No. 661,615. Patented Nov. 13, 1900.

# D. B. MARWICK & H. S. HART.

## TOP PLATE FOR HOT AIR REGISTERS.

(Application filed Mar. 22, 1900.)

(No Model.)

Fig. 1.

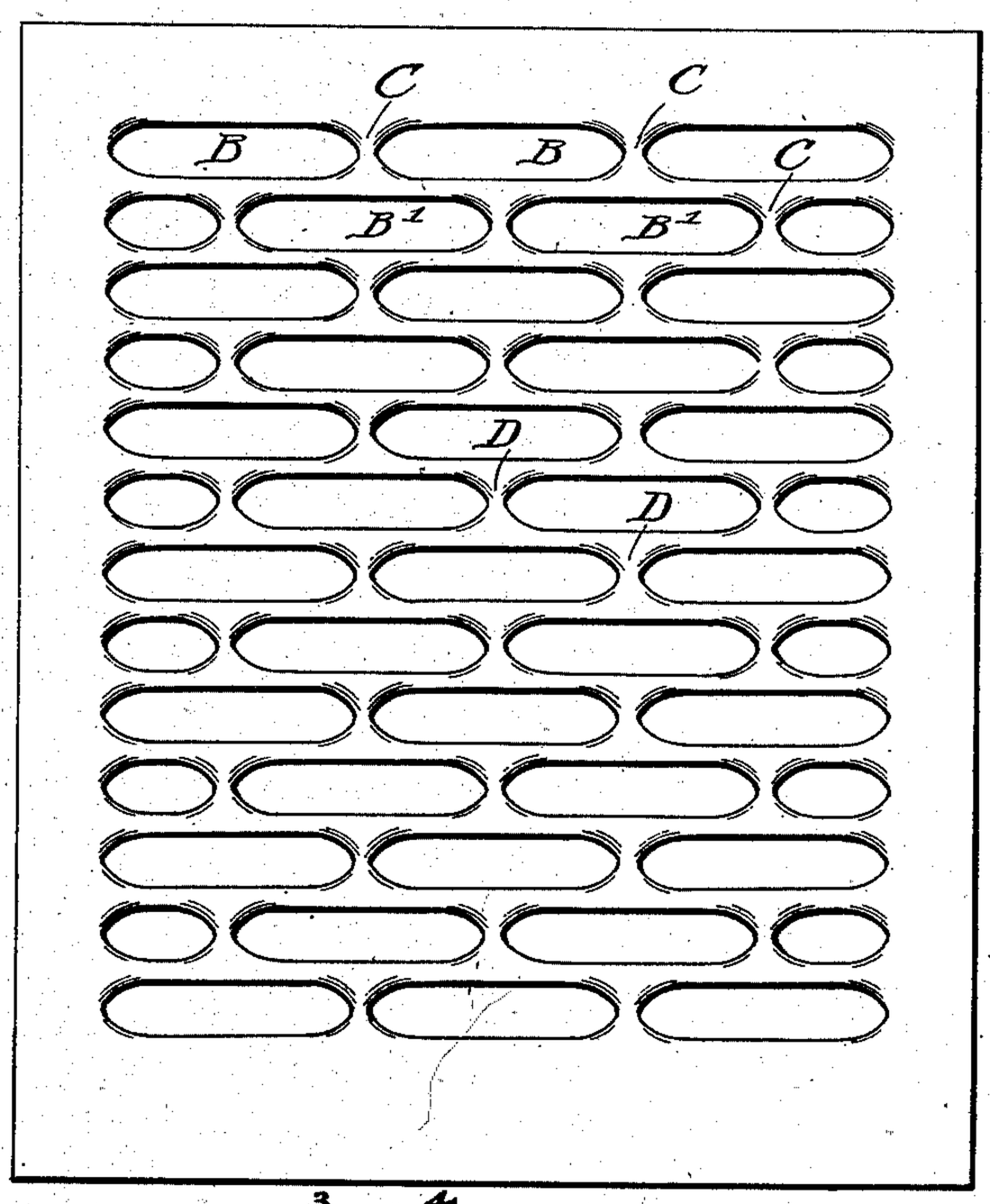



Fig. 2.

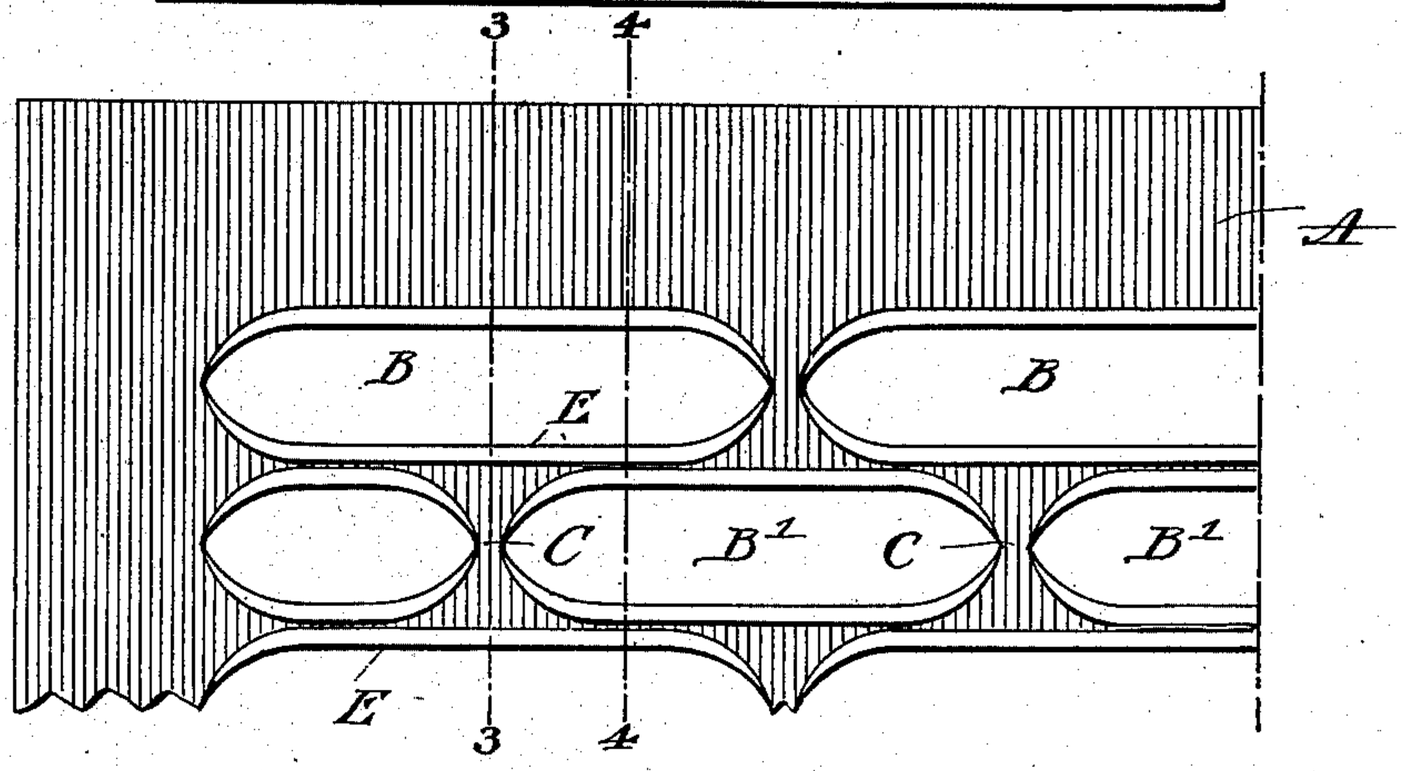



Fig. 3.

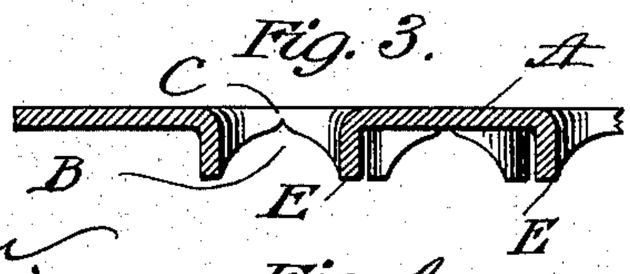
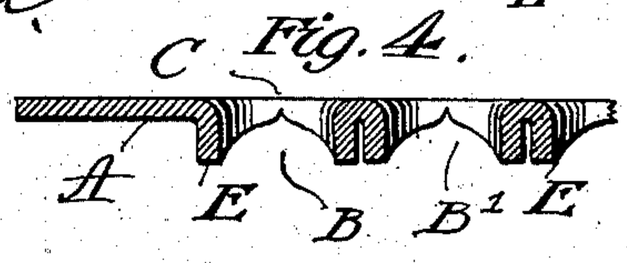



Fig. 4.

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DAVID B. MARWICK AND HOWARD S. HART, OF CHICAGO, ILLINOIS.

## TOP PLATE FOR HOT-AIR REGISTERS.

SPECIFICATION forming part of Letters Patent No. 661,615, dated November 13, 1900.

Application filed March 22, 1900. Serial No. 9,694. (No model.)

*To all whom it may concern:*

Be it known that we, DAVID B. MARWICK and HOWARD S. HART, citizens of the United States, residing at Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Top Plates for Hot-Air Registers, of which the following is a full, clear, and exact description.

Our invention relates to improvements in the construction of the top plate of hot and cold air registers and ventilators and analogous devices, and has for its object the attainment of lightness, simplicity, economy of construction, and increased strength.

In the accompanying drawings, showing the preferred embodiment of our invention, Figure 1 is a plan view of the top plate of a register for use with hot-air furnaces. Fig. 2 is a relatively-enlarged view of a portion of the under side of the register. Fig. 3 is a section taken on the line 3 3, Fig. 2. Fig. 4 is a section taken on the line 4 4, Fig. 2.

A is a plate, preferably of sheet metal. Through this plate we form lines of holes B B', preferably by means of a punch. These holes are preferably longitudinal. Between the holes are connecting portions C C. The lines of holes are preferably so arranged that the holes, and consequently the connecting portions C also, are staggered.

It will be obvious that the weight of a person standing on the center of the register would be liable to break the connecting portions. To prevent this and to strengthen these connecting portions, as well as the other parts of the material around the holes, we form downwardly-extending ribs at the sides of the holes, preferably by bending downwardly the metal at the sides of the holes, as shown in Figs. 2, 3, and 4 at E. These bent-down portions form ribs which extend across or bridge the ends of the connecting portions, and therefore materially strengthen the same from a force tending to bend the metal on an axis represented by the sectional line 3 3, Fig. 2. Although in our construction the holes are very close together and the top plate therefore materially lightened, the construction is very strong.

We are aware that many changes may be made in the construction herein disclosed without departing from the spirit of our invention, and therefore we do not intend to limit ourselves to the particular construction herein shown and described.

From the foregoing it will be seen that by turning down the metal which is displaced in forming the perforations (instead of cutting out and discarding said metal) we are enabled to strengthen and reinforce by corrugations the body of the top plate adjacent said perforations. Otherwise the forming of perforations in the top plate would weaken the same to such an extent that thin sheet metal could not be advantageously employed to this purpose.

It is apparent that the invention does not reside alone in corrugating the top plate for the purpose of strengthening, but, on the contrary, it lies in producing a new article of manufacture—to wit, a top plate for registers or ventilators in which a portion of the metal is displaced to form, first, perforations, and, second, strengthening ribs or corrugations.

What we claim is—

1. As a new article of manufacture, a top plate for registers and the like, said plate being formed of sheet metal and perforated to form bars therein, connections between said bars, bridging portions integral with said plate for reinforcing and strengthening the same.

2. As a new article of manufacture, a top plate for registers and the like, said plate being formed of sheet metal and perforated to form bars therein, connections between said bars, said connections being located in staggered arrangement, bridging portions integral with said plate for reinforcing and strengthening the same.

3. As a new article of manufacture, a top plate for registers and the like, said plate being formed of sheet metal and perforated to form bars therein, connections between said bars, bridging portions integral with said plate and at the sides of said perforations for reinforcing and strengthening said plate.

4. As a new article of manufacture, a top plate for registers and the like, said plate being formed of sheet metal and perforated to form bars therein, connections between said bars, said connections being located in staggered arrangement, bridging portions integral with said plate and adjacent said connecting

portions to reinforce and strengthen said plate.

5. As a new article of manufacture, a top plate for registers and the like said plate being formed of sheet metal and perforated to form cross-bars therein and also connections between said cross-bars, said connections being located in staggered arrangement, and bridges formed integral with said plate to reinforce and strengthen the same.

6. As a new article of manufacture, a top plate for registers and the like, said plate being formed of sheet metal and perforated in many places to form in the metal a web-like central portion, the webs being arched in cross-section to reinforce and strengthen the plate at those portions that would otherwise be weakened by the perforating of the material.

Signed at Chicago, Illinois, this 17th day of March, 1900.

DAVID B. MARWICK.
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Witnesses:
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