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H. W. GOFF

2,296,846

TELEPHONE CALLING DIAL

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FIG. 1

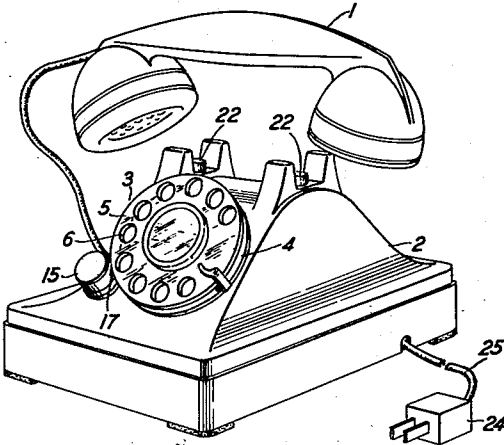


FIG. 4

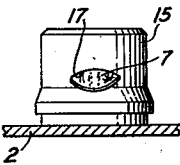


FIG. 2

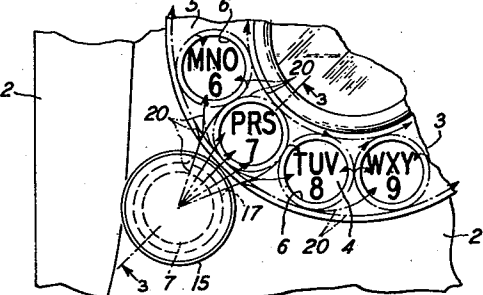


FIG. 3

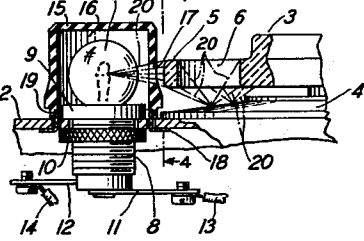
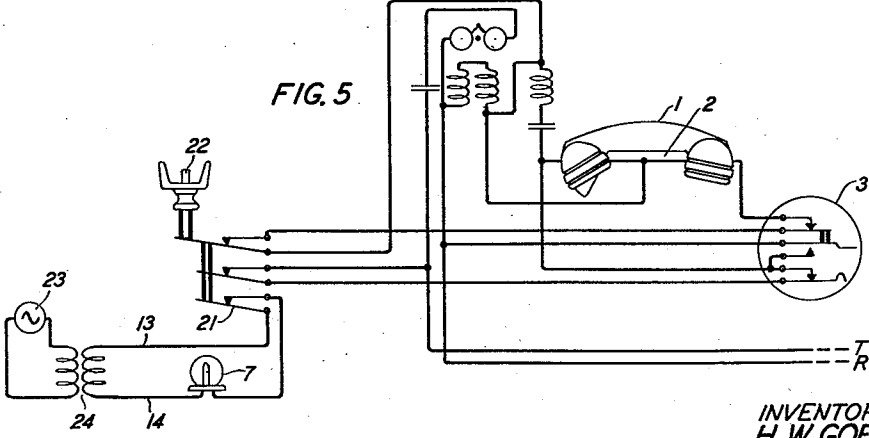


FIG. 5



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TELEPHONE CALLING DIAL

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4 Claims. (Cl. 179-90)

This invention relates to telephone calling dials and more particularly to illuminated telephone calling dials.

The object of the invention is to provide a telephone calling dial in which the numbers and letters on the dial number plate are sufficiently illuminated to be readily discernible by a user of the calling dial even when the telephone apparatus is located in a relatively dark place.

In the drawing,

Fig. 1 is a view in perspective of a telephone substation set including the invention;

Fig. 2 is a top plan view of fragmentary portions of the substation set and enlarged relative to Fig. 1;

Fig. 3 is a view, partly in section, of parts shown in Fig. 2 and taken on the line 3-3 of Fig. 2;

Fig. 4 is a side elevational view of a lamp housing and a fragmentary portion, in section, of part of the telephone set; and

Fig. 5 is a schematic diagram of the telephone substation set and shows a wiring arrangement.

The invention may be used in connection with various forms of telephone substation sets but is shown merely for the purpose of explanation in Fig. 1 in connection with the handset type of telephone substation set comprising the handset telephone 1 and the base type support 2. The base type support 2 serves as a rest for the handset 1 and as a housing for various parts of the telephone apparatus all of which are well known.

The calling dial 3 is mounted on the base type support 2 in a well-known manner and comprises a stationary number plate 4 and a manually rotatable finger wheel 5. The finger wheel 5 is made of transparent material having a light bending characteristic. It is important that the material employed in making the finger wheel have this light bending characteristic in order that the light may be directed to the numbers and letters on the number plate 4.

A suitable material for the finger wheel 5 is acrylate resin. This material is a synthetic resinous product and may be molded into the form of a finger wheel. I have found that when a finger wheel is made of the material above mentioned light may be transmitted from any point on the outer edge of the finger wheel to all of the numbers and letters on the number plate 4, that the light rays emerge from all parts of the periphery of each finger hole and from the lower surface of the finger wheel and that the edge-lighted finger wheel 5 thus throws

considerable light on the printed characters on the number plate 4. This emanation of light from the entire periphery of each of the finger holes and from the lower surface of the finger wheel is due to the light piping characteristic of acrylate resin which will, in effect, pipe light from a source around bends and to a somewhat distant place where the light rays are required.

To provide light for the finger wheel 5 a lamp 7 is located on the base type support 2 so that light from the lamp will enter the outer edge of the finger wheel 5 in a plane coinciding with the plane of the finger wheel. The lamp 7 is mounted as shown in Fig. 3 in a socket 8. The socket 8 extends through an aperture provided in the support 2 and is provided with a flange 9 on its upper portion and a ring nut 10 on its male threaded lower portion, the socket 8 being clamped by means of the flange 9 and the ring nut 10 in required position. The socket 8 is equipped with a central terminal 11 and an outer terminal 12 so that current may be supplied to the lamp through the lead wires 13 and 14. An inverted cup-shaped cover 15 covers the lamp 7 to protect it from injury and provide a reflector for the lamp. The cover 15 is either coated on the inside with a suitable light reflecting material 16 or has a suitable inner surface for reflecting light from the lamp 7. The cover 15 is apertured at 17 to permit the passage of light rays to the outer edge of the finger wheel 5, the aperture being in a plane coinciding with the plane of the finger wheel. A flanged ring 18 having upwardly extending spaced spring fingers 19 is supported on the base 2 to frictionally hold the cover 15 in place, the fingers 19 being projected upwardly through apertures provided in the base 2 and frictionally engaging the inner surface of the lower portion of the cover 15.

When the lamp 7 is energized the light rays are directed through the aperture 17 in the cover 15 and to the outer edge of the finger wheel 5 and emerge from the inner surface of each finger hole 6 in the finger wheel and from the lower surface of the finger wheel 5. A rather striking effect is produced when the finger wheel 5 is illuminated since each finger hole 6 appears to be a ring of light shining about the printed characters on the number plate 4. The course of the light rays is indicated in Figs. 2 and 3 by the dotted lines 20.

The lamp 7 is preferably a low voltage lamp and is supplied with current from a suitable source of current supply through a switch 21

located within the base type support 2. The switch 21 is automatically closed to supply current to the lamp 7 when the handset 1 is removed from the support 2 and may be under control of the plungers 22—22 in the telephone substation set shown in Fig. 1. The circuit arrangement for supplying current to the lamp 7 may be as shown in Fig. 5. In this case the lamp 7 is supplied with current from a suitable source 23 through a step-down transformer 24, the low voltage side of which is connected to the lamp 7 and the switch 21 through the conductors 13 and 14. Opening of the switch 21 to deenergize the lamp 7 is automatically accomplished when the handset 1 is placed on the support 2 and the plunger 22 is pressed down by the weight of the handset 1. The conductors 13 and 14 may comprise a two-conductor cord 25 extending from the transformer 24 to the interior of the base type support 2 as shown in Fig. 1.

What is claimed is:

1. In a telephone calling dial, in combination, a rotatable finger wheel made of material having a light bending characteristic and a source of light directed against an edge portion of said finger wheel and arranged so that the light rays from said source are directed to said finger wheel in the same plane as said finger wheel.

2. In a telephone calling dial, in combination,

a transparent rotatable finger wheel made of acrylate resin and a source of light directed against an edge portion of said finger wheel and arranged so that the light rays from said source are directed to said finger wheel in the same plane as said finger wheel.

3. In a telephone calling dial comprising a stationary number plate, in combination, a transparent rotatable finger wheel apertured to provide a series of finger holes, said wheel made of material having a light bending characteristic, a source of light, means directing light from said source into said wheel in a plane coinciding with the plane of said wheel, and said wheel operating to transmit light from said source into areas defined by the finger holes in said wheel and onto said number plate.

4. In a telephone calling dial comprising a stationary number plate, in combination, a transparent rotatable finger wheel made of acrylate resin, a lamp located near the outer edge of said wheel, a source of current supplied to said lamp, and an apertured cover for said lamp having the aperture in the same plane as said wheel and directing light from said source into the outer edge of said wheel and in the same plane as said finger wheel.

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