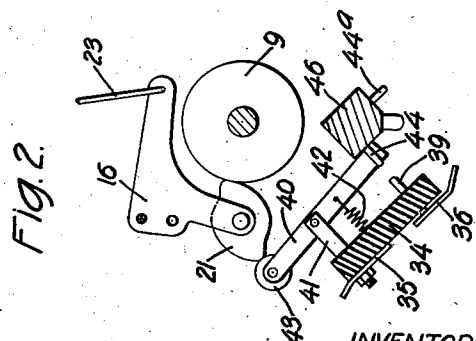
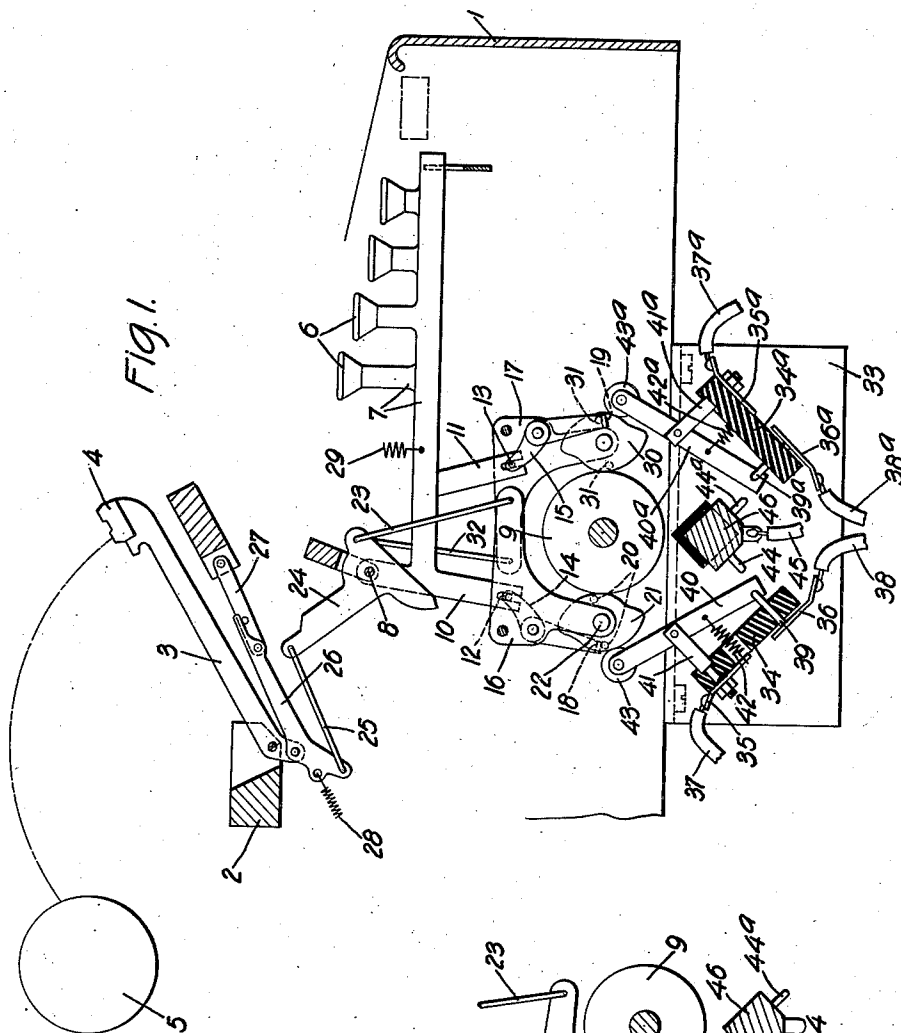


March 2, 1937.

W. S. LEMMON ET AL
POWER OPERATED TRANSMITTER

2,072,458

Filed June 20, 1933



49 INVENTORS
Walter S. Lemmon,
Herman R. Rose and
Frederick W. Young.

BY *Moses & Nolte*
ATTORNEYS

UNITED STATES PATENT OFFICE

2,072,458

POWER OPERATED TRANSMITTER

Walter S. Lemmon, New York, N. Y., Herman R. Rose, Newark, N. J., and Frederick W. Young, Little Neck, N. Y., assignors, by mesne assignments, to International Business Machines Corporation, New York, N. Y., a corporation of New York

Application June 20, 1933, Serial No. 676,654

4 Claims. (Cl. 197—5)

This invention relates to means for setting up and transmitting electrical impulses to a remote point suitable for operating a typewriter or other recording device located at the remote point. The remote point at which the impulses are received may be many miles away or it may be in the same room, the mechanism being employed for telegraphing in one instance but merely for duplicating in the other.

It is an object of the invention to provide a transmitter embodying a power typewriter together with means actuated by the power means of the typewriter for setting up and transmitting the impulses for operating the remote recorder.

The utilization of the power mechanism for operating circuit controlling switches has marked advantages. The switches are closed and opened sharply and uniformly regardless of the character of key stroke imparted by the operator and the circuits are held closed for substantially predetermined periods. Thus arcing is avoided, and dependable operation is assured. No extra effort is required of the operator, and no retardation of the operation results.

It is a further object of the invention to embody the electrical impulse generating mechanism in a simple, inexpensive, and compact attachment which may be applied to a power typewriter of standard construction.

Other objects and advantages will hereinafter appear.

In the drawing forming part of this specification,

Figure 1 is a fragmentary, sectional elevation illustrating a portion of a power driven typewriter and associated mechanism embodying the present invention; and

Figure 2 is a fragmentary detail view illustrating one of the circuit closing switches in circuit closing position.

For illustrative purposes, the invention is shown as comprising a power driven typewriter of standard construction known as the electromatic, and a signal impulse attachment applied thereto. The construction of the electromatic typewriter is well understood and hence requires no extensive description. The machine comprises a frame 1 which carries a type segment 2 in which type bars 3 are pivotally mounted to swing the types 4 carried by them to a common printing point against a platen 5.

Keys 6 are carried by key levers 7 which are pivoted on a rod 8. The key levers are not directly connected to the type bars whose opera-

tion they control but serve merely to connect the type bars selectively with a continuously rotating power operated drum 9. About half of the key levers are provided with tails 10 which lie to the rear of the drum 9 and the other key levers are provided with tails 11 which lie to the front of the drum 9. The tails 10 and 11 have slots at the lower ends thereof for receiving pins 12 and 13 which are carried by bellcranks 14 and 15. The bellcranks 14 and 15 are pivotally mounted upon further bellcranks 16 and 17, and are provided at the lower ends thereof with lips 18 and 19.

The lip 18 normally stands in obstructing relation to one or the other of a pair of stop pins 20 formed on a cam 21. The cam 21 is rotatably mounted upon the bellcrank 16 and is rotatably mounted upon a stud 22 carried by the bellcrank 16 and rests against the surface of the drum 9. The cam is normally held at rest by engagement of the lip 18 with one of the pins 20. When the appropriate key is depressed, however, the tail 10 rocks the bellcrank 14 counter-clockwise carrying the lip 18 clear of the pin 20 so that it no longer obstructs the same. The cam is at once rotated in a clockwise direction by the drum 9 and causes the bell crank 16 by which it is carried to be swung in a clockwise direction. The bell-crank acts through a link 23, a lever 24, a link 25 and a further bellcrank 26 which is controlled in part by a link 27 to effect an actuation of the type bar 3. A spring 28 causes the type bar to be returned to the normal position illustrated in Figure 1. As soon as the depressed key 6 is released a spring 29 restores the key lever 7 to its original position. This causes the lip 18 to be returned to pin obstructing position, so that the cam is arrested at the end of a half revolution by engagement of the lip 18 with the other pin 20 carried by the cam.

The lip 19 similarly controls a cam 30 through coaction with pins 31 carried by the cam, to cause a type bar, connected with the bellcrank 17 through a link 32, to be actuated in the manner already described.

The mechanism described up to this point is all a part of the electromatic typewriter. It provides power means for positively and rapidly actuating the several type bars so that the keys are required merely to serve as triggers. This same positively acting power actuated mechanism is taken advantage of for making and breaking circuits of the transmitting apparatus about to be described. Attached to the frame 1 of the type-

writer is a further frame 33. This frame carries an insulating bar 34.

The terminals 35 and 36 are carried by the insulating bar 34 and are connected respectively to conductors 37 and 38. The terminal 36 carries a knife switch contact 39 within which a switch lever 40 is received, as shown in the Figure 1. The switch lever 40 is pivotally mounted on an upstanding post 41, which is carried by the insulating bar 34, and is normally urged to the position of Figure 1 by a coil spring 42. The switch lever 40 carries at one end thereof a cam follower roller 43 which rides upon the cam 21. When the cam 21 is released from the detaining influence of lip 18 by depression of the appropriate key lever, the ensuing operation of the cam causes the switch lever 40 to be swung counter-clockwise and temporarily to leave contact with the switch member 39, and to make contact with a switch member 44. Since the cam turns exactly one-half of a revolution before being arrested the switch lever 40 is returned to the original position shown in Figure 1 at the conclusion of each operation.

It is not necessary to go into detail as to the nature of the circuit which is made when the switch lever 40 engages contact 39 and the nature of the circuit which is made when the switch lever 40 engages contact 44. It is sufficient to observe that the engagement of the switch lever 40 with contact 44 completes a circuit including conductors 37 and 45 for setting up an impulse or current corresponding to the key lever which was depressed. The contacts 44 are carried by a conducting bar 46 which is connected to the conductor 45. The electrical mechanism shown to the right of the conductive bar 46 in Figure 1 is a duplicate of the mechanism shown to the left of the said bar already described. Further description is deemed unnecessary and corresponding parts have accordingly been numbered with the same numerals having the subscript "a" added.

We have described what we believe to be the best embodiments of our invention. We do not wish, however, to be confined to the embodiments shown, but what we desire to cover by Letters Patent is set forth in the appended claims.

We claim:

1. In an electrical transmitter, in combination, a multiplicity of keys, a multiplicity of signal

switches, said switches each comprising a movable member and means for causing actuations of said switches in response to the operation of said keys, said means comprising a driven roller and a revoluble member adapted for rolling contact with said roller for causing the rotation of said revoluble member to bring about actuation of said switch member, said revoluble member arranged to engage directly the said switch member.

2. In an electrical transmitter, in combination, a multiplicity of keys, a multiplicity of signal switches, said switches each comprising a movable member, and means for causing actuations of said switches in response to the operation of said keys, said means comprising a driven roller and a plurality of revoluble members adapted to have rolling contact with said roller for causing the rotation of said roller to bring about actuation of said switch members, each of said revoluble members being in the form of a cam shaped to cause the switch controlled by it to be closed for a predetermined period, said cam arranged to engage directly the switch member.

3. In an electrical transmitter, in combination, a multiplicity of keys, a multiplicity of signal switches, said switches each comprising a movable arm, means for causing actuations of said switches in response to the operation of said keys, said means comprising a driven roller and a plurality of revoluble members adapted to have rolling contact with said roller for causing the rotation of said roller to bring about actuation of said switch arm, and a roller carried by each switch arm and adapted to have rolling contact with one of said revoluble members.

4. In an electrical transmitter, in combination, a multiplicity of signal switches, a series of keys manually operable to select the switches to be closed, and means automatically set into action by the operation of a key to close the associated switch with substantially predetermined force and for a substantially predetermined period, comprising a non-circular cam which is adapted to engage directly with said switch, and means to re-open the signal switch sharply and with predetermined force, comprising an abrupt drop in said cam and a switch opening spring.

WALTER S. LEMMON.

HERMAN R. ROSE.

FREDERICK W. YOUNG.