

No. 816,847.

PATENTED APR. 3, 1906.

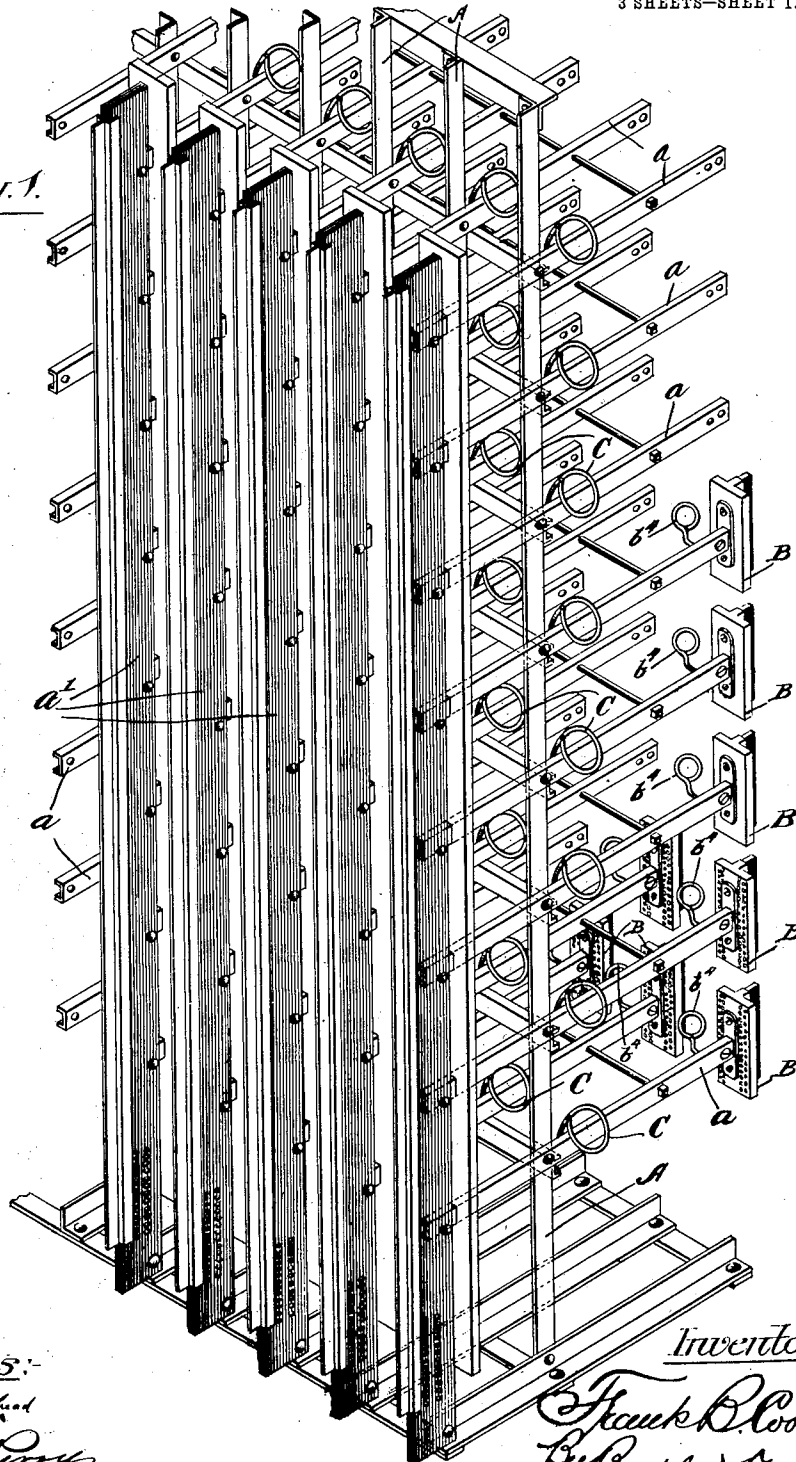
F. B. COOK.

IRON FRAMED DISTRIBUTING BOARD FOR TELEPHONE EXCHANGES.

APPLICATION FILED FEB. 2, 1903.

3 SHEETS—SHEET 1.

Fig. 1.



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Geo. D. Perry

Inventor:

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By Buckley & Noyes
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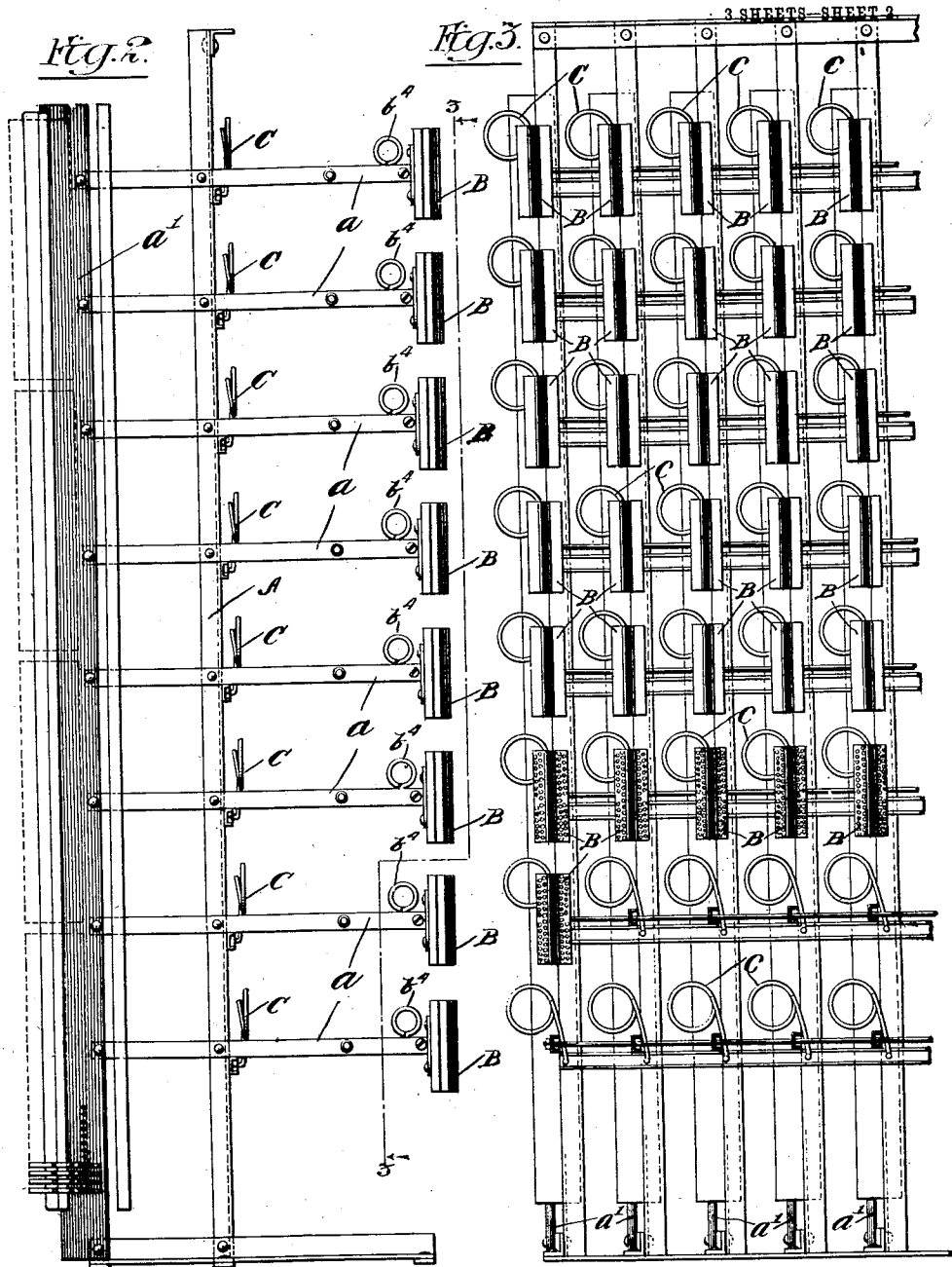
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3 SHEETS—SHEET 3.

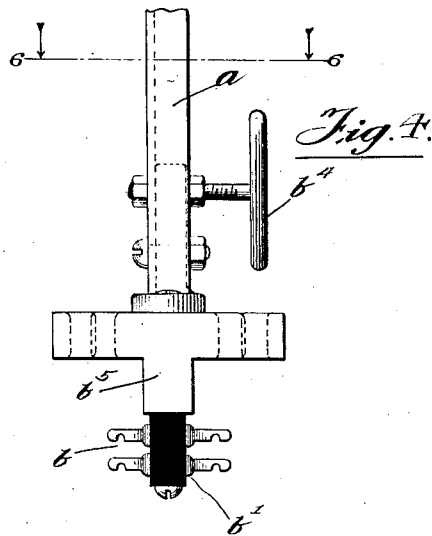


Fig. 4.

Fig. 5.

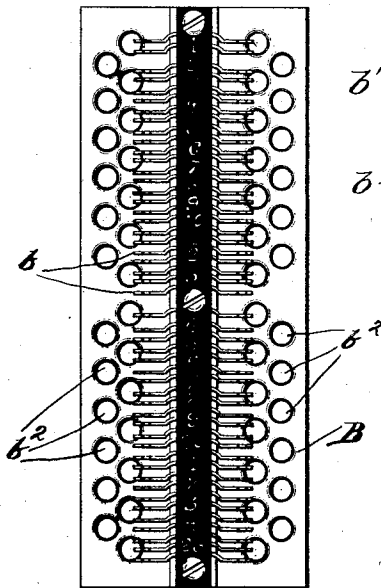


Fig. 7.

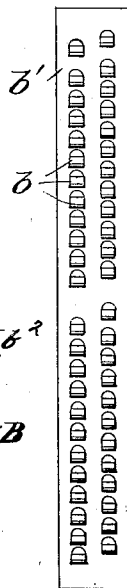
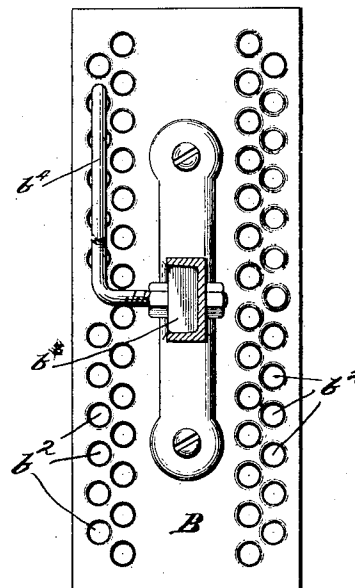


Fig. 6.



Witnesses:

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Ira D. Perry

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UNITED STATES PATENT OFFICE.

FRANK B. COOK, OF CHICAGO, ILLINOIS.

IRON-FRAMED DISTRIBUTING-BOARD FOR TELEPHONE-EXCHANGES.

No. 816,847.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed February 2, 1903. Serial No. 141,459.

To all whom it may concern:

Be it known that I, FRANK B. COOK, a citizen of the United States of America, and a resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Iron-Framed Distributing-Boards for Telephone-Exchanges, of which the following is a specification.

In telephone systems it is the practice to employ at the central stations what are ordinarily known as "distributing-boards." These distributing-boards are employed as a means for uniting the incoming line-wires with the wires or conductors leading to the switchboard apparatus. Ordinarily in a structure of this character the arrangement is such that the connections can be made or broken at will and also such that the connections may be interchanged.

Generally stated, it is the object of my invention to provide an improved iron-frame distributing-board which will facilitate in the connecting and disconnecting of the line-wires with the switchboard-wires.

A special object is to provide a construction and arrangement whereby the line-wire cables may be led into the back of the board either vertically or horizontally and with as much facility one way as the other.

It is also an object to provide certain details and features of improvement tending to increase the general efficiency of a distributing-board of this particular character.

To the foregoing and other useful ends my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a perspective of my improved iron-frame distributing-board. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section on line 3-3 in Fig. 2. Fig. 4 is an enlarged plan of one of the terminal blocks and the adjacent portion of the supporting-arm. Fig. 5 is a rear elevation of the terminal block shown in Fig. 4. Fig. 6 is a vertical section on line 6-6 in Fig. 4. Fig. 7 is a side elevation of the strip of insulation in which the metal terminal strips are mounted.

As thus illustrated, my improved iron-frame distributing-board may comprise a main or body portion A of any suitable form or construction. Preferably, however, this frame involves a number of rearwardly-extending arms or bars *a*. At their forward ends these horizontal arms are preferably

provided with vertically-arranged supports *a'*, adapted to serve as mounting-strips for any of the well-known or approved forms of protective devices. As will be observed, the arrangement is preferably such that the said supporting-arms are arranged in vertical rows, the members of each row being united or connected at their forward ends by one of the supports or mounting-strips *a'*. The character and purpose of these vertical supports *a'* are, however, well understood by those skilled in the art and do not, therefore, need any further description. It is the construction of the back or rear portion of the frame or distributing-board to which my invention relates. In practice the line-wire cables are usually led into the back of the frame or board and are attached to terminal strips, which latter are then in turn connected with the switchboard-conductors. So in the present case the line-wire cables are led into the back of the frame-like distributing-board and are there connected with line-terminal strips which are mounted on the rear ends of the horizontally-disposed supporting-arms *a*, and with the arrangement shown and described the other ends of these terminal strips are then connected, through the medium of the protective devices mounted on the supports *a'*, with the apparatus of the switchboard. The said terminal strips are, however, preferably mounted on terminal blocks B, each block being removably secured to the rear end of one of the arms *a*. With this construction, the line-terminal strips *b* are all mounted on the faces of terminal blocks which are arranged in rows both vertically and horizontally. In other words, each terminal block is provided with a vertical strip of insulation *b'*, adapted to support the said metallic terminal strips *b*, and when arranged as shown in the drawings both horizontal and vertical rows are, therefore, made up of vertically-disposed line-terminal strips. The body portion of each terminal block is preferably provided at each side with a number of small openings *b''*, arranged conveniently with respect to the opposite ends of the said line-terminal strips. Each block is also preferably provided with a shank *b'''*, adapted to lie in the channel of the arm *a*, to which it is attached. In addition to these features a supporting-ring *b''''* is associated with each terminal block and is inserted through the said shank and supporting-frame in such manner as to assist in holding the two together. Thus

each vertically-disposed terminal block consists, preferably, of a body portion having a rearwardly-extending ridge b^5 , upon which latter can be mounted the strip of insulation b' . Furthermore, the body portion of each terminal block is preferably provided at each side with a double row of conductor-openings, the openings of one row alternating with the openings of the adjacent row, so as to secure compactness and a close arrangement of the said terminal strips. The framework or body of the distributing-board is also preferably constructed with a number of supporting-rings C, which are adapted to support the conductors, serving as the means of electrical connection between the line-terminal strips at the rear of the board and the switchboard terminals or protective devices at the front of the board.

Now with the foregoing arrangement—that is to say, with the provision of the terminal blocks, which are arranged in rows both vertically and horizontally at the back of the board—the connecting and disconnecting of the line-wires at the back of the board is greatly facilitated. Furthermore, with this arrangement of the line-terminal strips in groups at the back of the board the line-wire cables can be led in either vertically or horizontally, according to the conditions or requirements of any particular case. In other words, conditions are such that it is sometimes desirable and perhaps most convenient to lead the line-wire cables horizontally into the back of the board. Again, and on the other hand, it is often desirable and most convenient to lead the line-wire cables vertically into the back of the board; but in either case the distribution of the line-wires and the attachment of the same to the line-wire-terminal strips is with my improved construction accomplished with equal facility. Thus it will be seen that the blocks B, supporting the line-terminal strips b , are arranged in rows both vertically and horizontally and with ample space between. In other words, the separated arrangement of the blocks is of such character as to greatly facilitate the work of establishing and disestablishing connections or of shifting or changing connections, and in addition it will be seen that both ends of the line-terminal strips b are located at the outer side of the blocks, thus making it easy to solder on the different wires.

The specific construction of the terminal blocks, involving, as will be observed, the arrangement of the line-terminal strips in two rows with the members of one row alternating with the members of the other row, as shown more clearly in Fig. 7, and the arrangement of the openings in the terminal blocks in rows, the members of one row alternating with those of the adjacent row is, I find of advantage, as it insures greater compactness

in the arrangement of the wires and different parts and also tends to facilitate the establishing and disestablishing of the connections.

In making the connections the line-wires are led from the cables through the rings b^4 and are then distributed through the openings b^2 . After this the ends of the line-wires are then soldered to their proper line-terminal strips, and, as previously explained, the connections with the switchboard are then made through the medium of wires having their rear ends soldered to the other ends of the line-terminal strips at the rear of the board and having their forward ends soldered or otherwise suitably connected with the protective devices at the front of the board. With my improved arrangement these connections can be made readily and with great facility and can also be broken or interchanged with facility and convenience. The advantages of my improved construction will, however, be readily apparent to those skilled in the art. A further explanation is therefore unnecessary.

What I claim as my invention is—

1. In a distributing-board, the combination of a supporting-frame having rearwardly-extending arms, a terminal block secured to the rear end of each of said arms, said blocks being arranged in rows both vertically and horizontally, and a conductor-supporting ring associated with each block.

2. In a distributing-board, the combination of a supporting-frame, the said frame having horizontally-disposed rearwardly-extending arms, a plurality of vertically-disposed supports secured to the forward ends of said arms, and terminal blocks secured to the rear ends of said arms, said blocks being arranged in rows, both vertically and horizontally there being but a single supporting-arm for each block, and the blocks all being readily removable from their respective arms.

3. In a distributing-board, the combination of a supporting-frame, said frame having horizontally-disposed rearwardly-extending arms, and terminal blocks secured to the rear ends of said arms, said blocks being arranged in rows, both vertically and horizontally there being but a single supporting-arm for each block, and the blocks all being readily removable from their respective arms.

4. In a distributing-board, the combination of a supporting-frame, the said frame having horizontally-disposed rearwardly-extending arms, a plurality of metallic supporting-strips secured to the forward ends of said arms, and a terminal block secured to the rear end of each arm.

5. In a distributing-board, the combination of a supporting-frame, a plurality of terminal blocks arranged in horizontal rows at the back of said frame, and with space between the rows, the members of each row

having a vertical arrangement, and a plurality of line-terminal strips secured to the face of each block, the strips of each block being mounted one above the other there being but a single supporting-arm for each block, and the blocks all being readily removable from their respective arms.

6. In a distributing-board, the combination of a metal frame provided with arms, a terminal block secured to the end of each arm each block being provided with four rows of holes, the holes of one row alternating with those of the adjacent row, and a plurality of metal line-terminal strips suitably mounted upon the outer face of each block, the terminal strips of each block being arranged in two rows, the members of one row of terminals alternating with those of the other row.

7. In a distributing-board, the combination of a supporting-frame, a plurality of terminal blocks secured to the back of said frame, said blocks being arranged in vertically-extending rows, and with space between the rows, the members of each row having a vertical arrangement, and a plurality of line-terminal strips secured to the face of each block, the strips of each block being mounted one above the other each block being removably secured to the frame by a single attaching-bracket.

8. In a distributing-board, the combination of an iron frame provided with arms, a metal bracket removably secured to the end of each arm, terminal blocks suitably secured to said brackets, said blocks being arranged in rows both vertically and horizontally with space between, and a group of metal line-terminal strips suitably mounted upon the outer face of each block.

9. In a distributing-board, the combination of a supporting-frame, a plurality of terminal blocks secured to the back of said frame, said blocks being arranged in rows both vertically and horizontally, and with space between the vertical and horizontal rows, and a plurality of line-terminal strips secured to each block each block being removably secured to the frame by a single attaching-bracket.

10. An iron-framed distributing-board having its back provided with a plurality of vertically-disposed strips of insulation carrying horizontally-disposed metallic line-terminal strips, said strips of insulation being arranged in rows, both vertically and horizontally and each strip of insulation being removably connected with the frame through the medium of a single attaching-bracket.

11. In a distributing-block for a distributing-board, the combination of a terminal block, a strip of insulation secured thereto, rows of metallic terminal clips extending through the strip of insulation and suitably secured thereto, holes through the terminal block arranged to accommodate conductors

leading from the terminal clips, a suitable bracket secured to the terminal block for mounting same to the distributing-frame, and a distributing-ring secured to the said bracket and through which the said conductors extend.

12. In a distributing-block for a distributing-board, the combination of a terminal block, a strip of insulation secured thereto, metallic terminal clips extending through the strip of insulation and suitably secured thereto, holes through the terminal block arranged to accommodate conductors leading from the terminal clips, and a distributing-ring in proximity to the distributing-block through which the said conductors extend.

13. In a distributing-block for a distributing-board, the combination of a terminal block, a strip of insulation secured thereto, metallic terminal clips extending through the strip of insulation and suitably secured thereto, and holes through the terminal block arranged in parallel rows, the holes of one row alternating or being staggered with the holes of another row, and adapted to accommodate conductors leading from the terminal clips.

14. A strip of insulating material, holes extending transversely through the said strip so as to be entirely surrounded by the material thereof, metallic terminal clips inserted endwise through the said holes so as to leave space between a portion of the surface of each clip and a portion of the surface of each hole, respectively, and bent portions on the inserted ends of the clips, formed thereon after same are inserted, to securely clamp the said clips in place in the said holes.

15. In a distributing-block for a distributing-board, the combination of a terminal block, a strip of insulation secured thereto, rows of metallic terminal clips extending through holes in the said strip of insulation and bent at each side of the strip of insulation to clamp the said clips in place in the said holes, and rows of holes through the terminal block arranged to accommodate conductors leading from the terminal clips.

16. In a distributing-board of the character described, a terminal block B, a strip of insulation b' suitably secured to the block B, rows of holes extending transversely through the strip of insulation b' , the holes of one row alternating with the holes of another row, terminal strips b extending through the said holes in the strip of insulation b' , each said terminal strip b being offset or bent at each end of the hole through which it extends to clamp it in the said hole, holes b^2 extending through the terminal block B adjacent to the terminal strips b , the conductors leading from the terminal strips b passing through the said holes b^2 , a bracket secured to the block B and adapted to be secured to the iron framework of a distributing-board or the like, and a distributing-ring b^3 suitably

secured to the said bracket and through which the said conductors extend, substantially as described.

17. In a distributing-board, the combination of a supporting-frame provided with horizontally-disposed arms, vertically-disposed protector-strips carried by the forward ends of the said arms, terminal blocks carried by the rearward ends of said arms and arranged in rows both vertically and horizontally with space between, each block being mounted separately on its supporting-arm, and suitable terminal strips carried by the said blocks.

18. In a distributing-board, the combination of vertically-arranged supports carrying horizontally-disposed arms, vertically-disposed protector-strips carried by the forward

ends of the said arms, suitable protectors carried by the protector-strips, terminal blocks carried by the rearward ends of said arms and arranged in rows both vertically and horizontally with space between, each block being mounted separately on its supporting-arm, suitable strips of insulation carried by the said blocks, metallic terminal strips carried by the said strips of insulation, and suitable distributing-rings to accommodate the jumper-wires leading from the protectors to the terminal blocks.

Signed by me at Chicago, Cook county, Illinois, this 28th day of January, 1903.

FRANK B. COOK.

Witnesses:

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HARRY P. BAUMGARTNER.