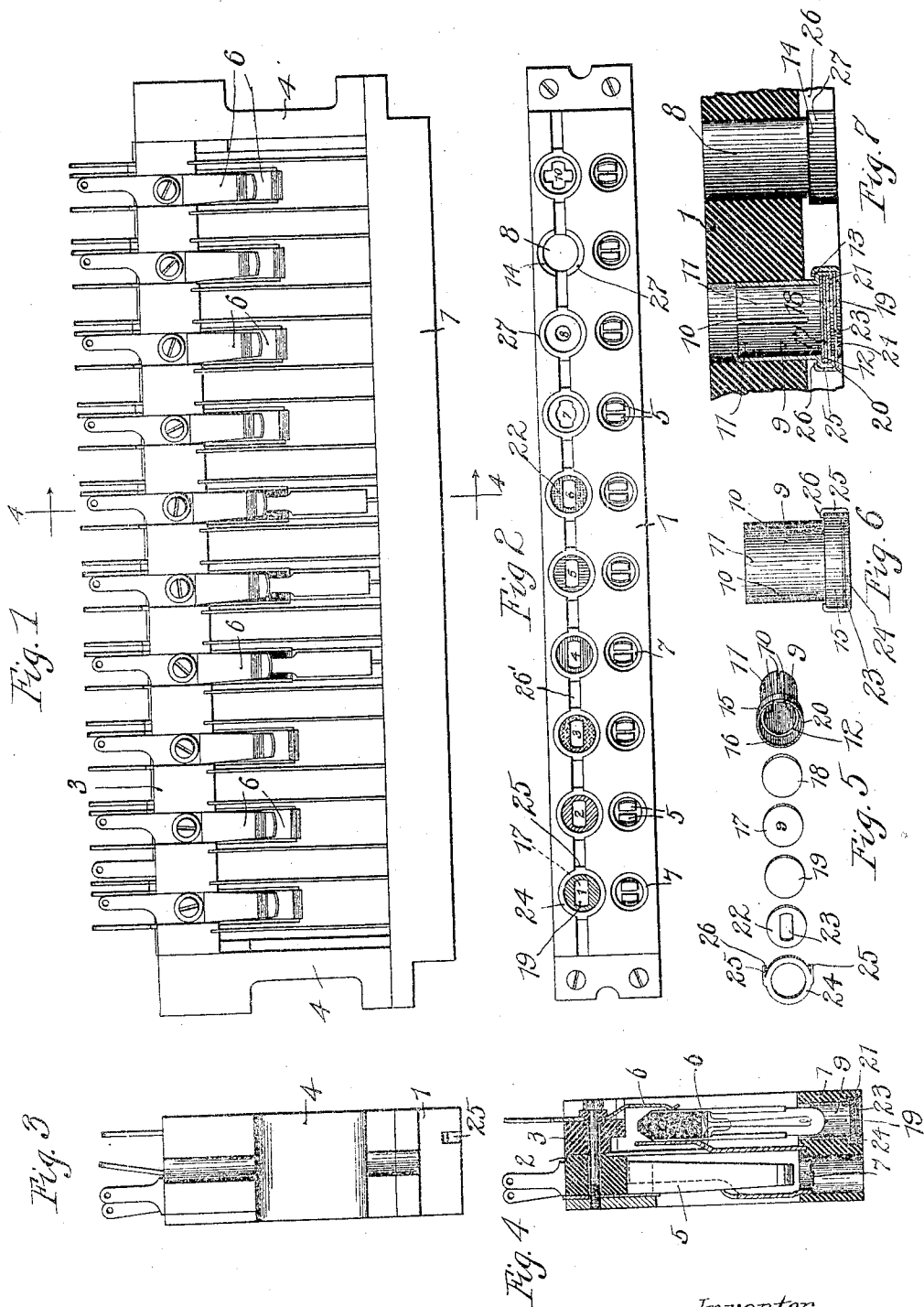


T. V. DAVIS.
TELEPHONE SWITCHBOARD APPARATUS.
APPLICATION FILED APR. 4, 1904.



Witnesses:
Leonard W. Novander
Charles J. Schmidt.

Inventor
Thomas Vivian Davis
By Charles A. Mearns
Attorney

UNITED STATES PATENT OFFICE.

THOMAS VIVIAN DAVIS, OF KANSAS CITY, MISSOURI, ASSIGNOR TO THE STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

TELEPHONE-SWITCHBOARD APPARATUS.

No. 804,103

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed April 4, 1904. Serial No. 201,409.

To all whom it may concern:

Be it known that I, THOMAS VIVIAN DAVIS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented a certain new and useful Improvement in Telephone-Switchboard Apparatus, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to switchboard apparatus; and its object is the provision of an improved device for coloring or intercepting in various ways the rays emanating from a visual signal employed on a switchboard whereby to indicate to the operator the line or circuit with which the visual signal is connected.

It is very desirable to indicate to the operator what class of subscriber is connected with a particular signal—for instance, whether the subscriber be connected with a grounded line or a metallic line or a party-line; and my invention is incorporated in a device in the shape of a thimble, which may be inserted in openings extending through the front of the switchboard in alinement with the visual signals. I provide various colored screens which may be secured in said thimble to color the rays of light, and I also provide screens with openings of different shapes, which screens may be inserted in the thimble. These screens may be of colored transparent material or may be opaque. Instead of using the colored screens or the perforated screens alone a combination of the two might be used.

By referring to the accompanying drawings my invention will be more clearly understood.

Figure 1 shows a spring-jack bank to which my invention may be applied. Fig. 2 shows a front view of the bank. Fig. 3 shows an end view thereof. Fig. 4 is a sectional view taken on line 4 4 of Fig. 1. Fig. 5 shows the disassembled parts of my device. Fig. 6 shows these parts assembled, and Fig. 7 is an enlarged sectional view showing the thimble-openings and the manner of inserting the thimbles therein.

As shown, the bank or unit consists of a front support 1 and rear supports 2 and 3, united by end plates 4 4. The supports are preferably of insulating material, the rear support 2 serving to support the jack-spring

5 5 and the support 3 serving to support the lamp-springs 6 6, while the front support 1 contains the plug-openings 7 7 and the thimble-openings 8 8, each thimble-opening being preferably disposed above a corresponding plug-opening.

Each thimble is composed of a cylindrical shell 9, provided with slots 10 10 at its rear portion to form spring-sections 11 11, which sections are spread slightly and upon subsequent insertion of the thimble into the opening serve to clamp the thimble in position. At the front of each thimble-cylinder I provide an interior annular shoulder 12 and an exterior annular shoulder 13, adapted to engage a corresponding shoulder or ledge 14 in each thimble-opening 8 8. A rim 15 extends forward from the shoulder 13, the interior wall 16 of which is primarily straight, as shown in Fig. 5. This rim serves as a frame for retaining in place an indicating-number, which number may be disposed on a transparent disk adapted to engage the shoulder 12, or, as shown, a number may be painted on a transparent disk 17, of paper or the like, and arranged between a transparent disk 18, which may be of mica or glass, and a transparent disk 19, which is preferably of glass, disposed in front of the number-disk. The disks 18 and 19, with a number-disk between them, are inserted within rim 15 against the shoulder 12 and the outer edge 20 of the rim 15 then burred over to form an annular retaining-shoulder 21. One of the disks 17 or 19, or the glass disk 19, may be opaque in parts to convey various signals to the operator; but I prefer not to color these disks or to render them opaque; but for the purpose of at any time changing the signal to be conveyed by a particular thimble I provide detachable means for coloring or intercepting the rays of light. For this purpose I provide disks 22, which may be of any color or combination of colors or which may be perforated to form various shaped openings 23 23, as shown in Fig. 2, each color, opening, or combination thereof serving as a different signal to the operator, the openings, however, being cut so as to display the number in white color. To hold the disks before the thimble, I employ a clamping-frame 24, adapted to clamp the disk over the intumed edge 20 of the thimble, each clamping-frame being provided with rear-

wardly-extending lugs 25, provided at their ends with inward extensions 26. To accommodate these lugs, I cut a slot 26' across the face of the front support 1, this slot passing diametrically through all the thimble-openings and cut to extend below the shoulders 13 of the thimbles, whereby the extensions 26 of the frames 25 may engage these shoulders 13 to hold the frame in place on the thimble.

Upon insertion of a thimble into an opening a disk 22 is properly disposed against the front face of the thimble, and the frame is slipped over the disk, the extensions 26 engaging the shoulder 13. The thimble is then inserted into an opening 8 from the front of the support 1, the lugs 25 engaging the slot 26' and the frame 24 passing within the edge 27 of the opening 8, so that its front face is flush with the face of the support 1. The frame is thus inserted in place and prevented from rotating. To withdraw the thimble from the opening, the slot is cut deep enough to allow the insertion of a tool therein to engage below the extensions 26 of the frame, whereupon the entire thimble may be readily removed from the opening.

I do not wish to confine myself to the exact construction of my improved device and its application as shown, as changes may readily be made without departing from the spirit of the invention.

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

1. In a telephone-switchboard, the combination with a visual signal in the form of a lamp, of an opening disposed before said lamp through which the rays therefrom may pass, and screens adapted for insertion in said opening, said screens being provided with openings therethrough to permit a path of differently-colored rays in which another and distinct signal may be displayed.

2. In a telephone-switchboard, the combination with a visual signal in the form of a lamp, of an opening disposed before said lamp through which the rays thereof may pass, and a transparent disk adapted for insertion in said opening, said disk having an opening therethrough to permit a path of differently-colored rays in which another and distinct signal is adapted to be displayed.

3. In a telephone-switchboard, the combination with a visual signal in the form of a lamp, of an opening disposed before or above said lamp through which the rays therefrom may pass, a thimble in said opening, and differently-colored screens separably secured and provided with openings, said openings permitting a path of differently-colored rays in which another and distinct signal is adapted to be displayed.

4. In a telephone-switchboard, the combination with a visual signal in the form of a lamp, of an opening disposed before said lamp through which the rays therefrom may pass, a thimble in said opening, differently-colored

transparent disks separably secured to the face of said thimble, said disks being provided with openings to permit a path of differently-colored rays to display another distinct signal.

5. In a telephone-switchboard, the combination with a visual signal in the form of a lamp, of an opening disposed before said lamp through which the rays therefrom may pass, a thimble disposed in said opening, a transparent disk bearing a number disposed in said thimble, and a transparent colored disk adapted to be separably secured before said thimble, said disk having an opening in the central portion whereby the rays not intercepted by said number remain uncolored.

6. In a telephone-switchboard, the combination with a lamp-signal, of an opening disposed before said lamp through which the rays therefrom may pass, a thimble disposed in said opening, a transparent disk bearing a number disposed within said thimble, a transparent colored disk disposed before said thimble, and a separable clamping-frame for clamping said disk in place against said thimble.

7. In a telephone-switchboard, the combination with a signal in the form of a lamp, of an opening disposed before said lamp through which the rays therefrom may pass, a thimble disposed in said opening, a transparent disk bearing a number disposed within said thimble, a transparent colored disk disposed above the front face of said thimble, an opening through the central portion of said disk whereby the rays emanating from said thimble about said number are colored, and a clamping-frame for engaging said thimble and holding said disk against the front face thereof.

8. In a telephone-switchboard, the combination with a signal in the form of a lamp, of an opening disposed before said lamp through which the rays therefrom may pass, a thimble disposed in said opening, an exterior annular shoulder at the front end of said thimble, a transparent disk bearing a number disposed within said thimble, a transparent colored disk disposed before the face of said thimble, and a clamping-frame for separably securing said colored disk to said thimble, said frame being provided with lugs having extensions for engaging said exterior shoulder.

9. In a telephone-switchboard, the combination with a signal in the form of a lamp, of an opening disposed before said lamp through which the rays therefrom may pass, a thimble disposed in said opening, an exterior annular shoulder at the front end of said thimble, a rim extending forwardly from said shoulder to form an interior annular shoulder, a transparent disk bearing a number disposed against said inner shoulder, a transparent colored disk disposed before the face of said thimble, and a clamping-frame for separably securing said colored disk to said thimble, said frame being provided with lugs having extensions for engaging said exterior shoulder.

10. In a telephone-switchboard, the combination with a signal in the form of a lamp, of an opening disposed before said signal through which the rays therefrom may pass, a thimble disposed in said opening, an exterior annular shoulder at the front end of said thimble, a rim extending forwardly from said exterior shoulder to form an interior shoulder, a transparent disk bearing a number disposed against said interior shoulder, the front edge of said rim being turned in to hold said disk in place after its application to said interior shoulder, a colored transparent disk adapted to be disposed before the face of said thimble and provided with an opening through its central portion whereby only the rays of light about said number are colored, and a clamping-frame for separably securing said colored disk in position, said frame being provided with lugs having extensions for engaging said exterior shoulder.

11. In a telephone-switchboard, the combination with a signal in the form of a lamp, of an opening disposed before said lamp through which the rays of light therefrom may pass, a thimble adapted for separable insertion in said opening, an exterior annular shoulder at the forward end of said thimble, a rim extending forwardly from said exterior shoulder to form an interior shoulder, a transparent disk bearing a number and adapted to engage said interior shoulder at its edge, transparent disks between which said number-disk is disposed, the front edge of said rim being turned inwardly to hold the disks in place against the interior shoulder, a colored transparent disk adapted to be disposed above the face of said thimble, said disk being provided at its central portion with an opening which may be of different shapes whereby the rays of light not intercepted by said number are not colored, and a clamping-frame for securing said coloring-disk in place before said thimble, said frame being provided with lugs having extensions for engaging said exterior shoulder.

12. In a telephone-switchboard, the combination with a unit or bank having a front support and a rear support, signals in the form of lamps extending from said rear support, openings through said front support alining with said lamps through which the rays of light may pass, a thimble separably clamped in each of said openings, a colored disk disposed before the face of said thimble, a clamping-frame for separably securing said colored disk to said thimble, said frame being pro-

vided with diametrically opposite lugs for engaging said thimble, and a slot extending along the face of said front support in which slot said lugs are disposed to prevent said clamping-frames from turning.

13. In a telephone-switchboard, the combination with a unit or bank having a front and a rear support, signal-lamps extending forwardly from said rear support, openings through said front support and disposed before said lamps through which the rays therefrom may pass, a thimble separately spring-clamped in each of said openings, an annular exterior shoulder at the forward end of said thimble, a colored disk adapted to be disposed before said thimble, a clamping-frame for holding said disk in place, said frame being provided with diametrically opposite rearwardly-extending lugs having extensions for engaging said exterior shoulder, and a slot in the face of said front support in which slot said lugs are disposed to prevent turning of said clamping-frames.

14. In a telephone-switchboard, the combination with a unit or bank having a front and a rear support, signal-lamps extending forwardly from said support, openings through said front support through which the rays from said lamps may pass, a thimble separably spring-clamped in each of said openings, an exterior annular shoulder at the front of said thimble, a rim extending forwardly from said shoulder to form an interior shoulder, a transparent disk bearing a number disposed against said interior shoulder, the front edge of said rim being burred over to hold said number-bearing disk in place against the interior shoulder, a colored transparent disk disposed before the face of said thimble, said colored disk being provided with a central opening which may be of various shapes whereby the rays not intercepted by said number are not colored, a clamping-frame for separably securing said colored disk in place, said frame being provided with diametrically opposite rearwardly-extending lugs having extensions for engaging said exterior shoulder, and a slot in the face of said front support in which slot said lugs are disposed to prevent said clamping-frame from turning.

In witness whereof I hereunto subscribe my name this 29th day of February, A. D. 1904.

THOMAS VIVIAN DAVIS.

Witnesses:

EDWIN H. ANDERSON,
ERNEST WARD HALL.