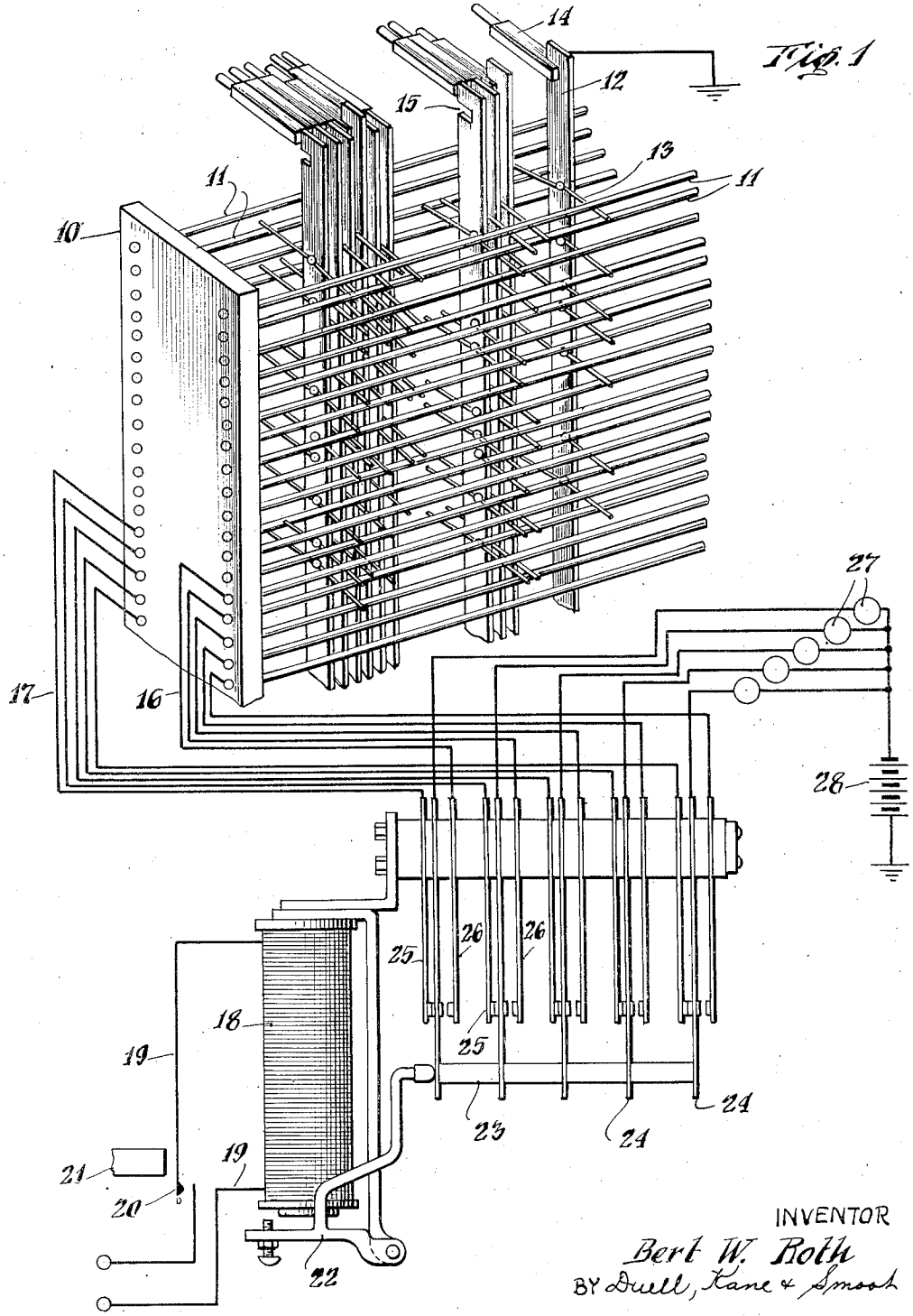
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SWITCHING ARRANGEMENT FOR SELECTORS

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Fig. 1



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Fig. 2

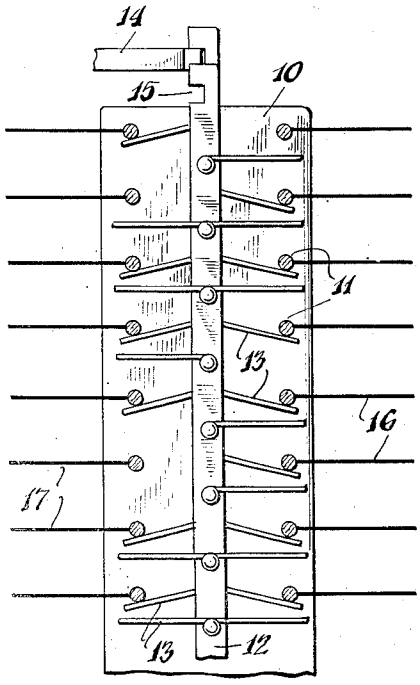


Fig. 3

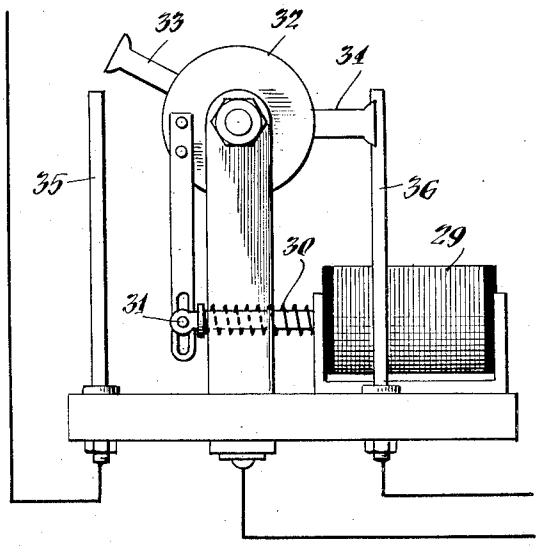


Fig. 4

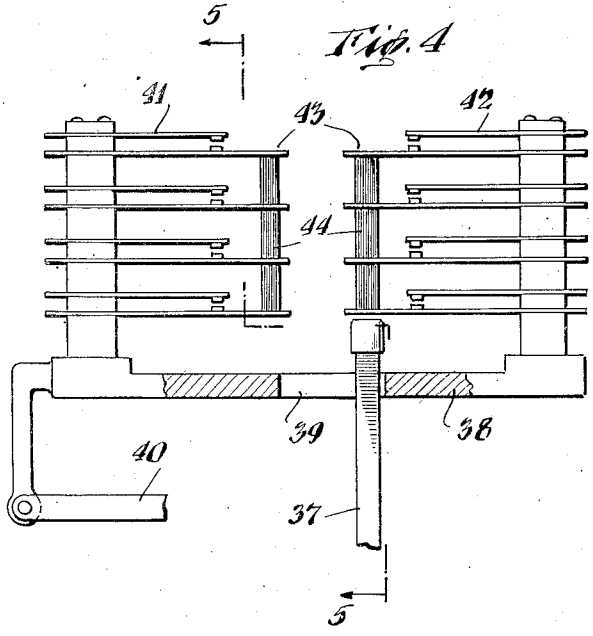
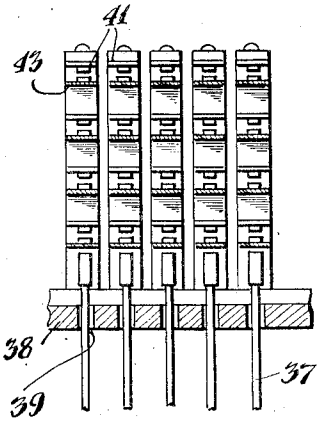


Fig. 5



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Patented Dec. 21, 1948

2,456,893

UNITED STATES PATENT OFFICE

2,456,893

SWITCHING ARRANGEMENT FOR SELECTORS

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Application April 11, 1946, Serial No. 661,272

4 Claims. (Cl. 177—353)

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This invention relates to a structurally and functionally improved selector and in its more specific aspects, aims to provide mechanisms of alternative construction to those illustrated and described in my prior application for patent, Serial No. 546,884, filed in the United States Patent Office on July 27, 1944, now U. S. Patent 2,437,790 granted March 16, 1948.

It is an object of the invention to furnish an apparatus of this type which will be of particular utility when employed in conjunction with a transmission line, sending electrical impulses in accordance with a Baudot five-unit or similar code; apparatus constructed in accordance with the present teachings serving to convert these impulses into definite mechanical operations which may in turn result in the controlling of what might be termed secondary circuits.

Thus—referring to one practical application of the present selectors—they may be connected to control the energizable elements of, for example, a travelling message sign apparatus by being coupled to such sign through the intermediary of mechanisms of the type shown in the prior patent to Unkles et al., 2,343,594, on "Sign control and system," dated March 7, 1944. Accordingly, it is a further object of the invention to furnish a selector apparatus which may be so employed to readily control the functionings of a sign or similar unit of mechanism.

An additional object is that of providing a selector which will be of relatively simple design and hence capable of being manufactured at a nominal figure, aside from the fact that it will require but a minimum amount of servicing and repair.

With these and other objects in mind, reference is had to the attached sheets of drawings illustrating practical embodiments of the invention, and in which:

Fig. 1 is a somewhat diagrammatic perspective view of one form of selector apparatus which may be employed;

Fig. 2 is a transverse sectional view taken through a portion of that apparatus;

Fig. 3 is a side elevation of an alternative form of control which may be embodied in the apparatus;

Fig. 4 is a sectional side view through a still further form of apparatus; and

Fig. 5 is a sectional face view of the unit as illustrated in Fig. 4.

It is intended that a selector, embodying the present teachings, shall follow in its construction the general design of receivers commonly employed in connection with the use of a Baudot

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five-unit code. Receivers of this general type are exemplified in United States patents to Kleinschmidt, 1,448,750 of March 20, 1923, and Noxon et al., 2,252,232 of August 12, 1941.

As is well understood by those skilled in the use of such receivers, it is customary to employ a tape as a primary control for the same. Such tapes are formed with perforations arranged in accordance with predetermined permutations. The tape is then fed through a transmitter which commonly employs reciprocating pins for cooperation therewith. Whenever one of these pins encounters a perforation in the tape, it may be projected. Under such circumstances, circuits are closed and opened in accordance with the permutations of perforations in the tape body. Responsive to the electrical impulses thus transmitted, the receiving apparatus has its code bars, drop-in bars and other elements operate. This results, in the case of a conventional receiver, in type bars being caused to function. These type bars each individually carry a letter character. Certain of them at least will also present numerals and other symbols of indicia. In accordance with a more or less conventional typewriter, a "shift" is employed to govern whether a numeral or a letter will be impressed or typed upon a receiving sheet, or ribbon.

Therefore, in an electrical receiver of the type exemplified in the Kleinschmidt and Noxon et al. patents, provision is made for a shifting operation which will follow automatically, responsive to the impulses transmitted. To achieve this result, the perforated tape embraces a definite provision for effecting the transmission of impulses through the transmitter such that the desired controlling mechanisms of the receiver will be operated. As taught in my afore identified application for patent, the apparatus therein included is not intended for the typing of a message or series of symbols. This is also true of the mechanism illustrated in the present application.

Instead, these novel units of apparatus are intended to control secondary circuits to close and open the latter, according to predetermined permutations. Such controlling of circuits will be useful, for example, where the apparatus is connected to the setting head as shown in the aforementioned Unkles et al. patent. Obviously, such control will also be useful in other associations. In view of the fact that it is desired to maintain the present apparatus as simple as possible, benefit is taken of the "shift" provision. This will make it feasible to incorporate in certain of the apparatus, and especially in single elements there-

of, a dual function. The teachings of the present application are primarily dedicated to taking advantage of the "shift" provision of the apparatus and providing mechanisms by means of which such provision may produce beneficial and desired results.

Thus, as shown somewhat diagrammatically in Fig. 1, the numeral 10 indicates the di-electric side members which support the contact bars 11. As taught in my previous application, actuating units in the form of push-up bars 12 are employed and which are controlled by the operation of the code bars, drop-in bars, etc., of the more or less standard receiving apparatus. Each of the push-up bars 12 carries contact elements 13. These elements are arranged in different permutations on the different bars and are engageable with the contact members 11. To maintain the push-up bars in positions to which they have been elevated for intervals of time adequate to energize controlled circuits, latch elements 14 may be employed and which cooperate with notches 15 on the push-bars, all as disclosed in my previous application for patent.

If, as is preferable—twenty-six terminal members or rods 11 are employed for the twenty-six letters of the alphabet, then in addition, a certain number of the second series of these terminal members, as shown in Figs. 1 and 2, may be devoted to numerals, symbols of indicia, etc. From each of these members, leads will extend. In the illustrated embodiment, leads 17 have been shown as extending from what might be termed the letter contacts, while leads 16 extend from the numeral and general symbol contacts.

As shown especially in Fig. 2, the contact elements 13, on any given bar may engage the adjacent contact members 11 any time that push-up bar is shifted. In other words, no selective provision for shifting the bars 12 laterally with respect to the terminal rods 11 has been resorted to. Rather, any bar 12 which is projected and which may have contact elements 13 extending in both forward and rear directions, will have these elements engaged in firm electrical contact with the corresponding contact members 11 upon being raised.

To derive the benefit of the "shift" provision, I employ, in the form of structures shown in Figs. 1 and 2, a relay 18. This relay will be—when de-energized—normally maintained in one position, either by the action of gravity or by a spring (not shown). Current-supplying leads 19 extend from the relay and in one of these, a switch 20 may be interposed. The shift bar or unit 21 of the receiving apparatus is arranged so that when it is operated in a certain manner, switch 20 will be closed, thereby supplying current to the relay 18.

With current so supplied, the armature 22 will be shifted. This will in turn serve to shift the actuator 23 of a gang switch. In the illustrated embodiment, only five units of the switch have been shown. In actual practice and if twenty-six contacts 11 are employed, then the gang switch will embrace a corresponding number of units. Each unit or element of the switch conveniently includes a contact blade 24 secured to the actuator 23 and spaced contact-carrying blades 25 and 26 disposed adjacent opposite sides of the operating blade 24. The contact blades 25 of the different elements or units of the switch are connected one to each of the leads 17. The blades 26 are connected one to each of the leads 16. Thus, if the relay 18 be not energized, circuits 17 will normally be closed because the contacts of the blades 25 and 24 will normally be engaged. Therefore, as illustrated, the circuits through leads 16 are normally open.

Accordingly, with one side of the circuit being grounded, it follows that under normal operation and with the relay 18 de-energized, a projection of the push-up bars 12 will result in engagement between the contact members 11 and elements 13. In so far as one series of the contact members is concerned, such engagement will not cause a closing of corresponding circuits. This will be because certain of the circuits between the contacts carried by blades 24 and 26 will normally be open. However, such of the latter circuits as have theretofore been closed will be open and those which have previously been open, will be closed when the relay 18 is energized. Accordingly, with a "shift" operation resulting in a movement of the unit 21 to close the switch 20, one or the other of the series of circuits may be closed in accordance with predetermined permutations as established by the contact elements 13. Therefore, energizable elements 27 will be caused to operate incident to the source of current supply 28. These elements may, for example, be setting-head relays, as taught in the previously mentioned Unkles et al. patent, lamps, or any other desired types of current-consuming units which are to be controlled by the present selector.

Accordingly, without having to bodily shift a relatively cumbersome mechanism, it becomes entirely feasible to selectively close one or the other series of circuits upon the apparatus operating. If it is not desired to employ gang switches of the type especially indicated in Fig. 1, then switches as have been shown in Fig. 3 may be utilized. In that view, the reference numeral 29 indicates a relay which may be controlled in a manner similar to that of the relay 18. A spring-pressed plunger 30 is connected, for example, by pin and slot connection 31 with a crank secured to a rotor 32. The latter carries a series of contact arms 33 and 34. These are alternately cooperable with contacts 35 and 36. The arms 33, 34, 35, and 36 are arranged in series, each corresponding in number, for example, to the number of contact members 11 employed.

As will be apparent in the form of construction shown in Fig. 3 and with the relay 29 de-energized, circuits will be closed between the arms 34 and 36 as the push-up bars heretofore described are projected and retracted. In response to a shift impulse, current will pass through the winding of the relay 29. This will cause the plunger 30 to be attracted, resulting in a rocking of the member 32. Such rocking will cause the arms 34 to be moved out of engagement with the arms 36 and the arms 33 to be moved into electrical contact with the arms 35. Thereupon, the second series of circuits is potentialized to be closed in response to projections of the push-up bars. If, for example, the arms 36 are coupled to provide for the reproduction of letter characters, while the arms 35 are coupled to provide for the reproduction of numerals and symbols of indicia, then it follows that the desied results will be achieved according to the manner in which the rotor 32 is oscillated. This will in turn be controlled by the "shift" operation which effects energization and de-energization of the relay 29. Therefore, the desired results will be achieved.

Finally referring to the form of construction

shown in Figs. 4 and 5, it will be observed that the reference numeral 37 indicates a push-bar corresponding to one of the bars 12 in Fig 1. These bars extend through slots 39 in supports 38. The latter mount two different series of gang switches 41 and 42. Actuating arms 43 extend one from each of the elements of the switches. These arms may be coupled to actuating members 44. The lowermost of the arms are in line with the push bars 37; it being understood that one or the other of a pair of gang switches 41—42 may be aligned with a single bar, according to the position in which the support 38 has been shifted by the member 40.

It will be obvious that, for example, twenty-six gang switches 42 may be employed to provide for the letter characters. Likewise, ten gang switches 41 may be furnished to provide for the numerals 2 to 9 inclusive and certain essential symbol of indicia. When the parts are in the position shown in Fig. 4, an operation of the push-bar 37 will result in a closing of the circuits within which the spring elements of the gang switch are interposed. In this form of construction, it will be unnecessary to employ contact members or rods 11 and elements 13. Rather, the switch elements of each individual gang switch will comprise permutations of circuits corresponding to those established by the elements 13 in conjunction with the contact members 11. In other words, a projection of the bar 37 will close a group of aligned switches to produce definite and desired results.

Therefore, according to whether the bar 37 is operating the switch 41 or 42, different types of indicia symbols will be provided. An election as to which switch will be so operated is achieved by shifting the supporting member 38 laterally with respect to the bar 37. This is conveniently achieved by having the rods 37 solely capable of axial movement while the support 38 is laterally shifted by, for example, an electro-magnet connected to project and retract the operating unit 40. This magnet will, of course be coupled to operate responsive to, for example, permutations of perforations incorporated in the transmitting tape.

Thus, among others, the several objects of the invention as specifically afore noted are achieved. Obviously, numerous changes in construction and rearrangement of the parts might be resorted to without departing from the spirit of the invention as defined by the claims.

I claim:

1. A controller including in combination a plurality of moveable actuating units, groups of elements arranged according to predetermined permutations, at least certain of said actuating units mounting a pair of said groups to extend in different directions, two assemblies of contact members arranged to be engaged by the individual elements of the different groups upon the actuating units mounting the same being moved to establish electrical contacts between such elements and members and shiftable switch means connected to all of said contact members and operable to complete and interrupt circuits through one and the other of said contact assemblies.

2. A controller including in combination a plurality of moveable actuating units, groups of elements arranged according to predetermined permutations, at least certain of said actuating units mounting a pair of said groups to extend in different directions, two assemblies of contact members arranged to be engaged by the individual elements of the different groups upon the actuating units mounting the same being moved to establish electrical contacts between such elements and members, shiftable switch means connected to all of said contact members and operable to complete and interrupt circuits through one and the other of said contact assemblies and shiftable means operatively connected to said switch means for causing a functioning of the same.

3. A controller including in combination a plurality of moveable actuating units, groups of flexible elements arranged according to predetermined permutations, at least certain of said actuating units mounting a pair of said groups to extend in different directions, two assemblies of rigid contact members arranged to be yieldingly engaged by the individual elements of the different groups upon the actuating units mounting the same being moved to establish electrical contacts between such elements and members and shiftable switch means connected to all of said contact members and operable to complete and interrupt circuits through one and the other of said contact assemblies.

4. A controller including in combination a plurality of moveable actuating units, groups of elements arranged according to predetermined permutations, at least certain of said actuating units mounting a pair of said groups to extend in different directions, two assemblies of contact members arranged to be engaged by the individual elements of the different groups upon the actuating units mounting the same being moved to establish electrical contacts between such elements and members, a shiftable gang switch comprising a plurality of units, a group of output leads equal in number to said units and connected to the latter and the assemblies of contact members and means for causing a functioning of said gang switch to complete and interrupt circuits through one and the other of said contact assemblies.

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The following references are of record in the file of this patent:

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