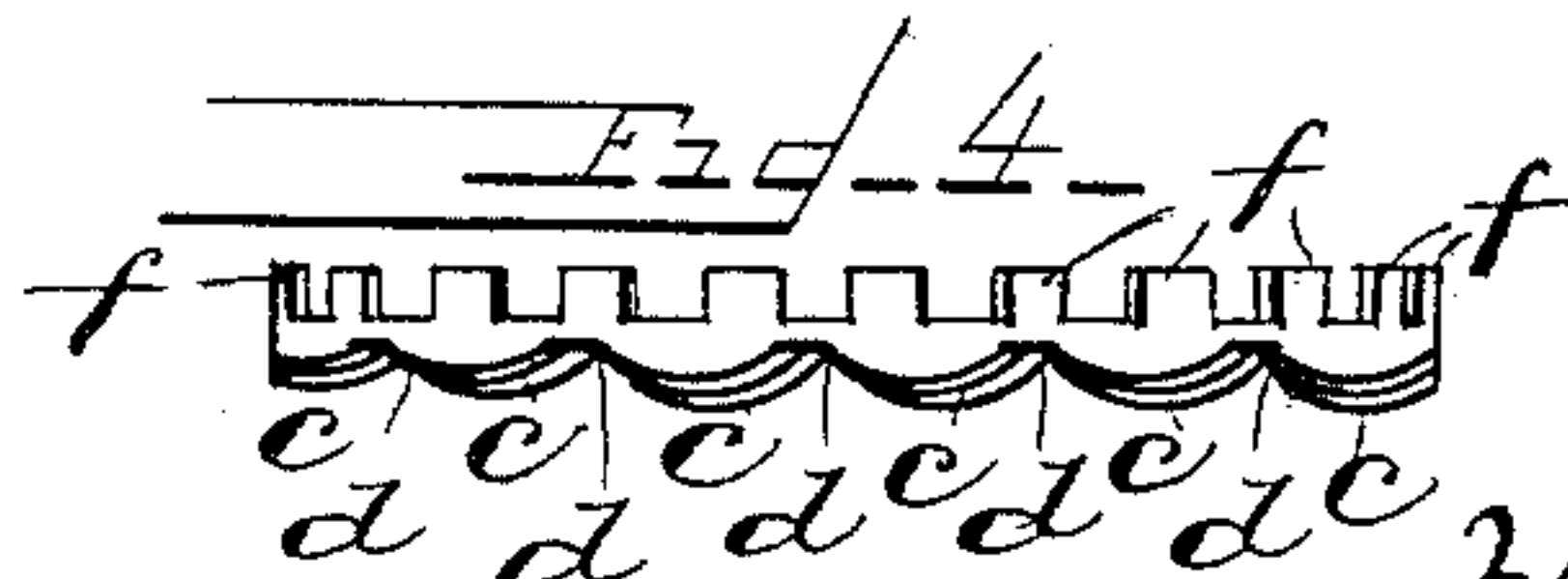
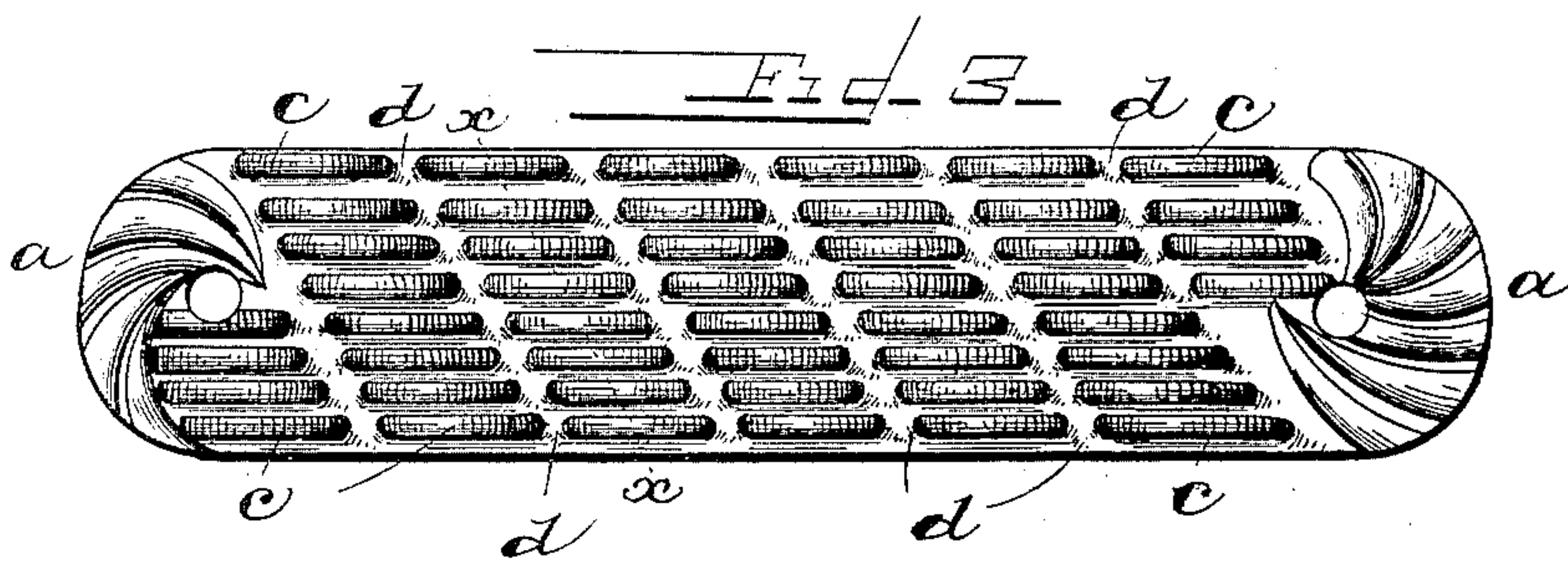
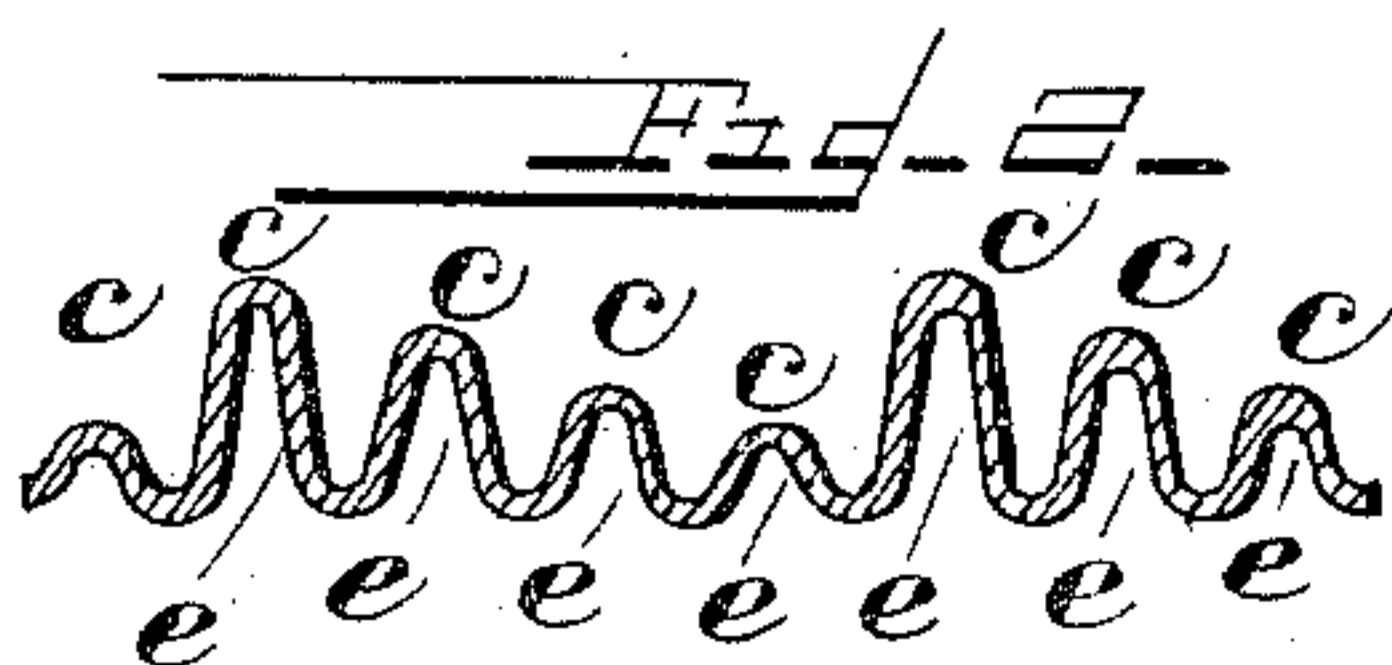
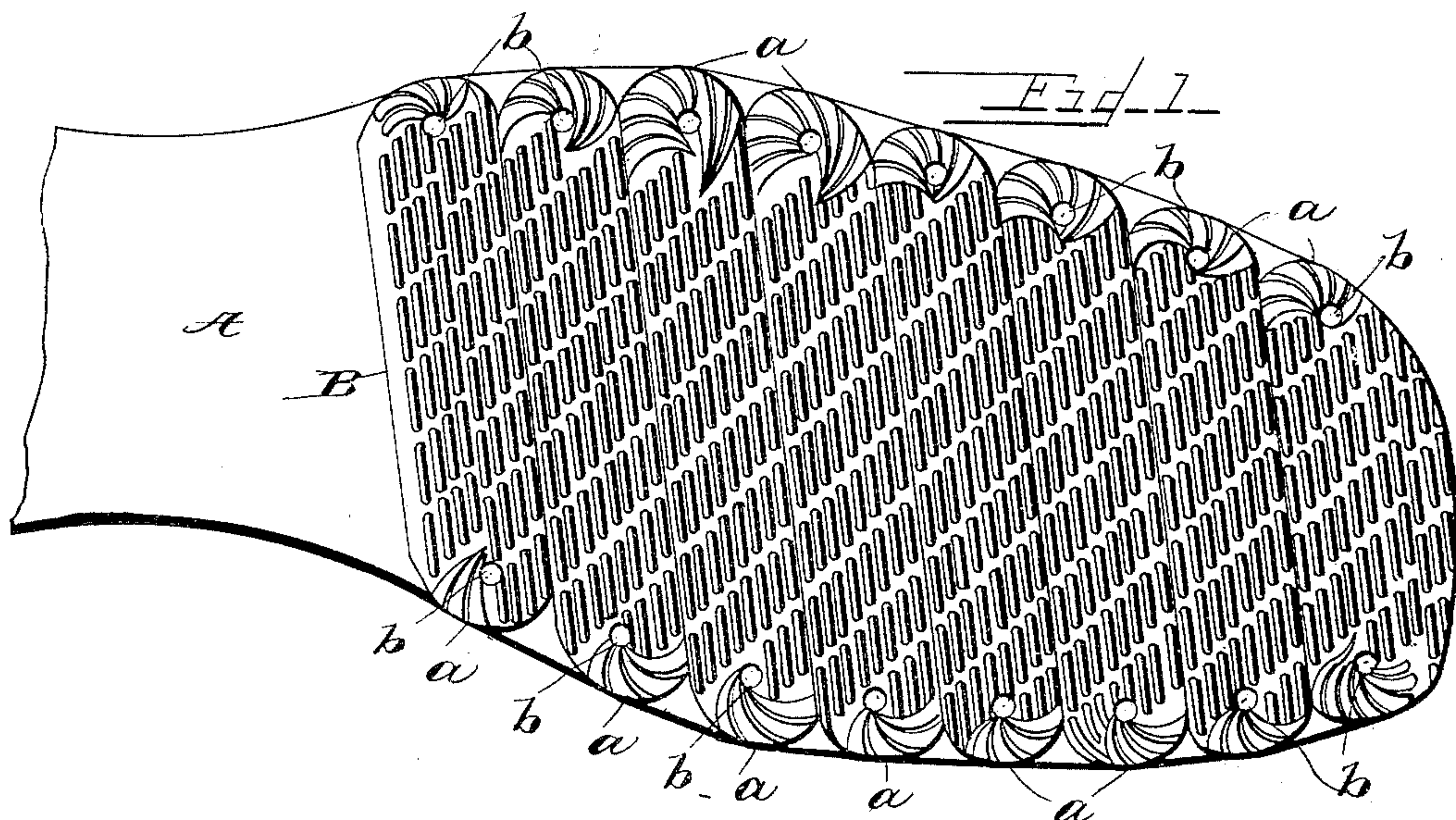


(No Model.)

H. S. LITHGOW.
SOLE PROTECTOR.

No. 461,103.

Patented Oct. 13, 1891..



Witnesses

S. A. Chambers
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UNITED STATES PATENT OFFICE.

HERBERT S. LITHGOW, OF LEBANON, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO HENRY H. ROEDEL, OF SAME PLACE.

SOLE-PROTECTOR.

SPECIFICATION forming part of Letters Patent No. 461,103, dated October 13, 1891.

Application filed April 1, 1891. Serial No. 387,251. (No model.)

To all whom it may concern:

Be it known that I, HERBERT S. LITHGOW, a citizen of the United States, residing at Lebanon, in the county of Lebanon and State of Pennsylvania, have invented certain new and useful Improvements in Sole-Plates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to foot-wear for use in foundries, furnaces, quarries, and like places where the wear of the soles of boots and shoes is excessive, and has for its object certain improvements in the construction of sole-protectors, which will be hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which form part of this specification, Figure 1 represents the bottom of a boot or shoe having my improved sole-plates attached; Fig. 2, an enlarged section on line *x x*, Fig. 3; Fig. 3, an enlarged detail of a section of the sole-protector, and Fig. 4 an end view of the toe-section.

Reference being had to the drawings and the letters thereon, A indicates a boot or shoe sole, to which is attached a sole-plate B of metal or other material made in sections *a a*, the number and dimensions of which vary according to the size of the boot or shoe. The sections are preferably made of sheet metal—such as steel—and stamped into form in suitable dies, or they may be cast in chills, as is common in the production of metallic articles having hardened wearing-surfaces, and are preferably secured to the soles by nails, as *b*, near the ends of the sections, or in any other part of the section, and which have their heads sunk into the plate, so that the outer surface of the head is below or on a level with the grooves of the plate. The nails are preferably driven through the outer sole of the boot or shoe to and through the inner sole and clinched to prevent the plate coming off should the outer sole become dry.

The wearing-surface of the sole-plate consists of elongated projections *c* and grooves *d*, running diagonally across the plates, the

projections being of different heights, as shown in Fig. 2, and overlapping each other lengthwise of the shoe. By this construction a continuous roughened surface is presented for wear from the time the plate is put on until it is worn down to the sole of the shoe. As the highest projection wears through the metal presents the edge thereof, which continues to wear down until the next projection is worn through, and so on until the plate is worn out. By this construction cells *e* are formed in the plates, which may be filled with asbestos or any other material to prevent the charring of the leather.

The sole-plate being in narrow sections, the flexibility of the sole of the boot or shoe is not impaired. The front or toe section may be provided with a vertical flange *f*, which surrounds the edge of the sole and affords protection thereto.

When the sole-plates are made of sheet metal, steel of No. 16 to No. 20 gage will be of sufficient thickness, and will be very light compared with the hob-nails and cast-iron plates in common use.

Having thus fully described my invention, what I claim is—

1. A metallic protector for boots or shoes, comprising a series of plates having rows of elongated projections and intervening grooves on the outer surface and having the inner surface hollow or concave and provided with cells to receive a suitable fire-proof filling, substantially as described.

2. A metallic protector for boots or shoes, comprising a series of plates having rows of diagonally-arranged elongated projections of different heights and overlapping each other lengthwise of the shoe, and intervening grooves on the outer surface and having the inner surface hollow or concave and provided with cells of different depths to receive a suitable filling, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HERBERT S. LITHGOW.

Witnesses:

PETER HAUER,
J. CRAZE.