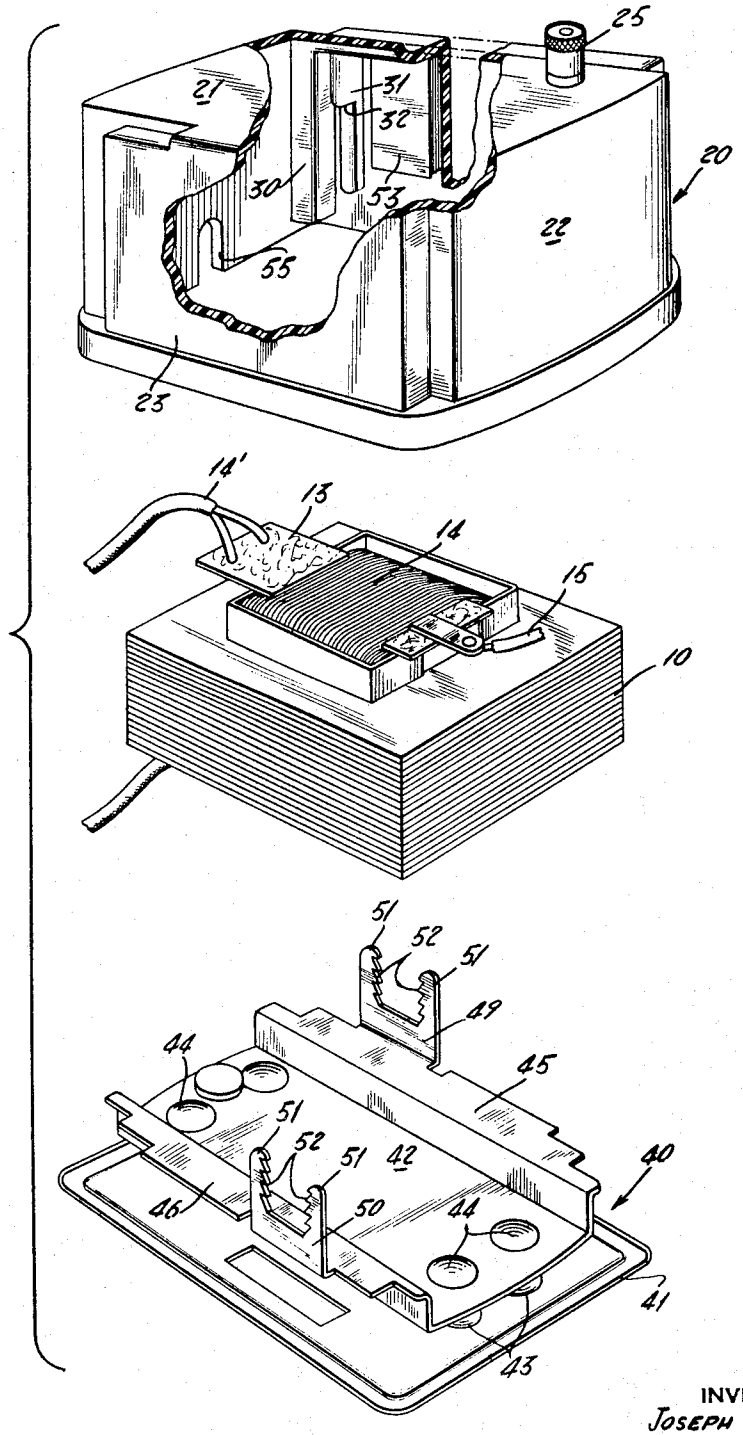
May 29, 1956 J. L. BONANNO 2,747,731

PACKAGES

Original Filed July 26, 1949 2 Sheets-Sheet 1

Fig. 1.



INVENTOR
JOSEPH L. BONANNO
BY John M. Cole
ATTORNEY

May 29, 1956 J. L. BONANNO 2,747,731

PACKAGES

Original Filed July 26, 1949 2 Sheets-Sheet 2

Fig. 2.

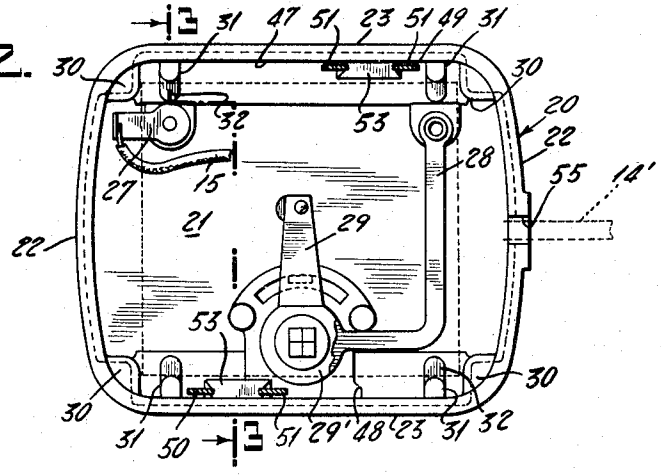


Fig. 3.

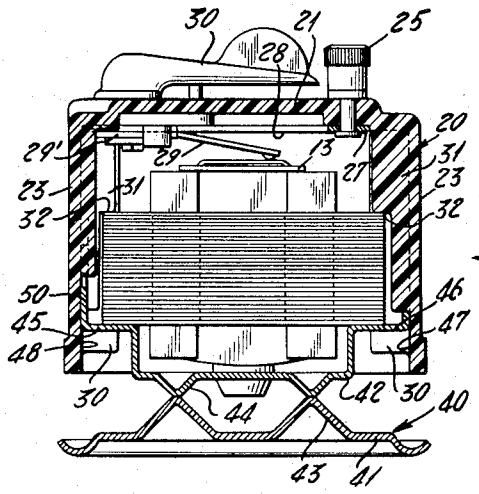


Fig. 5.

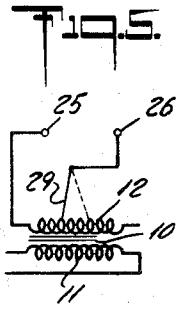
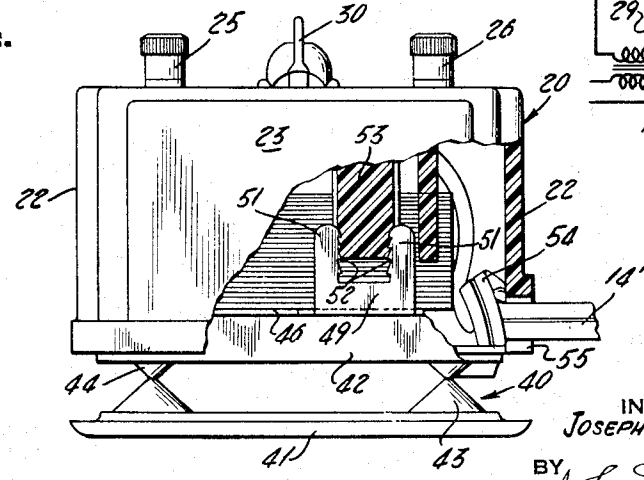


Fig. 4.



INVENTOR
JOSEPH L. BONANNO
BY
ATTORNEY

United States Patent Office 2,747,731 Patented May 29, 1956

2,747,731

PACKAGES

Joseph L. Bonanno, South Orange, N. J., assignor to The Lionel Corporation, New York, N. Y., a corporation of New York

Original application July 26, 1949, Serial No. 106,860, now Patent No. 2,641,743, dated June 9, 1953. Divided and this application October 28, 1952, Serial No. 317,211

5 Claims. (Cl. 206—46)

The present invention relates to transformers and is more particularly directed toward transformers suitable for use with toy railroads.

The present invention is particularly well suited for transformers for use on the usual 110 volt house circuit and operating comparatively small loads with comparatively low secondary voltages, such as 9 to 13 volts.

Transformers for this purpose should be designed for low manufacturing cost, and the present invention is directed toward low cost, low wattage, variable voltage output transformers for toy trains and other similar low voltage alternating current operating apparatus.

The present invention contemplates the use of a preassembled transformer unit having laminated field and primary and secondary windings with part of the latter winding exposed to provide for variable voltage take-off, a plastic cover or box adapted to receive the field-winding unit and hold it in place, and a base adapted for convenient assembly with the cover, the base holding the transformer unit in place without the use of attachments, screws and other devices.

Other and further objects will appear as the description proceeds.

The acompanying drawings show, for purposes of illustrating the present invention, one embodiment in which the invention may take form, it being understood that the drawings are illustrative of the invention rather than limiting the same.

In the accompanying drawings:

Figure 1 is an exploded perspective view showing the cover with field-winding unit and the base;

Figure 2 is an inverted plan view showing the cover and wiring parts carried by it in full lines, and the field and coil in dotted lines;

Figure 3 is a transverse sectional view on the line 3—3 of Figure 2, showing the complete transformer assembled;

Figure 4 is a side elevational view taken in the direction of the arrow 4 of Figure 3, with parts broken away, showing interior construction; and

Figure 5 is a wiring diagram.

The filler is shown in the form of a transformer field **10** is of usual rectangular form and carries the primary winding **11** and secondary winding **12** as usual. A portion of the secondary winding is wound about an insulating terminal plate **13** and insulation is scraped off to provide a flat surface, as indicated at **14**, from which voltages of varying amount may be obtained. The primary winding for the transformer is connected to a two-conductor lamp cord, as indicated at **14'**, and one end of the secondary winding is connected to a wire **15**.

The cover **20** is a molding preferably made of phenyl-formaldehyde and is in the form of an inverted five-sided box with a top wall **21**, ends **22**, **22** and sides **23**, **23**. The top of the box carries two binding posts **25** and **26**. The binding post **25** is connected to a soldering lug **27** and the binding post **26** is connected with an L-shaped strap **28**. The strap **28** is in contact with hub **29'** of a

contact arm **29** carried by an operating finger **30** so that the arm **29** may be swung back and forth. The molding **20** has internal corner ribs **30** which engage the corners of the field structure **10** and hold the structure against movement lengthwise of the box. Adjacent the corner elements **30** are ribs **31** having downwardly facing shoulders **32**. The ribs below the shoulders **32** engage the sides of the transformer field, and the shoulders **32** form stops limiting the upward movement of the transformer field into the housing. This definitely locates the field and coil as well as the bared portion **14** of the secondary so that the contact arm **29** can be swept across the secondary to pick off variable voltages. The secondary lead **15** is connected to the binding post **25**.

The base shown generally at **40** is made of two pieces of sheet metal **41** and **42**; the lower one has upwardly extending bumps **43** welded to downwardly extending bumps **44** carried by the upper sheet metal part. The sheet metal part **42** has side flanges indicated at **45** and **46**. These side flanges have just the proper width to fit portions **47**, **48** of the inside walls of the casing. The sheet metal member **42** is also provided with two upwardly bent members **49** and **50**, here shown as bifurcated, each having side elements **51**, **51** and each side element being provided with teeth **52** which face downwardly and inwardly.

The inner walls of the casing have ribs **53**, **53** preferably of key-shaped cross-section as indicated in Figure 2 of the drawings. The width of these ribs is such that the tooth members engage them very tightly when the plastic cover and the metal base are pressed toward one another. The teeth may wear away a small amount of the relatively soft plastic material and tend to spring slightly during this operation, so that the metal tightly grips the plastic so as to prevent accidental removal or separation of the parts. The current supply cord **14'** is knotted as indicated at **54** and passes through an opening **55** in the wall of the cover, as indicated.

The assembly of the parts is very easy, rapid, and inexpensive, and the electrical testing may be completed, if desired, before the cover and base are pressed together.

This application is a division of copending application, Serial No. 106,860, filed July 26, 1949, for transformers, now Patent No. 2,641,743, granted June 9, 1953.

Since it is obvious that the invention may be embodied in other forms and constructions within the scope of the claims, I wish it to be understood that the particular form shown is but one of these forms, and various modifications and changes being possible, I do not otherwise limit myself in any way with respect thereto.

What is claimed is:

1. In combination, a filler of predetermined size, a housing made of plastic material, closed at the top and having side walls provided with means for receiving and positioning the filler in a predetermined position, the housing walls having internally disposed vertical ribs extending alongside the filler, and a bottom closure member engaged with the bottom of the filler and having upwardly extending bifurcated metal gripper members having downwardly and inwardly facing teeth which bite into the sides of the ribs and prevent separation of the base and cover.

2. An enclosure comprising a sheet metal base having two upwardly extending sheet metal elements, each provided with a pair of downwardly and inwardly facing teeth opposite one another and a cover made of rigid, relatively soft plastic material and having internally disposed vertical ribs with side surfaces spaced farther apart than the point to point spacing of the opposite teeth and past which the teeth may be moved to bite into the material so that the teeth engage the same and prevent separation of the base and cover.

3. An enclosure comprising a downwardly opening cover made of rigid, relatively soft plastic material and having opposite inside walls each interrupted by a vertical rib, and a sheet metal base having upwardly extending bifurcated rib-edge engaging members with downwardly and inwardly facing teeth which bite into the sides of the ribs and prevent separation of the base and cover, and side flanges engaging the inside walls of the cover to maintain alignment of the base and cover.

4. An enclosure comprising an inverted, box-like cover of generally rectangular cross-section horizontally, made of rigid, relatively soft plastic material and provided on its inner walls with vertical ribs near the corners extending part-way to the bottom edges, and a sheet metal base of a length and width to enter and fit the rectangular walls and having upwardly extending side bifurcated members with downwardly and inwardly facing teeth which bite into the sides of the ribs and prevent separation of the base and cover.

5. In combination, a filler, a downwardly opening five-sided molded plastic box into which the filler fits, and a sheet metal base which enters the bottom of the box to close off the same, the base having a portion bearing against the filler and upwardly extending bifurcated members which project into the box beyond the bottom of the filler and are provided along the sides with downwardly and inwardly facing teeth, the inside of the box being provided with ribs corresponding in number and location with the bifurcated toothed members, each rib having a width in excess of the point to point spacing of opposite teeth of the corresponding bifurcated member, the tooth members being movable upwardly along the ribs, and the teeth biting into the plastic material of the ribs to prevent separation of the base and cover.

References Cited in the file of this patent

UNITED STATES PATENTS

325,230	Anderson	Sept. 1, 1885
328,291	Cooper	Oct. 13, 1885
1,645,165	Shackelton	Oct. 11, 1927
1,798,779	Bowersock	Mar. 31, 1931
1,844,531	Wey	Feb. 9, 1932
2,114,189	Kronmiller	Apr. 12, 1938