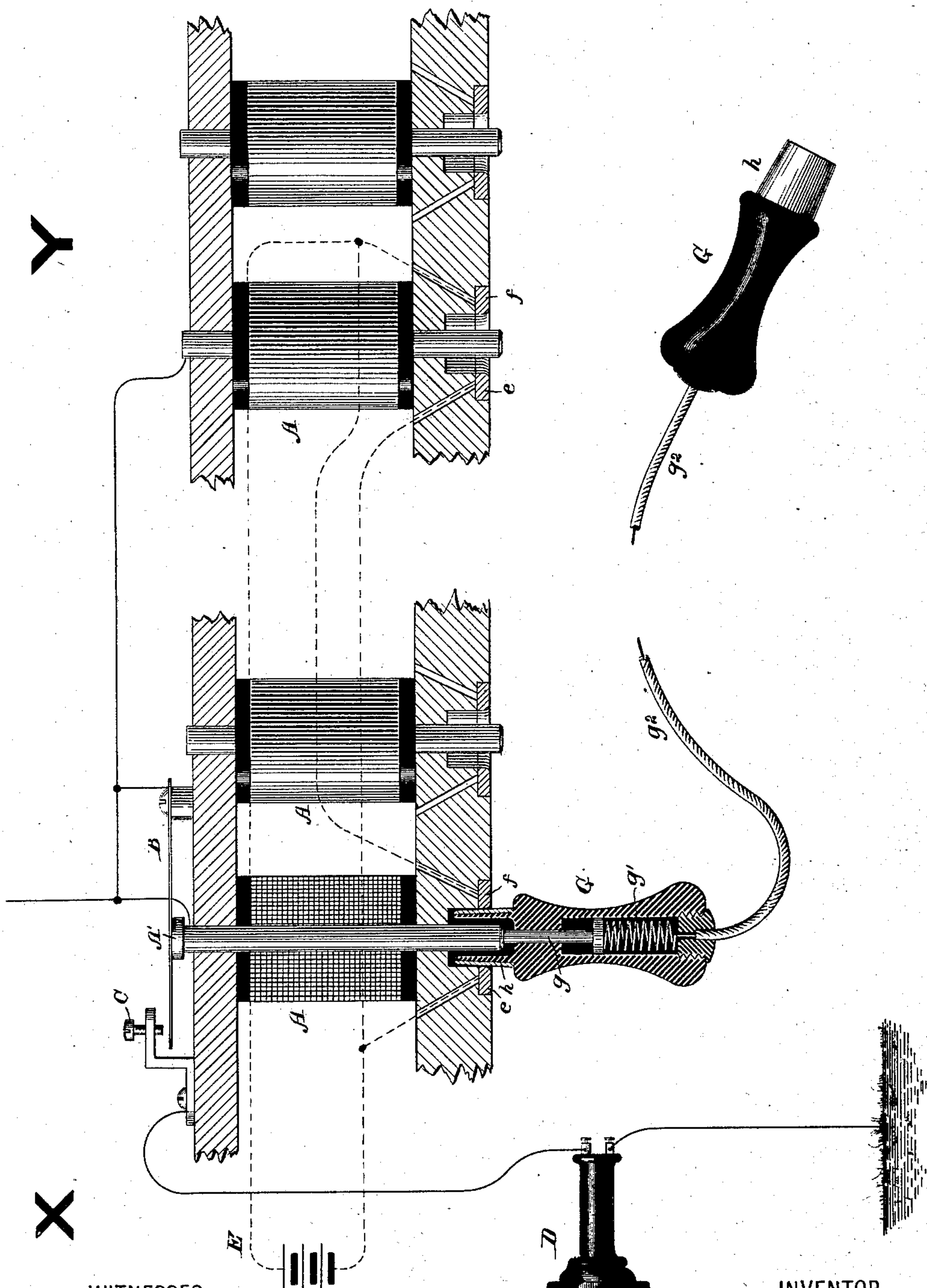


(No Model.)

T. J. PERRIN.
MULTIPLE SWITCH BOARD.

No. 315,333.

Patented Apr. 7, 1885.



WITNESSES

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THOMAS J. PERRIN, OF BROOKLYN, NEW YORK, ASSIGNOR TO CHARLES P. HUNTINGTON, OF GREENVILLE, MISSISSIPPI.

MULTIPLE SWITCH-BOARD.

SPECIFICATION forming part of Letters Patent No. 315,333, dated April 7, 1885.

Application filed October 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. PERRIN, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Multiple Switch-Boards for Telephone-Exchanges, of which the following is a specification.

The object of my invention is to produce a switch-board which will be simple in structure, very economical to construct, and efficient in practical operation.

In an application for Letters Patent filed by me October 4, 1884, and numbered 144,821, I have shown the general arrangement of main-line circuits, local circuits, and plugs such as herein shown, and no claim is therefore made to such subject-matter. Reference is, however, made to that application for a further elaboration of the details of the instrument. In this application, however, I fully illustrate and describe all that is necessary to a complete understanding of the invention. Under my present invention the clearing-out annunciators shown in that application are entirely dispensed with.

My invention, I desire to state, is not dependent upon the particular structure herein disclosed.

The accompanying drawing is a detail view, partly in section, of portions of two sections of a multiple switch-board.

Two corresponding main-line terminals are shown on each board, but only one line is connected up. All the other lines will be similarly connected and operated, and further illustration is therefore unnecessary.

At each main-line terminal shown in the drawing there is an electro-magnet, A, the core of which A' is shown as secured in the frame of the board. The main line is shown as connected directly with the core of the magnet at the board X, and also with the core of the magnet at the other terminal of the line on the board Y. The main line is also connected with a contact-spring, B, which normally maintains contact with an adjustable stop, C, mounted in a bracket, with which the operator's telephone D is connected. The end of the magnet-core A', projecting from the rear of the board, is preferably somewhat enlarged, as shown, and the contact-spring B is shown

as drawn from the contact-stop C, as is described below. A local circuit, E, for this line includes the coils of the magnets A A, at the terminals of this line in the boards X and Y. This local circuit is also provided with contact-sections *e f*, set in the faces of the boards X Y at each of said terminals on opposite sides of the well or socket from which the front end of the magnet-core A' projects.

The plugs used to connect any subscriber calling with any other subscriber are clearly shown in the drawing, and are preferably constructed as follows: The handle G is hollow and made of vulcanite or some other non-conducting material. Within it is a contact-pin, *g*, normally pressed forward by a spring, *g'*, which is electrically connected with a wire in the flexible cord *g*². The nose or plugging end of the plug is hollowed out, so as to permit the end of the magnet A' to make contact with the pin *g*, and is surrounded by a collar or contact-ring, *h*, for electrically connecting the contacts *e f* of the local circuit whenever a terminal is plugged to.

All the lines which the operator at board X has special charge of, as is well understood, are connected with the telephone D in the manner shown in the drawing.

The operation is as follows: Normally the spring B is in contact with the stop C, so that there is direct connection over the main line through the operator's instrument D. The subscriber on this line may therefore call the operator and notify him that he desires to communicate with a subscriber. The operator then calls the subscriber wanted and proceeds to connect the two. Upon the insertion of the plug G at the calling-subscriber's terminal, as illustrated at X in the drawing, connection is established from the main line through the core A', pin *g*, and cord *g*² to the other plug and subscriber's line, into the terminal of which said plug is inserted. The same operation, however, completes the local circuit E at the contacts *e f*, which completion of the circuit magnetizes the core of the magnets A A on both boards. The effect of this at board X is that the contact-spring B is attracted, as illustrated, away from the stop C, thus cutting the operator's instrument out of circuit, so that he is ready to answer the

calls of the other subscribers. At board Y the effect is to magnetize the core A' of magnet A, so that the operator at that board, should he have occasion for inquiry, may readily ascertain that the line corresponding with that terminal is in use by touching the core with the iron ring *h* or contact-ring *g* of the plug.

The construction and operation is of course the same for any number of sections of board and for any number of lines.

I claim as my invention—

1. The combination, substantially as set forth, in a multiple switch-board, of the main line, its connections or terminals on the several boards, operator's instruments normally connected with the main line at its particular board, an electro-magnet at each of said connections or terminals, a local circuit, which includes the coils of said magnets, its contacts at each terminal, plugging or line-connecting devices which complete said local circuit whenever the terminal of said line is plugged to, and devices, actuated by the electro-magnet at the terminal of said line on its particular board, which disconnect the operator's instruments from the main line.

2. The combination, substantially as set forth, in a multiple switch-board, of a main

line, its terminals or connections on the several boards, an electro-magnet at each of said terminals, a local circuit, which includes the coils of said magnet, contacts of said local circuit at each terminal, plugs and cords for connecting the subscribers, an armature for one of said magnets on one of the boards, and the main-line contacts, which are separated when said armature is attracted, whereby when said local circuit is completed by plugging to the line terminal on any board the main line is broken at the separable contacts.

3. The combination, substantially as set forth, in a multiple switch-board, of the main line, its connections or terminals on the several boards, an electro-magnet at each of said terminals, a local circuit, which includes the coils of said magnets, the contacts of said local circuit at each terminal, plugs and cords for connecting the subscriber, and operator's instruments normally directly connected with the line through the armature-spring B and contact C.

In testimony whereof I have hereunto subscribed my name.

THOMAS J. PERRIN.

Witnesses:

JNO. R. JUDEN,
JOHN JUDEN.