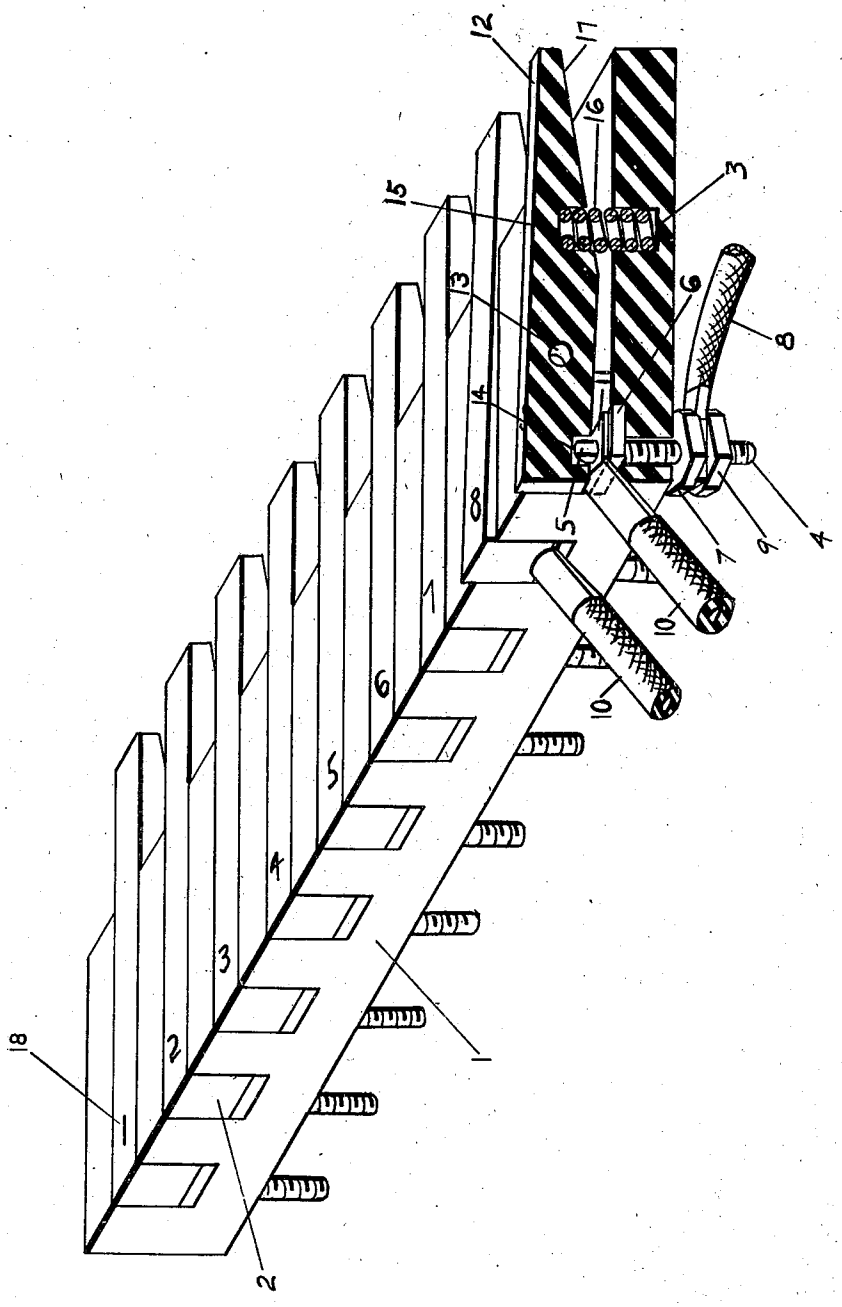
Sept. 30, 1947. E. S. WILBURN 2,428,057

ELECTRICAL TERMINAL BLOCK

Filed Aug. 8, 1945



INVENTOR
ESCOL S. WILBURN

BY
Ralph L. Chappell
ATTORNEY

Patented Sept. 30, 1947

2,428,057

UNITED STATES PATENT OFFICE

2,428,057

ELECTRICAL TERMINAL BLOCK

Escol S. Wilburn, Vallejo, Calif.

Application August 8, 1945, Serial No. 609,699

4 Claims. (Cl. 173—324)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

1

This invention relates to electrical terminal blocks and more particularly to an electrical terminal block having a multiplicity of connecting devices.

In the testing of electrical equipment and other procedures involving the making of many temporary electrical connections, the connecting and disconnecting operations are sources of much wasted time and effort.

The principal objects of the present invention are therefore, to provide an improved terminal device conducive to the making of quick and facile electrical connections; to provide a device for coupling a plurality of output lead wires to their respective current supply lead wires, for coupling any desired combinations of supply and output lead wires; to accomplish the noted objects in an economical and efficient manner; and to provide improved elements and arrangements thereof in an electrical terminal block of the character and for the purposes set forth.

In accomplishing these and other objects of the present invention, I have provided improved details of structure, the preferred form of which is illustrated in the accompanying drawing, wherein the single figure is an isometric view of a terminal block embodying the features of the present invention a portion of the terminal block being removed along a transverse plane to reveal internal parts of the device.

Referring more in detail to the drawing:

The terminal block of this invention preferably consists of a substantially rectangular base member 1 of a suitable electrical insulating material.

On the upwardly disposed surface of the base member 1, substantially parallel transverse channels 2 are formed extending from one side to the other side of the base member. The depth and the width of the channels 2 are such as to receive therein, pivotally mounted keys presently more fully described.

Near one end of each channel, an upwardly opening spring positioning receptacle 3 is formed in the base member.

Near the end opposite the receptacle 3 of each channel 2 a screw-threaded rod 4 of electrical conducting material is extended through the base member 1. An upwardly disposed stud portion 5 of the rod 4 protrudes into the channel to form an engageable electric contact.

Screw-threaded lock nuts or washers 6 and 7 are provided to clamp the rod 4 in place by engaging upper and lower surfaces of the base member 1. It is then seen that each stud portion

2

5 and its corresponding nut or washer 6 constitutes a conducting binding post projecting from the base 1.

A plurality of power input lead wires 8 are provided to conduct energizing current to the rods 4 communicating with the studs 5. Screw threaded lock nuts 9 are preferably employed to secure the input lead wires 8 to the rods 4.

When energized, as described, a stud 5 is in a condition to conduct electricity when the electrical circuit is completed by contacting the said stud. To this end, output lead wires 10 are provided. The inner end of each lead wire 10 is provided with a terminal lug 11 of electrical conducing material adapted to embrace the respective studs 5 by means of a flattened portion of a width to be received by the channels 2, said flattened portion having an opening formed therein to permit the lug to be positioned on any of the studs 5 as desired. The type of lug illustrated is seen to be a closed-ended lug.

With the arrangement shown and described, a conductive coupling of the output lead wire 10 to the energized stud 5 is accomplished, but further means are provided to maintain such coupling in electrical contact. For this purpose, a clamping member, illustrated as being in the form of a key 12 of insulating material, is pivotally mounted in each of the channels 2 as by a pin mounted in the block and extending through a transverse opening 13 in each key.

A downwardly opening recess 14 is formed in each key, the recess being positioned so as to embrace the stud 5 which protrudes upwardly through the lug 11. The studs 5, constituting the projecting portions of the conducting posts, are positioned in the recesses 14 when said keys are in closed position, as shown.

A downwardly opening spring receptacle 15 is formed in each of the keys 12 in alignment with the spring receptacles 3 formed in the base member 1.

Helical springs 16 are positioned in each pair of the juxtaposed receptacles 3 and 15 to hold the pivotally mounted keys 12 in closed position to lock the lugs 11 of the wires 10 in place on the studs 5.

In order to allow pivotal movement of the keys 12 against tension of the springs 16, the keys are each preferably tapered or beveled upwardly and outwardly on their lower rear surfaces as indicated at 17.

In view of the fact that currents of various voltages, amperages, frequencies and wave forms may be required for given operations, the keys

12 are preferably numbered, as at 18 to avoid confusion between various circuits involved.

Operation

The operation of a terminal block constructed as described is as follows:

The power input lead wires 8, individually carrying the types of electrical current involved in a given operation, are secured to the conductor rods 4 by the lock nuts 9 so as to communicate current borne thereby to the lugs 5.

In closed position, the keys 12 cover the charged studs 5 to provide an insulating shield preventing accidental touching or shorting of the circuits involved.

To connect a lead wire 10 to a stud 5, the proper key is selected, as identified by its number. The end of the selected key supported by the spring 16 is depressed against the spring tension. The key 12 pivots as at 13, the bevel 17 allowing for rocking motion. The recessed portion 14 of the key is thus disengaged from the stud 5.

A lead wire 10 is coupled to the stud 5 by fitting the lug 11 over the stud. This maneuver is possible with a closed-ended lug by virtue of the fact that the clamping portion of the key 12 is displaced completely free of the conducting post permitting the lug 11 to be slipped over the projecting end of the post and into direct contact with the nut or washer 6 forming the base of the post. The pressure on the key 12 may then be released and the spring 16 returns the key to closed position, the recessed portion of the key embracing the stud 5 to maintain the lug 11 in coupled position on the stud.

It is apparent, therefore, that I have provided an improved terminal block conducive to the quick and facile connecting and disconnecting of electrical lead wires, securely retaining connected lead wires in coupled position as long as the keys of the terminal block are permitted to remain in closed position, and being of economical and sturdy construction.

While I have shown but one embodiment of my invention, it is susceptible to modification without departing from the spirit of the invention. I do not wish, therefore, to be limited by the disclosures set forth, but only by the scope of the appended claims.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

I claim:

1. An electrical terminal block comprising a base member of insulating material having a plurality of substantially parallel transverse channels formed therein, a spring receptacle provided in the base member at the bottom and near one end of each channel, a key member of insulating material pivotally mounted in each of the channels having a spring receptacle formed in its undersurface juxtaposed relative to the spring receptacle in the base member, a spring positioned in each pair of juxtaposed receptacles to normally maintain each key in closed position, an electrical conductor extending through the base member at the bottom of each channel and having an upwardly disposed stud, electrical lead wires, a terminal lug on each lead wire of a shape to be received by the channels and having an opening therein of a size to embrace each of the studs, each key member having a recess to engage its respective lug when in closed position to lock the terminal and its lead wire in position, and electrical conducting means provided to energize the conductor elements and studs.

2. An electrical terminal block comprising a base member of insulating material having transverse channels formed therein, a spring positioning means formed in the bottom of each channel near one end thereof, an upwardly disposed stud of electrical conducting material positioned in the bottom of each channel near the end thereof opposite the spring positioning means, a key of electrical insulating material pivotally mounted in each channel and having a recess near one end to embrace the stud mounted in its channel, each key having spring positioning means juxtaposed in relation to the spring positioning means of the channel, a spring positioned by said means for holding the key in closed position, lead wires ending in terminals provided to engage the studs, and electrical conductor means for energizing the studs.

3. An electrical terminal block including a base member of insulating material, a plurality of conductor elements mounted in the base member, upwardly disposed stud portions for each conductor element, lead wires adapted to engage said stud portions, key members of insulating material pivotally mounted on the base member, each key member having a recess provided to embrace its respective stud when in closed position to maintain attached lead wires in place, spring means for holding said keys in closed position until manually compressed to connect or disconnect lead wires, and electrical conductor means communicating with and energizing the stud portions of the conductor elements.

4. An electrical terminal block comprising a base of insulating material, a plurality of conducting posts projecting from said base, each adapted to receive an electrical lead for conducting relation therewith, a plurality of clamping members carried by said base, each member having a clamping portion adapted to coact in clamping position with one of said posts to urge the corresponding lead toward said base into electrical contact with said post, resilient means urging said clamping member into clamping position, and manually operable means to disengage said clamping member from clamping position, said clamping members and posts being so constructed and arranged that upon operation of said manually operable means the clamping portions of said clamping members may be displaced completely free of said posts whereby a lead terminating in a closed-ended lug adapted for circumjacently engaging the projecting portion of said post may readily be engaged with and disengaged from said post.

ESCOL S. WILBURN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,691,088	Starke	Nov. 13, 1928
2,210,487	Kimmich	Aug. 6, 1940
1,432,343	Krokavetz	Oct. 17, 1922

FOREIGN PATENTS

Number	Country	Date
563,307	France	Jan. 3, 1925