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H. C. MOYER.
 RESONATOR SWITCH.
 APPLICATION FILED FEB. 8, 1904.

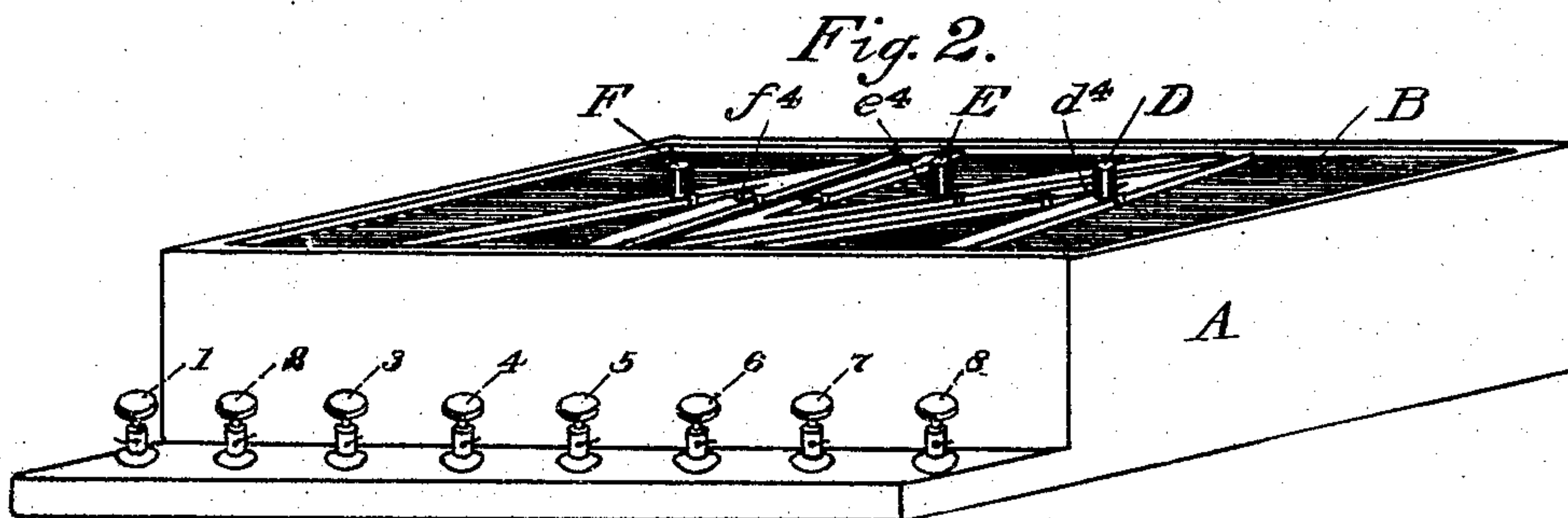
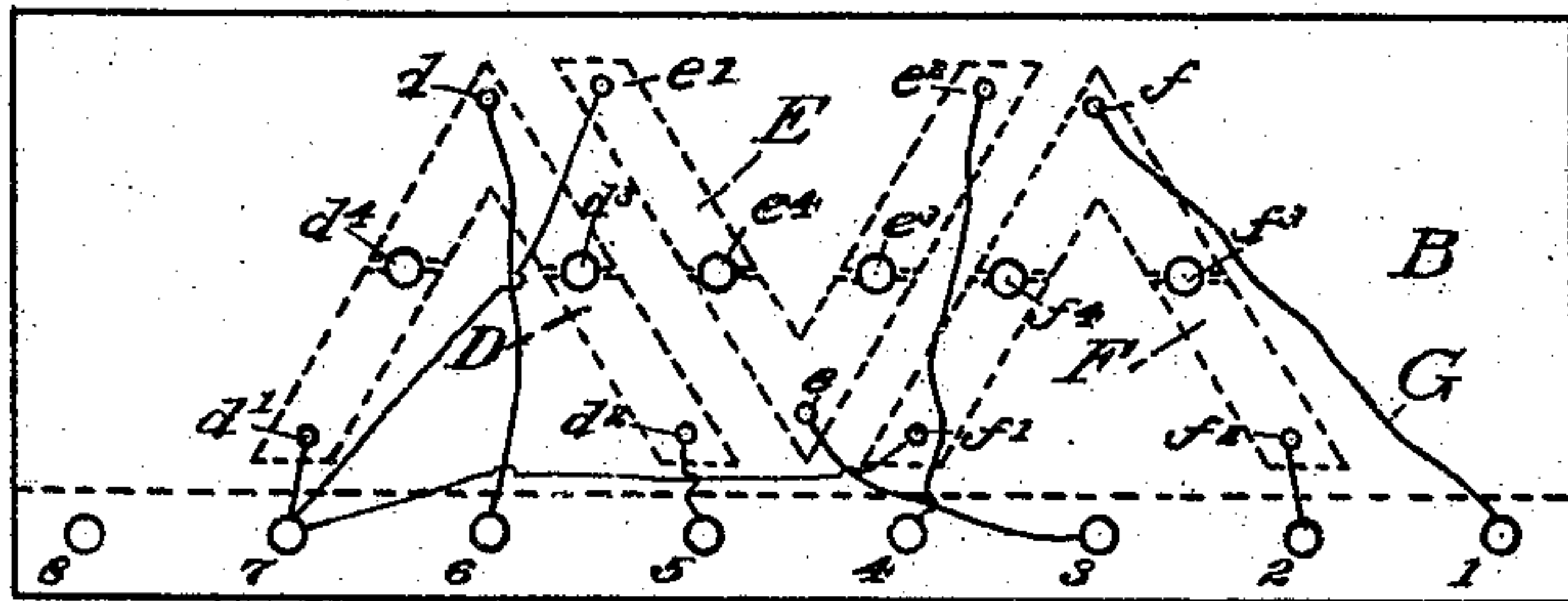


Fig. 1.

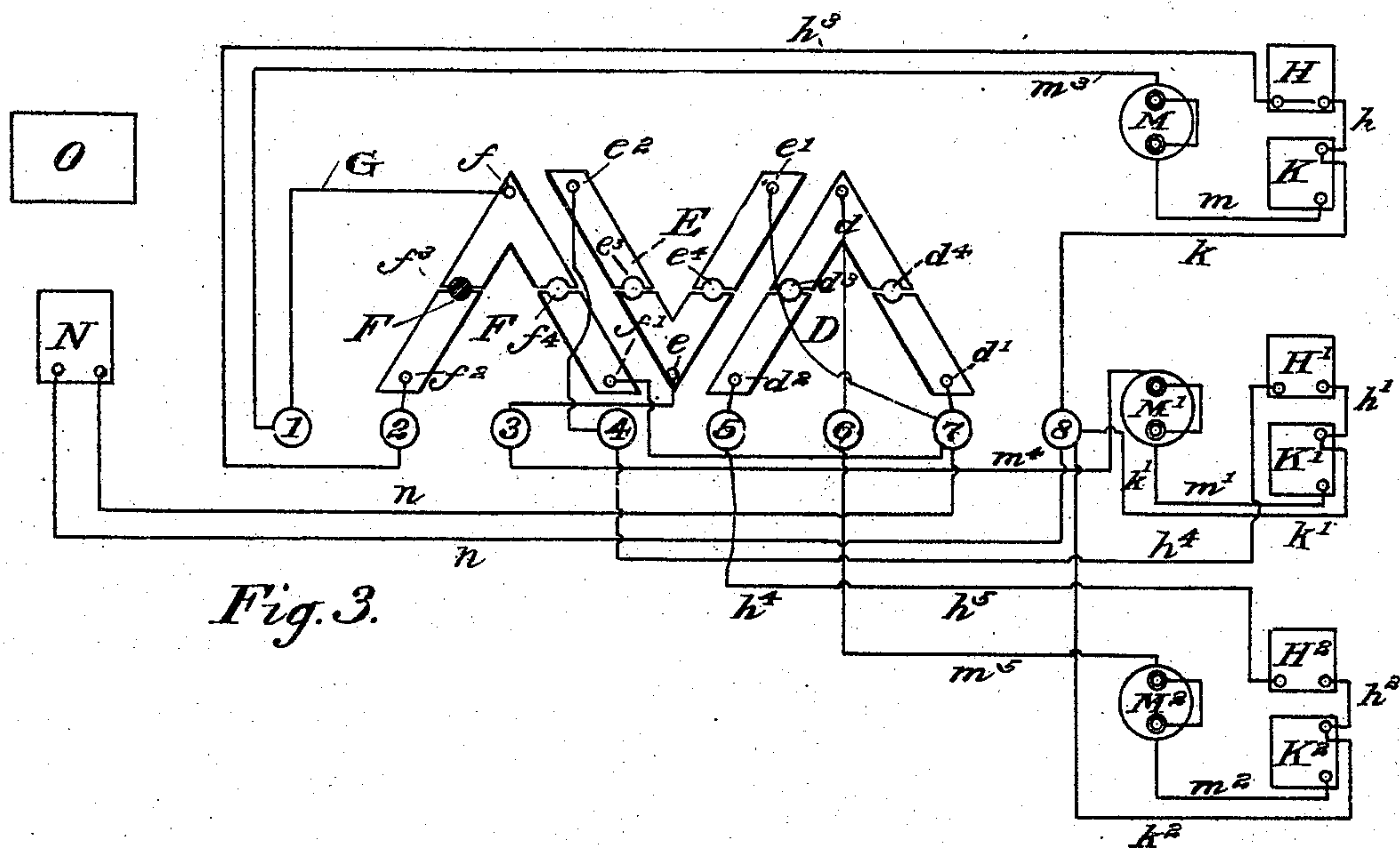


Fig. 3.

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RESONATOR-SWITCH.

SPECIFICATION forming part of Letters Patent No. 785,266, dated March 21, 1905.

Application filed February 8, 1904. Serial No. 192,549.

To all whom it may concern:

Be it known that I, HAROLD C. MOYER, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented a certain new and useful Improvement in Resonator-Switches, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which it appertains to make and use my said invention.

My invention relates to switch devices usable with telegraph instruments and adapted to open and close the circuit, so as to control the use of any one of a number of sets of telegraph instruments.

The purposes of my invention are to provide, in connection with a series of sets of telegraph instruments, (each set consisting of a sounder and a relay,) a switch adapted to connect and disconnect said sets of instruments, respectively, with a single resonator so situated that the operator may have convenient and effective control of all of the instruments connectible with the resonator, to provide novel and improved means for opening or closing the electric circuits of the instruments, and to provide a simple and effective system of wiring for connecting the instruments as described.

With these ends in view my invention consists in the novel features of construction and combinations of parts shown in the annexed drawings, to which reference is hereby made, and hereinafter particularly described, and finally recited in the claim.

Referring to the drawings, in which similar reference characters designate like parts in the several views, Figure 1 is a perspective view of the resonator-switch, the cover being removed to expose the underlying parts. Fig. 2 is an enlarged bottom plan showing the wiring of the resonator-switch. Fig. 3 is a diagram showing a resonator-switch, a resonator and a series of sets of telegraphic instruments in operative relation to each other.

In practical telegraphy it often happens that a single operator has charge of a number of sets of telegraph instruments and in addition has to perform various clerical duties involving the use of a type-writer. It is the

common practice to print, by means of a type-writer, the messages received through the sounders. In offices using a number of sets of telegraphic instruments it is customary in order to avoid as far as possible the confusion resulting from the simultaneous clicking of all the instruments to place each set of instruments in a separate stall or box. This arrangement necessitates not only constant alertness of the operator to the calls of all of the instruments, but also necessitates the moving of the type-writer into convenient position to receive messages from the instruments in the respective boxes. My invention enables the operator to keep his type-writer in convenient position for the performance of his clerical duties and to receive all messages through a single resonator conveniently situated relative to the type-writer.

I have shown in the drawings and will hereinafter describe a resonator-switch having three sets of plates and connectible with three sets of telegraph instruments. By increasing the number of plates and connections of the resonator-switch its capacity may be enlarged to accommodate any desired number of sets of telegraph instruments.

A cabinet or case A of suitable form and material contains a plate B, of wood or other insulating material. Binding-posts 1, 2, 3, 4, 5, 6, 7, and 8 of any suitable construction are situated on the base of the case in convenient position for connection with telegraph instruments. Conducting-plates are secured on the insulating-plate B. One of these conducting-plates consists of three members d , d' , and d^2 , another consists of three members e , e' , and e^2 , and the third consists of three members f , f' , and f^2 . The member d is slightly separated from the members d' and d^2 , the ends of the members being shaped to form between the members circular openings d^3 and d^4 , adapted to receive a circular metallic plug D, as hereinafter explained. The members of the other plates are separated in exactly the same manner to form openings e^3 , e^4 , f^3 , and f^4 to receive the plugs E and F, respectively. The conduct-

ing-plates, each consisting of three members, as described, are V-shaped. This form of the conducting-plates is of practical value, because it admits of a very compact arrangement of the plates, such as is shown in Fig. 2.

Wires G or other electrical conductors connect the members of the conducting-plates with the binding-posts in the following order—viz., the member f with the post 1, the member f^2 with the post 2, the member e with the post 3, the member e^2 with the post 4, the member d with the post 6, the member d^2 with the post 5, and the members f' , e' , and d' with the post 7.

Sounders H, H', and H² and relays K, K', and K² are arranged in sets, one sounder and one relay in each set. Batteries M, M', and M² have one pole of each battery connected with the relays K, K', and K² by connecting-wires m , m' and m^2 .

A resonator N of any suitable construction is connected with the resonator-switch by conducting-wires n , secured in the binding-posts of the resonator and respectively connected with the posts 7 and 8 of the resonator-switch. The resonator is preferably placed in a convenient position relative to a type-writer O.

One pole of each of the batteries M, M', and M² is connected with a binding-post 1, 3, and 6 of the resonator-switch by conductors m^3 , m^4 , and m^5 , respectively. The other pole of the batteries is connected with the relays K, K', and K² by the conductors m , m' , and m^2 , respectively. The sounders H, H', and H² are respectively connected with the binding-posts 2, 4, and 5 by conductors h^3 , h^4 , and h^5 . Conductors h , h' , and h^2 connect the sounders and relays in sets, as shown. The relays K, K', and K² are all connected with the post 8 by conductors k , k' , and k^2 , respectively.

Metal plugs D, E, and F fit in the openings between the members of the conducting-plates, so as to close the openings in which the plugs are respectively inserted and establish electrical connection between the members of the plate contacting with the plugs. The plug-openings d^3 and d^4 between the plate members are exactly alike, so that the plug D will fit in either of the openings. The plug E will fit in either of the openings e^3 and e^4 , and the plug F will fit in either of the openings f^3 and f^4 .

When the plug F is in the opening f^3 , the battery M, the relay K, the sounder H, and the conducting plate members f^2 and f , with their connecting-wires, constitute an electric circuit through which the relay and sounder operate independently of the resonator. If the plug F be withdrawn from the opening f^3 and placed in the opening f^4 , the electric circuit will be through the battery M, the plate members $f f'$, the resonator N, and the relay

K. The plugs E and D may be used in like manner to respectively control the operation of the other two sets of telegraph instruments to bring them in connection with or disconnect them from the resonator.

By reference to the drawings it will appear that the construction and arrangement of the resonator-switch and the connections of the resonator and the telegraph instruments with the switch are such that either set of telegraph instruments may be made to operate independently of the resonator or either relay may be operated in connection with the resonator. If it is desired to operate the relay K and the sounder H independently of the resonator, it is only necessary to place the plug F in the opening f^3 . The circuit will then be from the battery M, along the conductor m^3 , to the post 1, thence along the conductor G to the plate member f , thence through the plug F, thence along the plate member f^2 , thence through the conductor h^3 to the sounder H, and thence through the relay K back to the battery. To connect the relay K with the resonator N, the plug F will be removed from the opening f^3 and inserted in the opening f^4 . The circuit will then be from the battery M, along the conductor m , to the relay K, thence along the conductor k to the post 8, thence along the conductor n to the resonator N, thence along the conductor to the post 7, thence along the conductor to the plate member f' , thence through the plug F to the plate member f , thence along the conductor G to the post 1, and thence along the conductor m^3 back to the battery.

To operate the relay K' and the sounder H independently of the resonator, the plug E will be placed in the opening e^3 . The circuit will then be from the battery M' to the post 3, thence to the plate member e , thence through the plug E to the plate member e^2 , thence to the post 4, thence to the sounder H', thence to the relay K', and thence back to the battery.

To operate the resonator N in connection with the relay K', the plug E will be placed in the opening e^4 . The circuit will then be from the battery M' to the relay K', thence to the post 8, thence to the resonator N, thence to the post 7, thence to the plate member e' , thence through the plug E to the plate member e , thence to the post 3, and thence back to the battery.

To operate the relay K² and the sounder H² independently of the resonator, the plug D will be placed in the opening d^3 . The circuit will then be from the battery M² to the post 6, thence to the plate member d , thence through the plug D to the plate member d^2 , thence to the post 5, thence to the sounder H², thence to the relay K², and thence back to the battery.

To operate the resonator N in connection

with the relay K^2 , the plug D will be placed in the opening d^4 . The circuit will then be from the battery M^2 to the relay K^2 , thence to the post 8, thence to the resonator N, thence to the post 7, thence to the plate member d' , thence through the plug D to the plate member d , thence to the post 6, and thence back to the battery.

From the foregoing it will be seen that one terminal of each of the batteries is connected with a member of the conducting-plates, respectively, and the other terminals of said batteries are connected with the relays, respectively, the relays are connected with the sounders, respectively, the sounders are respectively connected with a member of the conducting-plates, all of the relays are connected with the post 8, one member of each of the conducting-plates is connected with the post 7, and one terminal of the resonator N is connected with the post 7, and the other terminal is connected with the post 8. The resonator therefore is constantly in connection with all of the relays and with one member of each of the conducting-plates. When the plugs D, E, and F are in the openings d^3 , e^3 , and f^3 , the relay and the sounder of each set coöperate with each other. When the plugs are withdrawn from the openings d^3 , e^3 , and f^3 and placed in the openings d^4 , e^4 , and f^4 , the sounders are cut out and the relays respectively coöperate with the resonator.

Having fully described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

In an apparatus of the class described, the combination of a number of V-shaped conducting-plates each consisting of three electrically-separate members; a corresponding number of batteries having one terminal connected with a member of said plates respectively, a corresponding number of relays respectively connected with the other terminal of said batteries; a corresponding number of sounders connected with said relays respectively and also connected with one member of said conducting-plates respectively; a common conductor such as a post 7, connected with one member of each of said conducting-plates, a common conductor such as a post 8 connected with each of said relays, and a resonator having one terminal connected with the conductor common to the conducting-plates and the other terminal connected with the conductor common to said relays, and plugs fitting in the openings between the members of said conducting-plates; as set forth.

In witness whereof I have hereunto subscribed my name, at Springfield, Illinois, this 1st day of December, 1903.

HAROLD C. MOYER.

Witnesses:

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O. D. DU BOIS.