

No. 757,718.

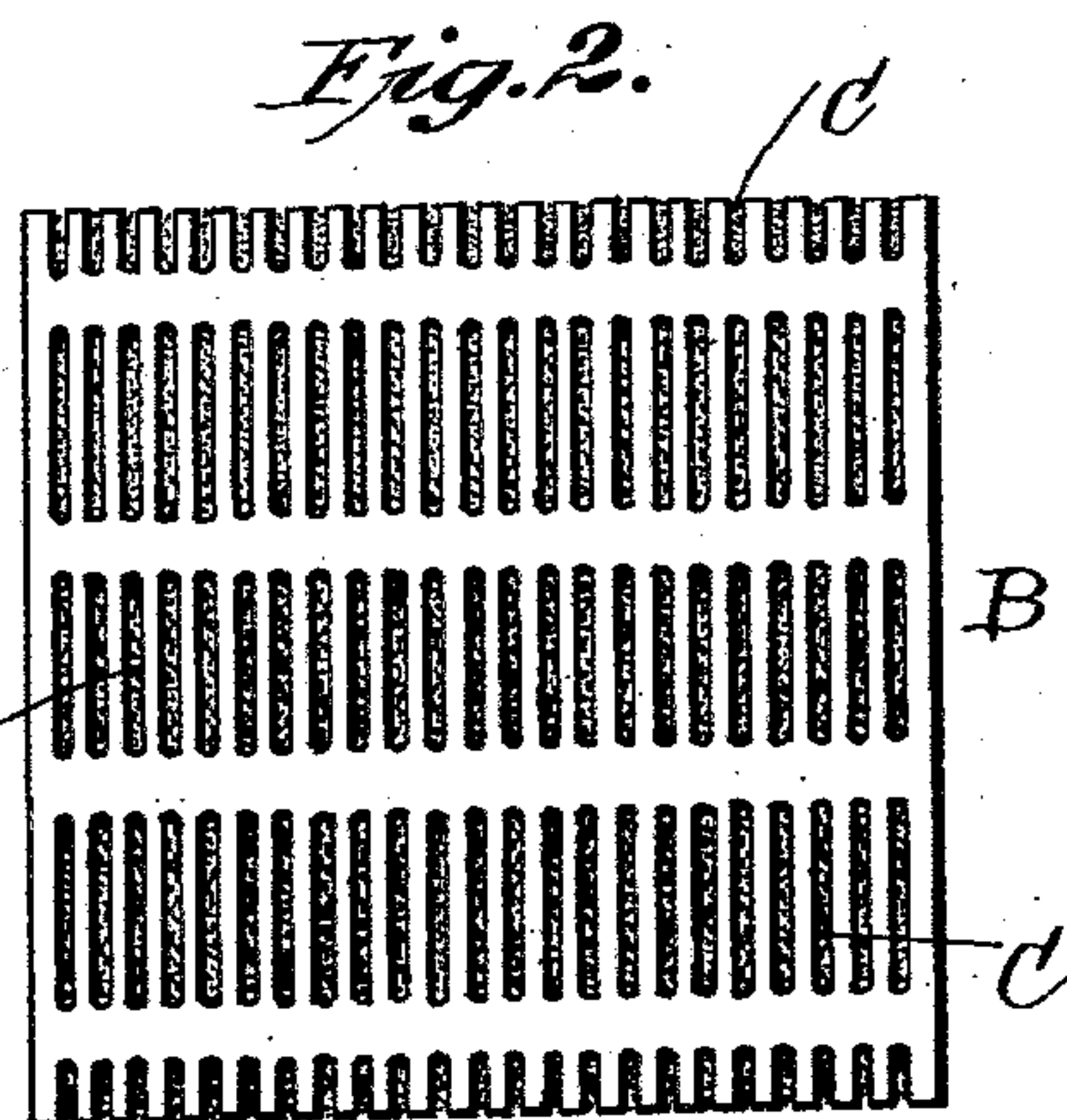
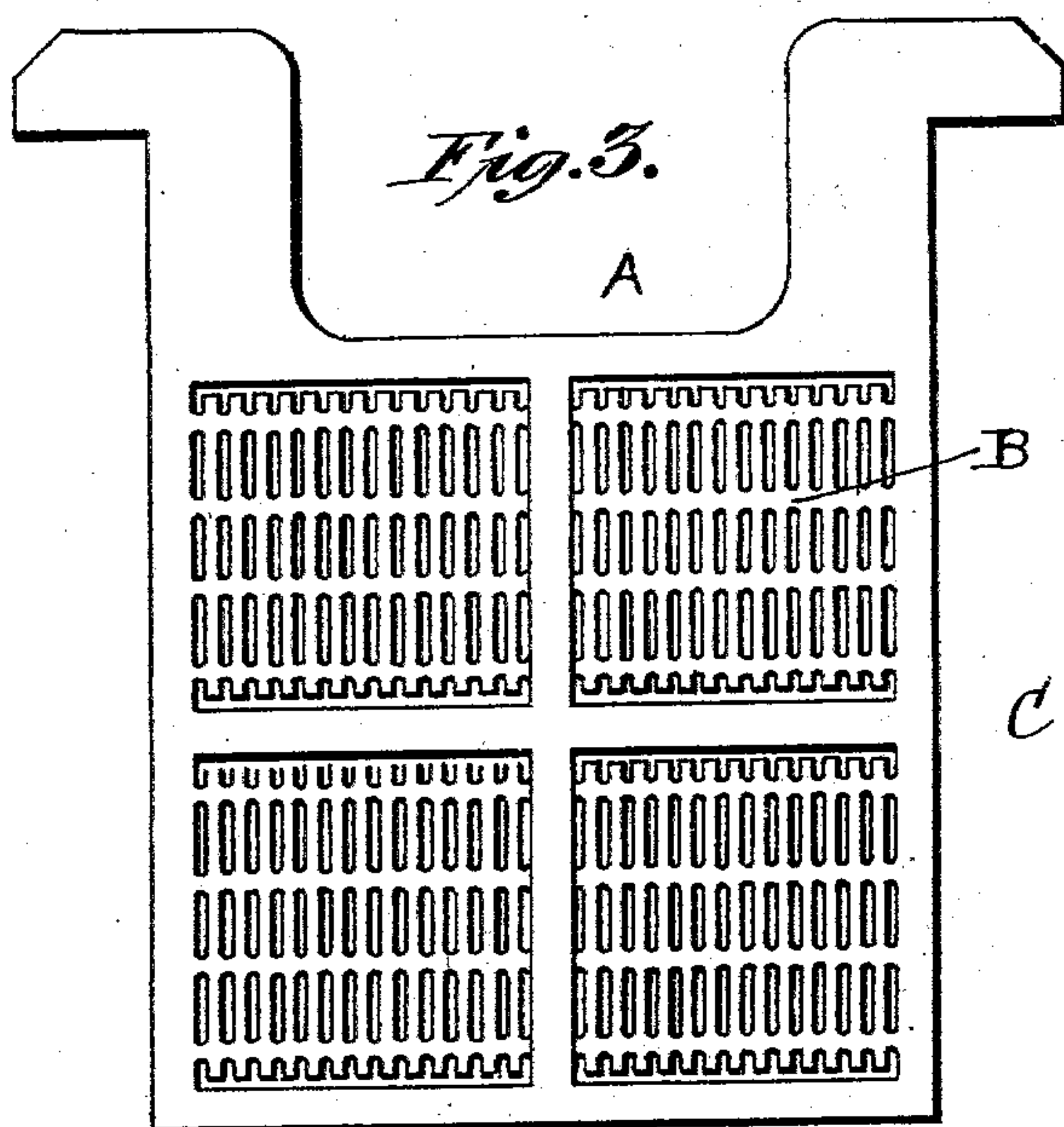
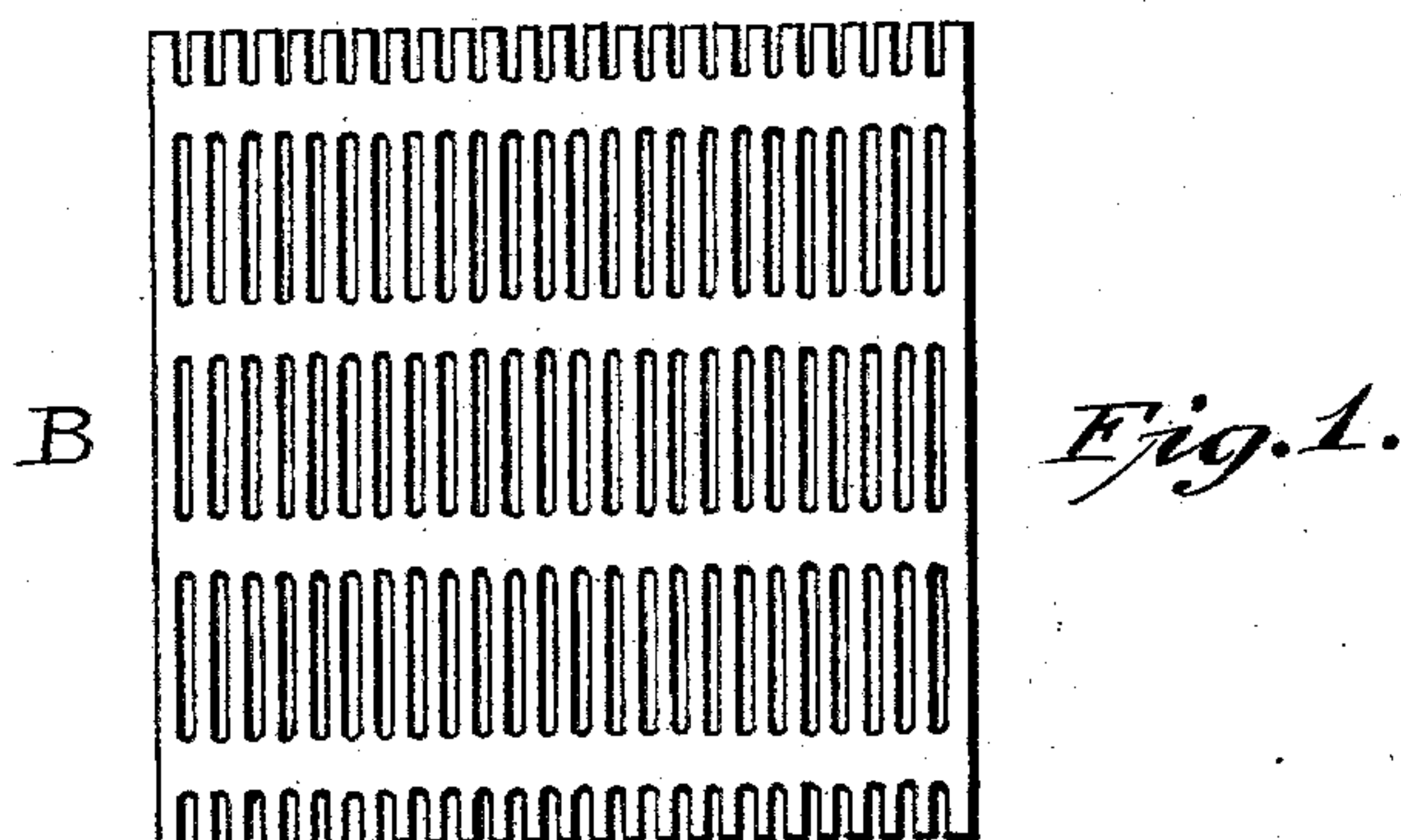
PATENTED APR. 19, 1904.

J. BIJUR.

PROCESS OF MAKING STORAGE BATTERY PLATES.

APPLICATION FILED FEB. 10, 1903.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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PROCESS OF MAKING STORAGE-BATTERY PLATES.

SPECIFICATION forming part of Letters Patent No. 757,718, dated April 19, 1904.

Application filed February 10, 1903. Serial No. 142,748. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH BIJUR, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Processes of Making Open-Work Plates for Storage Batteries and the Like, of which the following is a specification.

My invention relates to the manufacture of open-work structures for storage-battery plates and the like by an improved process; and its primary object is to enable strong and efficient plates to be made by embracing a number of individual elements having interstices—as, for instance, grilles or pastils of suitable material—with molten metal, preferably of the same nature, to form the completed structure, although the elements may have any desired form.

Further objects of my invention will hereinafter appear; and to these ends my invention consists of the improved process for making open-work plates, substantially as herein after fully described and claimed in this specification.

In the drawings, Figure 1 is a face view of an element or grille. Fig. 2 is a like view of the grille having its interstices filled with soluble material; and Fig. 3 is a face view of a complete battery-plate formed of a number of elements, the soluble material having been removed from the interstices of the plate.

According to my process the finished structures or plates A are made from any desired number of individual elements—in this instance from grilles or pastils B—cast in any suitable manner from lead or a suitable alloy or any other desired material. These individual grilles B are then assembled according to the desired arrangement and united by means of molten metal, as molten lead, under the proper conditions of temperature and pouring, which in this instance chemically unites or welds the pastils to the molten metal, and if suitable provision is not made for preventing the molten metal from entering the interstices of the grilles they will become more or less clogged, the cooled and hardened metal being difficult to remove therefrom.

I have found that the molten metal may be prevented from entering the interstices of the grilles or pastils B by first filling them with a suitable material C, (shown in Fig. 2,) which may be removed after the grilles have been united by the molten metal. While various materials may be used for filling the interstices of the grilles, I have found that soda-ash is a suitable material; but I wish to include as at least partial equivalents of soda-ash in the accompanying claims other materials, such as pearl-ash, which, like soda-ash, can be applied as a powder or paste and which under the conditions of my process remains infusible, non-combustible, non-deliquescent, beneficial or at least harmless chemically, non-gas giving, and cohesive after drying from a paste made with a non-solvent—*e. g.*, alcohol—and also soluble by an agent that does not injure the plate.

To recapitulate, I first fill the interstices of the individual grilles or pastils B with the soluble material C to prevent the interstices from becoming filled with the molten metal, then assemble the pastils in the desired arrangement with channels or spaces between the individual pastils, pour said channels or spaces with molten metal to embrace and thus unite the pastils to form the complete structure A, and then remove the filling material C from the interstices of the pastils with a suitable solvent, which leaves the finished open-work plate A.

Having fully described my invention, I claim, and desire to obtain by Letters Patent, the following:

1. The process substantially as herein described of making open-work plates for storage batteries and the like from individual elements having interstices, which consists in first filling the interstices of the individual elements with a soluble material to prevent said interstices from becoming filled with molten metal, assembling the elements in the desired arrangement with channels or spaces between them, pouring said channels or spaces with molten metal to embrace the elements to form the completed structure, and then removing the filling material from the interstices of the elements to leave the finished open-work plate.

2. The process substantially as herein described of making open-work plates for storage batteries and the like from individual elements having interstices, which consists in
5 first filling the interstices of the individual elements with a powder infusible at the temperature used in the process, to prevent said interstices from becoming filled with molten metal, assembling the elements in the desired
10 arrangement with channels or spaces between them, pouring said channels or spaces with molten metal to embrace the elements to form the completed structure, and then removing the powder from the interstices of the elements with a suitable solvent to leave the finished open-work plate.

3. The process substantially as herein described of making open-work plates for storage batteries and the like from individual elements having interstices, which consists in
20 first filling the interstices of the individual elements with a soluble powder, to prevent said interstices from becoming filled with molten metal, assembling the elements in the desired arrangement with channels or spaces between
25 them, pouring said channels or spaces with molten metal to embrace the elements to form the completed structure, and then removing the soluble powder from the interstices of the elements with a suitable solvent to leave the
30 finished open-work plate.

4. The process substantially as herein described of making open-work plates for storage batteries and the like from individual elements having interstices, which consists in
35 first filling the interstices of the individual elements with soda-ash, to prevent said interstices from becoming filled with molten metal,

assembling the elements in the desired arrangement with channels or spaces between
40 them, pouring said channels or spaces with molten metal to embrace the elements to form the completed structure, and then removing the soda-ash from the interstices of the elements with a suitable solvent to leave the finished open-work plate.

5. The process substantially as herein described of making open-work plates for storage batteries and the like from individual elements having interstices, which consists in
50 first filling the interstices of the individual elements with a soluble material to prevent said interstices from becoming filled with molten metal, assembling the elements in the desired arrangement with channels or spaces between
55 them, pouring said channels or spaces with molten metal to chemically unite the elements to form the completed structure, and then removing the filling material from the interstices of the elements to leave the finished open-work
60 plate.

6. The process substantially as herein described of casting metal about an open-work element, which consists in filling the interstices with a soluble substance that is infusible
65 at the temperatures employed, then casting the metal about the said element, and subsequently washing the structure in a solvent of the said substance.

In testimony whereof I have signed this
70 specification in the presence of two subscribing witnesses.

JOSEPH BIJUR.

Witnesses:

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