

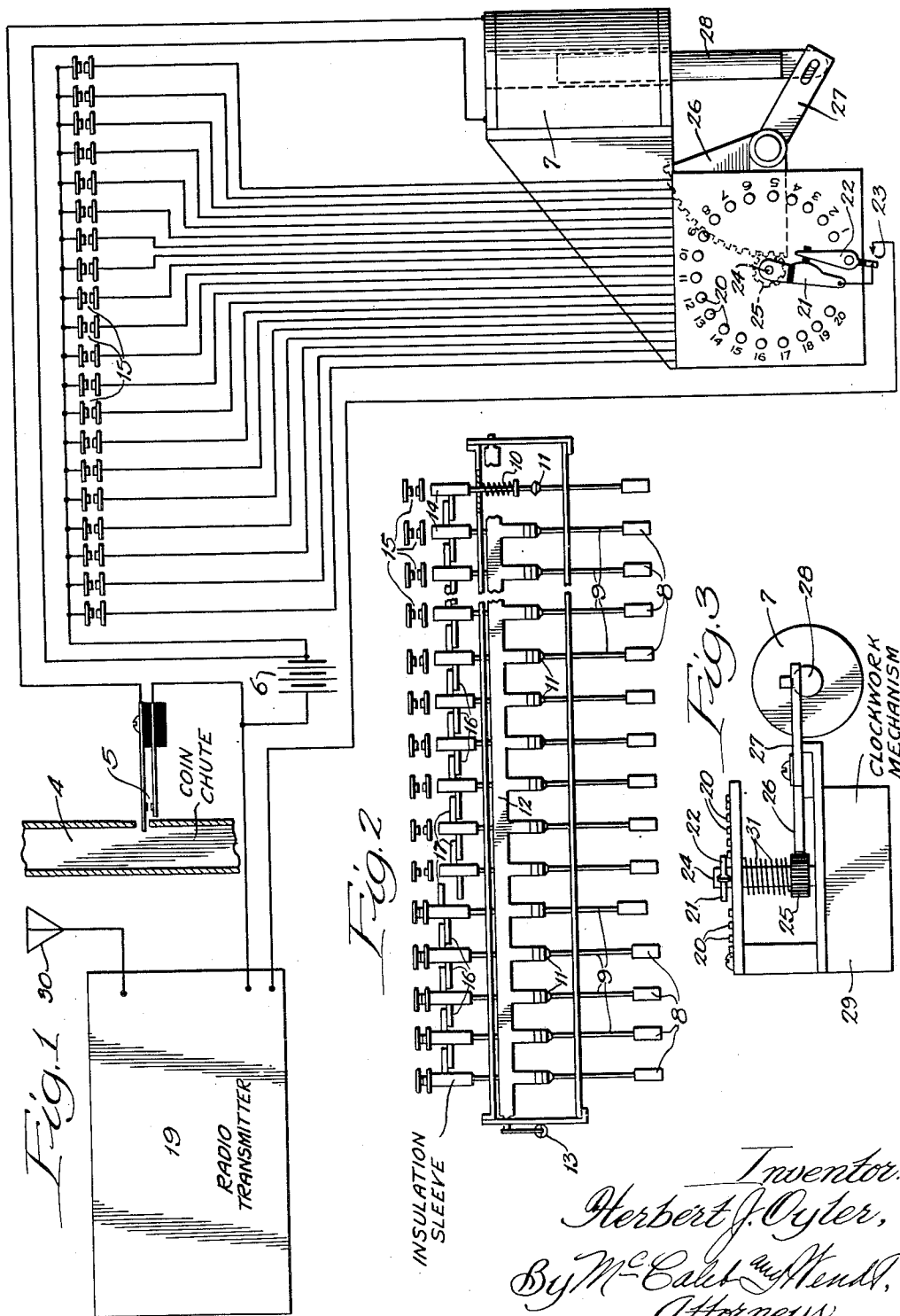
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IMPULSE TRANSMITTER

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IMPULSE TRANSMITTER

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4 Claims. (Cl. 177—380)

This application is a division from my copending application Serial No. 342,038, filed June 24, 1940.

The invention relates to impulse transmitters and has for its principal object to provide an improved impulse transmitter.

A further object of the invention is to provide an improved coin-controlled impulse transmitter whereby a predetermined number of impulses may be selected manually and transmitted only when a coin is inserted at a suitable position.

A further object of the invention is to provide an improved impulse transmitter having means for preventing operation of the transmitter until the mechanism is completely set for the transmission of the maximum number of impulses.

Other objects, advantages and capabilities of the invention will appear from the following description of a preferred embodiment thereof, taken in conjunction with the accompanying drawing in which:

Fig. 1 is a diagrammatic view and wiring diagram of an improved impulse transmitter;

Fig. 2 is a diagrammatic plan view showing elements of my transmitter; and

Fig. 3 is an elevation of the clockwork and associated mechanism of Fig. 1 as viewed from the lower side of that figure.

My improved impulse transmitter may suitably be contained within a housing (not shown) which is provided with a coin chute 4, which chute is provided with a switch 5 which is adapted to be closed, in known manner, by an inserted coin. One side of this switch is connected to a battery 6, the other side being connected to a solenoid 7.

The solenoid 7 is connected to the other side of the battery 6 so that the solenoid 7 is energized each time a coin of the appropriate denomination is inserted in the coin chute 4. My improved impulse transmitter is provided with a series of buttons 8 corresponding in number to the number of series of impulses for which the impuler is arranged. Thus, in the device illustrated, I may send one impulse or any plurality of impulses up to twenty. These buttons are available to the operator, they being mounted on rods 9 which project through a wall of the housing.

Each rod 9 is mounted within the housing for axial movement and is biased outwardly by a spring 10. Each rod 9 is provided with an annular projection 11. A fingered bar 12, which is pressed downwardly by a spring 13, is adapted to cooperate with the annular projections 11.

When one of the buttons 8 is pressed inwardly,

this annular projection 11 raises the bar 12 against the action of the spring 13. Consequently, any other rod 9 and button 8 which may have been pressed inwardly, are released and moved outwardly by the associated spring 10. When the annular projection 11 of the button now being pressed inwardly moves behind the bar 12, the bar descends and holds the button in its inward position until another button is pressed inwardly.

Upon the inner end of each rod 9 is mounted a sleeve 14 of insulating material, the innermost end of the sleeve being closed. The innermost end of the sleeve 14 is adapted to cooperate, when its rod 9 is moved inwardly, with a normally open leaf spring 15, there being one switch 15 for each rod 9. That is, in the present instance, there are twenty switches 15, and twenty rods 9. Each sleeve 14 is provided with a left-hand abutment 16 and a right-hand abutment 17. It is to be noted that the first sleeve 14 need not be provided with a left-hand abutment, and that the last, or twentieth sleeve 14, may not be provided with a right-hand abutment.

Each left-hand abutment 16 is located immediately in front of, and in overlapping relation to, the right-hand abutment of the sleeve 14 immediately to the left. Consequently, when one button is pushed in, its sleeve 14 is moved rearwardly and all the sleeves to the left of the actuated sleeve are moved rearwardly, so that the switch 15, corresponding to the actuated button, is closed, and all the switches 15 to the left of that actuated sleeve are closed. All the sleeves to the right of the actuated sleeve remain in their normal position and their switches remain open. The sleeves 14 are biased forwardly by weak pressure which may be supplied, for example, by the adjacent leaves of the switches 15. Consequently, the sleeves 14 are returned to normal position and their switches 15 are opened when the bar 12 is again raised. For the sake of simplicity, it may be noted that if button number five is pressed inwardly, then the first five switches 15 on the left are closed, the other switches 15 remaining open. Each of the switches 15 has one side connected to one side of the battery. The other side of the battery is connected to a radio transmitter 19. The other sides of the switches 15 are connected individually to an arcuate series of contacts 20.

The contacts 20 are adapted to be engaged by a wiper arm 21 which normally occupies a zero position beyond the contacts, as shown in Fig. 1. When the wiper arm 21 is in this normal position,

it engages a rocker arm 22 which controls a switch 23, this switch being open when the wiper arm 21 is in normal position.

The wiper arm 21 is mounted on a shaft 24 which is biased to the initial position of the wiper arm by means of a spring 31 coiled around the shaft. The shaft 24 carries a gear 25 which is in mesh with the quadrant 26. This quadrant is pivotally mounted and carries a projecting arm 27 which is pivotally connected to the armature 28 of the solenoid 7.

It will thus be seen that when the solenoid 7 is energized, its armature 28 moves upwardly and the quadrant 26 moves downwardly, rotating the wiper arm 21 in clockwise direction past and beyond all the contacts. After the arm 21 has passed the contacts, it engages the rocker arm 22 and moves it to the left, closing the switch 23.

The shaft 24 is connected to the clockwork mechanism 29 by a slipping clutch (not shown) so that the clockwork mechanism is unaffected when the arm 21 is swung around in clockwise direction. When the shaft 24 moves back in counter-clockwise direction, under the influence of its tension spring 31, the clockwork mechanism is actuated and serves as a delay means so that the return of the wiper arm 21 is relatively slow. The transmitter 19 is connected to one side of the switch 23. The other side of the switch is connected to the wiper arm 21. When the switch 23 is closed and the wiper arm 21 is returning to initial position, the transmitter control circuit is completed through the battery, through each closed switch 15 and through the corresponding contacts 20, the wiper arm 21 and the switch 23. Consequently, during the return of the wiper arm 21, the control circuit of the transmitter 19 is closed a number of times, corresponding to the number of the button 8 which has been actuated.

The transmitter 19 is provided with a transmitting antenna 30 and it is arranged to transmit an impulse of radio frequency energy each time that its control circuit is completed. Consequently, during the return movement of the wiper arm 21, a series of impulses of radio frequency energy are transmitted by the antenna 30, corresponding in number to the number of the button 8 which has been actuated.

The operation is as follows: Assuming that the operator desires to send a definite number of impulses, for example, five, he pushes button number five, thus mechanically closing the first five switches 15. Then he inserts a coin of suitable denomination in the chute 4, thereby closing the switch 5 and energizing the solenoid 7. The energization of the solenoid swings the wiper arm from its initial position in clockwise direction, past all of the contacts 20. It is to be noted that the engagement of the wiper arm 21 with these contacts during the clockwise motion, completes no circuit since the switch 23 is open. At the end of the clockwise motion of the arm 21, the switch 23 is closed and during the return or counter-clockwise motion of the wiper arm, the control circuit of the transmitter is closed five times. Thus, when the returning wiper arm engages contact number one, the control circuit is completed through switch 23, wiper arm 21, contact number one, the corresponding switch number one, and battery 6. A similar circuit is completed when the wiper arm engages each of the next four contacts. The circuit is not completed when the wiper arm engages the sixth, or

any subsequent contact 20, because the corresponding switches 15 are open. It will thus be understood that the transmitter 19 transmits five separate impulses of radio frequency energy.

It will be understood that this impulse transmitter may be employed with any suitable apparatus which may be actuated thereby. Such apparatus includes the receiver adapted to receive and amplify the impulses and also mechanism to be actuated by said impulses. Thus, for example, my improved impuler may be employed in order to control an automatic phonograph in the manner described in my copending application Serial No. 342,038, filed June 24, 1940, of which the present application is a division.

Although I have described my invention in connection with specific details of a preferred embodiment thereof, it is to be understood that such details are not intended to be limitative of the invention, except in so far as set forth in the accompanying claims.

Having thus described my invention, I declare that what I claim is:

1. An impulse transmitter comprising a plurality of contacts, means adapted to move over said contacts, individual selector means each adapted to energize a different number of said contacts, a control circuit including said movable means adapted to transmit a series of impulses corresponding to the number of contacts energized, and a switch controlled by said movable means in one position for breaking said circuit and in the other position for completing said circuit.

2. An impulse transmitter comprising a series of switches, manually actuated means corresponding to and adapted to close each switch, mechanical means connecting said manually actuated means whereby actuation of one of said manually actuated means actuates the corresponding and all the preceding means of the series to close the corresponding and all preceding switches of the series, an arcuate series of contacts corresponding to said switches, said switches being connected individually to the contacts, a wiper arm adapted to move over said contacts, a switch, means associated with said wiper arm whereby last said switch is closed at the end of the movement of said wiper arm in one direction and is opened at the end of the movement of said wiper arm in the opposite direction, and a circuit including said actuated switches, said wiper arm and last said switch.

3. An impulse transmitter comprising a series of switches, a series of manually actuated means corresponding to and adapted to close each switch, overlapping elements associated with each of said manually actuated means, the element of each manually actuated means overlapping the element of the preceding means of the series whereby actuation of one of said manually actuated means actuates the corresponding and all the preceding means of the series to close the corresponding and all preceding switches of the series, an arcuate series of contacts corresponding to said switches, said switches being connected individually to the contacts, a wiper arm adapted to move over said contacts, a coin-controlled electromagnetic means for moving said arm over said contacts in one direction, spring means for moving said arm in the opposite direction, a switch adapted to be closed by said arm at the end of its first movement and to be opened by the arm at the end of its opposite movement, and a cir-

cuit including said actuated switches, said wiper arm, said contacts and last said switch.

4. An impulse transmitter comprising a plurality of contacts, means adapted to move over said contacts, individual selector means each adapted to energize a different number of said contacts, a control circuit including said movable means and said contacts adapted to transmit a series of impulses corresponding to the number of contacts energized, automatic means for caus-

ing said movable means to move over said contacts in one direction, electrical means for moving said movable means in the opposite direction over said contacts, means effective at the end of first said movement for breaking the circuit of said movable member, and means effective at the end of last said movement for connecting the circuit of said movable member.

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