

1,096,747.

Patented May 12, 1914.

2 SHEETS—SHEET 1.

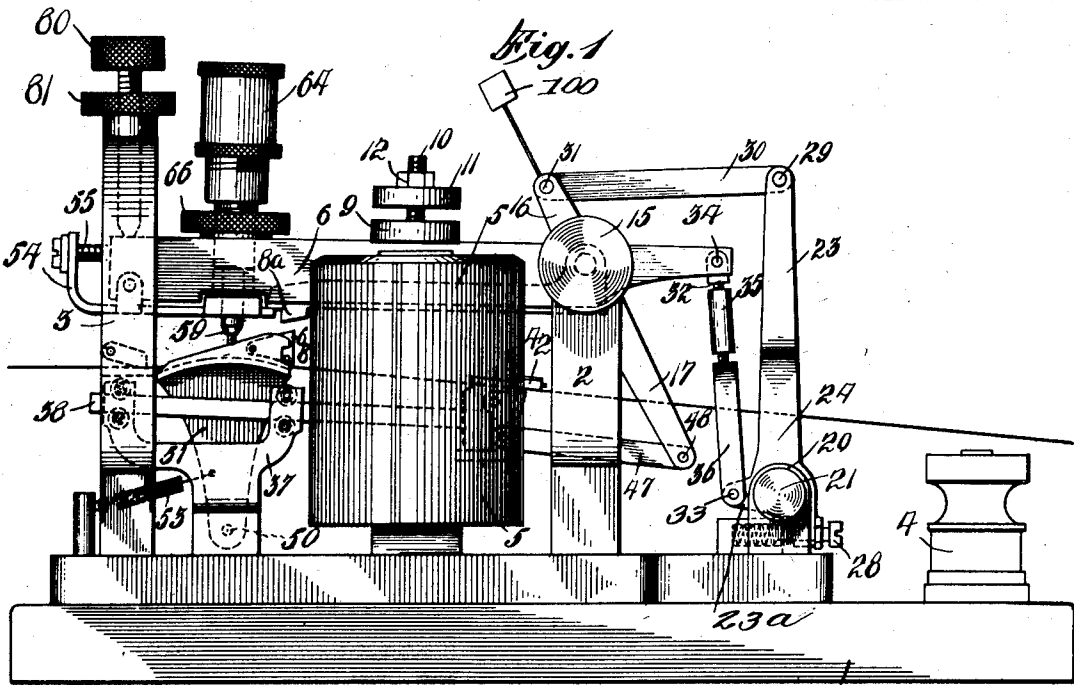
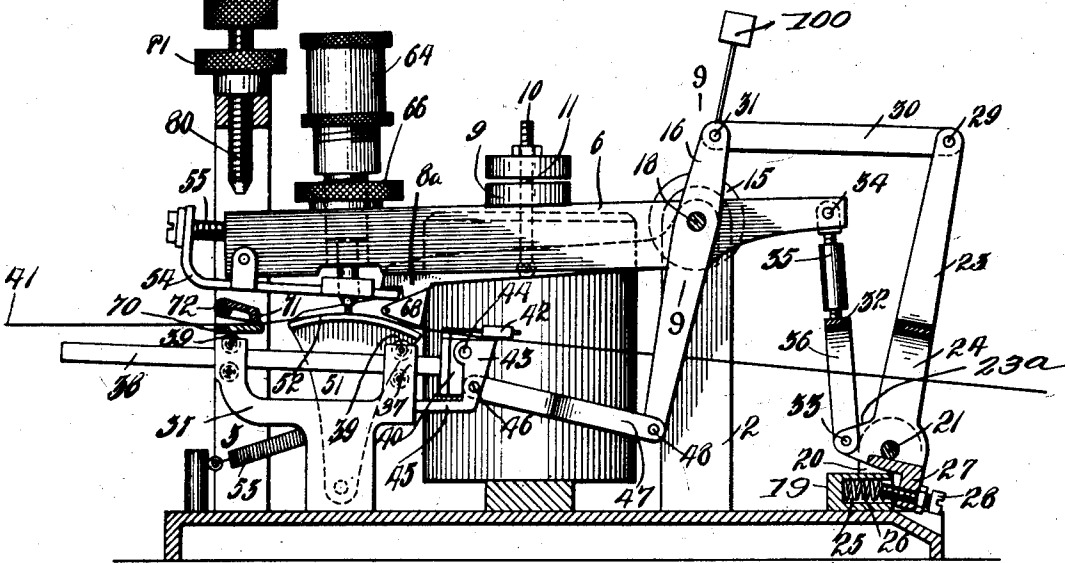


Fig. 2



WITNESSES
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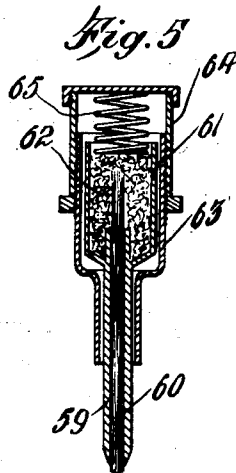
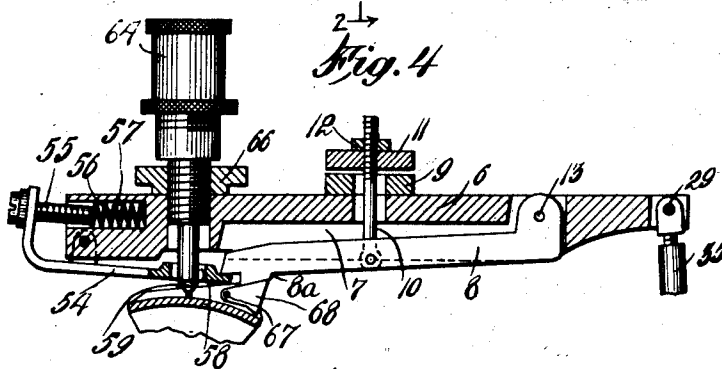
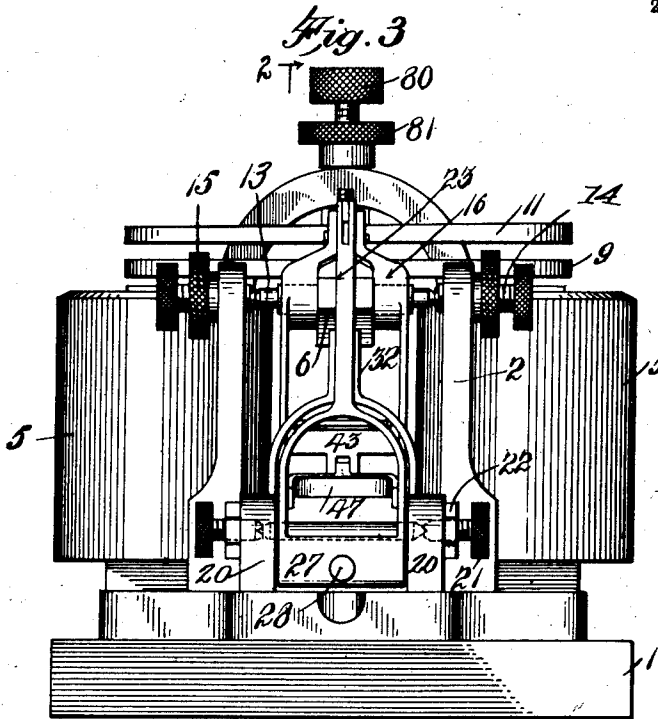
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 TELEGRAPH RECEIVER.
 APPLICATION FILED AUG. 27, 1912.

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2 SHEETS—SHEET 2.



WITNESSES
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UNITED STATES PATENT OFFICE.

ANGELO PARODI, OF NEW YORK, N. Y.

TELEGRAPH-RECEIVER.

1,096,747.

Specification of Letters Patent.

Patented May 12, 1914.

Application filed August 27, 1912. Serial No. 717,297.

To all whom it may concern:

Be it known that I, ANGELO PARODI, a subject of the King of Italy, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Telegraph-Receiver, of which the following is a full, clear, and exact description.

This invention relates generally to telegraph receivers, and is directed to a system of cooperating elements whereby the structure is adapted to actuate other elements, whereby messages may be received through the sensations of hearing and sight.

The primary object of the invention disclosed is the provision of a telegraph receiver adapted to record messages on a continuous tape, the construction being characterized by a new and improved means for feeding the tape.

Other advantages following the use of the construction described and claimed will appear as the description proceeds.

Reference is to be had to the accompanying drawings forming a part of this specification, in which like characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a side view of the receiver adapted for printing telegraph symbols on a continuous tape; Fig. 2 is a vertical sectional view thereof on the line 2—2 of Fig. 3; Fig. 3 is an end view from the right of Fig. 1; Fig. 4 is a sectional view showing details of the magnetically controlled lever; while Fig. 5 is a sectional view of the pen and ink container.

The receiver comprises a base 1 of any suitable material and size, provided with pairs of spaced uprights 2—3 and binding posts 4, together with electro-magnets 5, these parts being not essentially different from the parts used in telegraph receivers at present.

Referring particularly to Fig. 4, the lever 6 is recessed as at 7 on its under side, and within this recess is a second lever 8, the first lever 6 carrying an armature 9 and the second lever 8 having a pin 10 extending upwardly therefrom and carrying a second armature 11 adjustably mounted on the pin by means of screw threads, the position of the armature being maintained by means of a lock nut 12. These levers 6 and 8 are pivotally mounted on a transversely extending

pin 13. The oppositely positioned uprights 2 are provided with transversely extending screws 14 carrying lock nuts 15 and forming bearings for this pin; referring particularly to Fig. 3, it will be noted that a bifurcated arm 16 straddles the said levers 6 and 8, the particular purpose of which will be presently set forth. From this description it will be observed that the levers 6 and 8 are movable relatively to each other about the pin 13, and that the levers and the bifurcated arm 16 are movable relatively to the uprights 2.

Extending upwardly from the base of the instrument are ears 20 having screws 21 extending transversely thereof provided with lock nuts 22, and pivotally supporting the arm 23 adjacent its lower end, the lower end of the said arm being made up of spaced members 24; referring particularly to Fig. 2 it will be noted that adjacent the lower end of this arm 23 is an element 19 provided with a pocket 25 containing a helical spring 26, and that the lower end of the said arm 23 is provided with a shoulder 27 having a screw 28 extending transversely thereof and engaging the said helical spring 26, whereby a certain variable pressure may be applied to the lower end of the said arm. The upper end of this arm is pivotally engaged at 29 with a link 30, the other end of the link being pivotally engaged at 31 with the upper end of the bifurcated arm 16 previously described. Extending between the lower end of the arm 23 and the adjacent end of the lever 6 is a link 32, in pivotal engagement with these elements at 33—34, the said link being adjustable in length by means of a turn buckle 35, the lower end of the link comprising spaced sides 36, engaging the offsets 23^a carried by the arm, whereby a continuous passageway is provided between the spaced portions 24 of the arm 23, the spaced sides of the link 32, and the sides of the bifurcated arm 16 previously described. When current circulates in the winding of the electro-magnets 5 the magnetic field set up will attract the armature 9 to the poles of the electro-magnet, thereby moving the first lever 6 downwardly about the pin 13 as a center, the bifurcated arm 16 swinging about this said pin because of the articulation between one end of the lever 6 and the arm 23 through the medium of the links 30 and 32; the

force required to move these elements may be varied by adjustment of the screw 28 which engages the said helical spring 26 adjacent the lower end of the arm 23.

5 Adjacent one end of the receiver and substantially beneath the lever 6 are the supports 37, each of which is provided with openings through which a rod 38 is adapted to be reciprocated, the said rod bearing
10 against balls or rollers 39 contained within the openings and bearing against them, whereby friction is materially reduced. Adjacent one end of the rod 38 is a table 40, on top of which a continuously extending
15 tape 41 is adapted to be passed, the top of the table being provided with a transversely extending bearing portion 42, the table supporting a pivoted member 43 at 44, the lower end of the member being provided with an
20 arm 45 adapted to come adjacent the said support 37 when the rod 38 moves in one direction, this said pivoted member being in pivotal engagement at 46 with one end of a bifurcated link 47, the other end of which
25 pivotally engages the lower end of the bifurcated arm 16 at 48. Since the tendency of the lever 6 is to remain in uppermost position, as shown in Fig. 1, when no current is flowing through the electro-magnets 5, due to
30 the pressure of the helical spring 26 acting on the screw 28 carried by the arm 23 which is articulated with the lever 6, the normal position of this table then is as shown in Fig. 1, being adapted to travel the distance be-
35 tween the position shown in Figs. 1 and 2 when the lever 6 moves downwardly under the influence of the magnetic field set up by the electro-magnets; while the table 40 is being moved from one position to the
40 other the force which brings about the movement is communicated at the pivotal supporting point 46 which is below the pivotal point 44, so that the table will move relatively to the tape 41 without moving it,
45 since the pivoted member 43 is brought remote from the under side of the table; on the return movement of the table, however, the forward portion of this pivoted member 43 engages the under side of the tape
50 which is held adjacent the bearing portion 42, the tape being thereby fed forwardly on the return movement of the lever 6 from the position shown in Fig. 2 to that shown in Fig. 1.

55 Referring still to Figs. 1 and 2 it will be noted that beneath the lever 6 and pivotally supported at 50 to the said support 37, is a second table 51 the top 52 of which is curved on the arc of a circle with the said pivotal
60 support 50 as a center, the said tape 41 extending over this curved top; the table is maintained normally in the position shown in Fig. 1 by means of a helical spring 53, certain means, however, being provided for
65 bringing the table into the position shown

in Fig. 2, such means embodying the following elements:—Referring to Fig. 4, it will be noted that the second lever 8, which is contained within the recess 7 on the under side of the first lever 6, is held within the
70 said recess by engagement with the pivoted element 54, one end of which is provided with an adjustable screw 55 the end of which engages with a helical spring 56 contained
75 within a recess 57 in the end of the lever 6, pressure of the spring bringing the adjacent ends of this lever 8 and element 54 into uppermost position, which is shown in Fig. 1; this element 54 is provided with an opening
80 58 through which a pen 59, to be presently described, extends, the lower end of the pen coming adjacent the tape 41 and on top of the said curved table 52, whereby an impression or mark is left on the tape. The pen comprises the pen proper 59 having an
85 opening extending therethrough within which some absorbent material 60 is contained, the upper end of the pen being enlarged as at 61 and containing a quantity of inked absorbent material 62, these parts being contained within a receptacle 63 having
90 a removable cover 64, a helical spring 65 being positioned within the receptacle and bearing against the said absorbent material in order to bring sufficient pressure to bear to cause the ink to flow to the point of the pen; the pen is adjustably mounted with respect to the lever 6 by screw threaded engagement therewith, and is held in desired
95 position thereon by means of a lock nut 66. Pivotaly supported at 67 adjacent the curved top 52 of the table 51 is a freely movable member 68, the lower end of which rests on top of the tape passing over the table; from an inspection of Fig. 4 it will be
100 noted that if, after the pen 59 is brought adjacent the tape, the lever 8 is moved downwardly, the engagement between the projection 8^a of this lever and the top of the said member 68, which engaging portions are inclined as shown, will cause movement of the table 51 relatively to the pen 59, with the lower end of the member 68 in engagement with the tape so that the tape and table are moved bodily with respect to the pen, which
105 leaves a line of certain length on the table. It will be noted that where the tape 41 enters the receiver from the left it passes over a rest 70, there being a gripping element 71 pivotally mounted adjacent one end at 72
120 bearing on top of the table, so that movement thereof toward the right is freely permitted, movement of the tape to the left, however, being prevented.

The method of operation of the parts shown is as follows: With the relative arrangement shown in Fig. 1, if a current is passed through the winding of the electro-magnets 5 of momentary duration, that is, no longer than to indicate a dot in the Morse
130

code, the lever 6 will be moved downwardly, the point of the pen 59 coming adjacent the tape 41 on top of the table 51, the movable tape feeding elements which comprise the table 40, the pivoted member 43 and the bifurcated link 47, moving into the position shown in Fig. 2, the return movement of the lever 6, when the circuit is opened, bringing the tape feeding elements to the right and moving the tape independently and out of contact with the end of the said pen. If, however, the circuit through the electro-magnets 5 is closed for an appreciable length of time, that is, long enough to indicate a dash in the Morse code, the first tendency of the magnetic field is to bring the lever 6 downwardly adjacent the tape 41, the tape feeding elements moving to the left as before and gripping the tape, the next step being the downward movement of the second lever 8 under the influence of the said magnetic field on the second armature 11, as shown in Fig. 4, the downward movement of this second lever moving the pivoted table 51, and with it the tape, the tape being in contact with the pen, the result being the formation of a line of certain length, that is, a dash on the said tape; when the circuit is opened the pen is brought away from the tape and the tape feeding mechanism brings up a fresh unmarked portion of tape beneath the pen. The said armatures 9 and 11 will not move downwardly simultaneously due to the fact that the parts possess some inertia, and also because of the second air gap between the said armatures independent of the air gap between faces of the electromagnets and the first armature. The distance through which the lever 6 will travel before the pen strikes the tape may be adjusted in the usual manner by means of a set screw 80 carried by the uprights 3 and provided with a lock nut 81 for retaining it in any desired position. By means of the screw 28 and the helical spring 26 the force necessary to move the various parts may be closely adjusted so that excessive force is not necessary the counterpoise 100 carried by the upper end of the arm 16 tending to ease of operation. Finally, the arrangement of the various parts provides a printing telegraph instrument in which the symbols of the code in dots and dashes are set forth on the tape, the tape feeding forwardly only when required, and without any attention from an attendant.

It is clear, of course, that a practical embodiment of the invention may assume a form quite different from that herein shown; such change in form, however, together with the choice of materials used in the manufacture of the structure are contemplated within the spirit and scope of the appended claims.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent is:—

1. A telegraph receiver comprising electro-magnets, a plurality of superposed levers, independent armatures secured to the levers, a pen carried by one of the levers, a movable table having tape passing thereover, the downward movement of the said lever bringing the pen adjacent the tape, and other means cooperating with a second lever whereby the table and tape may be moved relatively to the pen when the pen engages the tape.

2. A telegraph receiver comprising electro-magnets, a plurality of levers having armatures thereon controlled by the electro-magnets, one of the levers being provided with a pen, a movable table adapted to carry tape, tape feeding means, and devices between the said first lever and the said feeding means, a downward movement of the first lever bringing the pen into engagement with the tape, the succeeding movement of a second lever moving the table relatively to the pen while it engages the tape, the return of the first lever actuating the said feeding means to bring fresh tape adjacent the said table.

3. A telegraph receiver comprising a plurality of electro-magnets, a plurality of levers adjacent each other and pivotally mounted in position, armatures secured to each of the levers, a pivoted table beneath the first lever, a pen carried by the first lever, tape feeding means, the tape engaged by the said means passing over the said table, and devices between the said tape feeding means and the first lever, whereby the closing of the circuit through the electro-magnets will move the first lever adjacent the table, bringing the pen into engagement with the tape, the succeeding movement of a second lever moving the table with the tape in engagement with the pen, the return movements of the lever permitting the table to return to normal position and the said feeding means to bring a fresh portion of the tape adjacent the said table.

4. A telegraph receiver, comprising electro-magnets, a plurality of superposed levers, armatures carried by the levers, a pen carried by one of the levers, a table having tape passing thereover, the downward movement of the said lever bringing the pen adjacent the said tape, and means actuated by the said lever for feeding the tape forwardly on the return movement of the said lever.

5. A telegraph receiver, comprising electro-magnets, a plurality of superposed levers, independent armatures secured to the levers, a pen carried by one of the levers, a table having tape passing thereover, the downward movement of the said lever bringing the pen adjacent the tape, means actuated by the downward movement of a sec-

ond lever, whereby the table and tape may be moved relatively to the pen when the pen engages the tape, and other means for feeding the tape forwardly on the return movement of the first lever.

6. A telegraph receiver, comprising electro-magnets, a lever adapted to be actuated thereby, a pen carried by the lever, a table having tape passing thereover, the downward movement of the lever bringing the pen adjacent the tape, means coöperatively associated with the said lever and adapted to engage the tape, whereby on the return movement of the said lever the tape will move forwardly over the table and means for moving the table and tape while the pin is in engagement with the tape.

7. A telegraph receiver, comprising electro-magnets, a plurality of levers adapted to be actuated thereby, armatures carried by the levers, a pen carried by one of the levers, a movable table having tape passing thereover, means carried by the table for engagement with the tape, the downward movement of the first lever bringing the pen adjacent the tape, the subsequent downward movement of the second lever bringing a portion thereof into engagement with the said tape engaging means on the table, whereby the tape and table are moved relatively to the pen.

8. A telegraph receiver, comprising electro-magnets, a plurality of levers provided with armatures, means carried by one of the levers for maintaining the second lever in a determined position, the said armatures being thereby maintained in spaced relation, a pen carried by the first lever, a table having tape passing thereover, downward movement of the first lever bringing the pen adjacent the tape, and means carried by the table for engaging with the tape and with a portion of a second lever when the second lever moves, whereby the tape and table will be moved relatively to the pen, a mark being left by the pen on the tape.

9. A telegraph receiver, comprising electro-magnets, a plurality of levers, armatures secured to the levers, a pen carried by the levers; a movable table having tape passing thereover, means for maintaining the table in one position, the downward movement of the first lever bringing the pen adjacent the

tape, and means carried by the table with which a second lever engages on its downward movement, whereby the tape and table are moved relatively to the pen, there being other means coöperating with the first lever, whereby the tape is fed forwardly on the return movement of the first lever.

10. In a telegraph receiver, the combination of a plurality of superposed levers, spaced armatures carried by the levers, and means carried by one of the levers and engaging the other lever, whereby the armatures are held in spaced relation.

11. In a tape feeding mechanism for telegraph receivers, an electro-magnet, a lever adapted to be actuated thereby, a table movably mounted in position, means carried by the table for engaging a tape when the table moves in one direction, said means permitting said table to move in an opposite direction without operating said tape, means for actuating said table and said tape simultaneously in one direction, and means for causing the table to make a return movement without moving said tape.

12. A telegraph receiver comprising electro-magnets, a plurality of pivotally mounted superimposed levers, an armature carried by each of said levers, said armatures being spaced apart and adapted to be attracted by said magnets when the same are energized, the spacing of said armatures causing the armatures to move successively, a pen carried by one of said levers, a table having a tape passing thereover, the downward movement of said last mentioned lever causing said pen to engage said tape, means carried by the table for engaging the tape so that the tape will move with the table when the table moves in one direction, and means for connecting said second mentioned lever with said table so that the table will move relatively to the pen and make a mark on said tape, the length of said mark being in proportion to the movement of the table.

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

ANGELO PARODI.

Witnesses:

JOHN P. DAVIS,
PHILIP D. ROLLHAUS.