

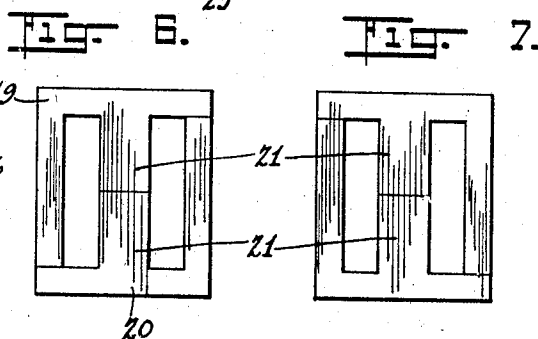
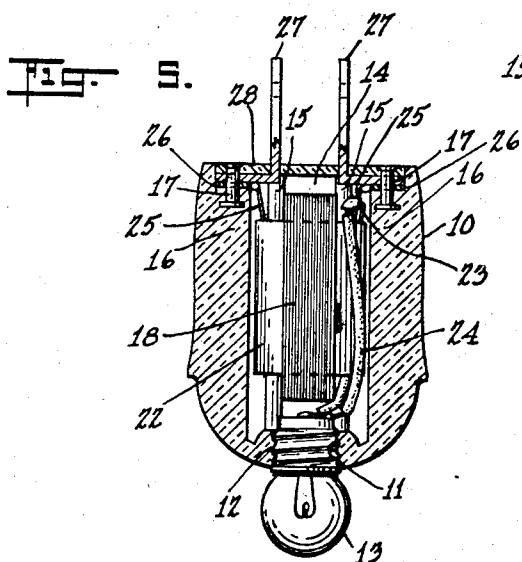
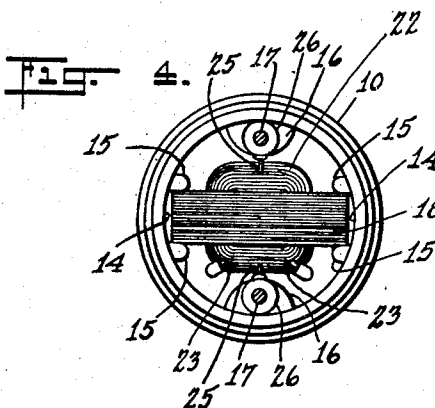
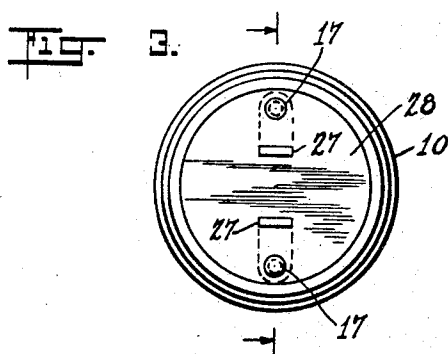
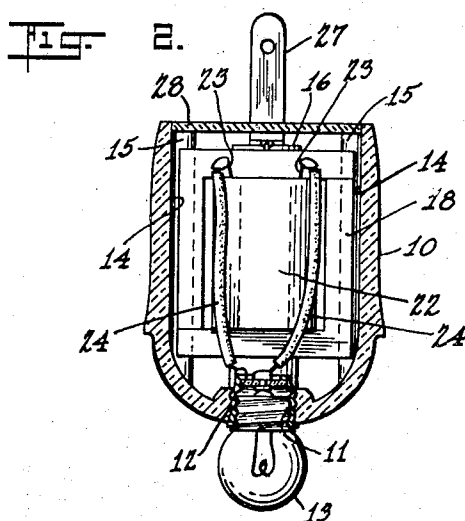
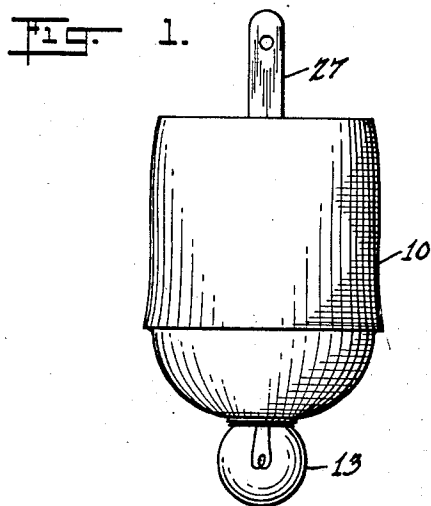
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1,968,361

NIGHT LIGHT TRANSFORMER

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NIGHT LIGHT TRANSFORMER

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7 Claims. (Cl. 175—361)

The present invention relates generally to transformers. More particularly, the invention relates to that type of transformer which is adapted to form a night light and comprises an elongated shell of insulating material, a step-down transformer in the shell, a socket at one end of the shell for a low voltage lamp, plug-in terminals at the other end of the shell and leads between the primary winding of the transformer and the terminals and between the secondary transformer winding and the lamp socket.

One object of the invention is to provide a night light transformer of this type in which the shell is provided on the inner face thereof with pairs of integral ribs forming a pair of oppositely facing, longitudinal grooves and the transformer is insertable into the shell through the prong end of the latter and has a rectangular core, the side margins of which fit within the grooves and engage slidably the ribs in order to hold the transformer in place in the shell.

Another object of the invention is to provide a transformer of the type and character under consideration in which the shell is provided on the inner face thereof and at its prong end with a pair of integral bosses which are disposed at substantially right angles with respect to the groove-forming ribs and have posts to which are attached the plug-in terminals and the leads from the primary winding of the transformer.

A further object of the invention is to provide a transformer of the last mentioned character in which the prong end of the shell is closed by means of a disk of insulating material which is secured in place by the posts on the bosses and has apertures therein through which project the plug-in terminals.

A still further object of the invention is to provide a night light transformer which is generally of new and improved construction and may be manufactured at a low and reasonable cost, and in which the parts are compactly arranged within the shell of insulating material.

Other objects of the invention and the various advantages and characteristics of the present transformer construction will be apparent from a consideration of the following detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by claims at the conclusion hereof.

In the drawing which accompanies and forms a part of this specification or disclosure and in

which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a side elevation of a night light transformer embodying the invention,

Figure 2 is a longitudinal section thereof, 60

Figure 3 is a view of the rear end of the transformer,

Figure 4 is a view similar to Figure 3 except that the transformer is shown with the insulating disk and plug-in terminals removed, 65

Figure 5 is a longitudinal section taken on lines 5—5 of Figure 3 and at right angles to Figure 2,

Figure 6 is a side elevation of two F shaped core laminations, and 70

Figure 7 is a similar view of another similar core illustrating the arrangement by means of which the joints in the rectangular frame of the laminations are staggered.

The transformer which forms the subject matter of the invention is expressly designed to form a night light and comprises shell 10 which is formed preferably of molded insulating material such as bakelite, for example. The transformer proper also comprises a step-down transformer. This shell is open at the rear end and at the opposite or front end is provided with a reduced opening 11 which preferably is threaded to receive a lamp socket 12. The latter is designed to receive a conventional flash light lamp 13 of small voltage. 75

In the form of the invention illustrated, the shell 10 is provided on its inner face with a pair of diametrically opposite, longitudinally extending grooves 14 which are formed by two pairs of integral ribs 15. The shell is also provided on the inner surface with two bosses 16 in which are imbedded longitudinally extending metal posts 17. 80

The ribs 15 are spaced apart sufficiently to receive between each pair thereof the edges of the core 18 of the transformer. The core is formed of laminations, each of which is composed of two F-shaped sections 19 and 20, the sections being identical. One lamination is shown in Figure 6, and another in Figure 7. By imposing one lamination upon the other, it will be seen that a frame-like structure is provided having a central bar formed by the projections 21, but that the joints of the alternate laminations or of alternate groups of laminations will be staggered, thus forming a rigid structure. 85 90 95 100 105

The primary and secondary coils of the transformer are indicated by the reference numeral 22 and are positioned on the central bars formed 110

by the projections 21. The windings are preferably preformed upon a rectangular mandrel whereby the laminations can be assembled by pressing the projections 21 into the rectangular opening of the windings from opposite ends. The assembled transformer is shown clearly in side elevation in Figure 2 of the drawing.

The transformer is inserted through the open end of the shell 10 with the longitudinal edges of the laminations disposed within the grooves 14 being frictionally held by the side walls of the ribs 15 as illustrated in Figure 4.

The secondary winding is provided with leads 23 which are connected to the lamp socket 12 as by soldering. These leads 23 are preferably provided with insulating rubber tubing 24.

The primary winding is provided with leads 25 which are connected to the posts 17, preferably by means of conducting clips 26, although the leads 25 may, if preferred, be merely wound around the posts. However, the flat metal clips are preferred, since their use prevents the shearing off of the fine lead wires in the assembly of the transformer. In addition to the shell, transformer and lamp socket, the transformer comprises a pair of plug-in terminals 27 and a disk 28 of insulating material.

As shown clearly in Figure 5, the terminals 27 are L shaped and each is provided with an opening whereby it can be slid down over one of the posts 17 into electrical contact with the respective clip 26.

The insulating disk 28 is preferably provided with openings for receiving the terminals 27, and additional openings for receiving the posts 17. Thus when the terminals have been placed in position on the posts, the disk 28 can be slid downwardly into position and the ends of the posts riveted over to hold the disk and terminals permanently in position.

The transformer thus formed can be plugged in an ordinary wall or other receptacle of conventional form where alternating current is employed. The commercial form of transformer made in accordance with the present improvements transforms the usual 110 volt alternating current to a value whereby an ordinary three cell flash light bulb may be used. The current delivered by the secondary winding of the transformer is about 2.6 volts, but a 3.8 volt lamp is recommended for use for the sake of prolonging the life of the bulb.

The current used by the present type of transformer is so trifling that the cost of operation is negligible and hence the transformer may be advantageously used as a night light in a home or office or it may be used for illuminating small signs, house numbers and various other purposes.

While I have shown and described an embodiment of the invention for the purpose of illustration, I do not wish to be restricted specifically thereto except as so limited by the appended claims.

I claim:

1. A transformer of the character described, comprising in combination an elongated shell of insulating material having a comparatively large opening in one end thereof and a reduced opening in its other end and embodying integral means on the inner face thereof forming a pair of oppositely facing, longitudinal grooves, a socket in the reduced opening in the shell for receiving a low voltage lamp, a step-down transformer disposed in the shell and consisting of a centrally apertured, rectangular core and primary and

secondary windings in the core, said transformer being insertable into the shell through the large opening in said one end of the shell and having the side margins of the core thereof fitting slidably in the grooves, a pair of terminals at said one end of the shell, and leads between the primary winding of the transformer and the terminals and between the secondary winding and the lamp socket.

2. A transformer of the character described, comprising in combination an elongated shell of insulating material having a comparatively large opening in one end thereof and a reduced opening in its other end and embodying pairs of inwardly extending, integral ribs on the inner face thereof forming two oppositely facing, longitudinal grooves, a socket in the reduced opening in the shell for receiving a low voltage lamp, a step-down transformer disposed in the shell and consisting of a centrally apertured, rectangular core and primary and secondary windings in the core, said transformer being insertable into the shell through the large opening in said one end of the shell and having the side margins of the core thereof fitting slidably and held frictionally in the grooves, a pair of terminals at said one end of the shell, and leads between the primary winding of the transformer and the terminals and between the secondary winding and the lamp socket.

3. A transformer of the character described, comprising in combination an elongated shell of insulating material having a comparatively large opening in one end thereof and a reduced opening in its other end and embodying a pair of inwardly extending, oppositely facing, integral bosses on the inner face thereof and adjacent said large opening, a socket in the reduced opening in the shell for receiving a low voltage lamp, a step-down transformer disposed in the central portion of the shell and consisting of a core and primary and secondary windings, a pair of posts mounted in the bosses respectively and extending outwardly through the large opening, a pair of L-shaped plug-in terminals also extending outwardly through said large opening in the shell and having the short legs thereof mounted on the posts, and leads between the primary winding of the transformer and the posts and between the secondary winding and the lamp socket.

4. A transformer of the character described, comprising in combination an elongated shell of insulating material having a comparatively large opening in one end thereof and a reduced opening in its other end and embodying a pair of inwardly extending, oppositely facing bosses on the inner face thereof and adjacent said large opening, a socket in the reduced opening in the shell for receiving a low voltage lamp, a step-down transformer disposed in the central portion of the shell and consisting of a core and primary and secondary windings, a pair of posts mounted in the bosses respectively and extending outwardly through the large opening, an insulating disk for closing said large opening having a pair of apertures therethrough and secured to the outer ends of the posts, a pair of L-shaped, plug-in terminals disposed at said one end of the shell and having the short legs thereof mounted on the posts respectively and fitting between the bosses and the disk and their long legs projecting outwardly through the apertures in the disk, and leads between the primary winding of the transformer and the posts and between the secondary winding and the lamp socket.

5. A transformer of the character described, comprising in combination an elongated shell of insulating material having a comparatively large opening in one end thereof and a reduced opening in its other end and embodying means on the inner face thereof forming a pair of oppositely facing, longitudinal grooves and a pair of bosses at right angles to the grooves and adjacent said large opening, a socket in the reduced opening in the shell for receiving a low voltage lamp, a step-down transformer disposed in the shell and consisting of a centrally apertured, rectangular core and primary and secondary windings in the core, said transformer being insertable into the shell through the large opening in said one end of the shell and having the side margins of the core thereof fitting slidably in the grooves, a pair of posts mounted on the bosses respectively, a pair of plug-in terminals connected to the posts and extending outwardly through said large opening, and leads between the primary winding of the transformer and the posts and between the secondary winding in the lamp socket.
6. A transformer of the character described, comprising in combination an elongated shell of insulating material having a comparatively large opening at one end thereof and a reduced opening in its other end and embodying on the inner face thereof integral means forming a pair of oppositely facing, longitudinal grooves and a pair of integral, oppositely facing bosses at right angles to the grooves and adjacent said large opening, a socket in the reduced opening in the shell for receiving a low voltage lamp, and a step-down transformer disposed in the shell consisting of a centrally apertured, rectangular core and primary and secondary windings in the core, said transformer being insertable into the shell through the large opening in said one end of the shell and having the side margins of the core thereof fitting slidably in the grooves, a pair of posts mounted in the bosses respectively, a pair of L-shaped, plug-in terminals located at said one end of the shell and having the short legs thereof connected to the posts and their long legs extending outwardly through the large opening, leads between the primary winding of the transformer and the posts and between the secondary winding and the lamp socket, and an insulating disk mounted in said large opening for closing the latter.
7. A transformer of the character described, comprising in combination an elongated shell of insulating material having a comparatively large opening in one end thereof and a reduced opening in its other end and embodying on the inner face thereof pairs of inwardly extending, integral ribs forming two oppositely facing, longitudinal grooves and a pair of integral bosses at right angles to the grooves and adjacent said large opening, a socket in the reduced opening in the shell for receiving a low voltage lamp, a step-down transformer disposed in the shell and consisting of a centrally apertured, rectangular core and primary and secondary windings in the core, said transformer being insertable into the shell through the large opening and having the side margins of the core thereof fitting slidably and held frictionally in the groove, a pair of posts mounted in the bosses respectively and extending outwardly through said large opening, an insulating disk for closing the large opening secured to the outer ends of the posts and having a pair of apertures therein, a pair of L-shaped plug-in terminals located at said one end of the shell and having the short legs thereof mounted on the posts between the bosses and the disk and their long legs projecting outwardly through the apertures in the disk, and leads between the primary winding of the transformer and the posts and between the secondary winding and the lamp socket.
- HERBERT B. TYLER.

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