

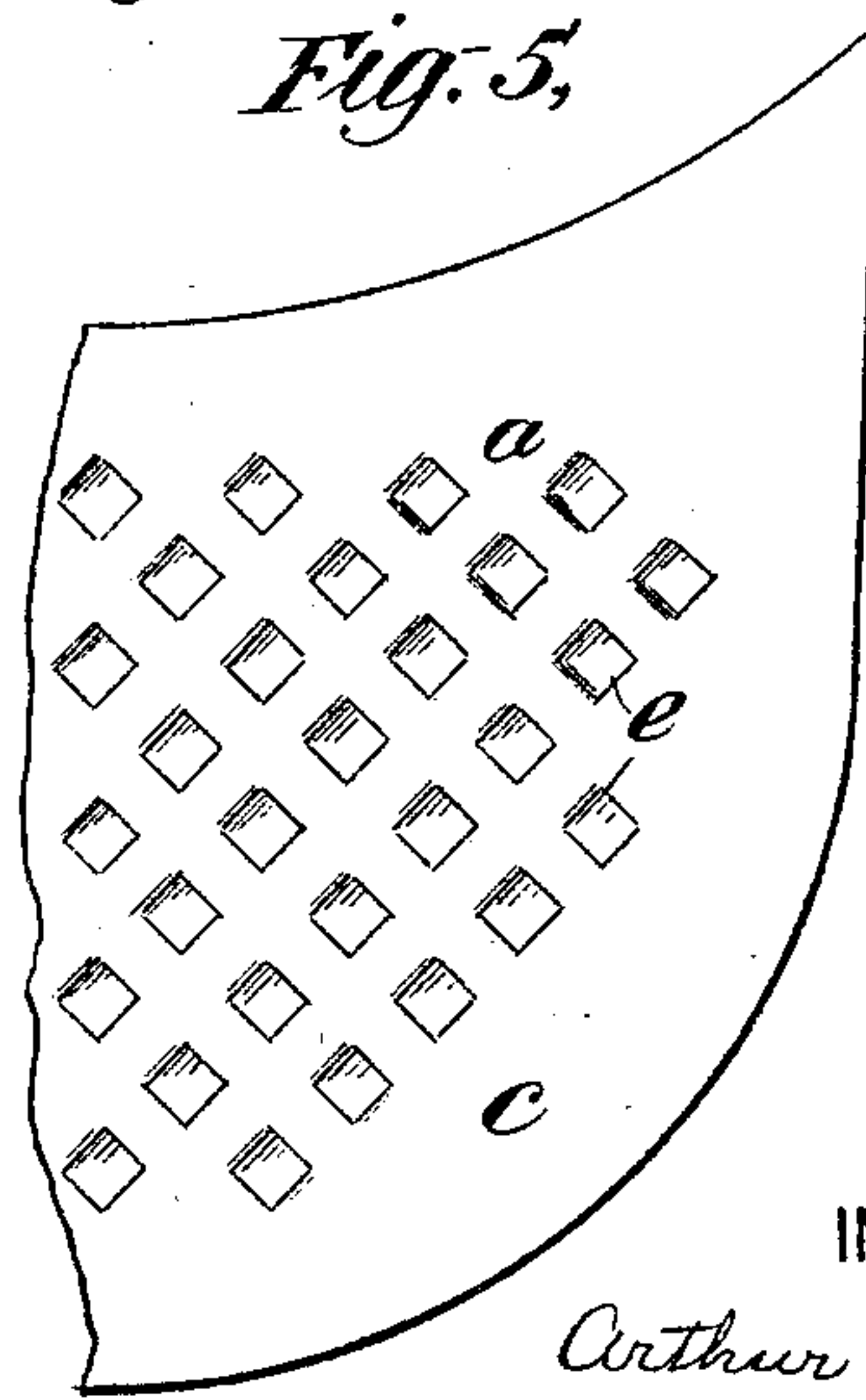
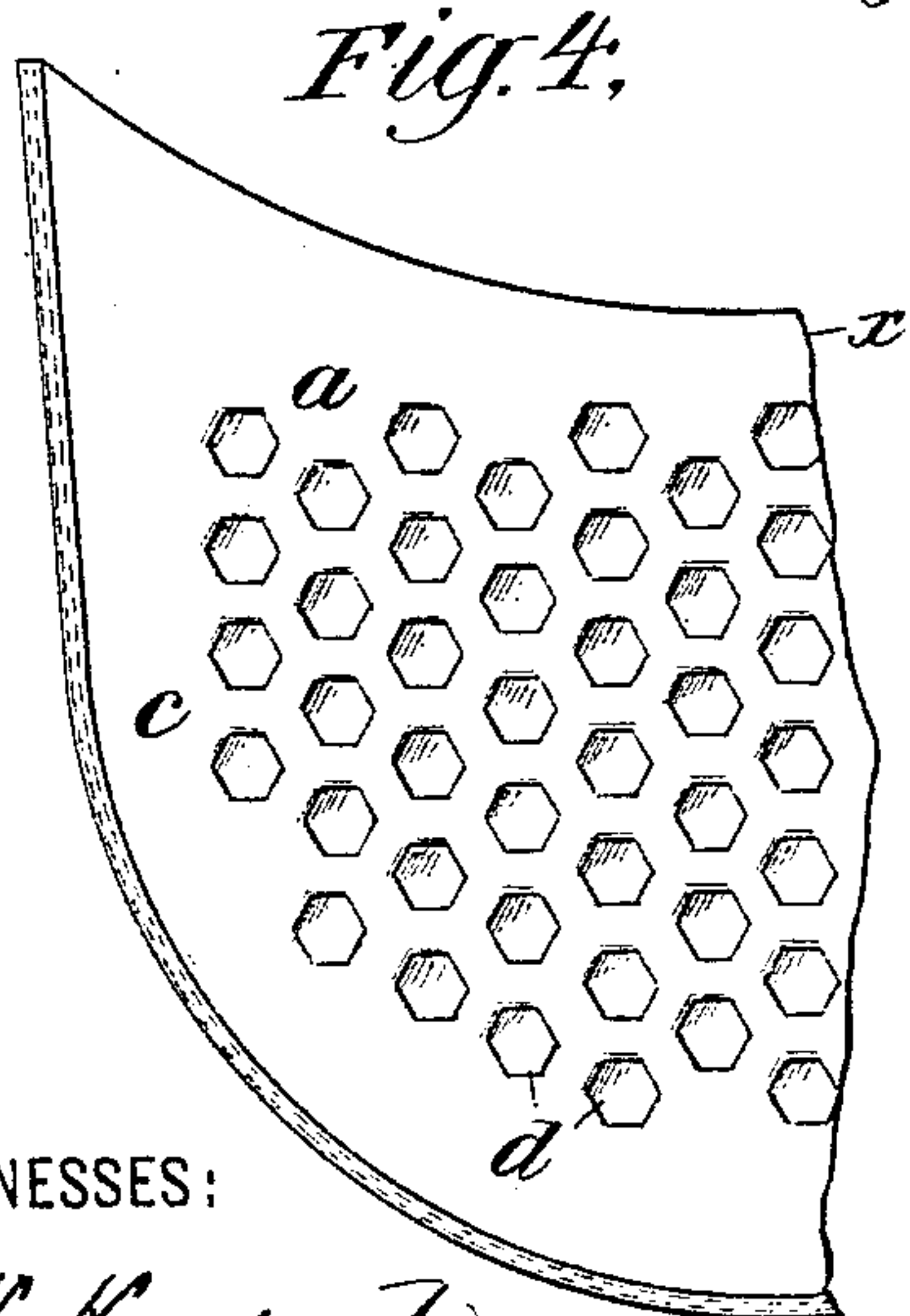
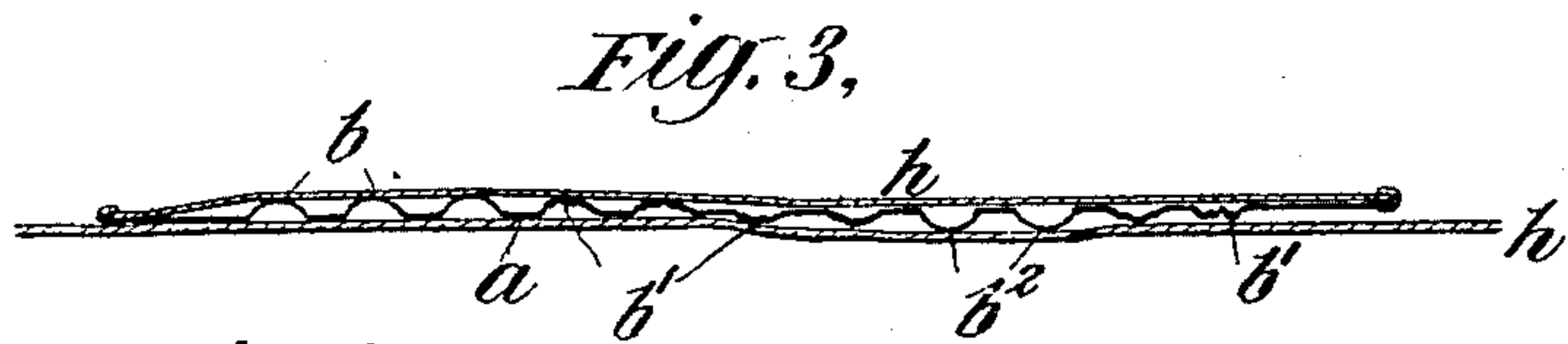
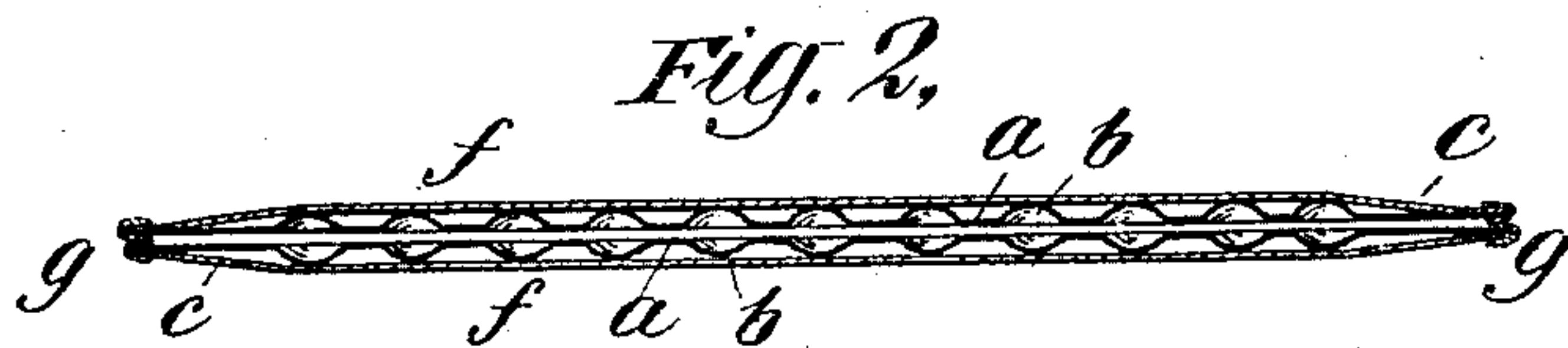
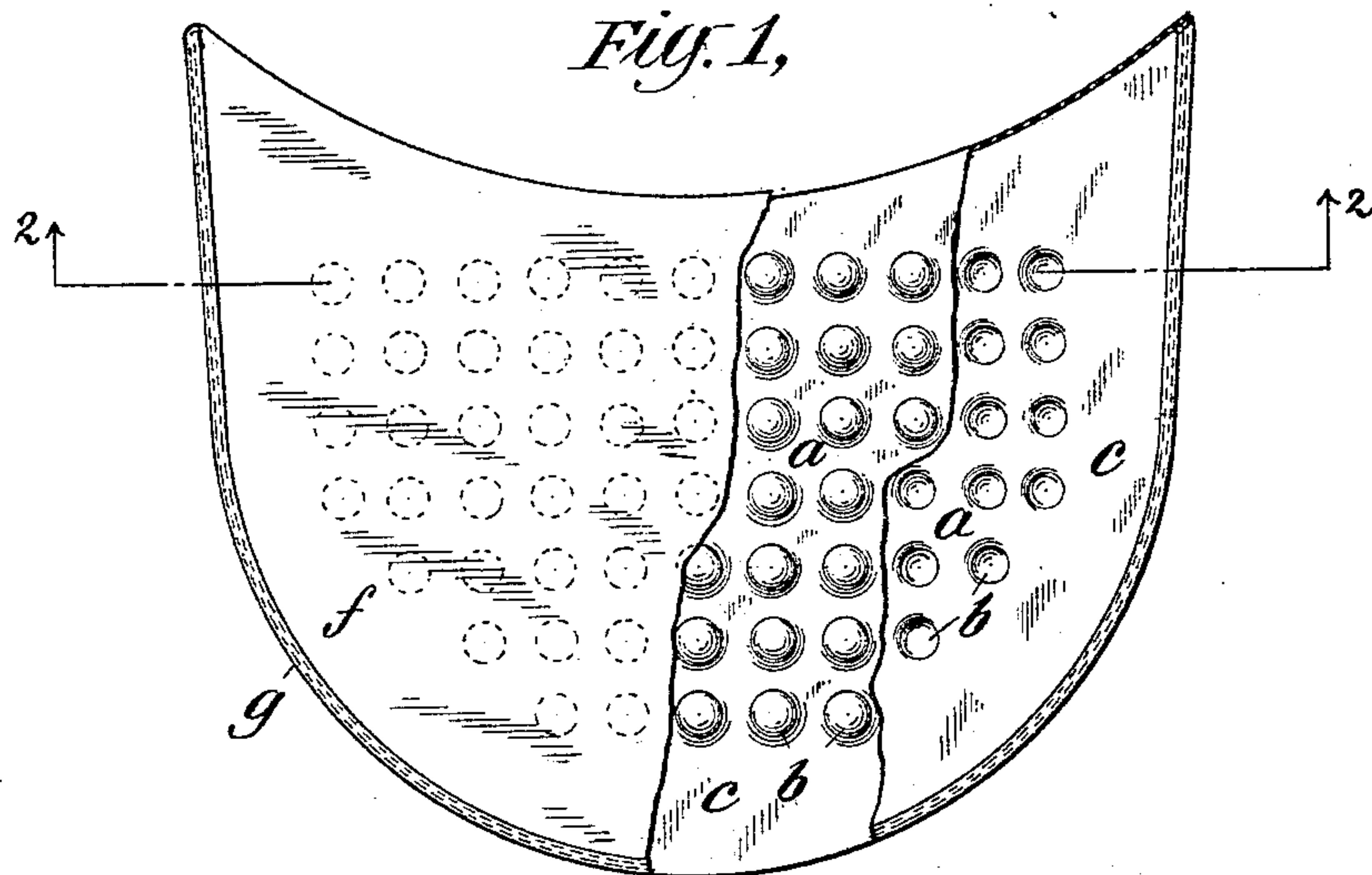
No. 632,883.

Patented Sept. 12, 1899.

A. C. SQUIRES.  
DRESS SHIELD.

(Application filed Mar. 19, 1898.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ARTHUR C. SQUIRES, OF NEW YORK, N. Y., ASSIGNOR TO THE I. B. KLEINERT RUBBER COMPANY, OF SAME PLACE.

## DRESS-SHIELD.

SPECIFICATION forming part of Letters Patent No. 632,883, dated September 12, 1899.

Application filed March 19, 1898. Serial No. 674,437. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR C. SQUIRES, a citizen of the United States, and a resident of New York, in the county of Kings and State  
5 of New York, have invented certain new and useful Improvements in Dress-Shields, of which the following is a specification.

The improvement in dress-shields, forming the subject of this invention, consists in  
10 so embossing the impervious elastic material used in their manufacture as to form a series of independent air cells or chambers projecting from the flat face of the material with their openings in plane with and surrounded  
15 by the flat surface of the opposite side of the material. These air cells or chambers by reason of the elasticity of their inclosing walls are contractible, the movements of the wearer causing them to be alternately compressed  
20 and relieved of pressure, which discharges the air contained in them and draws in fresh supplies of air at right angles to the surfaces of the shield and through the fabric or dress adjacent to the shield, thus making the shields  
25 self-ventilating and causing a free circulation of air to the parts of the dress and body to which they are applied. These disturbing cells or chambers may be of any desired form and arranged over the surface of the  
30 dress-shield in any manner; but they are preferably arranged within a margin, so as to leave the surrounding parts of the shield flat, thus forming a border to the embossing, and this flat border facilitates the attachment to  
35 the shield of a fabric covering when such is used in the manufacture of the dress-shields.

Insignia and words in connection with uniformly-shaped air-cells, or alone, may be formed by an embossing process in the impervious elastic material of dress-shields, so  
40 as to constitute contractible air cells or chambers adapted to perform the ventilating functions of uniformly-shaped cells. It is desirable to emboss the impervious material, which  
45 is preferably india-rubber, in the green or uncured condition and afterward submit it to a setting or vulcanizing process to impart to its body and to the walls of the cells the desired permanent elasticity.

50 Dress-shields made according to this inven-

tion besides being self-ventilating, which will add to their lasting quality by preventing the deterioration due to the heat and moisture of the body, are by reason of the projecting air-cells much softer and more comfortable to  
55 wear than those heretofore made.

The accompanying drawings illustrate dress-shields embossed according to my invention.

Figure 1 is a side elevation of a dress-shield  
60 with parts removed to more clearly show its construction. Fig. 2 is a section of the same, taken on line 2 2. Fig. 3 is a section of a part of dress-shield, illustrating the distortion of the air-cells; and Figs. 4 and 5 are parts of  
65 dress-shield, showing different forms of contractible air-cells.

As shown at Fig. 1, the impervious elastic material *a* of the dress-shield is formed in two parts connected together at their upper curved  
70 edges in the usual manner. The air cells or chambers *b b* are by means of suitably-formed embossing-dies pressed in the material while it is in condition to take a set when distorted and before being submitted to vulcanization  
75 or other setting or curing process. The walls of these cells are by the setting process rendered elastic and readily assume their given form after being distorted. These air-cells  
80 *b b* are in this view semispherical in shape and are arranged over the body of the material *a* so as to leave a flat marginal border *c*, surrounding them on the two parts of the shield. The first broken section of Fig. 1,  
85 with the covering removed, shows the outside of the contractible cells *b* on the upper part of the impervious elastic material, and the second broken section shows the inside of the under part of the shield and the interior of the cells *b*. The shape of these air-cells is  
90 immaterial, their essential property being contractibility and capability of resuming their original shape after being distorted or contracted. In Fig. 4 the contractible cells  
95 *d d* are shown hexagonal in shape, arranged as the cells of honeycomb. In Fig. 5 the contractible cells *e e* are rectangular in shape, diagonally arranged or staggered over the surface of the material.

The impervious elastic material generally 100



used in the manufacture of dress-shields is india-rubber formed into sheets of suitable thickness, sometimes combined with a suitable fabric, as stockinet, to form a compound impervious or waterproof sheet, and this compound material may also be embossed, according to my invention to form contractible air-cells.

In the completed shield shown at Figs. 1 and 2 the impervious elastic sheet *a*, embossed as before described, is covered with a suitable textile fabric *f*, having the same shape as the sheet *a*, the two being secured together at their edges by means of the binding-tape *g*, which is shown as being sewed thereon, the flat marginal border of the sheet material *a*, surrounding the contractible air-cells *b b*, allowing the sewing together of these pieces to be easily and readily performed, which operation would be difficult of accomplishment if the elastic material *a* were embossed or otherwise distorted from the flat condition at the edges of the shield.

The manner in which the contractible air-cells act when the dress-shield is in use and subjected to the movements of the wearer is by the view Fig. 3 endeavored to be illustrated. The cells *b* by pressure become contracted or flattened, as shown at *b'*, and by

the resilience of their walls are readily expanded when the pressure is removed. They will in some cases after being flattened down spring out at the other side of the material *a*, as at *b<sup>2</sup>*, and so alternately project from the two sides of the material. This movement of the cells, which may be described as a pumping action, continually discharges air from and draws air into the cells through the fabric or clothes, (shown in this view by the lines *h h* in contact with the shield,) at right angles to the faces of the shield.

I claim as my invention—

A dress-shield comprising two connected flat sides of impervious elastic material having formed at intervals throughout their surfaces separated depressions or cells, independent of one another, the opening of each depression or cell being entirely surrounded by the adjacent portions of the flat surfaces of the sides of the shield.

Signed at New York, in the county of New York and State of New York, this 16th day of March, A. D. 1898.

ARTHUR C. SQUIRES.

Witnesses:

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