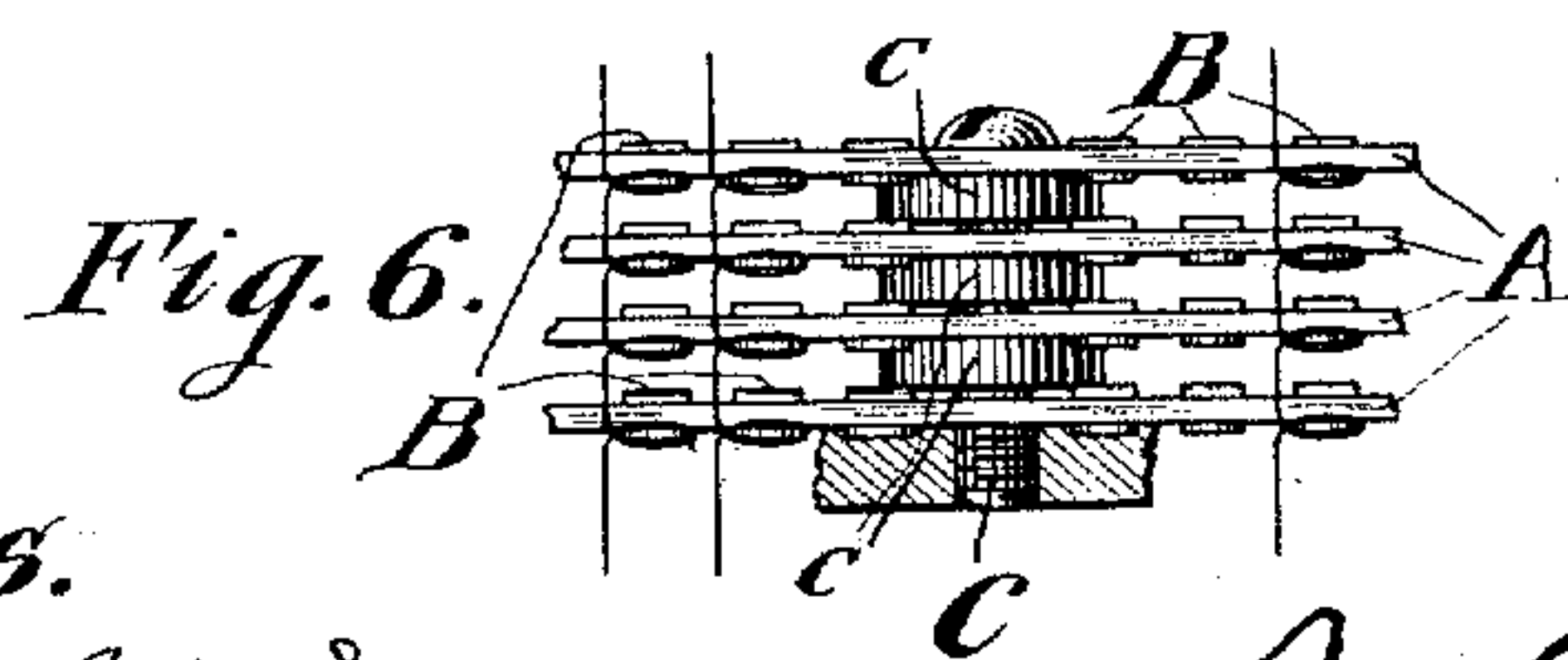
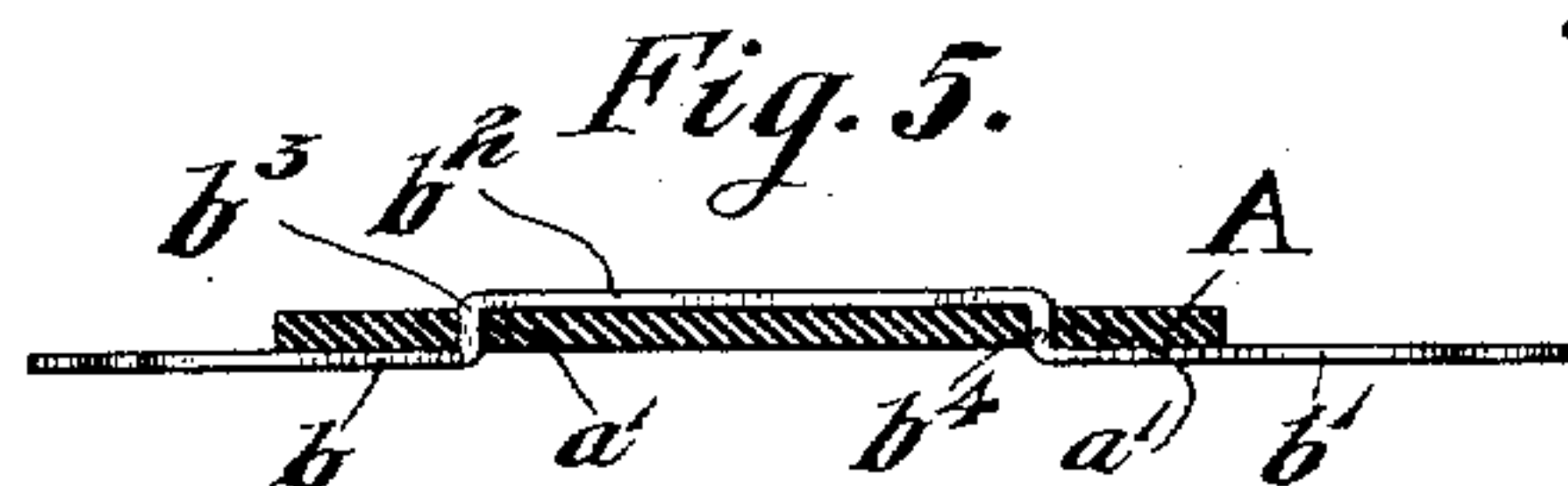
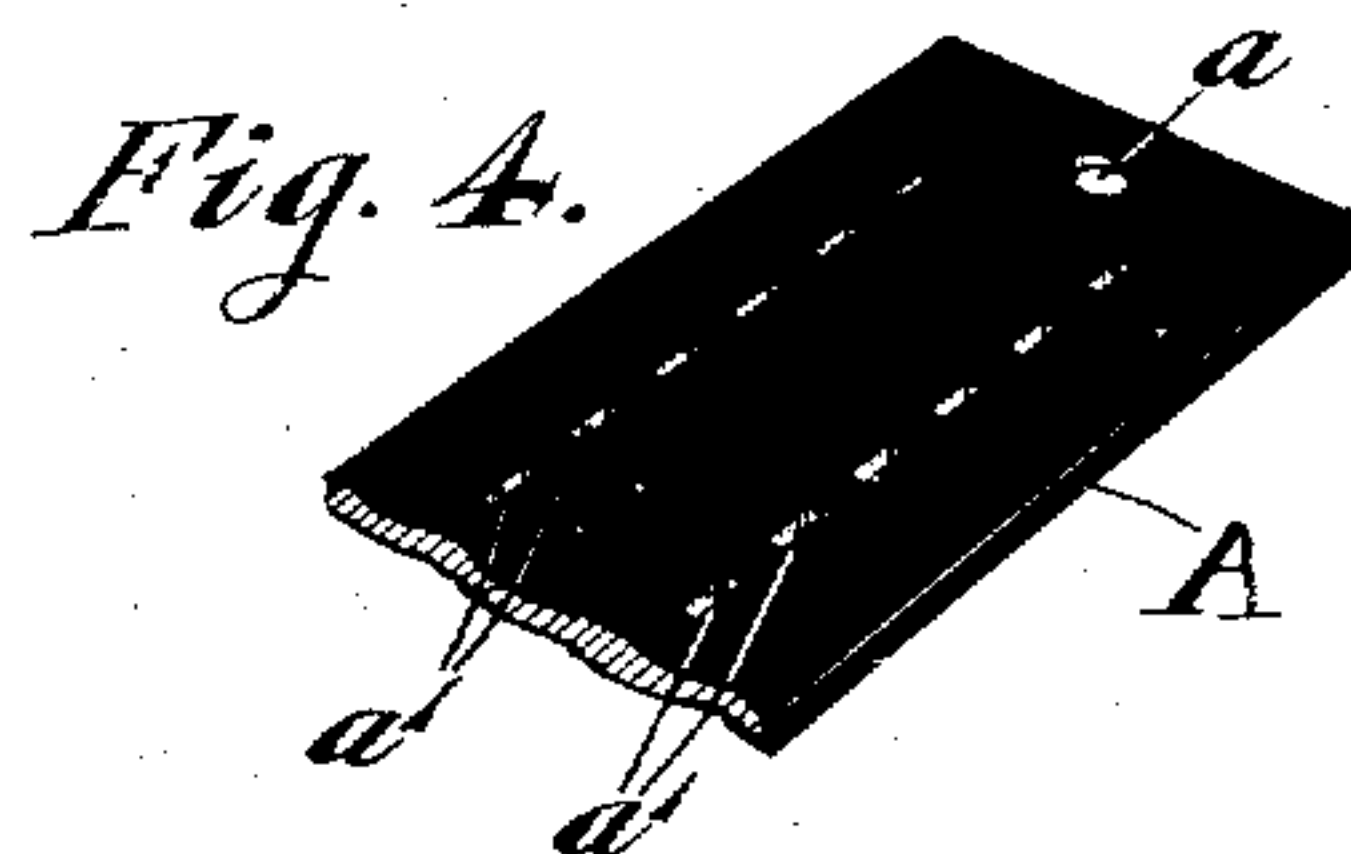
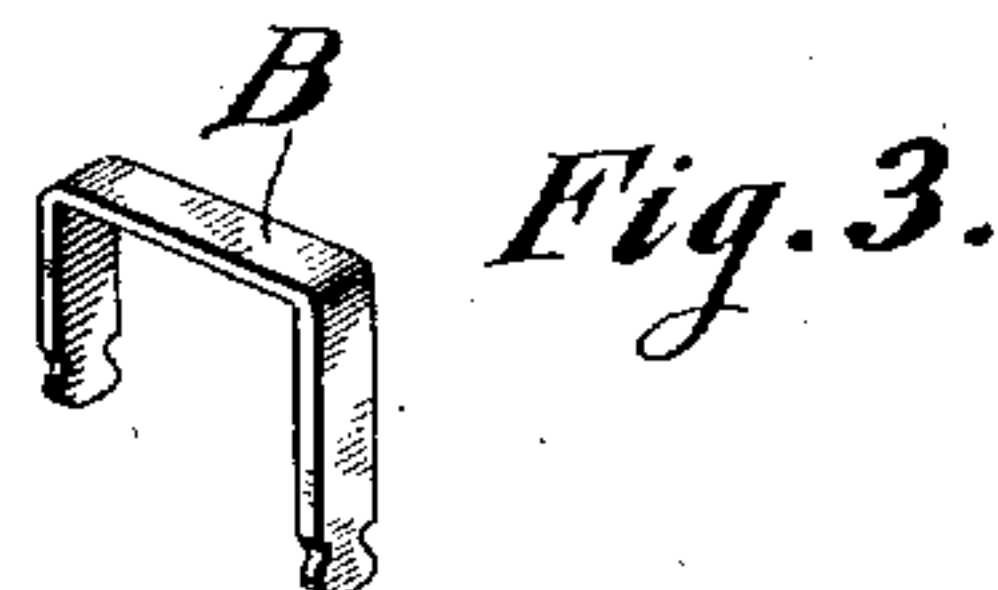
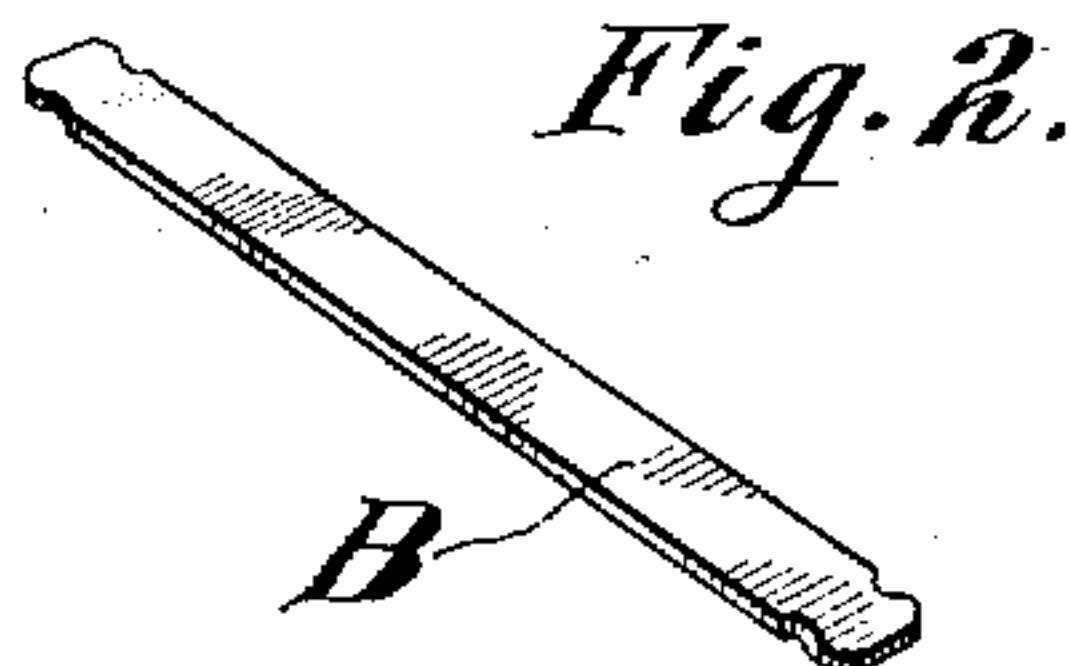
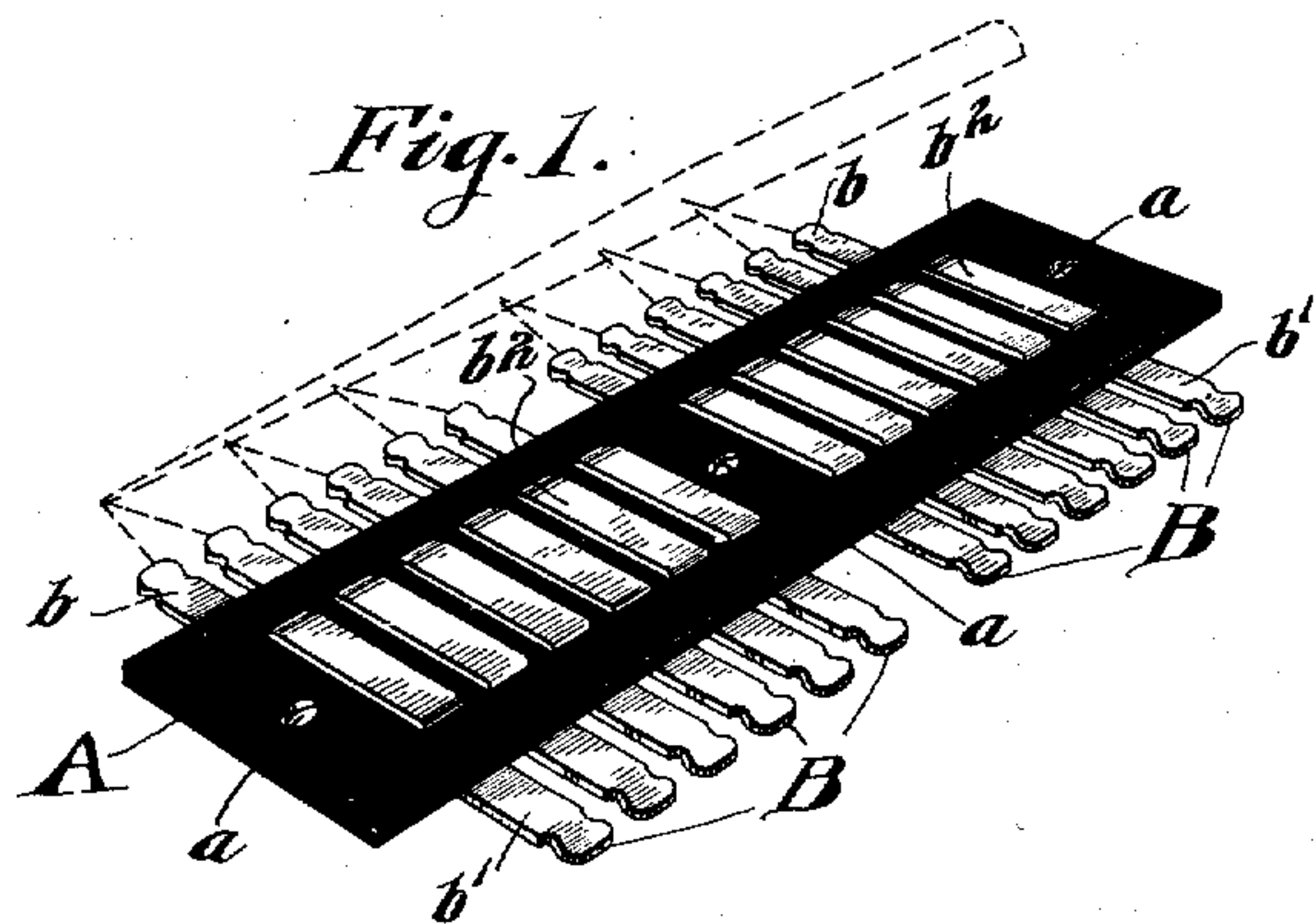


No. 819,060.

PATENTED MAY 1, 1906.

H. J. GUTTMAN.  
TERMINAL STRIP.

APPLICATION FILED NOV. 9, 1904.



Witnesses.

R. H. Burford  
A. Andersen.

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# UNITED STATES PATENT OFFICE.

HARRY J. GUTTMAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO AUTOMATIC ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## TERMINAL STRIP.

No. 819,060.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed November 9, 1904. Serial No. 231,981.

*To all whom it may concern:*

Be it known that I, HARRY J. GUTTMAN, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Terminal Strips, of which the following is a specification.

My invention relates to the arrangement of metallic electric terminals in banks or strips.

Generally stated, the object of my invention is the provision of an improved and highly efficient form of terminal strip, and a special object is to provide a strip of terminals of such construction that it may be economically manufactured and satisfactorily employed in completing the circuits or connecting up the wiring of any kind of electric apparatus, and it is also an object, of course, to provide certain details or features of improvement tending to increase the general efficiency and serviceability of a device of this particular character.

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

In the accompanying drawings, Figure 1 is a perspective of a terminal strip embodying the principles of my invention. Fig. 2 is a perspective of one of the metal terminals before it is applied to the strip of insulation. Fig. 3 is a perspective of one of the metal terminals bent into shape to be applied to the said strip of insulation. Fig. 4 is a perspective of a portion of the strip of insulation before the metal terminals are applied. Fig. 5 is an enlarged cross-section of the terminal strip. Fig. 6 is an edge view of several of the terminal strips arranged one above the other in the form of a bank and secured together and separated from each other by means of a screw and washers.

As thus illustrated, my invention comprises a plate or strip of insulation A of any suitable size or dimensions. Preferably the said plate or strip of insulation is provided with bolt-holes *a* and also with openings *a'* for the metal terminals. When stamped out of sheet metal, the said metal terminals B are each of the character shown in Fig. 2. These terminals are, however, then bent into the shape shown in Fig. 3. After this each terminal is inserted downwardly through a pair of the openings *a'*, so as to extend crosswise

of the said strip of insulation. Finally, the downwardly-projecting end portions of each terminal are bent outwardly and upwardly, so as to rest flatwise against the under surface of the said strip of insulation. (See Figs. 1 and 5.) In this way each metal terminal when applied to the strip of insulation has its end portions resting flatwise against one surface of the said strip of insulation and its middle or intermediate portion held flatwise upon the other side or surface of said strip of insulation. Consequently each metal terminal when inserted and adjusted in place has lengthwise end and intermediate portions *b*, *b'*, and *b''*, which are connected at their ends by short crosswise or transverse portions *b<sup>3</sup>* and *b<sup>4</sup>*. It will be seen that these portions *b<sup>3</sup>* and *b<sup>4</sup>* extend through the openings *a'* and are substantially of the same length as the latter. With this arrangement each metal terminal is held very securely in place without the aid of any fastening devices.

As shown in Fig. 6, several strips of the character shown in Fig. 1 are arranged one above the other, with plenty space between and are held together by means of a screw C and separated one from the other by means of washers *c*. With this construction it is evident that any desired number of the said terminal strips may be secured together to form a bank of metallic terminals or electric contacts or other like devices of any desired size or capacity.

What I claim as my invention is—

1. A strip of insulation provided with openings, and a plurality of metal strips extending crosswise of said strip of insulation, each metal strip having end portions lying flatwise upon one surface of said strip of insulation, and having also an intermediate portion lying flatwise against the opposite surface of said strip of insulation the said metal strips being suitably spaced apart and insulated from each other and provided with free ends adapted for connection with circuit-conductors.

2. A strip of insulation provided with parallel rows of openings, and metal strips applied to said openings and extending crosswise of said strip of insulation, each metal strip having end and intermediate lengthwise portions lying flatwise against the opposite surfaces of said strip of insulation, and



having also relatively short crosswise or transverse portions extending through said openings in the strip of insulation the said metal strips being suitably spaced apart and insulated from each other and provided with free ends adapted for connection with circuit-conductors.

3. A strip of insulation provided with parallel rows of openings, and parallel strips of metal inserted through said openings and extending crosswise of said strip of insulation, each metal strip having end portions projecting beyond the opposite edges of said strip of insulation, and having an intermediate portion joined to said end portions by transverse portions which extend through said openings, whereby the end and intermediate portions of said metal strip are held flatwise against opposite surfaces of the strip of insulation the said metal strips being suitably spaced apart and insulated from each other and provided with free ends adapted for connection with circuit-conductors.

4. A strip of insulation provided with openings, and U-shaped metal strips inserted through said openings and having their end portions bent outwardly to provide electric terminals or contacts, each of said members having its end portions separated from its middle portion by the thickness of said

strip of insulation whereby the said end and middle portions are disposed upon or at the oppositely-facing surfaces of said insulation the said metal strips being suitably spaced apart and insulated from each other and provided with free ends adapted for connection with circuit-conductors.

5. A bank of electric terminals or contacts, comprising a plurality of flat plates of insulation held together by screw-threaded means, and separated one from the other by washers mounted upon the said screw-threaded means, each plate of insulation being provided with a plurality of said electric terminals or contacts, and each electric terminal or contact consisting of a strip of metal having projecting end portions held flatwise against one surface of its allotted plate, and having also an intermediate portion held flatwise against the opposite surface of such plate the said metal strips being suitably spaced apart and insulated from each other and provided with free ends adapted for connection with circuit-conductors.

Signed by me at Chicago, Cook county, Illinois, this 28th day of October, 1904.

HARRY J. GUTTMAN.

Witnesses:

R. H. BURFEIND,  
R. C. GIFFORD.

Correction in Letters Patent No. 819,060.

It is hereby certified that in Letters Patent No. 819,060, granted May 1, 1906, upon the application of Harry J. Guttman, of Chicago, Illinois, for an improvement in "Terminal Strips," an error appears in the printed specification requiring correction, as follows: On page 1, line 80, the word *of* should be inserted before the word "space"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 12th day of June, A. D., 1906.

[SEAL.]

F. I. ALLEN,  
Commissioner of Patents.



having also relatively short crosswise or transverse portions extending through said openings in the strip of insulation the said metal strips being suitably spaced apart and insulated from each other and provided with free ends adapted for connection with circuit-conductors.

3. A strip of insulation provided with parallel rows of openings, and parallel strips of metal inserted through said openings and extending crosswise of said strip of insulation, each metal strip having end portions projecting beyond the opposite edges of said strip of insulation, and having an intermediate portion joined to said end portions by transverse portions which extend through said openings, whereby the end and intermediate portions of said metal strip are held flatwise against opposite surfaces of the strip of insulation the said metal strips being suitably spaced apart and insulated from each other and provided with free ends adapted for connection with circuit-conductors.

4. A strip of insulation provided with openings, and U-shaped metal strips inserted through said openings and having their end portions bent outwardly to provide electric terminals or contacts, each of said members having its end portions separated from its middle portion by the thickness of said

strip of insulation whereby the said end and middle portions are disposed upon or at the oppositely-facing surfaces of said insulation the said metal strips being suitably spaced apart and insulated from each other and provided with free ends adapted for connection with circuit-conductors.

5. A bank of electric terminals or contacts, comprising a plurality of flat plates of insulation held together by screw-threaded means, and separated one from the other by washers mounted upon the said screw-threaded means, each plate of insulation being provided with a plurality of said electric terminals or contacts, and each electric terminal or contact consisting of a strip of metal having projecting end portions held flatwise against one surface of its allotted plate, and having also an intermediate portion held flatwise against the opposite surface of such plate the said metal strips being suitably spaced apart and insulated from each other and provided with free ends adapted for connection with circuit-conductors.

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*Commissioner of Patents.*