

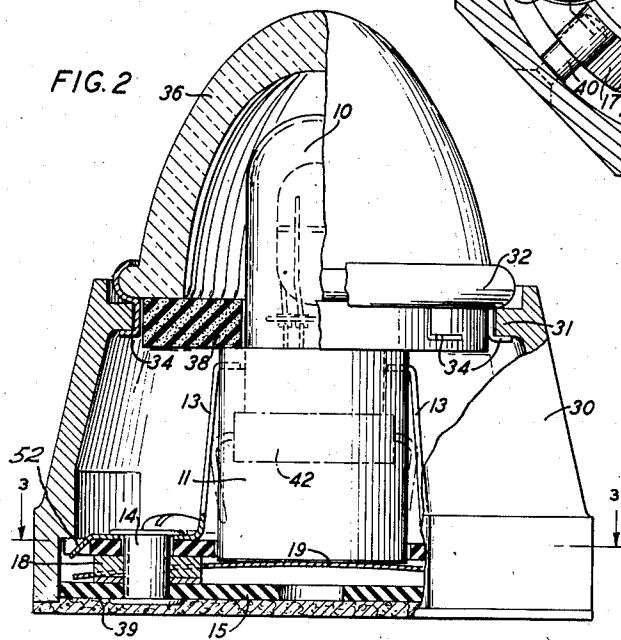
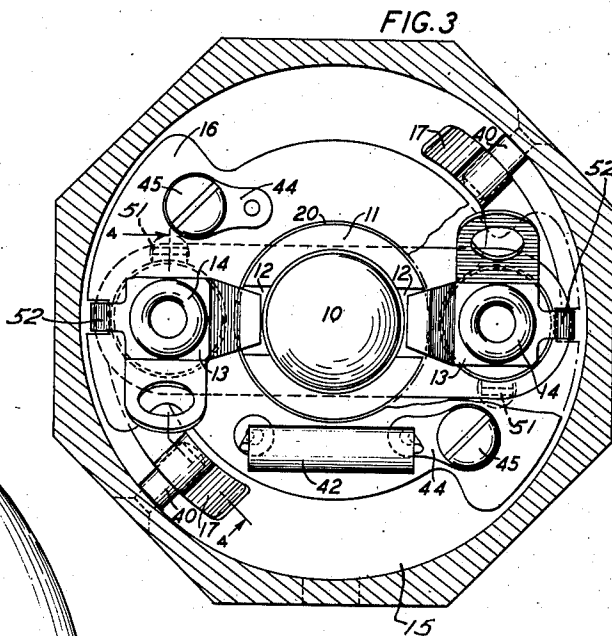
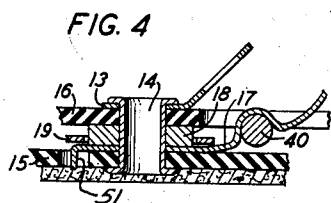
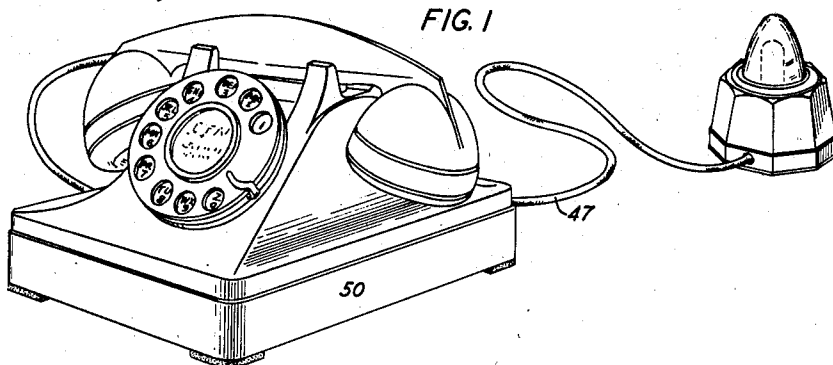
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TELEPHONE CALL INDICATOR

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TELEPHONE CALL INDICATOR

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4 Claims. (Cl. 177-329)

This invention relates to visual signaling devices and particularly to visual telephone call indicators of the type intended for use, either separately or in combination with audible ringers employed extensively at subscribers' stations.

It is the object of this invention to provide an improved visual call indicator which is simple in design, compact in structure, neat in appearance, inexpensive to manufacture and which is capable of withstanding relatively rough usage.

This object is attained in accordance with a feature of the invention by the provision of a simplified mounting for the light emitting element of the indicator which renders it possible to resiliently but firmly support the lamp with a minimum number of parts. Another feature of the invention resides in the provision of a cushion between the frangible tube envelope and the interior wall of the indicator housing which serves to protect the tube against breakage should the indicator be dropped or otherwise mishandled.

The invention will be readily understood from the following detailed description made with reference to the accompanying drawing in which:

Fig. 1 is a perspective view of a combined telephone handset and an indicator of the present invention which may be associated therewith through the medium of a cord;

Fig. 2 is an elevation of the indicator with certain portions of the housing and lens broken away to disclose the interior construction and the relative positions of the various elements which make up the indicator;

Fig. 3 is a section taken along the line 3-3 of Fig. 2 looking in the direction of the arrows; and

Fig. 4 is a fragmentary view of a section taken along the line 4-4 of Fig. 3 looking in the direction of the arrows.

The specific embodiment of the invention disclosed in the drawing comprises a tube or bulb 10 whose stem end is provided with an insulating sleeve 11. The tube envelope may be secured in position in the insulating sleeve 11 in any suitable manner, preferably by cementing. The upper edge of the sleeve 11 is provided with two diametrically disposed notches or slots 12 for a purpose to be hereinafter described. The light emitting element may be of any well-known type, but preferably is a cold cathode gas-filled discharge tube of the type disclosed in a copending application, Serial No. 300,151, filed October 19, 1939, by G. M. Beardow. A complete description of the tube 10 and of the method of affixing the sleeve 11 thereto is embodied in the Beardow application and need not be repeated here.

The socket for the tube structure described above consists of two substantially circular insulating plates 15 and 16, the latter being smaller in diameter and provided with two oppositely disposed winged portions. The two insulators 15 and 16 are secured together by means of a pair of oppositely disposed eyelets 14 and are held in spaced relation by means of two washers 18, each of which fits over the shank of its respective eyelet. Interposed between the upper face of the insulator 16 and the upper rim of each of the eyelets 14 is a metal spring clamp 13 consisting of a flat portion apertured to receive the eyelet, and an elongated projection extending vertically therefrom and terminating in an integral in-turned portion constituting a clamp or clip. Normally, the two spring clamps 13 are slightly tensioned towards each other and must be distended or separated to permit the sleeve 11 of the tube 10 to pass therebetween. When the tube is in position in the socket, the hooked ends of the spring clamps 13 snap into the slots 12 in the sleeve 11 to firmly hold the tube in position.

The upper insulator 16 is provided with a centrally disposed circular opening or orifice 20 which is slightly larger in diameter than the diameter of the sleeve 11 of the tube, so as to permit the sleeve to pass therethrough without binding. A spring 19, which serves as a resilient seat for the tube, is located between the two insulators 15 and 16 and spans the underside of the circular opening in the latter. This spring is loosely held in position by virtue of an oblong opening in either end thereof which fits over the spacing washers 18. When the tube is in position, the spring clamps 13 hold it firmly on the spring seat 19, the latter permitting slight vertical displacement of the tube, thus acting to absorb shocks to which the tube may be subjected.

Interposed between the upper face of the insulator 15 and each of the washers 18 is a clamp spring 17, which as will be described later, serves to lock the socket and its tube to the indicator housing.

From the description so far advanced, it will be observed that the oppositely disposed eyelets 14 serve to effect a unitary structure comprising the two insulators 15 and 16, the spring clamps 13, the spring seat 19 and the clip springs 17. The spring clamps 13 and clip springs 17 are prevented from rotational movement about the eyelet shanks by virtue of small detents or offset projections which fit into suitably located holes in the insulators 16 and 15. The offset projec-

tion 51 of one of the clips 17 is clearly shown at the lower left corner of Fig. 4, while the offset projection 52 of one of clamps 13 is shown at the lower left corner of Fig. 2. These projections are bent downwardly from the ends of their respective main portions so as to extend into suitably dimensioned holes or slots in the insulators 15 and 16.

The upper insulator 16 also carries a resistance element 42, which is included in the tube circuit, and also terminals 44 and their associated terminal screws 45 by means of which connections to the cord 47 (Fig. 1) may be made. The leads from lamp 10 are soldered or otherwise secured to left-hand terminal 44 and the left-hand terminal of resistor 42, respectively, the other terminal of resistor 42 being soldered or otherwise secured to the right-hand terminal 44.

The indicator housing comprises a molded or die-cast base 30 which is in the form of a truncated cone having an octagonal bottom and corresponding sloping sides. At each of two opposite points near its bottom, the base 30 is provided with a pin 40 projecting inwardly. These pins cooperate with the spring clips 17 in effecting a union between the base 30 and the tube socket. Each spring clip is provided with a curved section which snaps over the pin 40 when the latter is guided under the clip by rotating the base relative to the socket.

Near its upper edge the housing 30 is provided with an internally extending circular flange 31 which serves as a means for supporting the lens holder 32. The lens holder is circular and consists of a concave rim which accommodates a flange of the "beehive" lens 36, and a plurality of depending sections 34 which are bent under the flange 31 of the housing 30 to thus mount the holder on the housing.

The relative positions of the various elements of the indicator, so far described, are such that the tube projects vertically from the center of its socket so that the glass envelope projects into the hollow of the lens 36 and is centrally disposed therein. Due to the resilient nature of the tube mounting, the possibility of tube breakage due to shock is minimized. However, to further guard against tube breakage which would otherwise occur should the indicator be dropped in such a manner that the glass envelope would strike against the inside wall of the lens, a soft rubber washer 38 is provided which fits into the area defined by the periphery of the housing flange 31 and constitutes a collar for the tube 10. This washer serves as a resilient spacer for the tube 10 and acts as a cushion to absorb any lateral shocks to which the indicator may be subjected and to prevent contact between the tube envelope and the lens should the indicator be dropped or otherwise mishandled.

A felt or composition pad 39 is adhesively secured to the lower rim of the housing 30 to protect the surface upon which the indicator may rest and also to minimize slippage of the indicator.

As shown in Fig. 1, the indicator is provided with a cord 47 which electrically connects the tube to the handset 50 directly, or may associate the indicator with the set by way of a terminal block. The circuit connections are such that the tube is lighted when ringing current is applied to the line with which the handset is associated.

Though there is disclosed but one embodiment of the invention which involves a single lamp signal, it is to be understood that the struc-

tural features hereinbefore set forth are readily applicable to a signal design involving two, three or more signals in a single housing and having individual lenses.

What is claimed is:

1. A call indicator comprising a visual signal having a glass bulb and a sleeve affixed thereto, a socket for supporting said bulb in an upright position including means mounted thereon and embracing the sleeve of said signal, a housing upon which said socket is removably mounted having an opening at one end through which the glass bulb of said signal extends, a lens, means for holding said lens on said housing so as to enclose the opening in said housing and cover said glass bulb, and means comprising a cushion interposed between said glass bulb and said lens holder for maintaining said glass bulb resiliently spaced from said housing and said lens.

2. A call indicator comprising a visual signal having a glass bulb and a cylindrical sleeve into which said bulb is sealed in an upright position, a socket for said bulb comprising a pair of insulators spaced one from the other, one of said insulators having a centrally located orifice of slightly greater diameter than the diameter of said sleeve, a spring loosely mounted in the spacing between said insulators and disposed immediately below the orifice in said one insulator, said spring constituting a seat for the cylindrical sleeve of said signal, means secured to said one insulator for clamping said sleeve to said spring seat in the orifice of said one insulator, a housing for said socket, a lens carried by said housing so as to cover said glass bulb, and means for maintaining said bulb in a centrally disposed position relative to the interior of said lens, comprising a soft washer interposed between said bulb and said housing and having a centrally located aperture through which said glass bulb extends into the interior of said lens.

3. The combination in a call indicator, of a lamp signal comprising a glass envelope, a tubular support into which the glass envelope extends, a mounting for said support, a housing for said support mounting of greater depth than the depth of said support and having a circular flange located near the upper edge thereof, a lens holder supported by said housing flange, a lens carried by said holder so as to enclose the glass envelope of said lamp signal, and a spacer element interposed between the flange of said housing and the envelope of said lamp signal comprising a washer having a centrally located aperture through which the envelope extends.

4. A unitary socket for a signal lamp having a tubular support into which the lamp is sealed in an upright position, comprising a circular insulating plate, a second insulating plate disposed above said first plate, a pair of washers interposed between said plates to maintain them in spaced relation, said second plate having an aperture through which the tubular support protrudes, a flat spring seat, upon which said tubular support rests, located in the spacing between said insulating plates, a pair of clamping devices for holding said tubular support on said spring seat, and means comprising a pair of eyelets, each of which passes through aligned holes in said insulating plates, in one of said spacing washers, in one of said clamping devices and in said spring seat for uniting said socket elements in a unitary structure.

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