May 8, 1945. L. S. ROSE 2,375,587

TRANSMITTING SYSTEM

Filed June 26, 1942

FIG. 1.

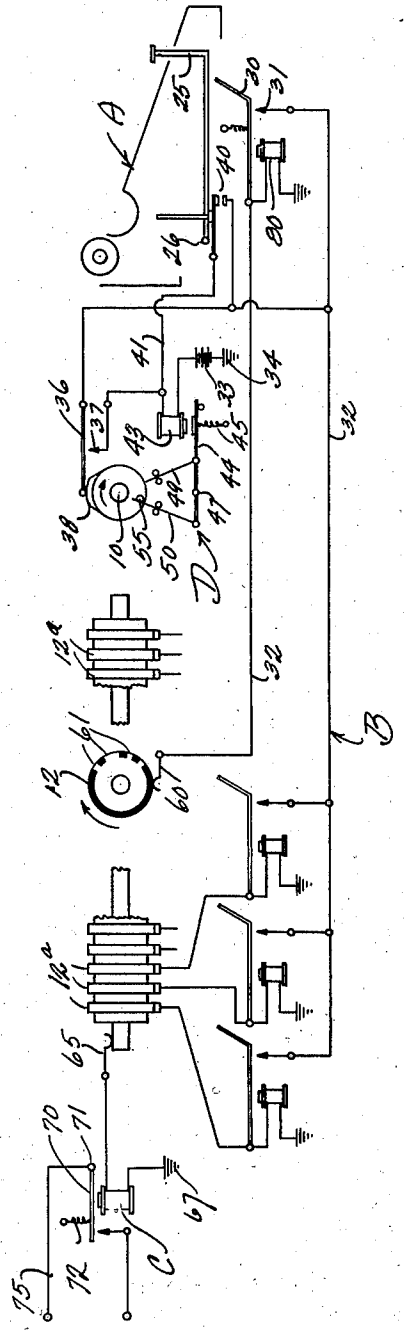
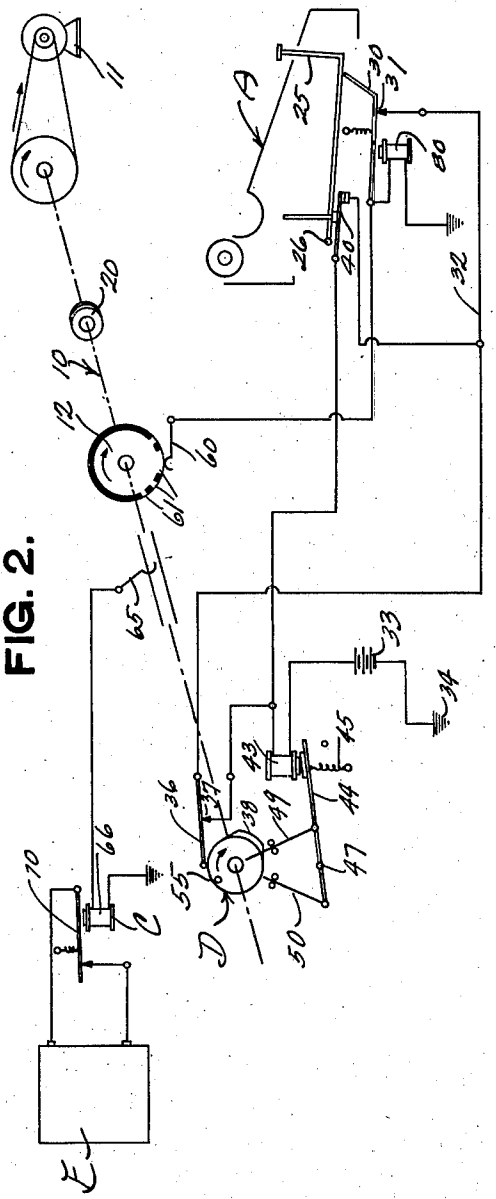


FIG. 2.



INVENTOR.
Luther S. Rose.

BY Lancaster, Allwine and Rommel
ATTORNEYS.

Patented May 8, 1945 2,375,587

UNITED STATES PATENT OFFICE

2,375,587

TRANSMITTING SYSTEM

Luther S. Rose, Honolulu, Territory of Hawaii

Application June 26, 1942, Serial No. 448,632

1 Claim. (Cl. 178—81)

This invention relates to improvements in transmitting devices adapted for use in connection with printing telegraph receivers and the like.

The primary object of this invention is the provision of an improved transmitter for transmitting code signals to a printing telegraph receiver such as set forth in my co-pending application Serial Number 408,886, filed August 29, 1941, now Patent No. 2,323,155, granted June 29, 1943.

A further object of this invention is the provision of improved means whereby written messages may be converted into dots and dashes by means of a conventional typewriter, resulting in the transmission of long and short electrical impulses to a standard radio transmitter or the like.

A further object of this invention is the provision of improved means for the transmission in code of messages from a conventional typewriter having letters of the alphabet delineated thereon; the code transmission being of the variable long and short impulse type, and which transmission is entirely automatic, so that the operator of the typewriter need not be familiar with code transmission systems, etc.

Other objects and advantages of this invention will be apparent during the course of the following detailed description.

In the accompanying drawing, forming a part of this specification, and wherein similar reference characters designate corresponding parts thruout the several views.

Figure 1 is a wiring diagram showing the preferred form of means for translating letters of the alphabet into transmitter actuating long and short electrical impulses.

Figure 2 is a diagrammatic view showing the actuating features of the details shown in Figure 1.

In the drawing, wherein for the purpose of illustration is shown a preferred embodiment of the invention, the letter A may generally designate a standard typewriter having means B associated therewith for directing short and long electrical code impulses to a transmitter operating keying relay C.

It is to be understood that the transmitter of this invention is not to be restricted to code transmission of messages by means of radio, but is equally adaptable for use in connection with wire telegraphy.

The means B generally consists of a rotor 10, in the nature of a shaft, actuated by means of a preferably constant speed motor 11. Upon the shaft 10 there are positioned rotor discs or members 12 individual to the keys of the typewriter, and which are provided with contact points corresponding to long and short impulses. Detent means D is provided, electromagnetically controlled, for controlling the stoppage and starting of the rotor 10.

In its broad aspect, actuation of a key of the typewriter will close a circuit included in the means B for causing the rotor 10 to turn one complete revolution. Depending upon the particular key which is pressed, a circuit will be completed thru the particular rotor disc or member 12 corresponding to that key, and the circuit will be so controlled thru the detent means D as to permit the shaft 10 to complete one revolution. The circuit which is closed by reason of switch engagement with the particular rotor disc or member 12 which is actuated upon pressing its respective key, will permit variable impulses to be transmitted to the keying relay C, and thence to the radio or other type of transmitter E.

A suitable clutch means 20, diagrammatically shown in the drawing, is employed to drive the shaft 10 from the motor 11.

In order to understand operation of the various electro-magnetically controlled circuits and relays, a complete cycle for the transmission of the code corresponding to the letter F will be described in detail.

The typewriter A is, of course, provided with the usual keys 25, pivoted at 26. Assuming the key 25 shown in the drawing will operate the mechanism for printing letter "f." In Morse code the letter "F" consists of two dots, a dash and a single dot.

Pressing of the key 25 will cause the same to engage a switch arm 30, moving the latter into engagement with a contact 31 for closing a circuit 32. This circuit 32 may include a battery 33 as a source of electrical energy. The battery 33 is grounded at 34 and the circuit 32 includes a switch arm 36 normally disengaged from its contact 37 by means of a cam 38 keyed upon the shaft 10.

Operation of the key 25 will operate a switch 40 for closing an auxiliary circuit 41 which includes the source of electrical energy 33. The closing of this circuit 41 operates an electromagnetically controlled relay 43. The latter has an armature 44 normally spring actuated, to an open position, at 45. The armature 44 comprises part of the detent means D above mentioned.

It is pivoted at 47 and at opposite sides of the pivot it is provided with detents 49 and 50 adapted to be alternately operated into the path of a stop lug or member 55 positioned upon some portion of the rotor 10, such as the cam disc 38. During inaction of the circuit 41 the detent 50 is interposed in the path of the lug 55 to limit rotation of the rotor 10, as shown in Figure 1, and as shown in Figure 2 when the relay 43 is energized, the armature will interpose the detent 49 in the path of the lug or tooth 55.

As before mentioned, when the key 25 is pressed, closing of the switch 40 will actuate the relay 43 disposed in the circuit 41. The rotor 10 moves in the direction indicated by the arrow in Figures 1 and 2 and attraction of the armature 44 will move the detent 50 out of position of the stop 55 so that the rotor 10 will be placed in operation. Since the typewriter key 25 also closes the switch 30—31, current will pass from the battery 33 thru the relay 43, thence thru the closed switch 40 and thence thru the switch 30—31 and thru the circuit 32 to a brush 60 operating upon the rotor disc or member 12. This rotor disc 12 is provided upon its periphery or some other location thereon with an insulated surface in which appear conductors 61 of varying length corresponding to dots and dashes. These conductor segments transmit the current along the shaft to a suitable brush arm 65 and into the keying relay C, and thence to ground 67. Energizing of the relay C attracts an armature 70 normally pivoted at 71 and spring actuated at 72 so that it is normally open. Attraction of the armature 70 will close a circuit 75 which operates the radio transmitter for the transmission of code signals as regulated by the conductor segments 61 of the rotor member 12.

As soon as the rotor 10 has started to turn, the switch 36—37 will be closed and completion of the circuit thru the relay 43 will attract the armature 44 and hold it in such position, so that the operator of the typewriter may release the key 25 as soon as it has been pressed sufficiently to close the switch 40 and switch 30—31.

Should the operator release the key too quickly, it is to be noted that part of the circuit will operate a relay 80 for holding the armature 30 in engagement with its contact point 31 and thus holding the switch 30—31 closed once contact has been made. This armature 30 is, of course, spring actuated to normally hold the switch 30—31 open. After this has been accomplished the switch 30—31 will remain closed until the current has been interrupted somewhere between this point and the battery 33. If the typewriter key has been released too quickly and the switch 40 opened prematurely, the switch 36—37 will automatically maintain the circuit closed until the cam 38 advances to automatically open the circuit.

It is immaterial within reason how slow or fast the typewriter keys are operated, the rotor 10 will only make one complete revolution each time a typewriter key is pressed.

If the typewriter key 25 should be held down for too long a period of time, the switch 40 will of course be closed. The cam 38 will open the switch 36—37, but since the current is flowing to electro-magnetic relay 43, the armature 44 will remain in the position shown in Figure 2 of the drawing and the detent or dog 49 will automatically stop rotor 10 at the completion of one revolution thru engagement with the stop 55, until the cam 38 breaks the circuit. This, of course, will permit the armature 44 to return to its normal position, shown in Figure 1, with the detent 50 against the stop 55.

In Figure 1 the different rotor members 12a, of course, are properly provided with segments corresponding to the code of the respective key letter to which they relate, and of course each key of the typewriter operates its pair of switches in the same manner as above described for the key 25.

It is to be understood that the transmitting apparatus of this invention can be used with the printing telegraph receiver of my above identified co-pending application, or in connection with any other type of receiving mechanism operated either by means of radio or wire. Furthermore, the typewriter A can be equipped with electro-magnetic means to print a message upon the typewriter as operated by a transmitter such as herein described; such transmitter, of course, being located remotely. In such case the typewriter will, of course, have to be equipped with the receiving apparatus of my above described co-pending application. It is also to be understood that various other changes in the arrangement of circuits and parts may be made to the invention as herein shown, without departing from the spirit of the invention or the scope of the claim.

I claim:

In code transmitting apparatus for printing telegraph receivers and the like, the combination of a mechanically actuated device having a plurality of keys movably mounted thereon with different character designations therefor, rotary means including a rotor member for each key provided with a particular current conducting contact arrangement thereon for the respective character of the key, all of said members being keyed for unitary rotation at all times with the rotary means, circuit means controlled by key actuation for respectively directing a circuit thru the contact arrangements of the particular rotor member whose key is moved for message transmission purposes, means actuated by closing of a circuit thru the contacts of a rotary member for transmitting electrical impulses to a transmitter in accordance with the connector contact arrangement of the rotary member, detent means for regulating the rotary action of said rotor as a unit in accordance with proper key actuation, and electro-magnetically controlled means for regulating the proper action of said detent and rotor member notwithstanding eccentric timed operation of the keys.

LUTHER S. ROSE.