July 4, 1967 R. L. AYERS 3,329,927

PROTECTIVE COVER FOR TELEPHONE AND TELEGRAPH DISTRIBUTING FRAME TERMINAL BLOCKS

Filed May 8, 1964

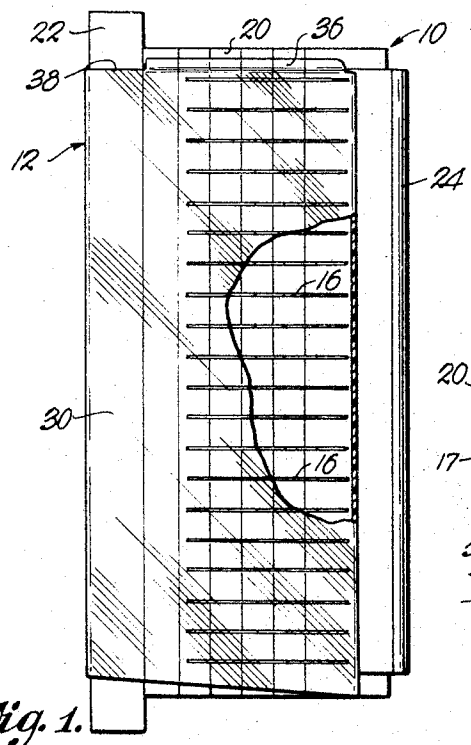


Fig. 1.

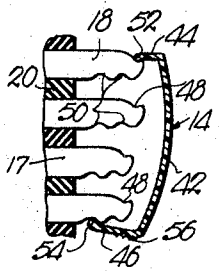


Fig. 5.

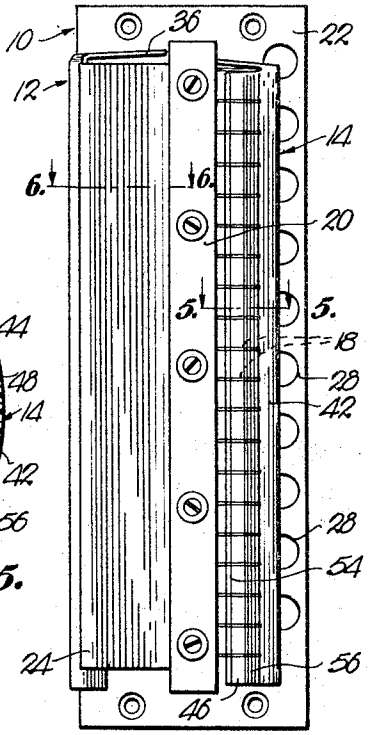


Fig. 2.

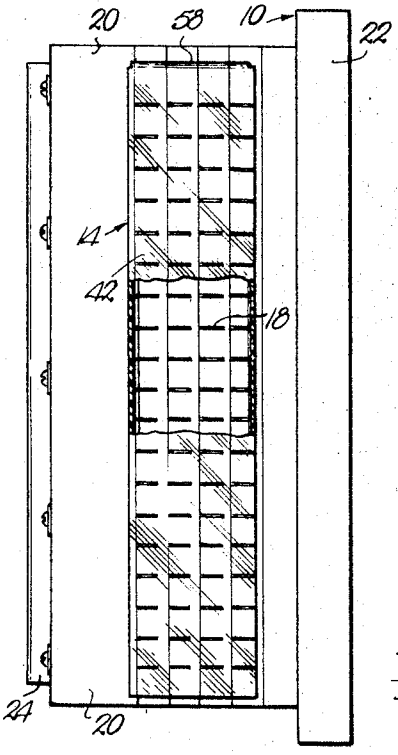


Fig. 3.

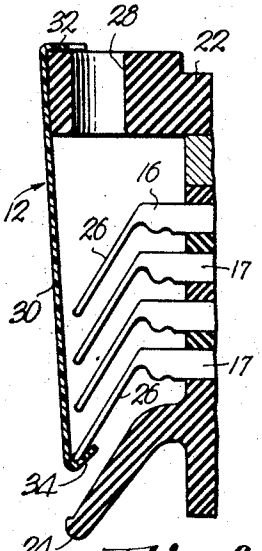


Fig. 6.

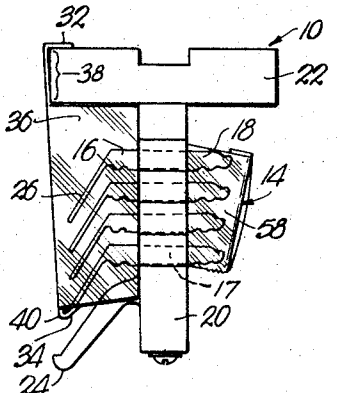


Fig. 4.

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PROTECTIVE COVER FOR TELEPHONE AND TELEGRAPH DISTRIBUTING FRAME TERMINAL BLOCKS

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This invention relates to structure for shielding and protecting the terminal portions of terminal blocks from contact with solder splashes, wire clippings, tools, watchbands, and other foreign articles.

Distributing frame terminal blocks are widely used in the telephone and telegraph industry to facilitate the interconnection of the multitude of cables required for the many distribution lines. Heretofore, it has been the practice to leave the terminals of these blocks exposed and, therefore, a constant hazard for workmen is prevented. Since the terminals are frequently sharp and pointed, a puncture wound hazard exists as well as the possibility of electrical shock. Additionally, unprotected terminals sometimes become bent and short together causing an interruption in normal service.

It is, therefore, the primary object of this invention to provide a protective shield for terminal blocks of this type which will prevent both damage to the terminals and injury to workmen.

It is another important object of this invention to provide such a protective shield which is readily removable so that access to the terminals may be gained when desired.

Another important object of this invention is to provide a protective shield as aforesaid which will adequately protect both the terminals and personnel regardless of whether or not the terminal block is horizontally or vertically disposed.

Other objects will become apparent as the detailed description proceeds.

In the drawing:

FIGURE 1 is a side elevational view of the instant invention showing the cable side of the terminal block;

FIG. 2 is a front elevational view of the invention;

FIG. 3 is a side elevational view showing the soldered terminal side of the terminal block;

FIG. 4 is a top plan view;

FIG. 5 is an enlarged sectional view taken along line 5—5 of FIG. 2; and

FIG. 6 is an enlarged sectional view taken along line 6—6 of FIG. 2.

A distributing frame terminal block is shown at **10** in the drawing and is provided with a protective cover **12** and an elongated, transversely U-shaped, protective cap **14**. Cover **12** forms a protective shield for a group of terminals **16**, while cap **14** comprises a protective shield for a group of terminals **18**. The individual terminals making up groups **16** and **18** are interconnected, the same each being at opposed ends of a common connecting strip **17**, the connecting strips **17** each extending through a terminal support **20** which is carried by a base **22**. Support **20** and base **22** are fabricated from a suitable insulating material such as wood, rubber or the like.

Mounting base **22** is rectangular in configuration and is illustrated in a longitudinally upright position. Terminal support **20** is also rectangular and is disposed in a longitudinally upright position. Thus, as may be clearly seen in FIG. 4, base **22** and support **20** comprise a structural configuration that is transversely T-shaped.

The plan view of FIG. 4 shows the groups of terminals **16** and **18** each extending oppositely horizontally outwardly from support **20**. An insulating guard **24** is integral with support **20** and serves to partially protect the group of terminals **16**. Note that each of these terminals is provided with an inclined projection **26** extending away from base **22**, such projections **26** being utilized for connection of a conductive cable thereto, as by wrapping the cable about projection **26**, thereby coupling each of the terminals **16** with a corresponding cable.

The enlarged sectional view of FIG. 6 shows the terminals **16** in detail, and also reveals an opening or passage **28** in base **22** which permits electrical cables to pass through the base to the projections **26**. Cover **12** comprises a rectangular, substantially planar sheet or wall **30** provided with a flange **32**, extending from one longitudinal margin of wall **30**, and a lip **34** extending from the opposite longitudinal margin thereof. Flange **32** is approximately a right angle flange and hooks over base **22** as clearly shown in FIGS. 4 and 6. Lip **34** hooks over the vertically aligned row of projections **26** adjacent guard **24** and remote from base **22**. Cover **12** is composed of a flexible material, preferably plastic, and thus may be readily removed upon flexure thereof when access to terminals **16** is desired.

A protective end piece **36** is integral with wall **30** and extends from the upper transverse margin thereof toward support **20**. End piece **36** thus overlies the group of terminals **16** to shield the same from wire clippings, solder splashes and the like during work on the distributing frame. End piece **36**, wall **30**, and flange **32** define a cutout or clearance slot **38** which receives base **22**. Also, end piece **36** and the corner of wall **30** adjacent lip **34** define a clearance notch **40** for the lip. It may be seen, especially in FIG. 4, that end piece **36** is of generally rectangular configuration and substantially fills the entire vertical space above the group of terminals **16** since the end piece extends into nearly abutting relationship with base **22** and support **20**.

Cap **14**, which forms the protective shield for the group of terminals **18**, has an outwardly convex bight **42** and a pair of opposed sides **44** and **46** integral with the longitudinal margins of bight **42**. Each of the terminals **18**, as may best be seen in FIG. 5, has a depression **48** in one edge thereof adjacent the tip of the terminal, and a pair of notches **50** therein spaced along the other edge of the terminal. It may be seen that the terminals **18** are arranged in vertical rows, the two outer rows being of particular interest in the instant invention.

The longitudinal free edge of side **44** of cap **14** is provided with a flange **52**, the other side **46** also being provided with a flange **54** extending along its longitudinal free edge. The depressions **48** and notches **50** in the various terminals **18** face in opposite directions; therefore, as may be seen in FIG. 5, flange **52** of side **44** is received in the depressions **48** of one outer row of terminals **18**, while the flange **54** of side **46** is seated in the notches **50** adjacent support **20** of the other outer row of terminals **18**. A number of ridges **56** extend longitudinally along side **46**, adjacent the common margin of side **46** and bight **42**, and serve to reinforce the cap structure.

Cap **14** is also composed of a flexible substance, preferably plastic, to permit ready removal of the cap from the group of terminals **18** when it is desired to make electrical connections thereto. Note that a row of openings **28** through base **22** is also provided to permit passage of electrical cables through the base to the terminals **18**.

Referring particularly to FIG. 4, an end member **58** is illustrated integral with the upper transverse margin of bight **42**, end member **58** extending from the bight toward support **20**. The end member is of a trapezoidal configuration and extends into nearly abutting relationship with support **20**, thereby overlying the group of ter-

minals **18** to shield the same from wire clippings, solder splashes and the like in the same manner as end piece **36** shields the group of terminals **16**.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In combination with a terminal block having a mounting base, a terminal support rigid with the base and extending therefrom, a first group of terminals arranged in rows on said support, each of the terminals of one outer row having an outwardly facing depression therein, each of the terminals of the other outer row having a notch therein facing oppositely from said depressions, and a second group of terminals on said support having inclined projections extending away from said base, the terminals of said second group being interconnected with those of the first group, protective structure comprising:

an elongated, transversely U-shaped, flexible cap for said first group of terminals, said cap having a bight and a pair of opposed sides extending from the longitudinal margins of said bight, one of said sides being received by said depressions, the other side being seated in said notches, said cap being removable from the block upon flexing thereof and disengagement of said sides with the terminals of said outer rows of the first group; and

a flexible cover for said second group of terminals including a wall having a pair of opposed margins and provided with a flange extending from one of said margins and a lip extending from the other margin, said cover extending between said inclined projections and said base, with said flange hooked over the base and said lip hooked over the projections, and being removable from the block upon flexing of the cover and disengagement of the flange and lip from the base and the projections, whereby both of said groups are normally protected by the cap and the cover but may be rendered readily accessible when it is desired to connect cables thereto.

2. The invention of claim **1**, wherein said one side of the cap is provided with a flange extending longitudinally of the cap and received by said depressions, said other side of the cap being provided with a flange extending longitudinally of the cap and seated in said notches.

3. The invention of claim **1**, wherein said support is upright, the terminals of both of said groups extending generally horizontally from said support, and wherein said cap is provided with a protective end member rigid with said bight and overlying said first group, said cover being provided with a protective end piece rigid with said wall and overlying said second group.

4. In combination with a terminal block having a mounting base, an upright terminal support extending therefrom, and a group of terminals extending generally horizontally from said support and arranged in rows on said support, each of the terminals of one outer row having an outwardly facing depression therein, each of the terminals of the other outer row having a notch therein facing oppositely from said depressions, protective structure comprising an elongated, transversely U-shaped, flexible cap for said group of terminals, said cap having a bight and a pair of opposed sides extending from the longitudinal margins of said bight, one of said sides being received by said depressions, the other side being seated in said notches, said cap being provided with a protective end member overlying said group, the cap being removable from the block upon flexing thereof and disengagement of said sides with the terminals of said outer rows, whereby the group is normally protected by the cap but may be rendered readily accessible when it is desired to connect cables thereto.

5. The invention of claim **4**, wherein said one side of the cap is provided with a flange extending longitudinally of the cap and received by said depressions, said other side of the cap being provided with a flange extending longitudinally of the cap and seated in said notches.

6. The invention of claim **4**, wherein the bight of said cap is transversely convex.

7. In combination with a terminal block having a mounting base, a terminal support rigid with the base and extending therefrom, and a group of terminals on said support having inclined projections extending away from said base, protective structure comprising a flexible cover for said group including a wall having a pair of opposed margins and provided with a flange extending from one of said margins and a lip extending from the other margin, said cover extending between said inclined projections and said base, with said flange hooked over the base and said lip hooked over the projections, and being removable from the block upon flexing of the cover and disengagement of the flange and lip from the base and the projections, whereby the group is normally protected by the cover but may be rendered readily accessible when it is desired to connect cables thereto.

8. The invention of claim **7**, wherein said support is upright, the terminals of said group extending generally horizontally from said support, and wherein said cover is provided with a protective end piece and overlying said group.

9. The invention of claim **8**, wherein the ends of said projections are generally vertically aligned.

10. The invention of claim **8**, wherein said end piece, said wall, and said flange define a clearance slot for said base.

11. In combination with a terminal block having a mounting base and a terminal assembly, said assembly comprising a terminal support member rigid with the base and extending perpendicularly therefrom, and a plurality of elements on said support having inclined projections extending away from said base, protective structure comprising a flexible cover for said elements including a wall having a pair of opposed margins and provided with a flange extending from one of said margins and a lip extending from the other margins, said flange engaging said base and said lip engaging said terminal assembly to provide means securing said protective structure to said terminal block, said protective structure being removable upon flexing of the cover and disengagement of the flange and lip from the base and assembly, whereby the elements are normally protected by the cover but may be rendered readily accessible when it is desired to connect cables thereto.

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