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OPERATOR'S STATION

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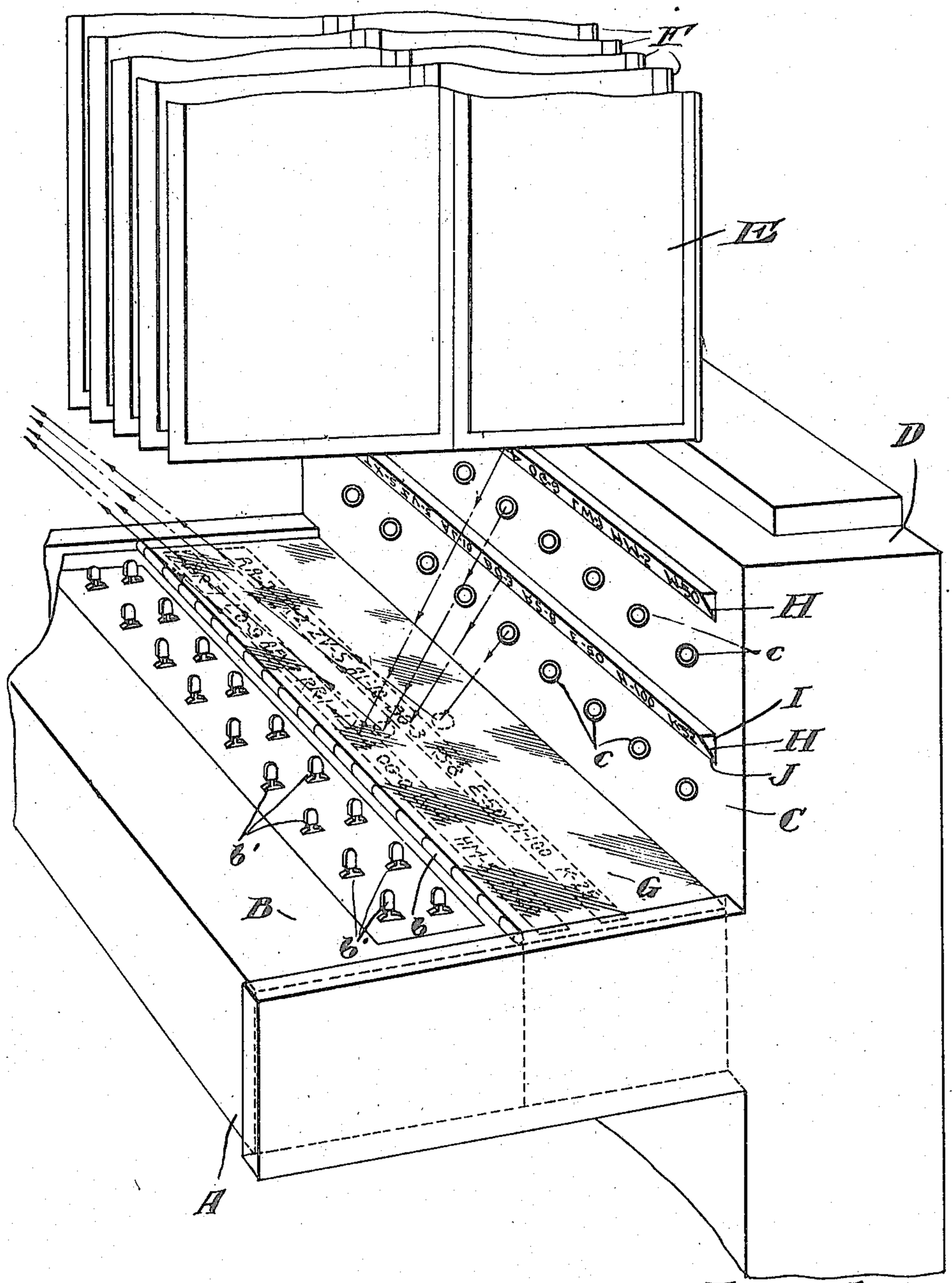

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UNITED STATES PATENT OFFICE.

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OPERATOR'S STATION.

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To all whom it may concern:

Be it known that I, JAMES H. RAND, a citizen of the United States of America, and resident of North Tonawanda, in the county of Niagara and State of New York, have invented new and useful Improvements in Operators' Stations, of which the following is a specification.

This invention relates to operators' stations of the type having a series of signals to be noted by the operator and a series of actuators which may take the form of plugs, levers, switches, etc., to be manipulated by the operator in response to the signals. In such stations the signals are usually mounted in spaced angular relation to the actuators, as on a signal board perpendicular to the actuator board, and each signal ordinarily has an actuator corresponding thereto. Telephone switch boards are typical examples of stations of this kind.

Objects of the invention are to reduce the portion of the station which must be closely observed by the operator in receiving and answering the signals without making actual structural changes, to effect the above object by causing an image of each signal to be visible at a point adjacent the corresponding actuator, to make the index for each signal likewise visible at a point adjacent the corresponding actuator, to permit the use of filing devices and other attachments which cut off the signals from the operator's field of vision, and in general to improve devices of the class described and to render them more convenient and serviceable.

The genus of the invention is illustrated by the concrete embodiment shown in the perspective view on the accompanying drawing, which exemplifies an operator's station or desk in a telephone system, specifically the desk of an information operator. In general the desk is of the usual type having a horizontally disposed portion A in the form of a shelf or table whereon is disposed the switch board B which may be hinged at *b* to the desk proper to permit easy access to the switches for adjustment purposes. The desk likewise has an upright portion C forming the signal board. Above the signal board is a flat top D upon which are placed the index devices, books and directories which the operator will consult in giving the information asked for. Books have been used heretofore for this information but considerable delay is experienced in using them since they must be taken from the top D to shelf B for consultation where they are often in the way of the operator. In the interest of greater convenience and speed in supplying information visible index devices of the type indicated at E with broad swinging leaves F are now being used. To supply the great mass of information needed at one of these desks, very large leaves F are required, so that when these leaves are swung to an outward position in which they are conveniently visible to the operator they hide a considerable portion of the signal board C and may entirely conceal it, thus handicapping the operator in her work.

To overcome this trouble reflecting means are disposed at the base of the upright signal board C and between it and the switch-board B. These means may take the form of a flat mirror G placed as indicated upon the shelf A of the desk. As indicated by the dash lines the signals and any index indicia on the signal board C will be reflected in the mirror G at points adjacent the switch board B and thus be readily visible to the operator without interference from the swinging panels F of the index.

In the form of desk illustrated there are provided two rows or series of switches *b'* and two rows or series of signals *c* which are in the form of the small bull's-eye glasses adapted to be illuminated when a call comes in. To the desk shown calls may come from 18 lines and each of the 18 signals *c* has a switch *b'* corresponding thereto. Index strips H are provided to designate the various lines. To cause the index indicia to be clearly visible in the mirror G the index strips H are preferably mounted upon the inclined face of strips I which, as indicated, are triangular in section. Strips H are preferably of flexible, transparent material such as celluloid and have the index indicia thereon in inverted position in order that the image thereof shown in the mirror G may be in proper position to be read. These strips preferably slide under and are removably retained in place by clips J upon strips I. The switches and signals are preferably so wired that the lower row of signals corresponds to the inner row of switches and the upper row of signals to the outer row of switches.

The use of the improved operator's station will be obvious from the showing of the

drawing. Two of the signals *c* are indicated as illuminated by the broken line outline upon the mirror. It will be clear from the direction of the dash lines which lead to the eye of the operator that the index sheets F do not interfere with the operator's line of vision to the mirror G. It will be further apparent that the portion of the desk which need now be watched by the operator to receive and answer the signals is greatly restricted and is confined merely to the part comprising the switches *b'* and the portion of the mirror G adjacent thereto. In other words, the operator no longer has to watch the signal board C and then look back and forth from signal board C to switch board B as she operates the switches *b'*. This arrangement makes the board much more convenient to operate, makes the work less tiring to the operator, and speeds up the answering of the signals. It is obvious that the arrangement of the reflecting means is equally applicable to an operator's station provided with but one row or series of signals and switches corresponding thereto or to a station having more than two rows or series of signals and switches.

I claim:

1. An operator's station having a series of actuators in front of the operator's position, a series of signals at a distance from the actuators, each signal corresponding to one of the actuators, and reflecting means positioned adjacent to the actuators at such an angle that each signal is reflected to the operator from a point adjacent to its corresponding actuator.

2. An operator's station having a series of actuators in front of the operator's position, a series of relatively fixed signals at a distance from the actuators, each signal corresponding to one of the actuators, and means for causing an image of each of said signals to be visible to the operator at a point adjacent to the corresponding actuator and substantially in the same plane.

3. An operator's station having a series of actuators in front of the operator's position, a series of signals spaced from said actuators and positioned at an angle thereto, each signal corresponding to one of the actuators, an index adjacent to said signals to designate each signal and its corresponding actuator, and reflecting means positioned adjacent to the actuators at such an angle that each signal with its index designation is reflected to the operator from a point adjacent to its corresponding actuator.

4. An operator's station having a switch board provided with a series of switches in front of the operator's position, a signal board at an angle to said switch board provided with a series of signals, each signal corresponding to one of the switches, and reflecting means mounted on said switch board at such an angle that each signal is reflected to the operator from a point adjacent to its corresponding switch.

5. An operator's station having a switch board substantially horizontally disposed in front of the operator's position, a plurality of series of switches on said board, a substantially upright signal board adjacent to said switch board having a plurality of series of signals, each signal corresponding to one of said switches, index means adjacent to said signals, and reflecting means on said switch board so disposed that each signal with its index is reflected to the operator from a point adjacent to the corresponding switch.

6. A telephone operator's station comprising a switch board and a signal board angularly disposed relatively to each other and mounted in front of the operator's position, a plurality of rows of switches and of signals upon said switch board and said signal board respectively, each switch having a corresponding signal, an index strip having inverted characters adjacent to each row of signals to designate the individual signals, and reflecting means on said switch board so disposed that each signal with its index designation in upright readable characters is reflected to the operator from a point adjacent to its corresponding switch.

7. A telephone operator's station comprising a substantially horizontal switch board, a substantially upright signal board, a series of switches on one of said boards and a series of signals on the other, each switch having a corresponding signal substantially in alignment therewith whereby the pairs of corresponding switches and signals are disposed in parallel vertical planes, a mirror on said switch board adjacent to the foot of said upright signal board whereby each signal is reflected to the operator from a point adjacent to the corresponding switch.

8. A telephone operator's station having a series of switches mounted on a horizontal switch board in front of the operator's position, a series of signals mounted on an upright signal board above said switch board, each signal corresponding to one of said switches, an index strip mounted at an angle upon said signal board adjacent to and parallel to said series of signals to designate said signals, and a mirror on said switch board at the foot of said upright signal board whereby each signal with the adjacent portion of the index strip is reflected to the operator from a point adjacent to its corresponding switch.

9. A telephone operator's station having a series of switches mounted on a horizontal switch board in front of the operator's position, a series of signals mounted on an upright signal board above said switch board, each signal corresponding to one of said

switches, an index strip mounted at an angle upon said signal board adjacent to and parallel to said series of signals to designate said signals, the characters on said strip being in inverted position, and a mirror on said switch board whereby each signal with its index designation in upright readable characters is reflected to the operator from a point adjacent to its corresponding switch.

10. An operator's station comprising a substantially horizontal support, a signal board rising vertically therefrom, a plurality of relatively fixed signals upon the signal board, and reflecting means mounted upon the support for reflecting images of the signals upwardly to the operator from the plane of the support.

Signed by me at Boston, Massachusetts, this 20th day of March, 1922.

JAMES H. RAND.