June 2, 1970 J. H. GAINES ET AL 3,516,045

TELEPHONE JACK RECEPTACLE

Filed Oct. 10, 1966

FIG. 1.

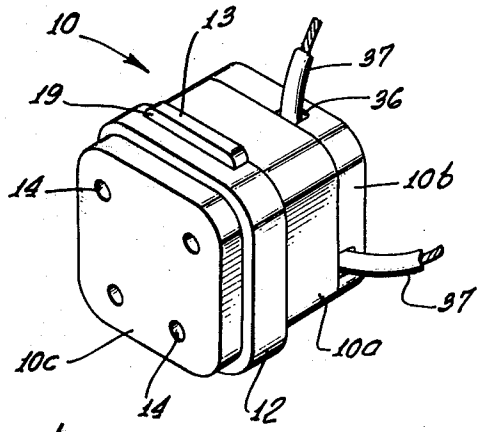


FIG. 2.

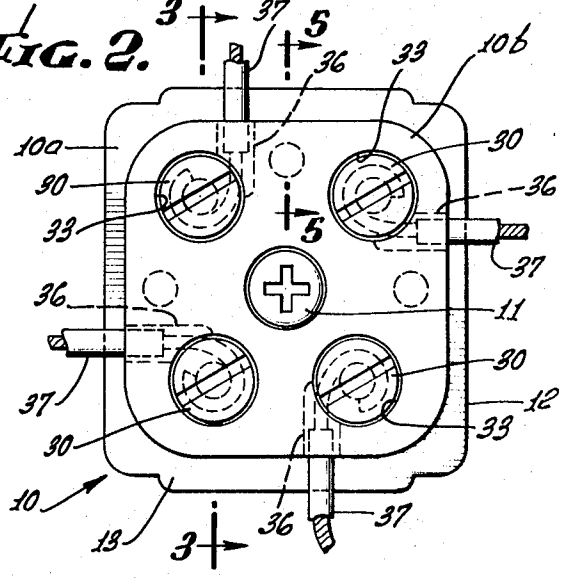


FIG. 3.

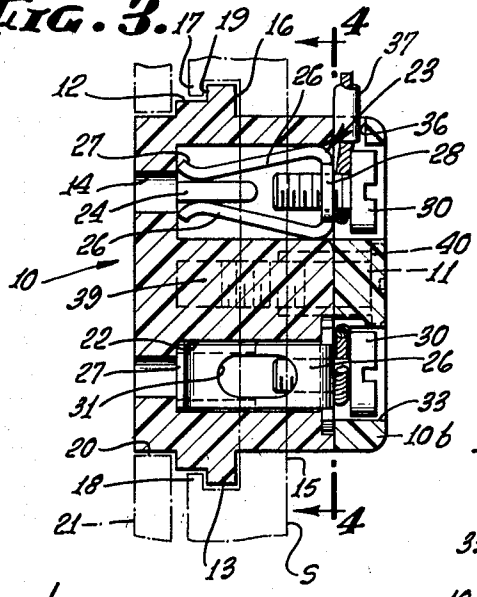


FIG. 6.

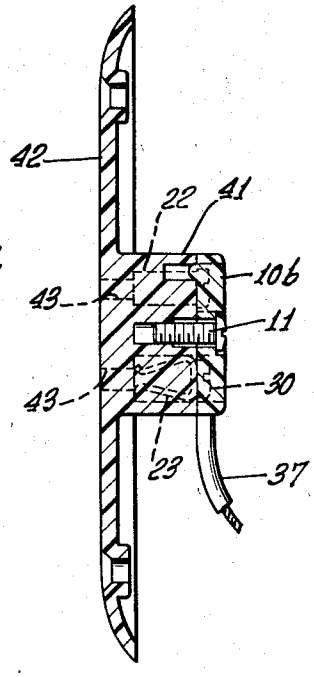


FIG. 5.

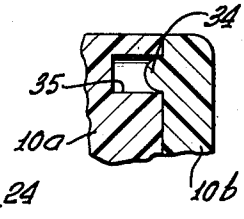
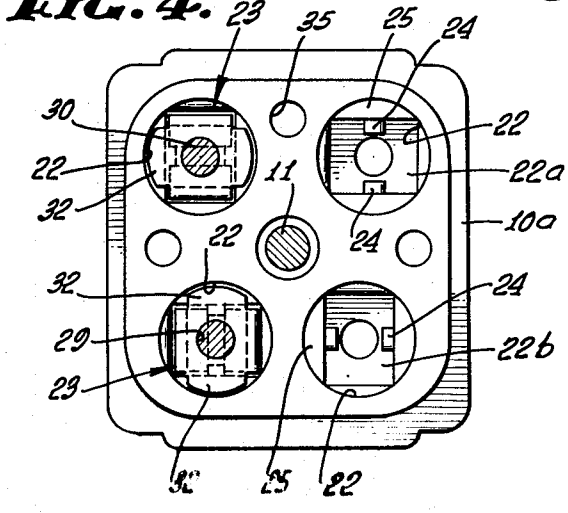


FIG. 4.



INVENTOR.
JACK H. GAINES
FRANCIS K. BOURHENNE
By White & Haefliger
ATTORNEYS.

United States Patent Office 3,516,045 Patented June 2, 1970

3,516,045

TELEPHONE JACK RECEPTACLE

Jack H. Gaines, Seal Beach, and Francis K. Bourhenne, Lawndale, Calif., assignors to Sierra Electric Corporation, Gardena, Calif., a corporation of California

Filed Oct. 10, 1966, Ser. No. 585,611
Int. Cl. H01r 23/04
U.S. Cl. 339—125 2 Claims

ABSTRACT OF THE DISCLOSURE

A telephone jack receptacle body contains two pairs of differentially spaced plug prong-passing openings and cavities alined with the opening and containing spaced prong contacts and associated binder screws to which wire leads pass between the body and its cover. The body may be integrated with a wall plate.

This invention has to do generally with electrical plug receptacles, and is directed particularly to improvements in telephone jack receptacles adapted to receive the terminals of four conductor plugs in accordance with telephone system circuitry.

As a general object the invention contemplates an improved receptacle characterized by having a non-conductive body containing four differentially spaced cavities which individually contain blade type contacts adapted to receive plug terminals or prongs. The receptacle may be regarded as having a contact-containing body section and a cover section, the latter being apertured for accommodation of inset, and therefore protected, fasteners such as binding screws for attachment to the contacts of wires entering the receptacle between the body and cover sections.

As will appear, the invention particularly provided for relative variation of the blade orientations of adjacent contacts, as well as for shouldered support of the contacts within the body cavities.

Further and important objects of the invention relate to the mounting of receptacles as characterized in the foregoing. In this respect the invention is adaptable for either strap or wall plate mounting of the receptacle.

For purposes of strap mounting the invention contemplates formation of the receptacle body externally for accommodation within a mounting strap opening and in inset relation to the strap, wherein the body is retained by a deflected portion of the strap.

The invention further contemplates a variational form which mounts the receptacle directly to a wall plate by unitized molding of the receptacle body with the inside of the plate. In this manner, and where permissible, the unitized plate and receptacle may be employed to the elimination of strap or like mountings normally required in addition to or independently of wall plates.

The above features and objects of the invention will be developed and more fully explained in the following detailed description of certain illustrative embodiments shown by the accompanying drawing, in which:

FIG. 1 is a view showing the receptacle in perspective elevation;

FIG. 2 is an enlarged cover section and elevation of the receptacle;

FIG. 3 is a cross section taken on line 3—3 of FIG. 2;

FIG. 4 is a section taken on line 4—4 of FIG. 3 showing the inner main body face with the cover section removed;

FIG. 5 is a fragmentary section on line 5—5 of FIG. 2; and

FIG. 6 is a view generally similar to FIG. 3 illustrating a variational form of the invention.

The receptacle may be regarded generally as comprising a non-conductive molded plastic body **10** having a main or contact-receiving section **10***a* and a cover section **10***b*, the sections being releasably interconnected by screw **11** as will later appear. The form of the invention shown in FIGS. 1 to 4, being adaptable for strap mounting, is shaped to provide an integral molded peripheral flange **12** with integral projections or ribs **13**, both inset from the closed end **10***c* of the body which contains openings **14** arranged in differentially spaced pairs for registry with the prongs of a telephone jack plug, not shown. As more particularly dealt with in our co-pending application referred to hereinabove, the body configuration adapts the receptacle for mounting by a strap S as indicated by the broken lines in FIG. 3, the strap having flanges **15** to be engaged by opposite shoulders **16** of the flange **12**, other portions **17** and **18** of the strap being adapted to overlie shoulders **19** of the ribs **13** to lock the receptacle to the strap. The latter may be mounted in any conventional manner as within a junction box for accommodation of the exposed end **10***c* of the receptacle within opening **20** of a wall or face plate indicated by the broken lines at **21**.

The present invention is more particularly concerned with the internal body and contact configurations as particularly illustrated in FIGS. 2 to 4. The body section **10***a* is shown to contain cavities **22** differentially spaced in accordance with the openings **14**, each cavity containing an opposed resiliently deflectable conductive blade contact generally indicated at **23**. In FIG. 4 the contacts are removed from the cavities **22** at the right in order to expose the cavity configurations. As illustrated, the cavities are rectangular in cross section with the long dimensions of cavities **22***a* alternated at 90 degrees in relation to the alternate cavities **22***b*. The opposite longer sides of each cavity carry integrally molded contact indexing ribs **24** in an axial plane of the corresponding opening **14**, and as the long dimensions of the cavities are alternated, the ribs **24** are correspondingly alternated as clearly appears in FIG. 4. The mouth of each cavity **22** is recessed to present contact bearing shoulders **25** directly at the outsides of ribs **24**.

The contact **23** received in each of the cavities **22** has opposed resilient blades **26** with flared terminals **27** at opposite sides of the prong-passing opening **14**, the blades extending convergently from an interconnecting bridge **28** having a central threaded aperture **29** to receive a wire terminal binding screw **30**. The contact blades **26** may be slotted at **31** for detenting retention of terminally recessed or upset jack prongs.

The described alternating relation of ribs **24** index and require corresponding alteration of the contacts **23** so that successive or adjacent contacts have their blades **26** at relative 90 degree orientation, thus to correspondingly distribute the directions of blade contact pressure against the jack prongs and thus enhance retention of the plug within the receptacle. As best appearing at the bottom in FIG. 3 and at the left in FIG. 4, the bridge portion **28** of each contact **23** has opposed flanges or tongues **32** bearing against body shoulders **25** to limit and define the inserted positions of the contacts.

The cover section **10***b* is provided with openings **33** spaced in accordance with the cavities **22** and indexed for axial alignment therewith as by providing the cover section with a lug **34** received within the body opening **35** as shown in FIG. 5. Four lateral openings **36** in the cover section **10***b* and leading tangentially into openings **33**, receive the insulated lead terminals **37** from which the bared wire terminals **38** are brought about screws **30** for tightening and confinement against the contacts. After pre-assemblage of the contacts and lead wires, and fitting them into the cover section recesses and openings **36** and **33**, the contacts are inserted into the body in the de-

scribed relative orientations and the body sections are interconnected by screw **11** threaded into the central body boss **39** to tightened condition at which the screw head shoulders against the cover counterbore shoulder **40** as shown in FIG. 3.

FIG. 6 illustrates a variational form of the invention differing from the described embodiment in that here, instead of being strap-mounted, the receptacle body section **41** is molded integrally with wall plate **42**. Except in the elimination of flange **12** and ribs **13**, and passage of openings **43** (corresponding to openings **14**) through the face plate into receptacle body cavities **22**, the receptacle construction is as before and the same parts are given corresponding reference numerals.

We claim:

1. A telephone jack receptacle comprising a non-conductive body having an outside containing two pairs of differentially spaced openings adapted to pass corresponding plug prongs into the body, the inside of the body containing four prong-receiving cavities respectively aligned with said openings, a unitized contact within each of said cavities including spaced prong receiving blades and a wire binder screw at the open end of the cavity, a non-conductive cover secured to the inside face of the body and having openings which receive the screw heads inset from the face of the cover, means forming recesses between the body and cover for passing four wires respectively to said binder screws, the walls of said cavities carrying projections which enter between the individual contact blades and said walls present inset shoulders engageable by the contacts to limit their cavity entry, said projections within any two cavities at any side of the body being disposed so as to position the contact blades at relative ninety degree angularity within the two cavities, said cover having projections received within openings in the body for alinement of the cover openings with said screw heads, and said body being substantially square and having integral ribs projecting from opposite sides thereof for engagement by a mounting strap.

2. A telephone jack receptacle comprising a non-conductive body having an outside containing two pairs of differentially spaced openings adapted to pass corresponding plug prongs into the body, the inside of the body containing four prong-receiving cavities respectively aligned with said openings, a unitized contact within each of said cavities including spaced prong receiving blades and a wire binder screw at the open end of the cavity, a non-conductive cover secured to the inside face of the body and having openings which receive the screw heads inset from the face of the cover, means forming recesses between the body and cover for passing four wires respectively to said binder screws, the walls of said cavities carrying projections which enter between the individual contact blades and said walls present inset shoulders engageable by the contacts to limit their cavity entry, said projections within any two cavities at any side of the body being disposed so as to position the contact blades at relative ninety degree angularity within the two cavities, said cover having projections received within openings in the body for alinement of the cover openings with said screw heads, said body being substantially square and made of molded plastic composition, the outside of the body being formed by the interior area of an integrally molded wall plate containing the first mentioned openings.

References Cited

UNITED STATES PATENTS

886,267	4/1908	Stewart	339—133
1,321,880	11/1919	Benjamin	339—271
1,633,668	6/1927	Ile	339—206 X
2,307,972	1/1943	Strunk	339—185
2,888,660	5/1959	Fox	339—110
2,920,303	1/1960	Johnson	339—97
2,950,457	8/1960	Slater	339—192 X
3,273,105	9/1966	Klassen	339—210 X

FOREIGN PATENTS

899,807	12/1953	Germany.

RICHARD E. MOORE, Primary Examiner

U.S. Cl. X.R.

339—132, 207