May 18, 1926. 1,585,441

R. E. VAUGHAN ET AL

AUTOMATIC TRANSMITTER

Filed Sept. 12, 1923 4 Sheets-Sheet 1

Fig. 1.

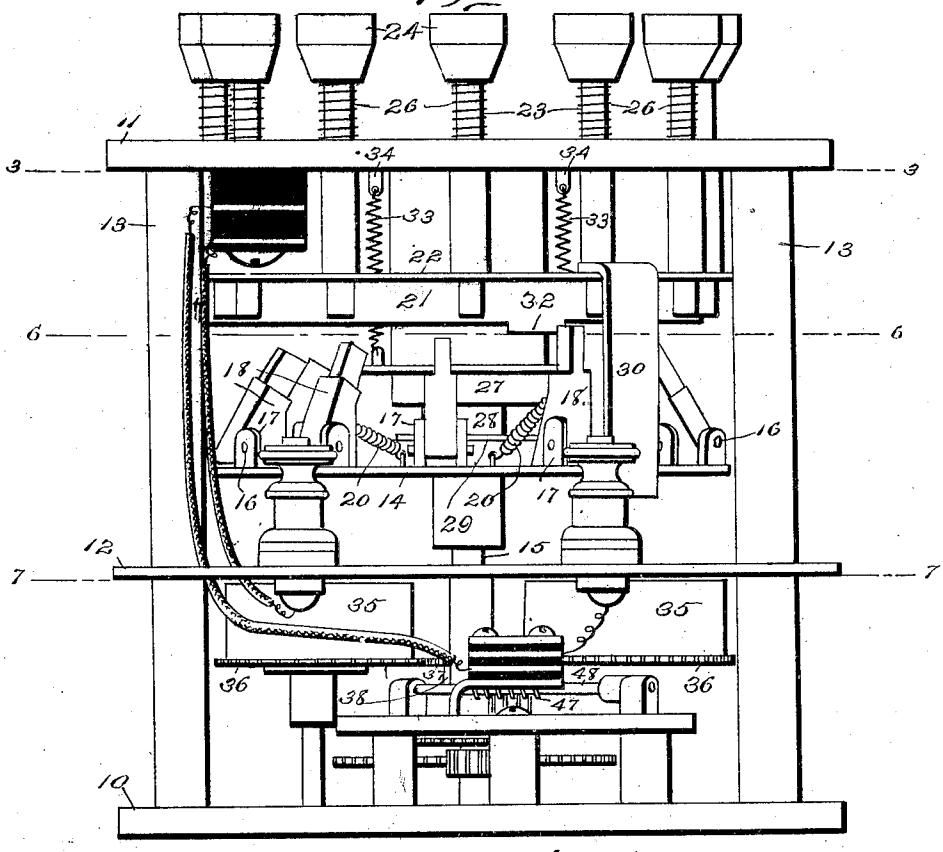
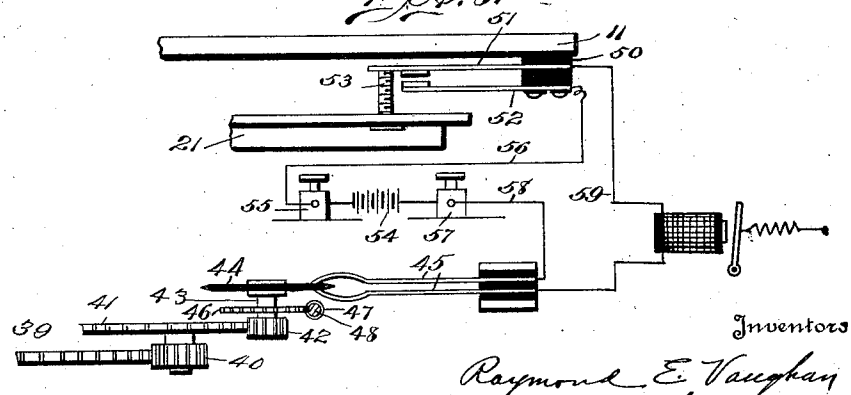


Fig. 8.



Inventors

Raymond E. Vaughan

and

Warren S. D. Leland

By Robert H. Young

Attorney

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Filed Sept. 12, 1923 4 Sheets-Sheet 2

Fig. 2.

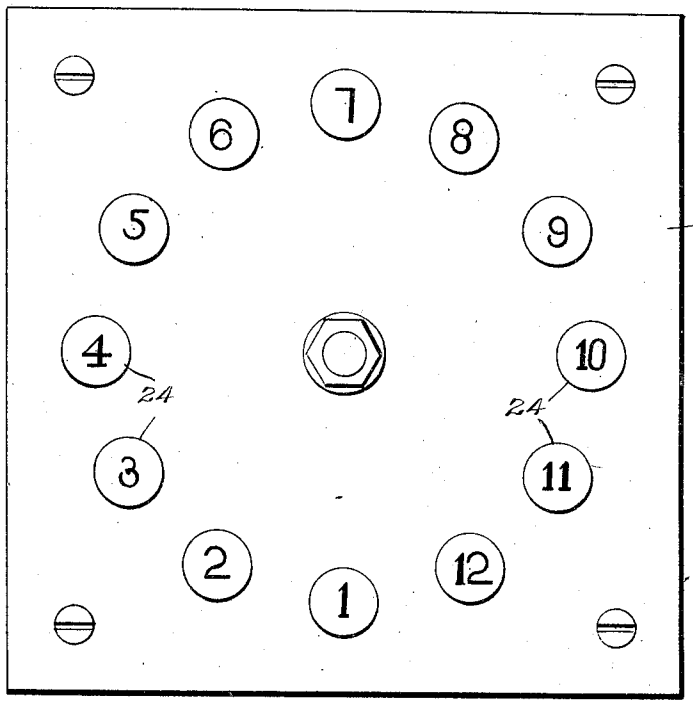
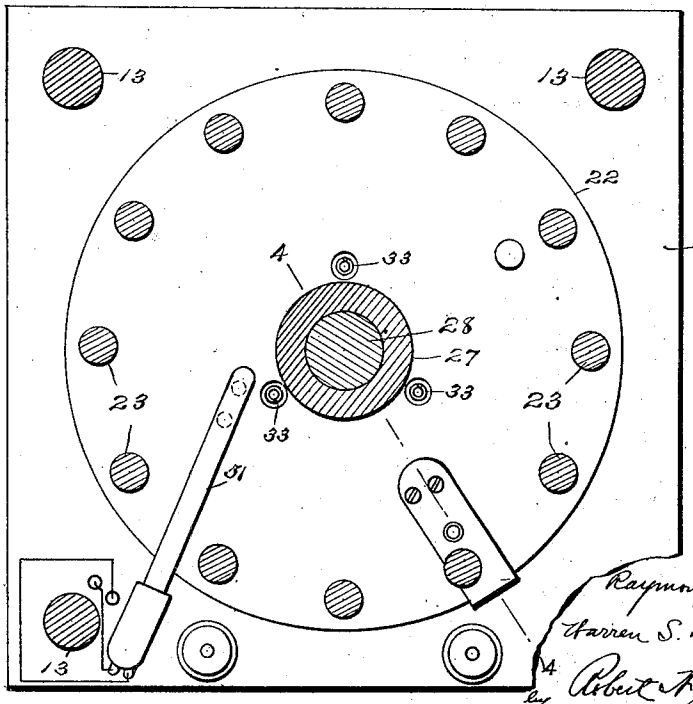


Fig. 3.



Inventor
Raymond E. Vaughan
and
Warren S. D. Leland
by Robert H. Young
Attorney

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R. E. VAUGHAN ET AL

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Filed Sept. 12, 1923 4 Sheets-Sheet 3

Fig. 4.

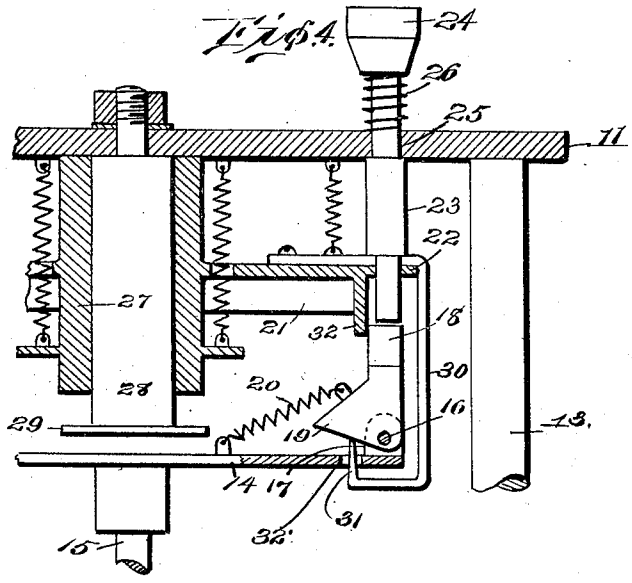
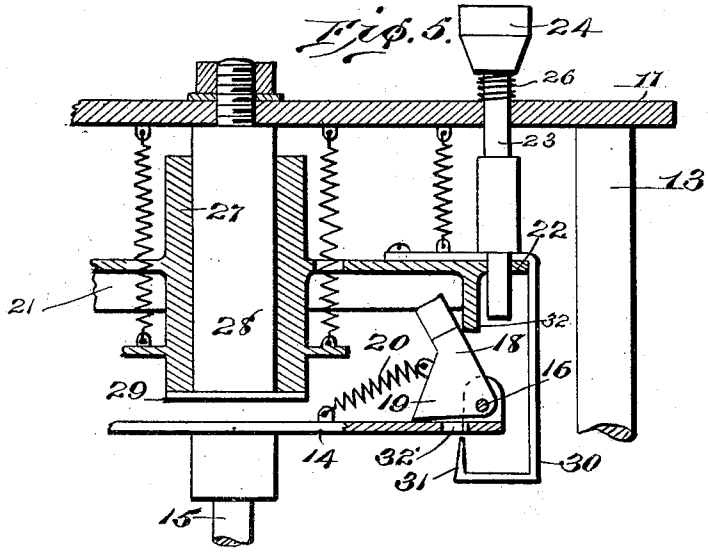


Fig. 5.



Inventors

Raymond E. Vaughan

and

Warren S. D. Leland

By Robert A. Young Attorney

May 18, 1926. 1,585,441

R. E. VAUGHAN ET AL

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Filed Sept. 12, 1923. 4 Sheets-Sheet 4

Fig. 6.

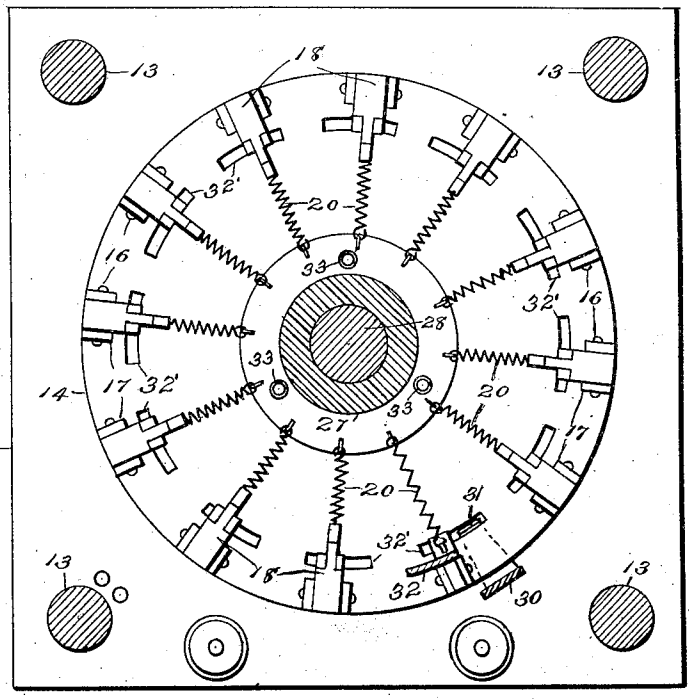
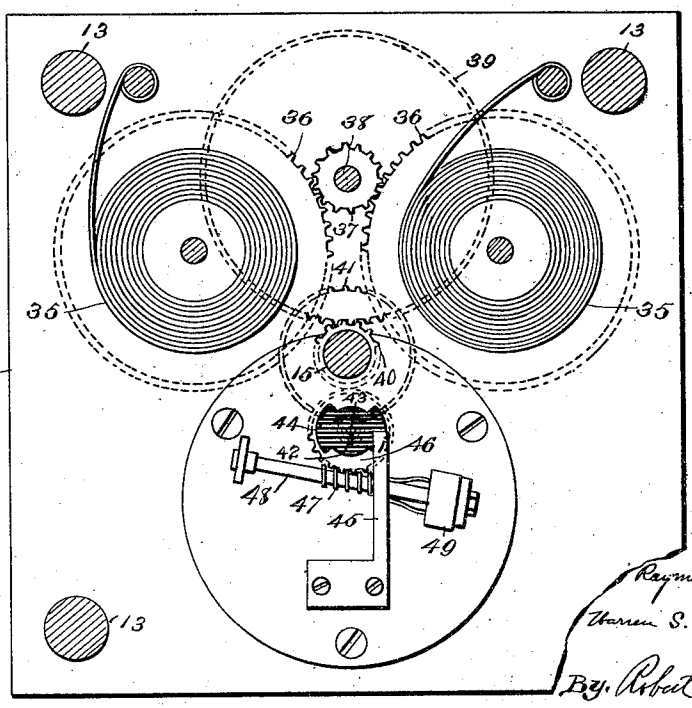


Fig. 7.



Inventors
Raymond E. Vaughan
and
Warren S. D. Leland
By. Robert H. Young
Attorney

Patented May 18, 1926. 1,585,441

UNITED STATES PATENT OFFICE.

RAYMOND E. VAUGHAN, OF PIQUA, AND WARREN S. D. LELAND, OF DAYTON, OHIO.

AUTOMATIC TRANSMITTER.

Application filed September 12, 1923. Serial No. 662,232.

This invention relates to automatic transmitters, the object being to produce an instrument for automatically transmitting electric signals in the form of dots and a final dash by pressing upon any one of a number of keys corresponding to a like signal. The transmitter is adapted to automatically transmit a signal or combination of signals by the pressing of a single key, the number of different combinations depending upon the number of keys employed. The releasing of a key automatically sets the instrument for the immediate transmitting of a new signal. The transmitter may be used to control any device that is operated or controlled by electric signals or combination of signals.

To the above end the invention consists in the construction, combination and arrangement herein fully described, shown and claimed.

In the accompanying drawings—

Figure 1 is a view in elevation of the transmitter.

Figure 2 is a plan view of the same.

Figure 3 is a horizontal section taken on the line 3—3 of Figure 1.

Figure 4 is a fragmentary, vertical section on the line 4—4 of Figure 3.

Figure 5 is a similar section taken on the same line 4—4 of Figure 3 with the elements in a position different from Fig. 4.

Figure 6 is a horizontal section taken on the line 6—6 of Figure 1.

Figure 7 is a section taken on the line 7—7 of Figure 1.

Figure 8 is a diagrammatic elevation showing the wiring system.

The frame of the instrument is conveniently shown as comprising a base plate 10, a cap plate 11, an intermediate plate 12 and corner uprights 13, all of said parts being rigidly united.

Mounted between the plates 11 and 12 is a rotary stop carrying member 14 shown in the form of a disk mounted fixedly upon and adapted to rotate with a rotary shaft 15, driven by means hereinafter described and journaled in the plates 10 and 12.

Connected by pivots 16 to lugs 17 on the disk 14 are movable stops 18.

As shown in Figures 4 and 5, each of the stops 18 comprises an enlarged cam-like portion 19 and is normally held in the position shown in Figure 5 by means of a contractible spring 20, which is connected at one end to the respective stop and at its other end to a lug on the rotary disk 14. The enlargement 19 acts as a limiting means for the inward movement of the stop by coming in contact with the disk 14.

Operating above the disk 14 is a vertically movable annular track 21 having at its outer edge a circumferential flange 22, the latter being formed with holes serving as guides for a circular series of plungers 23, each plunger having at its upper end a depressible key 24. The arrangement is such that the depressible track 21 is moved downwardly when any one of the keys is depressed. The plungers 23 extend upwardly through guide openings 25 in the cap plate 11 and the plungers are normally held elevated by springs 26 coiled around the plungers.

The track 21 is mounted upon and in fixed relation to a sliding sleeve 27 which is guided by a centrally arranged vertical rod 28 securely fastened at its upper end to the cap plate 11 and formed at its lower end with a stop flange 29 which limits the downward movement of the sleeve 27 and the annular track 21. Fastened to the annular track 21 is a trip finger 30 which extends downwardly, then inwardly under the disk 14 and has an upturned extremity 31 adapted to work through any one of the circular series of slots 32′ in the disk 14 (see Fig. 6). In the upward movement of the annular track 21, the upturned extremity 31 of the trip finger 30 cams against the enlarged portion 19 of the adjacent stop 18 and swings said stop from the position shown in Figure 5 to the position shown in Figure 4. The spring 20 causes the stop to engage the outer surface of the annular track 21 as shown in Figure 4, and also in Figure 1. The disk 14 starts to rotate, being driven by a spring motor as is later fully described as soon as released by the point 31. A detaining lip 32 on the track engages the upper extremity of the stop 18 to thus hold said stop in the position stated until after the track has been depressed from the position shown in Figures 1 and 4. Springs 33 connect the annular track with lugs 34 on the cap plate 11 and operate to hold the track 21 normally elevated. In the drawings we have illustrated twelve keys 24 and a corresponding number of plungers 23 and pivoted stops 18 but it will, of course, be apparent that any desired number of such

elements may be employed without departing from the spirit of the invention.

The mechanism for driving the shaft 15 and the rotary disk 14 is shown as comprising a spring motor embodying a plurality of helical springs 35 (see Fig. 7) which actuate gear wheels 36 meshing with and driving a pinion 37 on a short shaft 38 having thereon another gear wheel 39, which meshes with and drives a pinion 40 on the driving shaft 15. Another gear 41 on the shaft 15 connects with a governor mechanism of any suitable description as shown in Figure 7, the gear 41 meshing with a pinion 42 on the shaft 43 of a rotary contact make and break device 44 shown in the form of a wheel having two humps or raised portions which operate between a pair of spring contact fingers 45. On the same shaft 43 there is mounted a worm wheel 46 which meshes with worm teeth 47 on the governor shaft 48, having the governor mechanism at 49. Each time the wheel 44 rotates a connection is made and broken twice by the contacts so as to send out two dots or signals.

Fastened to the underside of the cap plate 11 by means of a suitable insulated support 50 are two current carrying spring contact fingers 51 and 52, the contact points of which are separated in the upward movement of the annular track 21 by a circuit breaking pin 53 as shown in Figure 8. In the downward movement of the track 21 the contact fingers 51 and 52 close the circuit through a source of electric energy such as a battery 54 through binding post 55 and wire 56 to the contact finger 52. The other terminal of the battery 54 is connected to binding post 57 from which the wire 58 leads to one of the contact fingers 45 above referred to. The other one of the contact fingers 45 is connected by a wire 59 to the contact finger 51.

To operate the instrument, starting from a position of rest as shown in Fig. 4, a key 24 is depressed corresponding to the number of dots in the signal to be transmitted. This causes the plunger of the key depressed to move downwardly and causes the annular track 21 to descend, and at the same time also moves the trip finger 30 in the same direction. Thus the spring motor is permitted to rotate the disk 14, which immediately starts to revolve with the upstanding stop held in that position by the track 31 until it strikes the depressed key. The rotation of the disk 14 causes the circuit breaker to operate to send out a series of dots or signals, the last signal being held until the key is released, if desired, at which time the transmitting circuit is broken by the contact fingers at 51. Immediately upon release of the depressed key the track 21 rises and the previously elevated stop is retracted to the position shown in Fig. 5 by its spring. At the same instant the stop which is now positioned adjacent the No. 12 and No. 1 keys is raised by the finger 31 which is located adjacent the extension 32 of the track, so that the extension will be in a position to prevent the retraction of the raised stop by the time the rotation of disk 14 ceases. The device is then ready for a second signal series to be transmitted.

We claim:

1. In a transmitting device of the class described, in combination, electrical connections adapted to be connected to an external circuit, a circuit breaker for said connections, a rotatable member operably connected to said circuit breaker, a device for rotating said member, a series of stops mounted on said member, means for normally preventing rotation of said member and for moving one of said stops to an operative position ready to be engaged by a depressed key, and a plurality of keys adapted when operated to be moved into the path of said stop at different points along said path.

2. In a transmitting device of the class described, in combination, electrical connections adapted to be connected to an external circuit, a circuit breaker for said connections, a rotatable member operably connected to said circuit breaker, a spring for rotating said member, a series of stops mounted on said member, means for normally preventing rotation of said member and for moving one of said stops to an operative position ready to be engaged by a depressed key, a plurality of keys adapted when operated to be moved into the path of said stop at different points along said path, and two contacts in said electrical connections interconnected with said rotation preventing means to be closed thereby when any of said keys are depressed.

3. In a transmitting device of the class described, in combination, electrical connections adapted to be connected to an external circuit, a circuit breaker for said connections, a rotatable unidirectional member operably connected to said circuit breaker, a device for rotating said member, a series of stops movably mounted on said member, means for normally preventing rotation of said member and for moving the stop adjacent thereto to an operative position ready to be stopped by a depressed key as soon as said member is released, and a plurality of keys adapted to be operated manually to be moved into the path of said stop at different points along said path for variably controlling the angular movement of said member.

4. In a transmitting device of the class described, in combination, electrical connections adapted to be connected to an external circuit, a circuit breaker for said connections, a rotatable member operably connect-

ed to said circuit breaker, a spring motor for rotating said member, a series of stops pivotally mounted on said member, equidistantly from the rotational axis of said member, means for moving an adjacent stop to an operative position ready to be engaged by a depressed key, a plurality of keys adapted when operated to be moved under the path of said stop at different points along said path for variably controlling the angular movement of said member, and two contacts in said electrical connections interconnected with said means to be closed when said means is operated by depressing one of the keys.

5. In a transmitting device of the class described, in combination, electrical connections adapted to be connected to an external circuit, a circuit breaker for said connections, a rotatable disk member operably connected to said circuit breaker, a motor for rotating said disk member, a series of stops movably mounted on said disk member and arranged concentrically with the axis of said member, a plurality of keys adapted when operated to be moved into the path of a raised stop at different points along said path for variably controlling the angular movement of said member, a plate depressible by any of said keys, means on said plate for normally preventing rotation of said member and for moving the stop which is adjacent thereto when the depressed key is released, to be in position to be stopped by a subsequently depressed key to control the angular movement of said member and the number of impulses sent to said external circuit.

6. In a transmitting device as set forth in claim 5, an annular track on said plate to maintain said stop in its raised position as long as said plate is depressed, and two contacts in said electrical connections operably interconnected with said plate to be closed thereby when said plate is depressed.

7. In a transmitting device as set forth in claim 5, an annular track on said plate to maintain said stop in its raised position as long as said plate is depressed and a stop detaining lip to hold a stop in readiness to engage said track.

In testimony whereof we affix our signatures.

RAYMOND E. VAUGHAN.
WARREN S. D. LELAND.