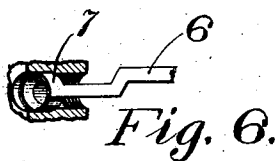
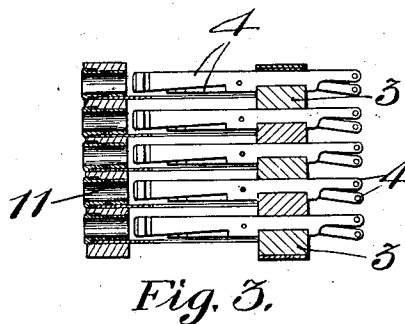
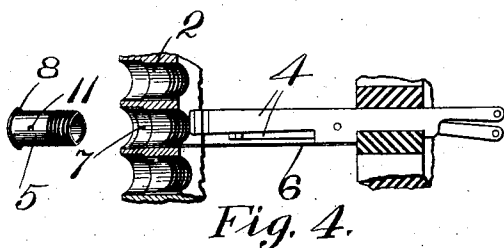
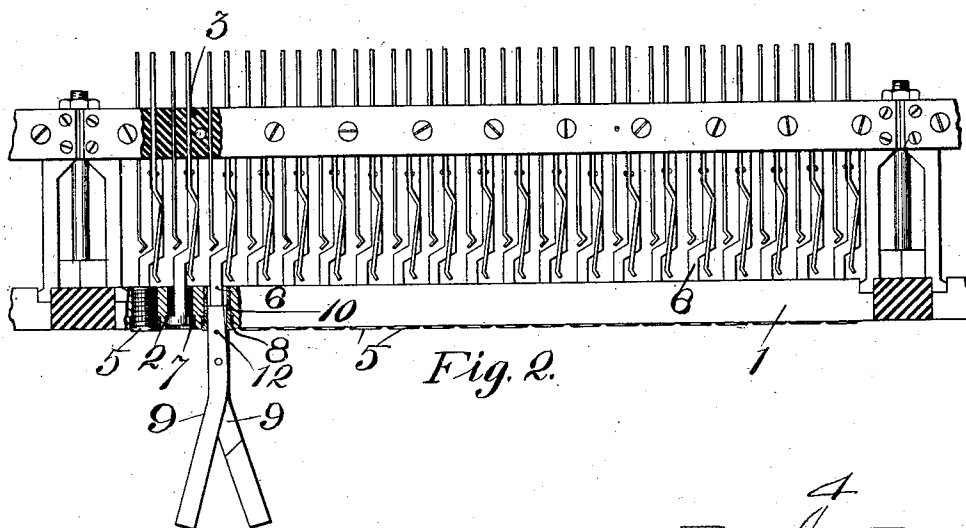
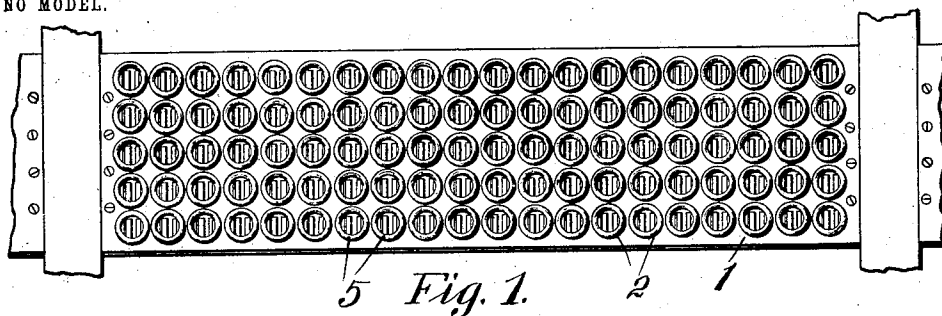


C. M. HEDMAN.
MULTIPLE SWITCHBOARD.
APPLICATION FILED MAY 22, 1902.

NO MODEL.



Witnesses:
Leonard W. Norander.
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UNITED STATES PATENT OFFICE.

CARL M. HEDMAN, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

MULTIPLE SWITCHBOARD.

SPECIFICATION forming part of Letters Patent No. 747,421, dated December 22, 1903.

Application filed May 22, 1902. Serial No. 108,535. (No model.)

To all whom it may concern:

Be it known that I, CARL M. HEDMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Multiple Switchboards, (Case No. 3,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to the construction of multiple switchboards, and relates more particularly to the spring or line jack construction, having for its object the provision of a line-jack using a test-thimble, the test-thimble being removably secured to the conductor, usually a fairly rigid strip, instead of being fixedly soldered or otherwise fixedly united therewith, as hitherto.

Great objection has heretofore existed to multiple switchboards having permanent union between the test-conductors and the test-thimbles in that upon a disruption of the connection between such a conductor and thimble or other injury frequently an entire bank or strip of jacks had to be torn apart to remedy the defect.

In the device of my invention the test-thimble is removably secured in the plug-opening, the test-conductor preferably extending into the plug-opening, being forcibly engaged by the test-thimble when fully in place. Each thimble of a bank or strip of jacks is preferably thus removably secured in electrical connection with the test-conductor by having threaded engagement with the front vertical support of the bank of jacks, the test-conductor being preferably continued in the plug-opening as a ring disposed within an annular enlargement of the plug-opening and engaged by a shoulder upon the test-thimble when the test-thimble has been firmly screwed into position. With a bank of spring-jacks having their thimbles thus secured in place it is a matter of but minor manipulation of the parts to effect the necessary repair.

I will explain my invention more fully by reference to the accompanying drawings, in which—

Figure 1 is a front view of a bank of jacks;

Fig. 2, a plan view thereof, parts being shown in section; Fig. 3, a cross-sectional view of the bank of jacks, illustrating details of my improved construction; Fig. 4, a perspective view, partly in section, illustrating details of construction; Fig. 5, a tool that is especially adapted to remove and place the thimbles, and Fig. 6 shows the disposition of the test-conductor in the plug-opening.

Like parts are indicated by similar characters of reference throughout the different figures.

In the drawings I have illustrated one type of switchboard construction embodying a front vertical support 1, containing plug-openings 2, and a rear vertical support 3, upon which are mounted the line-springs 4, placed in alinement with the plug-openings. The test-thimbles 5 are located in the plug-openings and are designed for electrical connection with test-conductors 6, preferably in the form of a strip or stamping out of metal, which test-conductors 6 are preferably supported by being riveted upon line-springs held in the rear support. In accordance with the preferred embodiment of my invention the forward ends of these test-conductors 6 are shaped in the form of rings 7, which are located in planes at right angles or transverse to the planes receiving the test-conductors. These rings are preferably disposed in the front ends of the plug-openings, these front ends being preferably enlarged, so that the bores of the test conducting-rings and the front portions of the plug-openings to the rear of these rings may be of the same diameter. The rear portions of the plug-openings back of the rings 7 are preferably of smaller diameter and are threaded, while the test-thimbles are correspondingly threaded. The test-thimbles are preferably provided with shoulders 8, which engage the front edges of the rings 7, these front edges preferably extending sufficiently far to the rear of the front face of the front vertical support to permit the shoulders 8 to be largely contained within the plug-openings. When the shoulders 8 upon the thimbles are thus tightly driven into engagement with the ring 7, there is secured a very firm mechanical and electrical union

between the rings and test-thimbles, serving to effect a very complete connection for the purpose of test.

It will be apparent that by means of the construction of my invention there is secured a clamping or binding engagement between the test-thimbles and the test-conductors leading therefrom, this clamping engagement being in the precise embodiment of the invention illustrated effected by the engagement of the shoulders or rims upon the test-thimbles with the ring-terminals of the test-conductors. This engagement may be made very forcible, as the said rimmed terminals are embedded in recesses and may most tightly engage the shoulders of the test-thimbles to secure perfect but readily separable electrical connection.

The tool illustrated is that which is best adapted for accomplishing the purpose of forcibly driving the test-thimbles into position, the tool being formed of the members 9 9, pivoted intermediately between their ends, somewhat in the manner of scissors, there being provided at the operating end of the tool pins 10 10, which when spread apart are forced into engagement with holes 11, provided in the test-thimbles. Cross-pins 12 serve to limit the degree of insertion of the tool within the thimbles, so that the said pins are forced to register with the holes 11 in the test-thimbles. A large variety of ways, however, may be found for securing this separable mechanical and electrical engagement of the test-thimbles with the test-conductors, and I do not, therefore, wish to be limited to the precise means shown for removably securing the test-thimbles in position; but,

Having described my invention, I claim as new and desire to secure by Letters Patent—

1. In a multiple-switchboard construction, the combination with a front vertical sup-

port for a bank of jacks provided with plug-openings registering with jack-contacts to the rear of the plug-openings, test-thimbles having screw-threaded engagement with the plug-openings, being thereby removably secured in place, and test-conductors leading from the plug-openings having separable mechanical and electrical connection with the test-thimbles, substantially as described.

2. In a multiple-switchboard construction, the combination with a front vertical support for a bank of jacks provided with plug-openings registering with jack-contacts to the rear of the plug-openings, test-thimbles having screw-threaded engagement with the plug-openings, being thereby removably secured in place, and test-conductors leading from the plug-openings having separable mechanical and electrical connection with the test-thimbles, the said test-conductors terminating in rings, while the test-thimbles are provided with corresponding shoulders or rims adapted for engagement with the edges of the rings when screwed in place, substantially as described.

3. In a multiple-switchboard construction, the combination with a front vertical support for a bank of jacks provided with plug-openings registering with the jack-contacts to the rear of the plug-openings, test-thimbles having screw-threaded engagement with the plug-openings, being thereby removably secured in place, and test-conductors with which the test-thimbles have separable mechanical and electrical clamping engagement, substantially as described.

In witness whereof I hereunto subscribe my name this 20th day of May, A. D. 1902.

CARL M. HEDMAN.

Witnesses:

HARVEY L. HANSON,
JOHN STAHR.