J. CUTHBERT AND J. J. NIELSEN.

PANEL BOARD STRUCTURE AND BRANCH BLOCK UNITS.

APPLICATION FILED MAY 18, 1916.

1,389,343. **Patented Aug. 30, 1921.**

2 SHEETS—SHEET 1.

Fig. 1

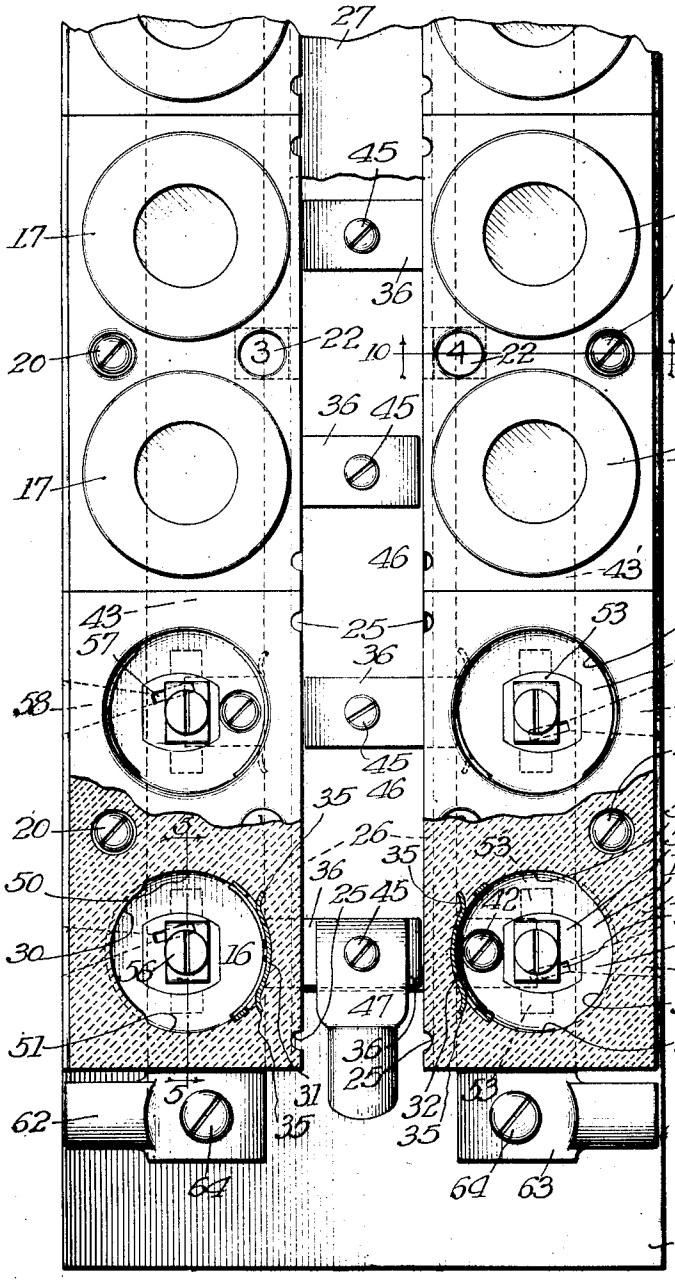


Fig. 2.

Fig. 3.

Fig. 4

Witnesses:
Robert H. Weir
Arthur W. Carlson

Inventor
John Cuthbert
Julian J. Nielsen
Foster, Bain & May
Attys.

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2 SHEETS—SHEET 2.

Fig. 5.

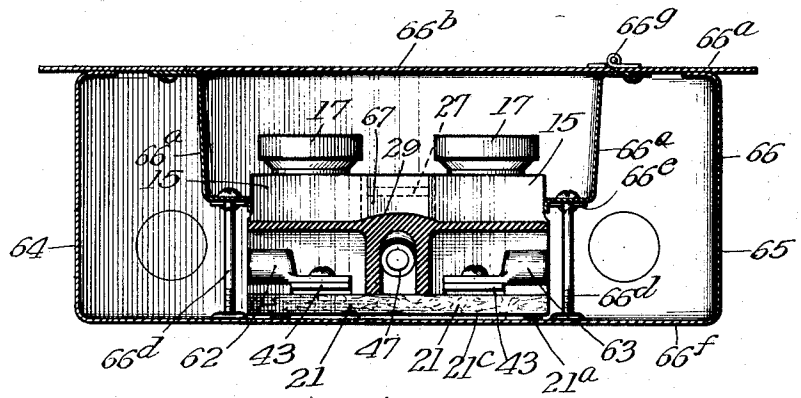
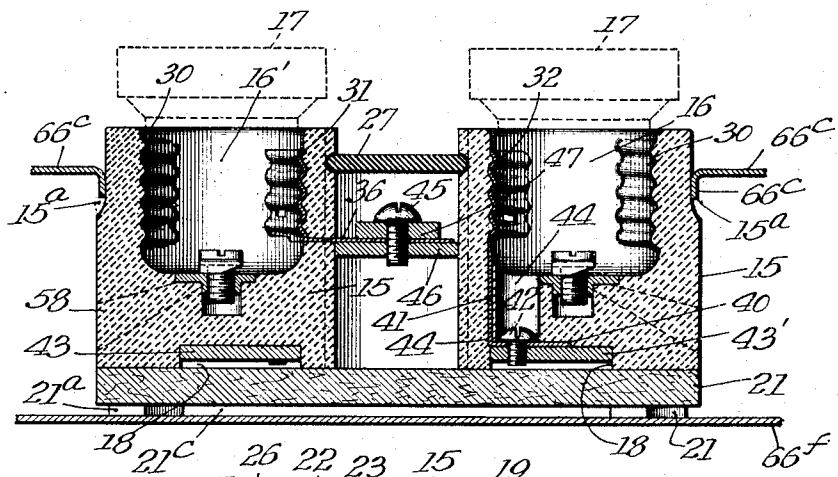


Fig. 6.



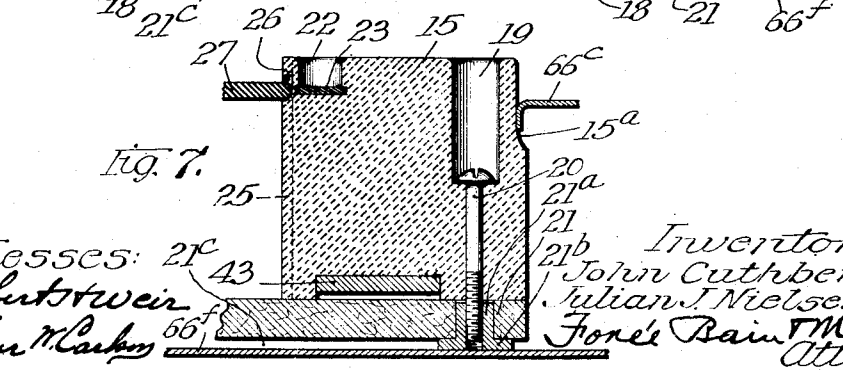


Fig. 7.

Witnesses:
Robert Strein
Arthur M. Carlson

Inventor
John Cuthbert
Julian J. Nielsen
Foré Bain & May
Attys.

UNITED STATES PATENT OFFICE.

JOHN CUTHBERT AND JULIAN J. NIELSEN, OF CHICAGO, ILLINOIS; SAID CUTHBERT ASSIGNOR OF HIS RIGHT TO JOHN CUTHBERT COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION.

PANEL-BOARD STRUCTURE AND BRANCH-BLOCK UNITS.

1,389,343. Specification of Letters Patent. Patented Aug. 30, 1921.

Application filed May 18, 1916. Serial No. 98,305.

To all whom it may concern:

Be it known that we, JOHN CUTHBERT and JULIAN J. NIELSEN, citizens of the United States, all respectively residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Panel-Board Structures and Branch-Block Units, of which the following is a specification.

Our invention relates to panel board structures for systems of electrical distribution and the branch block units, of which such structures may be built up.

One of the objects of our invention is to provide a new and useful form of lamp receptacle that may be embodied in a branch block or other lamp-receiving device.

Other and further objects of our invention will become apparent, to persons skilled in the art, from a consideration of the following description when taken in conjunction with the drawings, wherein:—

Figure 1 is an enlarged plan view of a part of a composite panel board, composed of a plurality of branch block units.

Fig. 2 is a section through one of the blocks taken on line 5—5 of Fig. 1.

Figs. 3 and 4 are details of two of the receptacle internal conductors.

Fig. 5 is a section showing a receptacle containing the invention.

Fig. 6 is a section through two receptacles.

Fig. 7 is a section taken on line 10—10 of Fig. 1.

In all the views the same reference characters are employed to indicate similar parts.

Our invention is principally concerned with details of construction of branch blocks by use of which composite panel boards may be built up into any desirable capacity, for any number of branch circuits, by assembling a greater or less number of branch blocks upon a suitable base plate, so constructed that they may be arranged in any place within a single series of such blocks, or within any place in two parallel series of such blocks, the terminal connections projecting therefrom, to be connected with an associated bus bar, being always in such relation with the appropriate bar as to conveniently be connected thereto whether the block be on one side or the other of a central median plane, or whether it is a terminal or an intermediate block. By this means panel boards, of any desired capacity, may be built up from blocks of uniform size and character that may be kept in stock, ready for use at any time, thereby facilitating and hastening the construction of panel boards and reducing the cost of such structures.

We will first describe one of the units, or branch blocks, and call attention to the fact that while there are a plurality of such units necessary to make up a composite panel board, to accommodate a like series of branch circuits from a given set of bus bars, the reference characters applied to the units described, are equally applicable to all the other units, as they are uniformly the same in every respect.

Each branch unit is preferably molded into a block of plastic insulating material 15, such as bakelite, porcelain, or the like. It is provided, preferably with two depressions 16, 16′ each to receive an electric current conducting device, such as a fuse plug 17, electric lamp or the like. The block, or body part, has, preferably, a channel or groove in its under surface, as at 18, running the full length of the block, and somewhat closer to one side than to the other, to accommodate a bus bar to be contained therein, when the blocks are assembled to constitute a panel board. It is also provided with another, but smaller depression 19 in its face for accommodation of a screw 20, whereby to fix it to a plate or base 21. It is also preferably provided with another depression 22, somewhat less in depth and preferably in the same transverse plane, undercut and slotted, the slot opening toward one side of the block to contain a glass or other plate 23, upon or under which the number of the circuit is to be indicated, as shown more clearly in Fig. 1. This is a convenient refinement not necessary to the operation of the unit. Each block is to be vertically grooved on one side near each end, as at 25, and longitudinally grooved on one side, near its top, as at 26, these grooves being preferably of equal depth. The grooves are to contain longitudinally disposed, sliding plates of insulating material 27, and vertically disposed end plates. These plates are slidable in the opposed grooves 25—25 and 26—26, respectively.

The interior of the depressions 16 of the

receptacle to contain the electrical-conducting device, such as a fuse plug or the like, to be screwed thereinto, is molded with suitable projections or with threads 30, which may extend about 120° around the depression. These threads should, preferably, correspond in character and pitch with the threads of a shell of an ordinary electrical lamp receptacle or socket. Diametrically opposite the molded threaded part 30, of the plastic material 15 is a segment of an electrically conducting shell 31 or 32, as the case may be, spirally corrugated, as at 33, to provide the thread part or segment 34. The segments 31 and 32 extend preferably about 120° of the internal circumference of the depression 16 and are diametrically opposite the threads 30 made in the plastic material therein, and being of the same pitch and general character, they register with these molded threads. Each of the metal shells 31 and 32, are provided with tongues 35 that are pressed out of the surface of the shell and pushed backwardly so as to be incorporated within the plastic material 15 of the block, for the purpose of holding the respective segment in place within the receptacles. They may, however, be held in place by any other suitable means and placed in position after the plastic block has been molded. The segments 31 are each provided with a laterally extending tongue 36 with a relatively short shank 37 and perforated, as at 38, to connect to a bus bar. The tongue 36 passes through the plastic material 15 at an elevation slightly above the floor of the depression 16′, as clearly shown in Fig. 6. The screw shell segment 32 is provided with a tongue 40 and a relatively longer, intermediate, integral shank 41. The tongue 40 is turned inwardly, as shown in Fig. 6, and enters the longitudinal groove 18, at the bottom of the block 15. It is embedded in the plastic material of the block, when the block is made of such material, and passes transversely across the vertical depression 44, made from the bottom of the depression 16, through the body part 15 of the fitting, into the groove 18. Each of the units is provided with a shell 31 or a shell 32, having tongues 36 or 40, respectively, one in each depression. The tongues 40 are intended for connection with a longitudinally-extending bus bar 43′, to be contained in the groove 18. See Fig. 6. A screw 42 passes through perforation 40′ in the tongue 40 into the bus bar 43′ and a screw 45 passes through the tongue 36 and into the bus bar 46. The bus bar 46 extends longitudinally of the assembled units within the space between the respective rows of units, and serves as a means for spacing the units 15 apart. In Fig. 6, the bus bar terminal 47 is connected by the screw 45, through the tongue 36, to the bus bar 46.

A clearance space 50—51, is left between the molded threads 30 and the current conducting threads 34, of the metallic shells 31 or 32, as the case may be. The diametric distance between the clearance surfaces is greater than the distance between the threaded portions of the interior. This is done so that the current conducting threaded device to be screwed into the receptacles 16 will certainly and sufficiently make contact with the metallic shells 31 or 32. The intervening clearance spaces 50 and 51, permits a slight lateral movement of the male screw portion of the inserted device in the event that the molded thread 30 and the impressed thread in the shell portion 34 were not in exact register.

In the floor of the depression 16 is a centrally disposed plate 52, provided with downturned side wings 53, serving as means for holding the plate in the plastic material 15. The plate is perforated centrally, as at 54, for accommodation of a wire coiling and clamping screw 56. (The screw 56 forms subject matter for my patent No. 1,166,114 granted Dec. 28, 1915, and is therein specifically claimed.) The plate 52 is perforated as at 57, for admission of the end of a branch wire, to be inserted coiled and clamped by the screw 56. A downwardly deflected, tapered perforation 58 is made through the sides of the plastic material 15, the upper end of which registers with the perforation 57, in the plate 52. These perforations in the block are shown in Fig. 2, and in dotted lines in Figs. 1 and 6. When the branch wires, to be connected to the units 15 are inserted in the perforations 58, they pass through the perforations 57 in the plates 52, so that when the clamping screws 56 are rotated the shoulders 59, on the sides thereof, will engage the end of the respective wire and coil it around the shank of the screw, whereupon continued rotation of the screw will clamp the wire between the head of the screw and the plate 52. When the fuse plug 17 is screwed into the receptacle, thus provided, the contacting screw 56 is thus covered and protected from personal contact by inadvertence or otherwise and the screw is prevented from backing out, by contact with the fuse plug.

Each of the fittings, or units 15, is provided with two depressions 16 and 16′. The depression 16, when it is completed into a receptacle, contains the threaded segment of the shell 32 with its inturned tongue 40, while the depression 16′ contains the threaded shell 31 with its out-turned tongue 36. So that in the same transverse plane, as shown in Fig. 4, opposite receptacles of different units will be connected to the central bus bar 46, and to one of the bus bars 43 or 43′, respectively, as the case may be, so that a unit on the right hand side of the

panel board may be used to replace one on the left hand side, by turning it end for end, and moving it over into that position.

Having described our invention, what we claim is:—

1. A receptacle for screw threaded plugs comprising a body of molded insulating material having a screw threaded recess therein, the threads of the recess being molded in the body and extending around less than half of the circumference of the recess, and a conducting terminal embedded in and held by the body within the recess opposite the threaded portion thereof and having threads corresponding to the threads molded in the body.

2. A receptacle for screw threaded plugs comprising a body of molded insulating material having a plug receiving recess therein, the wall of said recess being provided with screw threads molded in the body over less than half of its circumference and the diameter of the unthreaded portion of the recess being greater than the smallest diameter of the threads, and a metallic terminal having threads corresponding to the threads molded in the body and extending over only a portion of the unthreaded area of the recess and embedded in and held by the body opposite the threaded portion thereof.

3. A screw-threaded-plug receptacle comprising a body of molded insulating material having a recess therein, the wall of said recess having screw threads molded therein over less than half the circumference and having the unthreaded portion of greater diameter than the inside diameter of the threads, and a metallic terminal embedded in and held by the body opposite the threaded portion thereof and having corresponding threads extending over less than half of the circumference of the recess.

In testimony whereof we hereunto set our hands.

JOHN CUTHBERT.
JULIAN J. NIELSEN.

In the presence of—
FORÉE BAIN,
MARY F. ALLEN.