

(No Model.)

L. A. BERTHON.
SWITCHBOARD.

3 Sheets—Sheet 1.

No. 529,999.

Patented Nov. 27, 1894.

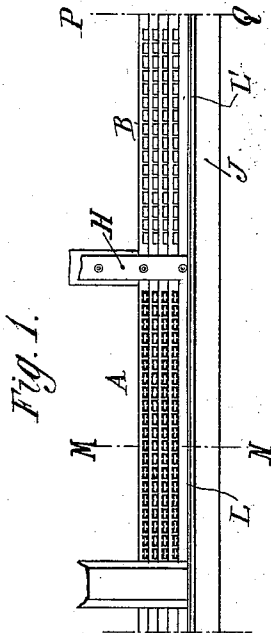
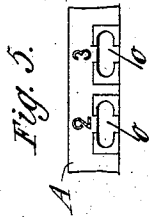
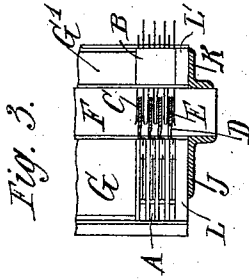
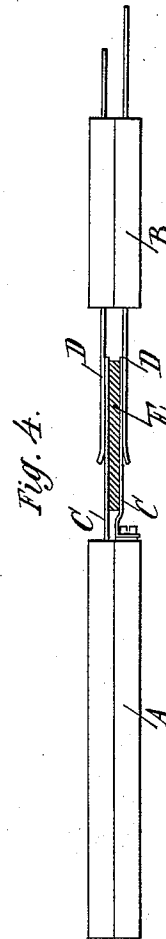
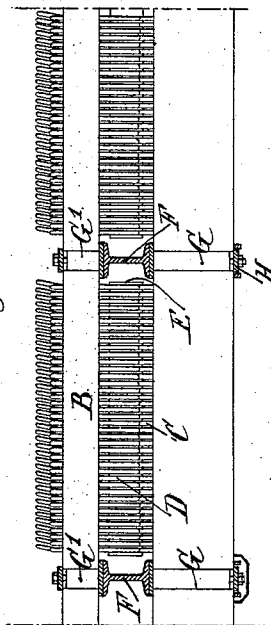


Fig. 2.



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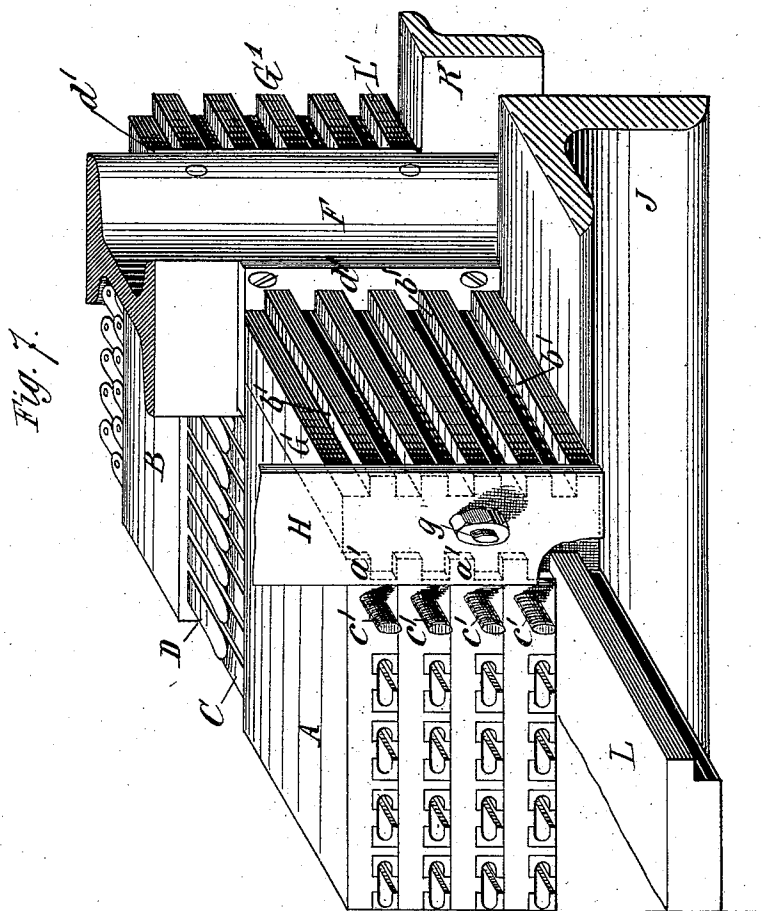
(No Model.)

3 Sheets—Sheet 2.

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3 Sheets—Sheet 3.

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Fig. 9.

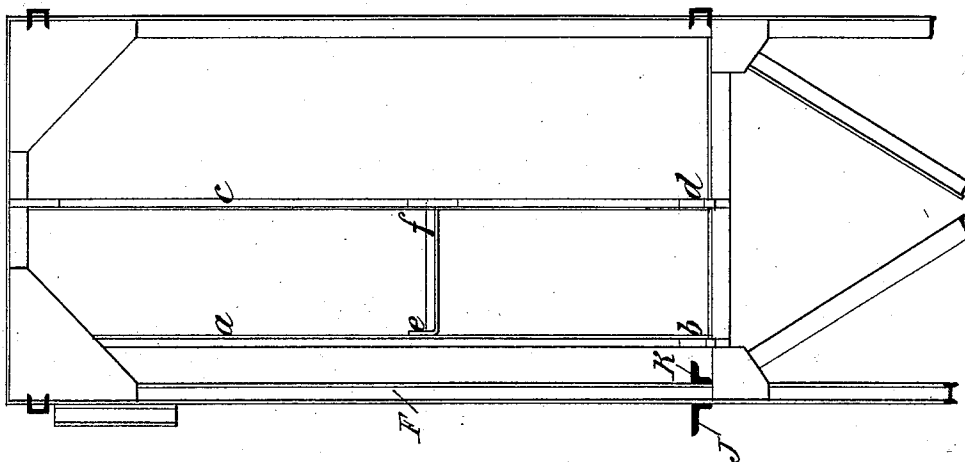
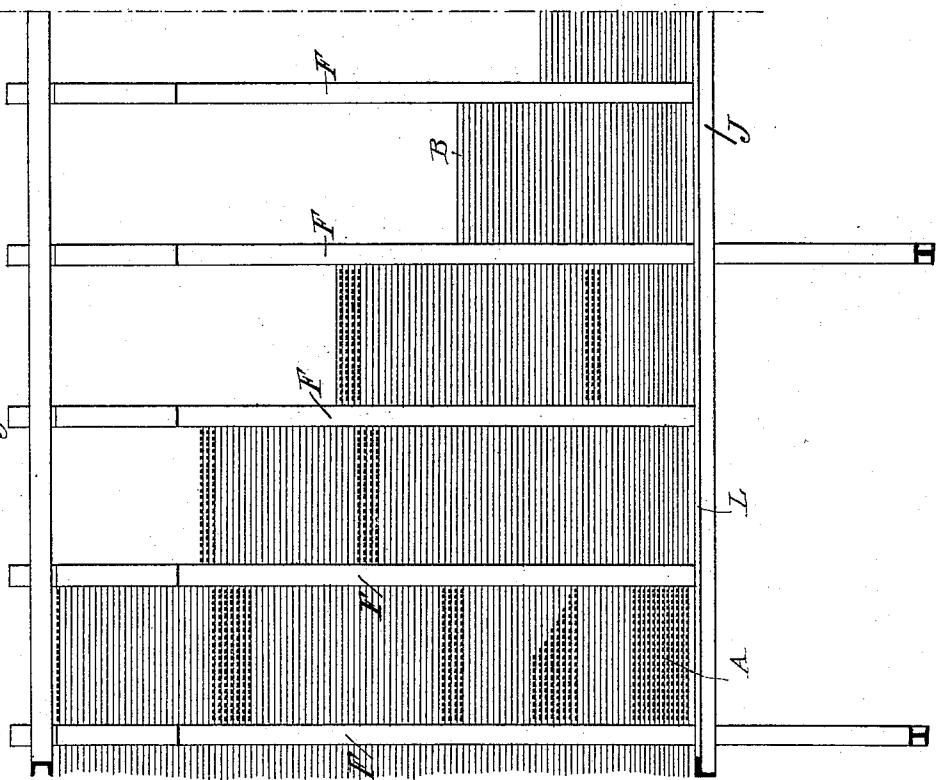


Fig. 8.



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UNITED STATES PATENT OFFICE.

LOUIS ALFRED BERTHON, OF PARIS, FRANCE, ASSIGNOR TO THE SOCIÉTÉ GÉNÉRALE DES TÉLÉPHONES, (RÉSEAUX TÉLÉPHONIQUES ET CONSTRUCTIONS ÉLECTRIQUES,) OF SAME PLACE.

SWITCHBOARD.

SPECIFICATION forming part of Letters Patent No. 529,999, dated November 27, 1894.

Application filed October 17, 1893. Serial No. 488,400. (No model.) Patented in France January 31, 1893, No. 227,557.

To all whom it may concern:

Be it known that I, LOUIS ALFRED BERTHON, a citizen of the Republic of France, residing in Paris, France, have invented certain new and useful Improvements in Multiple Switchboards for Telephonic Systems Having Metallic Circuits, (which invention has been patented in France, No. 227,557, dated January 31, 1893,) of which the following is a specification.

This invention has for its object improvements in the construction of multiple switchboards for telephonic systems having metallic circuits, these improvements consisting in rendering the bands of spring-jacks movable and connecting them to bands arranged in the frame work of the switch-board, as will be hereinafter more fully described.

In the accompanying drawings which illustrate the preferred adaptation of my invention Figure 1 is a fragmentary front elevation of a multiple switch-board apparatus, showing a group of movable spring jack bands and their connecting bands. Fig. 2 is a fragmentary plan view thereof. Fig. 3 is a fragmentary transverse section thereof cut on the line M—N of Fig. 1. Fig. 4 is an enlarged vertical section thereof, cut on the line P—Q in Figs. 1 and 2. Fig. 5 is a fragmentary front elevation of one of the spring jack bands showing the plug sockets. Fig. 6 is an end view of one of the plugs. Fig. 7 is a fragmentary perspective view showing the preferred disposition for fixing and combining the spring jacks and their connecting bands in the switch-board. Fig. 8 is a fragmentary front elevation showing the metal framing of the switch-board, which receives and supports the rows of spring jacks and their bands, and Fig. 9 is a fragmentary vertical cross section thereof.

Referring to the accompanying drawings I will now describe the preferred form of my invention.

A is the row of spring jacks, and B the connecting band therefor. The springs C of the former are pushed in frictionally between the springs D of the latter. A piece E of non-conducting or insulating material is slid be-

tween the springs C where they engage the springs D to keep them insulated.

The socket *o* of the spring jack has an oblong opening, as shown by the front view of Fig. 5, and the part of the plug which enters it has a corresponding oblong shape as shown in the end view, Fig. 6. This arrangement facilitates the insertion of the plug into the spring jack.

According to this invention a plurality of spring jacks, preferably disposed side by side in horizontal direction, are formed in a band or holder, preferably of insulating material, with their contact springs C projecting at rear, and the band and spring jacks thus assembled are movably engaged in the switch-board and make frictional or separable electrical contact with a corresponding series of connecting springs or contacts D, which also are preferably arranged in corresponding numbers in a removable connecting band B. Preferably the switch-board frame and the bands are constructed with interengaging projections, preferably sliding tracks, whereby a band of spring jacks may be slid into position and when thus slid in will coincide with and make electrical connection between the contact springs of its connecting band B and the corresponding contact springs C of its several spring jacks. A locking provision for retaining the bands in place is also provided.

Preferably the construction shown in the drawings is employed to carry out this system of fixing and combining the connecting bands and springs. In this construction all the uprights F of the interior face of the switch-board frame are of iron or other metal of I shape in cross section. The angle irons J K connect the uprights F, and form the support for the spring jacks. The first piece placed immediately on the angle iron J (see Figs. 1, 2, 3 and 7), which is the piece lettered L, has the same form as a row of spring jacks; but has no electric function, its only object being to insulate the frame relatively to the spring jacks. Likewise the first piece placed on the angle iron K has the same shape as a connecting band, but it serves only

to fill the space beneath the lowermost band B in order that its height shall correspond with that of the opposite band A. This piece is lettered L'. The small uprights *a b* and *c d* connected by a cross tie *e f*, constitute two frames in which the spring jack cables are supported. Preferably the rows of movable spring jacks are made of ivory. The spring jacks rest on the angle iron J on ivory supports G, although other material may be employed. These supports have preferably rack teeth on their sides and the spring jack bands have corresponding projections *a'* which engage between the teeth *b'* of these racks G, the engagement being a sliding engagement. This arrangement facilitates the withdrawal of any of the jacks for examination or repair. For facilitating this withdrawal the spring jacks are furnished with metal studs *c'*, or other suitable provision, on which can be screwed a tool or handle by which the jacks can be pulled out.

The front part of the toothed piece G is covered by a band H which embraces a certain number of spring jacks, ten for instance. These bands H are preferably of metal fixed by bolts *g*. The connecting bands D are likewise mounted in rack toothed pieces G' which are carried on the angle iron J. The pieces G and G' are of ivory or other insulating material, and are attached to copper plates *d'* which are screwed to the uprights F. In operation the plate H will be detached from the pieces G, thus unlocking and permitting the removal of the adjacent bands A. The band to be removed will then be slid outwardly, whereupon its springs C can be examined, cleaned, repaired or replaced as desired. The band A can then be restored to its position in the switch-board by sliding it in between the pieces G, and replacing the plates H to lock it. When thus slid in the respective springs of the spring jacks carried by this band A respectively engage with the respective springs of the connecting band B. The operation of withdrawing and removing the connecting bands is the same as described with reference to the band A.

It will be seen that my invention provides improvements in multiple switch-boards for telephonic systems having metallic circuits which can be variously availed of, and it will be understood that the invention is not limited to the particular details of construction and arrangement set forth and shown as its preferred form, as these may be modified as circumstances or the judgment of those skilled in the art may dictate, without departing from the essential features of the invention.

What I claim is, in multiple switchboards for telephonic systems, the following-defined novel features and combinations, substantially as hereinbefore set forth, namely:

1. In a multiple switch-board for telephonic

systems, a plurality of spring jacks having springs C, a band carrying said spring jacks, and a frame carrying said band, said band movably mounted in said frame, in combination with a plurality of connecting springs D corresponding to said springs C and with which the latter make frictional contact, whereby said band and its springs C can be entirely removed from said frame to give access to the springs C of said spring jacks.

2. In a multiple switch-board for telephonic systems, a plurality of spring jacks, connecting springs C therefor, a band carrying said springs C, and a frame carrying said band, in combination with a plurality of connecting springs D corresponding to and making frictional contact with said springs C, and a band B carrying said connecting springs D and movably mounted in said frame, whereby said band B and its spring D can be entirely removed from said frame to give access to said spring D.

3. In multiple switch-boards for telephonic systems, rows of movable spring jacks having springs C, in combination with rows of connecting springs D with which the springs of said spring jacks make frictional contact, and an insulating piece E, holding said spring C in frictional engagement with said connecting springs.

4. In multiple switch-boards for telephonic systems, movable spring jacks having springs C, in combination with connecting springs D between which said springs C pass and with which they make frictional contact, and an insulating piece E between said springs C.

5. In multiple switch-boards for telephonic systems, the combination with a frame having tracks, of a plurality of spring jacks, and a band carrying said spring jacks and having interengaging provisions entering and sliding in said tracks, as and for the purpose set forth.

6. In multiple switch-boards for telephonic systems, a frame having tracks, in combination with a plurality of spring jacks, a band carrying said spring jacks and having tracks engaging and sliding in those of said frame, and a lock securing said band in position in said frame.

7. In multiple switch-boards for telephonic systems, a plurality of spring jacks, and a frame carrying said spring jacks and having tracks, in combination with a plurality of connecting springs, and a band carrying said connecting springs and engaging and sliding in the tracks of said frame, substantially as and for the purpose set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

LOUIS ALFRED BERTHON.

Witnesses:

AUGUSTE MATHIEN,
CLYDE SHROPSHIKE.