No. 879,711. PATENTED FEB. 18, 1908.

C. WILLIAMS, P. B. MITCHELL & S. HATHAWAY.

TELEGRAPHIC TRANSMITTER.

APPLICATION FILED MAY 6, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

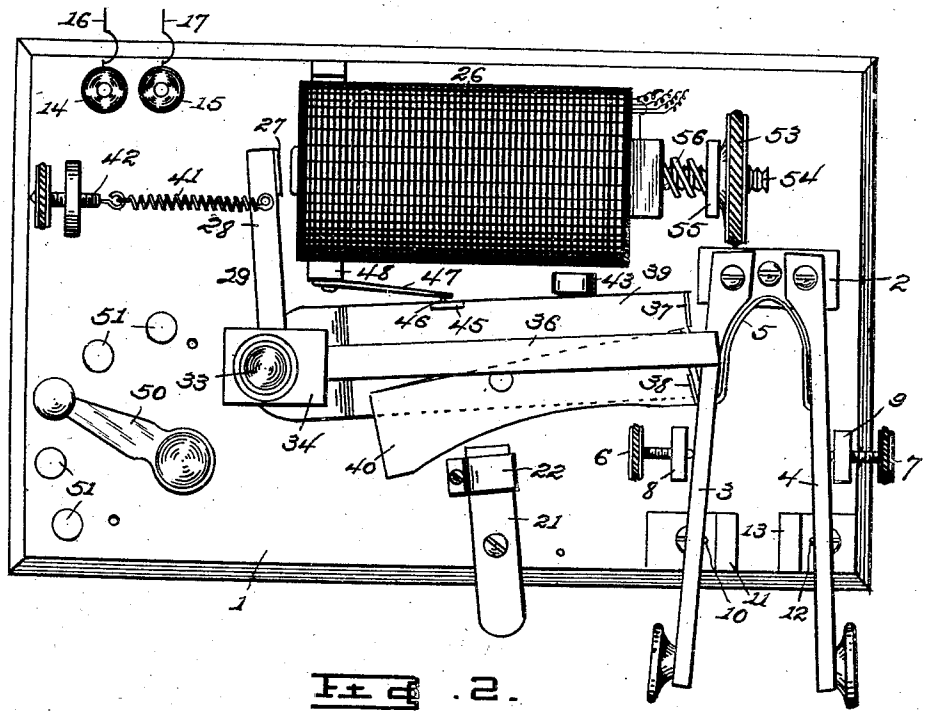
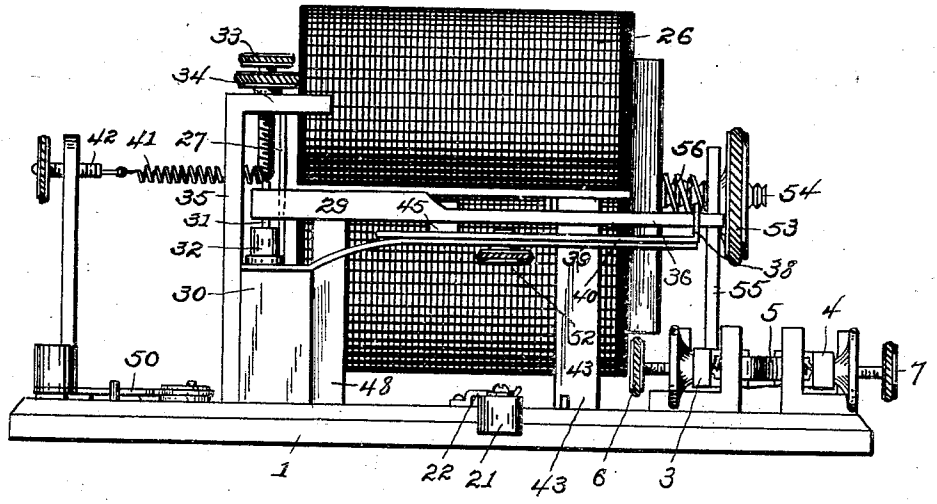


Fig. 2.



WITNESSES:

Robt. F. Wilworth

O. O. Koller

Clyde Williams.
Porter B. Mitchell.
Sharper Hathaway.

INVENTORS

By H. E. Lewis

ATTORNEY

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2 SHEETS—SHEET 2.

FIG. 3.

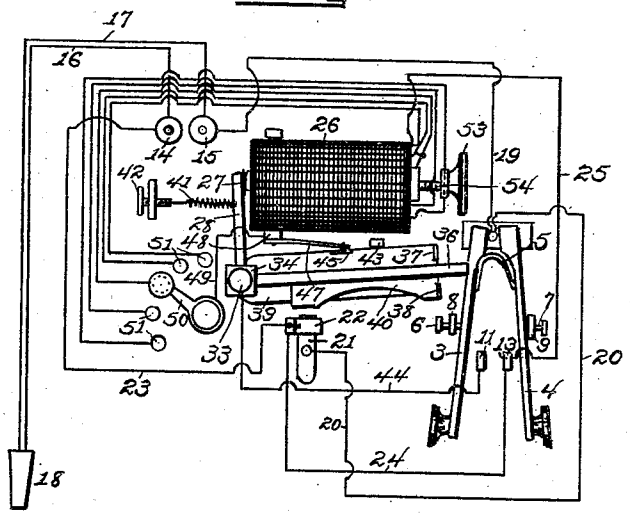
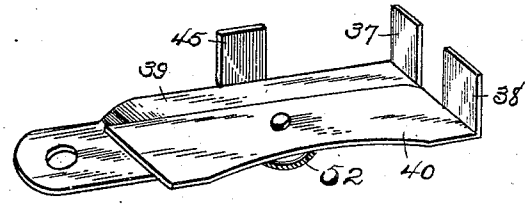


FIG. 4.



WITNESSES:

Robt. F. Wilsworth.

C. O. Koller

Clyde Williams.
Porter B. Mitchell.
Sharpe Hathaway.
INVENTORS

By H. C. Dunlap.

ATTORNEY

UNITED STATES PATENT OFFICE.

CLYDE WILLIAMS, PORTER B. MITCHELL, AND SHARPE HATHAWAY, OF BARTON, OHIO.

TELEGRAPHIC TRANSMITTER.

No. 879,711. Specification of Letters Patent. Patented Feb. 18, 1908.

Application filed May 6, 1907. Serial No. 372,195.

To all whom it may concern:

Be it known that we, CLYDE WILLIAMS, PORTER B. MITCHELL, and SHARPE HATHAWAY, citizens of the United States of America, and residents of Barton, county of Belmont, and State of Ohio, have invented certain new and useful Improvements in Telegraphic Transmitters, of which the following is a specification.

Our invention relates to new and useful improvements in telegraphic transmitters, and it consists in the particular construction, arrangement and combination of parts which will hereinafter be fully described.

The chief object of the invention is to provide a simple and efficient telegraphic transmitter whereby a succession of Morse signals may be automatically sent, and which consequently relieves the intense nervous strain upon the operator which results from the operation of the ordinary telegraphic key in rapid or prolonged sending.

A further object is to provide a transmitter in which the length of the dots and dashes and their rapidity of succession may be regulated by adjustment of parts. And a still further object is to provide a telegraphic transmitter in connection with which the usual telegraphic battery is not required, the instrument receiving its electrical energy from the line wire to which it is connected by the ordinary contact plug.

In describing the invention in detail, reference is herein had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top plan view of the invention; Fig. 2 is a front elevation of the same; Fig. 3 is a diagrammatic view, showing the circuit connections; and Fig. 4 is a perspective view of the lever-operated circuit breaker.

Referring to said drawings, in which like reference-numerals designate like parts throughout the several views—1 indicates a base on which is mounted the working mechanism comprising the invention. Provided on said base 1 at a suitable point is a metallic block 2 having pivotally mounted thereon keys 3 and 4, which are normally held spread apart, as shown in Figs. 1 and 3, by means of a suitable spring 5. Said keys 3 and 4 respectively rest against the points of set-screws 6 and 7 provided in suitably-located posts 8 and 9. The key 3 carries a contact-point 10 adapted to coöperate with a post 11, mounted upon the base, and the key 4 carries a contact-point 12 adapted to cooperate with a post 13, also mounted on said base.

Binding-posts 14 and 15 are connected by wires 16 and 17 with the ordinary contact-plug 18 which is adapted for insertion underneath the ordinary telegraph key or in the switch-board. The binding-post 15 is connected by the wire 19 with the metallic block 2, and consequently with the keys 3 and 4 mounted on said block; and the block 2 is connected by wire 20 with a pivoted lever, or circuit breaker, 21, the spring contact-plate 22 with which said lever coöperates being connected by the wire 23 with the binding-post 14. The spring contact-plate 22 is connected by wire 24 with said post 13, and the latter is also connected by wire 25 with one pole of an electromagnet 26.

The key 4, which is employed only for transmitting dashes, when moved horizontally against the post 13 completes an electric circuit between the binding posts 14 and 15, said circuit comprising the wire 19, block 2, key 4, post 13, and wires 24 and 23.

The armature 27 of the electromagnet is carried upon the end of one arm 28 of an angular lever 29 which is pivotally mounted in a suitable manner upon a block 30 stationed on said base 1. In the present instance, a pin or pivot 31 having its opposite ends pointed is projected vertically through the angle of said lever, and one end of said pivot is mounted in a socketed base 32, while the other end thereof is held in a socket in the point of a set-screw 33 which is projected vertically through a horizontal lug 34 carried by a post 35. The opposite arm 36 of said lever 29 lies horizontal with its end projected between upright lugs 37 and 38 respectively carried by metallic plates 39 and 40, the former of which is pivoted on the block 30 underneath the socketed base 32, as shown. The plate 40 is mounted directly on the plate 39, being secured thereto by means of a set-screw 52. A tension spring 41 connected at one end with the arm 28 of said lever 29 and at the other end with an adjusting-screw 42 normally holds said lever withdrawn with the armature 27 removed from the electromagnet 26, and at the same time the oppo-

site arm 36 of the lever is held back, holding the rear edge of the plate 39 against a backstop or post 43. A wire 44 connects the post 11 with the block 30 and consequently with the plate 39 which is mounted on said block. An upright lug 45 carried by said plate 39 normally stands in contact with a platinum contact-point 46 carried by a flexible spring 47, said spring being suitably mounted on the face of an upright metal post 48 which is connected by wire 49 with the switch-arm 50 of an adjusting switch mounted on said base at a suitable point, the coöperating contacts 51 of said switch being connected by wires with said electromagnet 26, as shown. A circuit is thus formed between the binding posts 15 and 14 through said magnet when the key 3 is held against the post 11, said circuit including the wire 19, key 3, post 11, wire 44, block 30, plate 39, spring 47, post 48, wire 49, switch-arm 50, contact 51, one of the wires leading from the adjusting switch to the coils of the magnet, the coils of the magnet, the wire 25, post 13, and wires 24 and 23.

As is obvious, when the key 3 is held against the coöperating post 11, the circuit above mentioned is completed and the electromagnet 26 is energized, causing the lever 29 to rock on its pivot, the armature 27 being carried on the arm 28 of said lever. When the armature moves forward toward the magnet, the arm 36 of said lever is thrown forward against the upright lug 38 of the plate 40, and carries said plate, together with the pivoted plate 39, to which said plate 40 is secured by means of the adjusting 52 hereinbefore mentioned, forward, breaking the contact between the lug 45 and the spring 47, opening the electric circuit and deenergizing the magnet. Actuated by the spring 41, the lever 29 is immediately drawn back to its normal position, carrying therewith the plates 39 and 40, and again making contact between the terminals 45 and 47, closing the electric circuit through the magnet. Thus it will be seen that as long as the key 3 is held against the post 11 the circuit through said magnet is alternately opened and closed in rapid and regular succession, and a series of dots is automatically transmitted.

The speed and length of the dots may be regulated by adjusting the nut 53 carried by a bolt 54 which is projected from the magnet through a supporting-post 55. The opposite end of said magnet being slidably mounted between the bifurcated upper end of said post 48, when the nut 53 is manipulated the magnet moves toward or away from the armature 27, according to the direction given said nut. A spiral spring 56 normally holds said magnet thrust forward from the post 55, as shown. The length of the dots and the rapidity with which they may be sent may also be regulated by adjusting the plates 39 and 40 with relation to each other so as to vary the width of the space between the lugs 37 and 38. As is obvious, the greater the distance between said lugs, the shorter will be the distance to which said plates will be kicked by the arm 36 of the lever 29 when the armature moves against the magnet, and, consequently, the shorter will be the interval between the dots, owing to the short interval between the opening and closing of the circuit through the terminals 45 and 47.

In sending dashes, as is apparent, a distinct movement of the key 4 must be made for each impulse. Said key 4 may be employed as an ordinary telegraphic key, if desired, it being adapted for sending either dots or dashes. The movement of said key is horizontal, however, instead of vertical, as in the ordinary telegraphic key.

From the foregoing it will be seen that we provide an extremely simple and efficient device for the purpose mentioned; and, while we have shown the device in what we now consider to be its simplest form, it is obvious that various mechanical changes may be made in the construction and arrangement of some of the parts without departing from the general spirit or scope of the invention. Hence we do not desire to limit ourselves to the precise construction and arrangement of parts herein shown and described.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. In a telegraphic transmitter, an electromagnet, a block, a pair of horizontally moving spring pressed keys pivoted on said block, a contact post for each key, a pivoted spring-held angular lever, an armature for said magnet carried on one arm of said lever, a pivoted plate having an upright lug on its free end, a second plate adjustably carried by said first plate and having an upright lug on its outer end, the other arm of said lever extending between said upright lugs, a second upright lug carried by said first named plate, a flexible spring having a contact point normally in engagement with said second lug of the first named plate, electrical connections between said block and one of said contact posts for one of the keys, a connection between said last named contact post and said magnet, a connection between the other contact post and said first named plate, and a connection between said magnet and said flexible spring.

2. In a telegraphic transmitter, electric circuits including therein, an electro-magnet, a pair of contact posts a block, a pivoted lever, having an armature, and a flexible spring carrying a contact point, said block having a pair of keys pivoted thereto, means operated by said lever and coacting with the contact point of said flexible spring for breaking the circuit through said magnet, and

means whereby the distance traveled by said first named means in its movement may be varied.

3. In a telegraphic transmitter, electric circuits including an electro-magnet, a spring held pivoted armature-carrying lever, a flexible contact-point-carrying spring, keys and contact posts for the keys, a pivoted element coacting with said contact-point of the spring to make and break the circuit through said magnet, and adjustable means on said element for engagement with said lever whereby the distance traveled by said element in its movement may be varied.

4. In a telegraphic transmitter, electric circuits including an electro-magnet, armature-carrying means, a contact point, keys and contact posts for the keys, and a pivoted plate co-acting with said contact-point to make and break the circuit through the armature, said plate having adjustable parts disposed on opposite sides of and operated by said armature carrying means, whereby the period of duration of the break may be varied.

5. In a telegraphic transmitter, electric circuits including an electro-magnet, an armature-carrying spring-held lever, a contact point, keys and contact posts for the keys, a pivoted plate having a part for engagement with said contact point and a part for engagement with one side of one of the arms of said lever, and a second plate movably secured to the first plate and having a part for engagement with the opposite side of said lever arm.

6. In a telegraphic transmitter an electro-magnet, a contact point, an armature-carrying spring-held pivoted lever, keys and contact posts therefor all included in an electric circuit, a pivoted plate having a part to engage said contact point, and means borne by said plate to engage said lever whereby said plate is operated thereby, to break the circuit through the magnet said means being adjustable towards and away from said lever so that the period of duration of such break may be varied.

7. In a telegraphic transmitter, an electro-magnet a contact point, a spring-held pivoted armature-carrying lever, keys and contact posts therefor, all of said parts being included in an electric circuit, and pivoted means having a part normally engaging said contact point and having means extending on opposite sides of one arm of said lever, and means whereby the distance between said last named means may be varied.

In testimony whereof we affix our signatures in presence of two witnesses.

CLYDE WILLIAMS.
PORTER B. MITCHELL.
SHARPE HATHAWAY.

Witnesses:
C. BABB,
C. O. FLOWERS.