

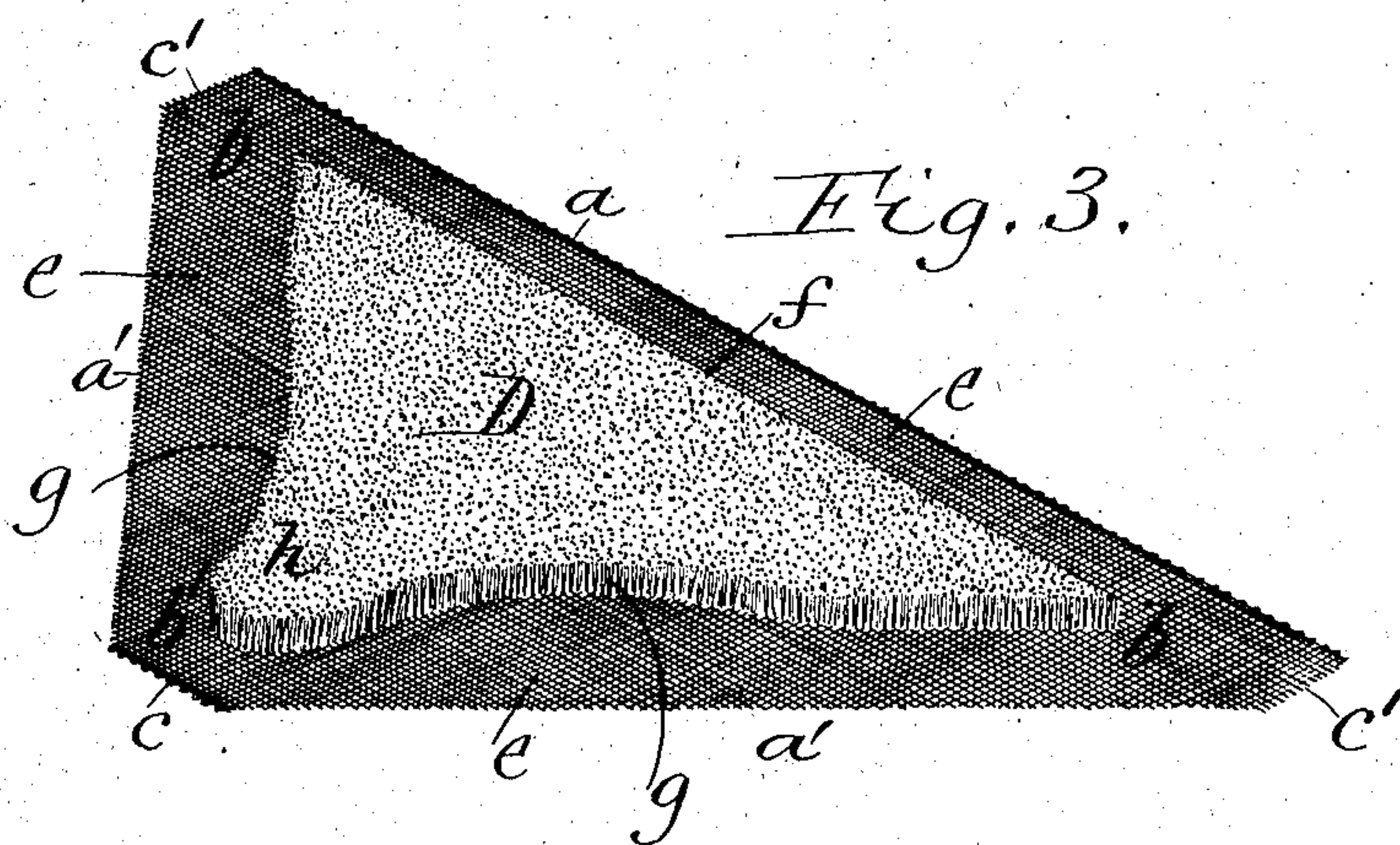
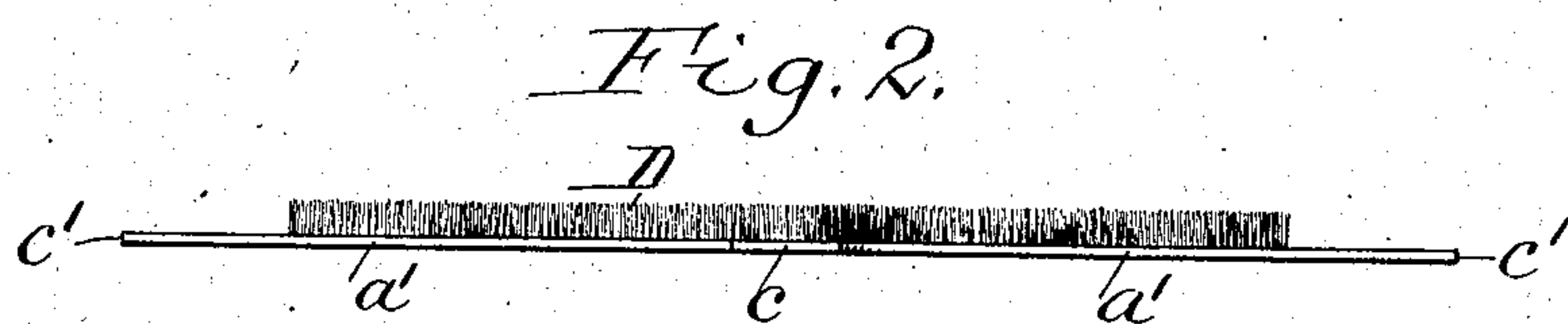
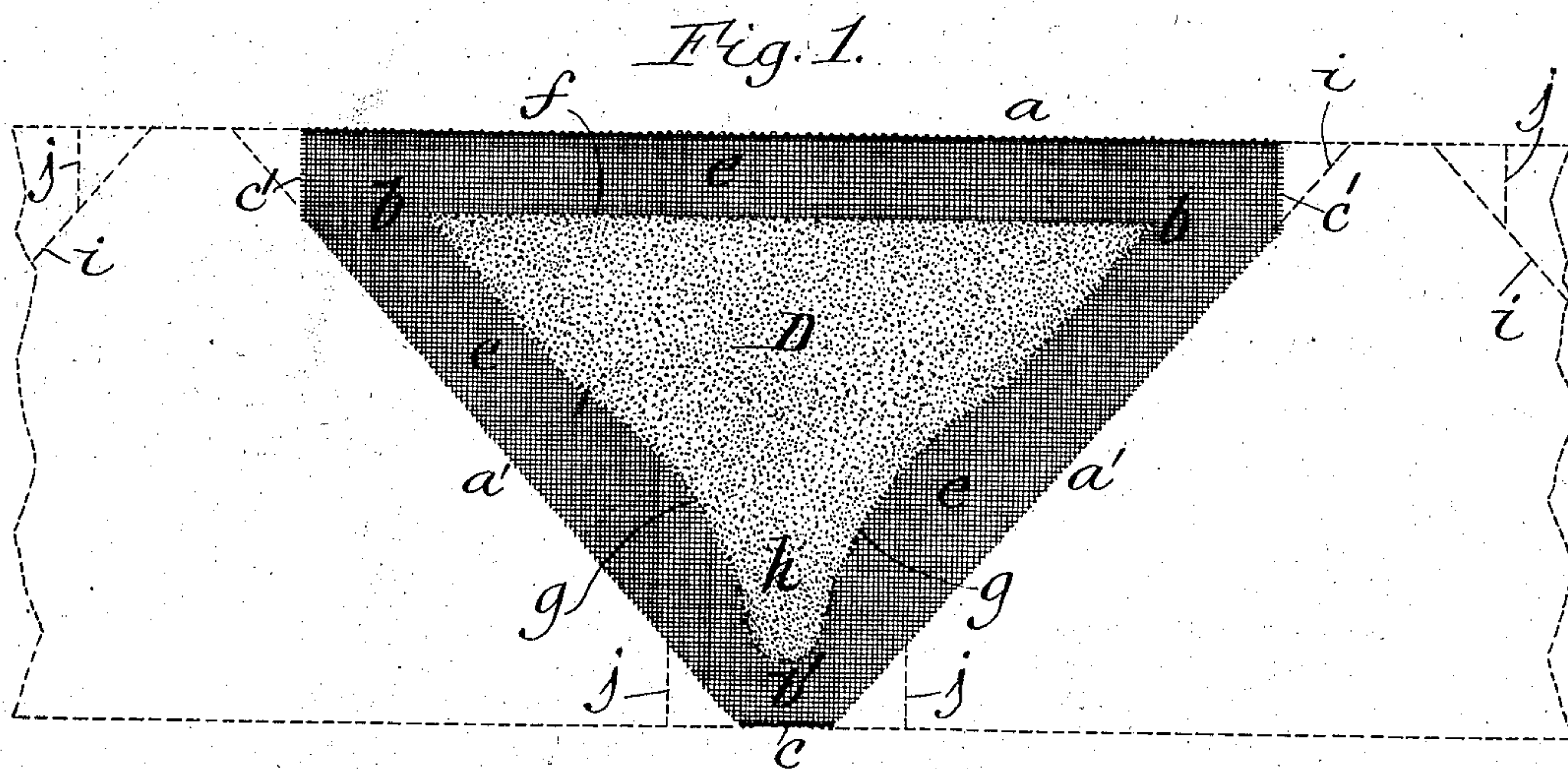
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PATENTED MAR. 27, 1906.

R. H. PETERS & L. A. MASON.

DIAPER.

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UNITED STATES PATENT OFFICE.

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DIAPER.

No. 816,036.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ROBERT H. PETERS, residing at Batavia, in the county of Genesee, and LEONARD A. MASON, residing at Buffalo, in the county of Erie, State of New York, citizens of the United States, have invented new and useful Improvements in Diapers, of which the following is a specification.

This invention relates to an improvement in breech-cloths for infants, commonly known as "diapers."

Heretofore it has been the custom to construct a diaper from a large rectangular sheet of woven fabric which was folded diagonally several times until a triangular diaper was obtained of a size suitable for the particular infant. A diaper when thus folded contains a plurality of layers or thicknesses, which is objectionable, because the legs of the infant are spread abnormally in placing the breech-flap between its legs and an abnormally large lump is formed on the abdomen, which presses the same on account of fastening together the breech and waist flaps one above the other over the abdomen. An excessively thick diaper between the legs and on the abdomen of an infant is the principal cause of bow-legs and bowel disorders and also the cause of much discomfort on account of the excessive warmth produced by the same. As is well known, this kind of diaper is folded the greatest number of times when the infant is smallest, and the number of folds is gradually reduced to increase the size of the diaper as the child grows. It will thus be seen that the diaper is of the greatest thickness and operates most injuriously in spreading the legs and pressing the abdomen of the infant at a time when it is smallest and has less need for a thick diaper, whereas the diaper becomes thinner at a time when the infant has become larger and could not only wear a thick diaper with more comfort and less injury, but actually requires a thicker diaper on account of the increasing moisture which has to be absorbed. A further objection to the diagonally-folded diapers now commonly used is due to the fact that a diaper thus folded and applied to an infant usually brings around its waist the stretchable part of the diaper, which is arranged diagonally to the warp and weft, while the unstretchable part of the diaper, which is parallel with the warp, is brought

around the legs, thereby rendering the diaper loose at the waist, where it ought to be tight for retaining the diaper in place, and tight around the legs, where it should be loose to permit of moving the legs more freely and make the child more comfortable.

One of the objects of this invention is the production of a single-sheet diaper which avoids the above-mentioned objections, the same being so constructed that the part fitting around the waist is tight and non-stretchable, while the parts fitting around the legs are loose and stretchable.

A further object of this invention is to produce a diaper having a pileless margin to permit the edge thereof to fit close to the body and a pile surface within said margin forming a mat for absorbing moisture, thereby obtaining all the advantages of a folded diaper without any of its disadvantages.

In the accompanying drawings, Figure 1 is a top plan view of our improved diaper, showing the preferred manner of weaving the same. Fig. 2 is an edge view of the same. Fig. 3 is a perspective view thereof.

Similar letters of reference indicate corresponding parts in the several figures.

The body of this diaper consists of a substantially triangular sheet of woven fabric having a main or long longitudinal edge *a* and two main or long transverse edges *a'* *a'*, forming waist-flaps *b b* at the junction of the longitudinal and transverse edges and a breech-flap *b'* at the junction of the transverse edges. This body is so constructed that the warp of the fabric is parallel with its main longitudinal edge *a*, whereby this edge is rendered practically non-stretchable, while the other main transverse edges *a'* *a'* are arranged obliquely to the warp and weft of the fabric, whereby these edges are rendered stretchable. In practice the non-stretchable edge portion forms the waistband of the diaper, while the stretchable edges *a'* *a'* form the leg-bands thereof.

In applying the diaper the waist-flaps are passed crosswise around the waist, and the breech-flap is passed upwardly between the legs, the several flaps being then secured together in a well-known manner over the abdomen. When the diaper is thus applied, the unstretchable waistband bears firmly against the waist and prevents the diaper

from becoming displaced, while the stretchable leg-bands bear yieldingly against the legs and permit free movement of the latter.

Inasmuch as the flaps are usually secured together at a distance from their ends in order to obtain a firm hold on the same, the extreme outer ends or tips of the flaps are unnecessary. These ends are therefore truncated, forming a short longitudinal edge *c* on the tip of the breech-flap, which is parallel with the warp and joins the converging ends of the oblique edges, and two short transverse edges *c' c'* at the tips of the waist-flaps, which are arranged at right angles to the warp and each of which joins one end of the long longitudinal edge and the adjacent end of one of the oblique edges. Owing to the short edge *c* being parallel with the warp, this edge is incapable of stretching lengthwise in the same manner as the long or main longitudinal edge on the opposite part of the diaper, while in use the short transverse edges *c' c'* of the diaper are subject to diagonal strains the same as the oblique edges of the diaper, whereby the edges *c'* are caused to stretch in the same manner as the oblique edges. In practice the long and short longitudinal edges of the diaper are preferably selvaged, seamed, or hemmed to prevent raveling, but the long oblique and short transverse edges are left in a cut or unhemmed condition to permit the same to stretch freely in a diagonal direction.

For the purpose of providing the diaper with the required capacity of absorbing moisture that side of the diaper which is placed next to the body is provided with a pile surface *D*, while its opposite side is wholly pileless. This pile surface preferably does not extend over the entire body of the diaper, but stops short all around the edges thereof, forming a pileless margin *e* on the body at its edges and a mat or pile surface of substantially triangular form within the pileless margin. The pile surface bears loosely against the body and enters the wrinkles, thereby effectually absorbing all moisture which is present, whereby soreness and irritation is avoided. It is preferable to shear or cut the loop forming the pile surface in order to obtain the fullest capillary action of the same; but, if desired, these loops may be left uncut if the character of the material is sufficiently absorbent.

In order to bring as much pile surface as possible in contact with the body and render the same most efficient without, however, producing an undesirable thickness of the diaper between the legs of the child, the longitudinal edge *f* of the pile surface is made parallel with the adjacent main longitudinal edge of the body, while the oblique transverse edges *g g* of the pile surface are curved concavously or recede from the oblique edges of the body near the end of the breech-flap, forming a narrow lobe *h* of pile surface on the breech-flap which can be placed between the

legs for absorbing the moisture without inconvenience. A diaper is thus formed which has a comparatively wide pile surface on the waist-flaps for producing a large absorbing surface in the seat of the diaper and a narrow pile surface on the breech-flap which passes between the legs of the infant, thereby obtaining the maximum absorbing capacity with the least tendency of spreading the legs unnecessarily. By forming the body of the diaper with a pileless margin the same can be fitted closely to the body, while the mat or pile surface within the margin furnishes the necessary thickness to effectually absorb the moisture.

Although our improved diaper can be produced in various ways, we prefer to weave them successively in the form of a strip which is subsequently cut at predetermined places into individual diapers. As shown in Fig. 1, the diapers are woven in a strip which is equal in width to the distance between the main and short longitudinal edges of the diaper-body, triangular pile surfaces being produced thereon at intervals and in alternately reversed position and oblique plain or pileless surfaces being formed between adjacent pile surfaces. The diapers are successively severed from the strip by oblique cuts *i*, extending centrally through the oblique pileless surfaces between adjacent pile surfaces and trimmed by transverse cuts *j* for removing the tips at the far ends of the oblique edges and the longitudinal edges. The near ends of the oblique cuts in the strip are separated so as to form the short longitudinal edges *c* of the diapers. When the woven strip is thus cut, a plurality of diapers is formed, each of which has a long longitudinal selvaged edge on one edge, a short longitudinal selvaged edge on the opposite edge, two oblique cut edges which converge from opposite ends of the long longitudinal edge toward opposite ends of the short longitudinal edge, two short transverse cut edges which join opposite ends of the long longitudinal edge with the diverging ends of the oblique edges, a pileless margin, and a triangular pile surface within the pileless margin.

We claim as our invention—

1. A woven diaper comprising a body of substantially triangular form having a longitudinal edge and two transverse edges which converge from opposite ends of the longitudinal edge, and a substantially triangular pile surface arranged on the body within a pileless margin, the longitudinal side of the pile surface being parallel with the longitudinal edge of the body while the transverse edges of the pile surface recede concavously from the adjacent oblique edges of the body, substantially as set forth.

2. A woven diaper consisting of a substantially triangular body having one long selvaged edge on one side which is parallel with

the warp, a short selvaged edge which is also parallel with the warp and located opposite the long selvaged edge, two short unselvaged transverse edges arranged at opposite ends of the longitudinal edge and at right angles thereto, two long unselvaged transverse edges which converge from the opposite short transverse edges to opposite ends of the short longitudinal selvaged edge, a pileless margin and a substantially triangular pile surface arranged on the body within the pileless margin and having a longitudinal edge which is parallel with the adjacent longitudinal edge of the body and two converging transverse

sides which are curved concavously forming comparatively wide pile surfaces on the waist-flaps for producing a large absorbing area on the seat of the diaper and a narrow pile surface on the breech-flap of the diaper for avoiding undue spreading of the legs, substantially as set forth.

Witness our hands this 9th day of October, 1903.

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LEONARD A. MASON.

Witnesses:

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