commutator is revolved by any of the well known means—electrical or otherwise—with the aid of the shaft 36. The line 1 is not connected directly to the primary 14 but is connected thereto with the interposition of the commutator 8.

The commutator is adapted to revolve independently of the incoming impulses and its function is to make and break the contact between the primary 14 and the line 1; and this commutator should revolve at a speed, so as to "chop up"—so to speak—each impulse impressed upon the line from the transmitting end into a series of impulses adapted to flow in succession through the primary 14. With this arrangement, it is possible to generate in the secondary 15 impulses of high frequency required for the translating of the characters, as will hereinafter be clearly described; but without the intervention of the commutating device, this high frequency could not be obtained and the arrangement as illustrated could not be operated.

As a translating device, I have here illustrated two methods, one method embraces the organism 24, and the other embraces the organism 26. The organism 24 comprises the wire 19, conducting point 20,

paper 21, conducting roller 22, wire 23. One terminal of the secondary 15 is connected through wire 16 with the switch 18 and the other terminal of the secondary is connected directly to wire 17. The wire 23 of the organism just described is connected to the wire 17 and, therefore, to one terminal of the secondary 15. The wire 19 of the arrangement just described may be connected to the other terminal of said secondary through the switch 18. It is proposed that the secondary should consist of a great number of convolutions, so that the induced impulses should be of high electro-motive force, and it is well known that if such induced impulses are of high frequency and high electro-motive force, they produce a "spark" between the two terminals, if these terminals are close together and the dielectric between them not of too high a resistance. The operation of this organism is as follows:—The necessary tape is placed on the roller 22 and revolved with one or the other of the well known means, so as to present to the point 20 a continuously new surface. The point 20 is brought in close proximity to the paper and when impulses are generated in the secondary 15, they will produce a "spark" between the point 20 and the roller 22 and will, therefore, penetrate and scorch the paper 21, thereby leaving a mark or perforation on this paper. As each signal or character develops in the secondary a series of alternations, each character will produce on the paper a mark consisting of a series of minute perforations, as is clearly illustrated in Fig. 2 in which 21 represents the paper and 33 the marks thereon produced with the aid of the spark.

26 represents a second mode or method of translating the impulses of the secondary into readable characters, and consists of the wire 32 connected to the revolving drum or roller 30, the paper 31 adapted to be moved with the aid of this revolving roller or drum, the receptacle 28, the conducting fluid or ink 27 and the siphon 29. The conducting fluid 27 is connected through wire 25 with wire 17 and through this wire with one terminal of the secondary 15, and the conducting roller 30 is connected with wire 32 and this wire can be brought in contact with the secondary 15 with the aid of the switch 18. The operation of this arrangement is as follows:—Normally, no ink will flow through the siphon 29, more specially if this siphon has a very small bore, but when the ink and roller are electrified, through the generation of impulses in the secondary 15, then the ink will flow from the reservoir 28 through the siphon 29 and will be deposited on the moving paper 31. As soon as the impulses in 15 cease, the flow of the ink will also cease. The resultant tape is illustrated in Fig. 2, in which 31 is the paper and 34 the marks thereon.

If the paper 21 of organism 24 is impregnated with a salt, such as a nitrate or chlorate of potassium, the marks due to the sparking between the two electrodes 20 and 22 will be more pronounced.

If the ink or fluid 27 of organism 26 is saturated with a material, such as a hydrated oxid of sodium or potassium, then the paper may be used later on to make and break a circuit in accordance with the liquid deposited on the paper and it may then thereby operate electro-magnetic devices, for the purpose, if required, of manipulating a printing organism.

In some cases, it is required that the telegraphic characters received should be automatically, but at different times, translated into print, and this can be accomplished by adding to the liquid or ink a substance, such as gum arabic, etc., which when dried produces a non-conducting mark on a conducting surface. In such cases, it is best if the material on which the ink or fluid is deposited should consist of a metal, but as this modification is not claimed here and a separate application will be filed therefor, it is not necessary to go into details. It suffices to say that requirements necessitate that the marks produced with the aid of the fluid or ink may be used at the will of the operator to actuate therewith a printing or a like mechanism.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In telegraphy, the method of recording incoming impulses, which consists in locally developing high tension impulses, electrifying a fluid by said high tension impulses and thereby establishing a static stress between the fluid and a grounded conductor, thereby causing said fluid to be deposited on suitable material.

2. In telegraphy, the method of recording impulses, which consists in electrifying at the receiving station a fluid in accordance with the incoming impulses and causing thereby the fluid to flow onto a suitable material only during the period of said electrification thereby producing a mark in accordance with the color of said fluid.

3. In telegraphy, as a means to transmit incoming impulses into readable characters, a fluid, a siphon, a movable paper, and means for locally developing high tension impulses to electrify said fluid and produce a flow thereof in accordance with the character of the incoming impulses through locally developed high tension pulses.

4. In telegraphy, the method, which consists in causing to be impressed on the line of transmission impulses in accordance with

the character required, causing each transmitted pulse locally at the receiving station to be divided into a series of pulses, causing said pulses to electrify a liquid, and causing through said electrification, said liquid to be deposited on a suitable material.

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

ISIDOR KITSEE.

Witnesses:

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