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SWITCHBOARD

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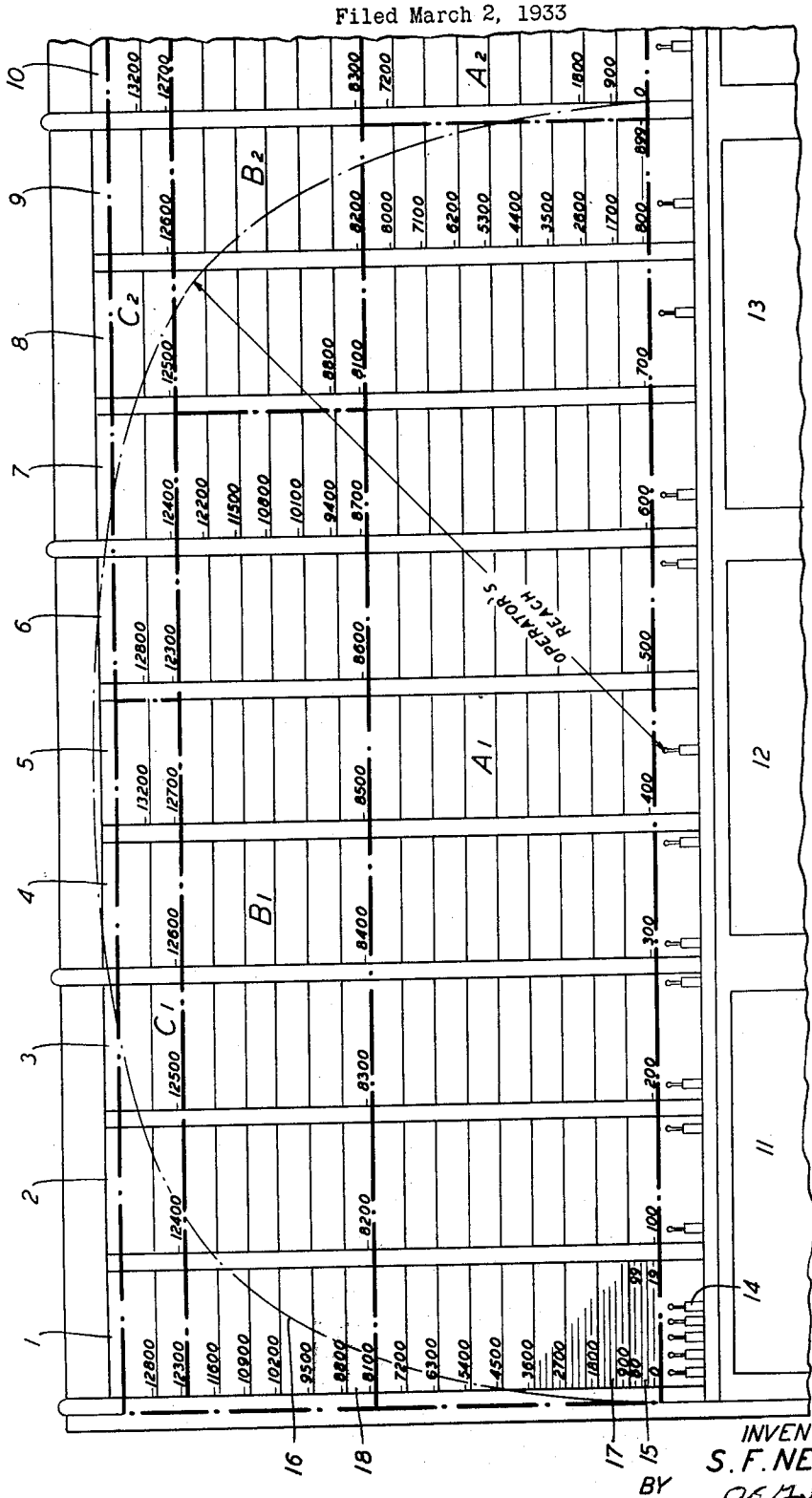

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SWITCHBOARD

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9 Claims. (Cl. 179—91)

This invention relates to telephone switchboards and more particularly to multiple switchboards in which telephone lines are terminated at a plurality of positions.

An object of the invention is to increase the capacity of said switchboards.

Another object is to terminate a plurality of lines at said switchboards in a more economical manner.

In accordance with the invention the line appearances in a switchboard face are arranged to conform to the field of operator's reach.

A feature of the invention consists in the termination of lines in less frequently recurring multiple appearances in the lower part of the switchboard face where the operators' reach covers a wider area and in more frequently recurring appearances in the upper part where the operators' reach covers a narrower area.

The invention will be understood from the following description together with the accompanying drawing in which one embodiment of my invention is illustrated.

The drawing shows the arrangement of telephone line multiple appearances in the face of a "B" or trunk operator's multiple switchboard.

The switchboard is divided into panels here numbered 1 to 10 inclusive. Only a section of the switchboard is shown in the drawing while in practice it will extend to the right or left for as many additional panels as are required to give a sufficient number of line multiple appearances to allow prompt and efficient service to be provided at all times by adding operators at the multiple appearances.

An operator's position is provided in front of each group of three panels as at 11, 12 and 13. During heavy traffic periods a "B" operator is seated at each position. During hours of lighter traffic several of the positions may be vacant. Each operator has before her a group of cord or trunk circuits terminating in plugs 14.

Each panel includes several groups of 100 lines each. Each group, in the present instance, comprises five strips of twenty line jacks each, as shown at 15. The number of 100 line groups in each panel depends on the height of the switchboard face which in turn is determined by the practical height of an average operator's reach.

The area of a switchboard face within easy reach of an operator is bounded by a curve, such as curve 16 bounding the reach of the operator at position 12. It is seen that operator 12 can reach all lines appearing in any panel from 1 to 9, inclusive, if they are in the lower half of the switchboard, that she can reach only all lines in panels 2 to 8, inclusive, if they are higher in the switchboard and that she can reach only all lines in panels 3 to 7, inclusive, if they are very near the top of the board.

I propose, according to my invention, therefore, to make the line multiples nine panels wide in the lower portion, seven panels wide in a higher portion and five panels wide at the top of the switchboard. In other words the lines will be multipled on a nine, seven or five-panel basis depending upon their height in the switchboard face. Other arbitrary divisions might also be used without departing from the spirit of the invention.

In the present instance, therefore, lines numbered 0 to 99 are in the bottom group 15 in panel 1, the lines 100 to 199 in the bottom group in panel 2, the two hundreds in panel 3, the three hundreds in panel 4, etc., lines 800 to 899 appearing in panel 9. Lines 0 to 899, therefore, form the bottom row in the first nine panel multiple A_1. In panel 10 the second multiple A_2 begins, i. e., lines 0 to 99 are repeated. Likewise for the following eight panels, multiples of the line groups appearing in panels 2 to 9, inclusive, are repeated, after which, in the nineteenth panel lines 0 to 99 may again appear.

Lines 900 to 999 appear at 17 immediately above the 0 to 99 group in panel 1, the 1000 group above the 100 group in panel 2, etc., to the 1700 group in panel 9. In panel 10 again the lines are repeated with lines 900 to 999. This arrangement is continued as I go up the panels for nine 100 line groups, the ninth row including lines 7200 to 8099. The complete line multiple A_1 is shown enclosed in heavy dot-dash lines as well as the portion shown of the second nine panel multiple A_2.

In the tenth to the fifteenth row from the bottom the lines are multipled on a seven panel basis (multiples B_1 and B_2). That is, in the first panel at 18 appear lines 8100 to 8199, in the second panel lines 8200 to 8299, and so forth to panel 7 at which appear lines 8700 to 8799. In panel 8 the seven panel multiple begins to repeat in multiple B_2 with lines 8100 to 8199 again. Lines 8800 to 8899 appear above group 18 in panel and hence across to line 9499 in panel 7. Likewise for the next four higher panels to line 12299 in panel 7, the fifteenth row from the bottom, the first seven panel multiple B_1 and a portion of the second seven panel multiple B_2 are also shown enclosed in heavy dot-dash lines.

In the top two rows the lines are multipled on a five panel basis, hence in the sixteenth row

from the bottom appear lines 12300 to 12799 and in the seventeenth row lines 12800 to 13299. The first five panel multiple C_1 is enclosed in heavy dot-dash lines and likewise the second C_2.

From the above it can be seen that an operator seated at any position except the first and last has within her reach 13,300 lines. The operator seated at position 12, for example, reaches lines 0 to 8099 in multiple A_1, that is, panels 1 to 9, inclusive. For lines appearing at the left end of the 7200 group or at the right end of the 8000 group, she may have to extend her reach a little more than is ordinarily necessary. She reaches lines 8100 to 12299 in panels 2 to 8 inclusive, including the last six panels in multiple B_1 and the first panel in multiple B_2. She reaches lines 12300 to 13299 in panels 3 to 7 inclusive, including the last three panels of multiple C_1 and the first two of multiple C_2.

In the usual arrangement for line multiples in a switchboard, consisting of equal rectangular multiples, all the lines in the present instance would have to be multipled on a seven panel basis approximately fifteen rows high in order to be within the operator's reach. This would place only 10,500 lines within reach of an operator. The capacity of the switchboard, therefore, is increased by the use of my arrangement; in the present instance from 10,500 to 13,300 lines.

Economies would be effected by use of my arrangement because it would require less jacks per line to terminate the lines within reach of all the operators. For example, in the present specific case, disregarding any differences occurring at the end operators' positions, it would require an average of 0.43 jacks per operator to terminate a line within reach of all the operators with the usual multiple arrangement while with my arrangement 0.38 jacks per operator would be sufficient.

Although the invention is shown and described as embodied in certain specific arrangements, applicant does not wish to be limited by such disclosure, but desires to cover broadly, both for multiple and non-multiple switchboards, all arrangements that come within the spirit and scope of the appended claims.

What is claimed is:

1. In a telephone switchboard, lines terminating in multiple appearances in the face of said switchboard, said lines terminating in wider multiples in the lower part than in the upper part of said face.

2. In a telephone switchboard, lines terminating in multiple appearances in the face of said switchboard, the multiple appearances of lines in the lower part of said face recurring less frequently than the multiple appearances of lines in the upper part of said face.

3. In a telephone switchboard, a plurality of groups of lines terminating in the face of said switchboard in multiple appearances, the multiple appearances of any of said group recurring at more frequent intervals than the groups having multiple appearances below it in the face of said switchboard.

4. In a telephone switchboard, a plurality of vertical panels, a plurality of groups of lines terminating in said switchboard in multiple appearances, the area of one appearance of any said group intersecting more panels than the area of an appearance of any group vertically above it.

5. In a telephone switchboard, a plurality of groups of lines terminating at different elevations in the face thereof, the areas of the groups of terminals higher in the face having less horizontal extent than the areas of the groups terminating lower in the face.

6. In a telephone switchboard, a plurality of lines terminating in jacks in the face thereof one jack of each said line being within an area over which the jacks are evenly distributed in horizontal rows, the conformation of the area to the field of an average operator's reach being closer than that of any single rectangle.

7. In a telephone switchboard, a plurality of lines having appearances in the face thereof, one appearance of each said line being within an area over which said line appearances are evenly distributed, the area conforming to the field of an overage operator's reach more closely than does any single rectangle.

8. In a telephone switchboard, means to increase the number of lines reached by an operator comprising a group of lines having appearances in the switchboard face, one of the appearances for each line being within an area over which the appearances are evenly distributed, the horizontal extent of said area being greater in the lower part of the switchboard face than in the upper part.

9. In a multiple switchboard, means to increase the capacity of said switchboard comprising lines having multiple jacks in the face thereof, the multiple jacks of lines appearing near the top of the switchboard face recurring at shorter horizontal intervals than the multiple jacks of lines appearing near the base of the switchboard face.

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