

No. 709,620.

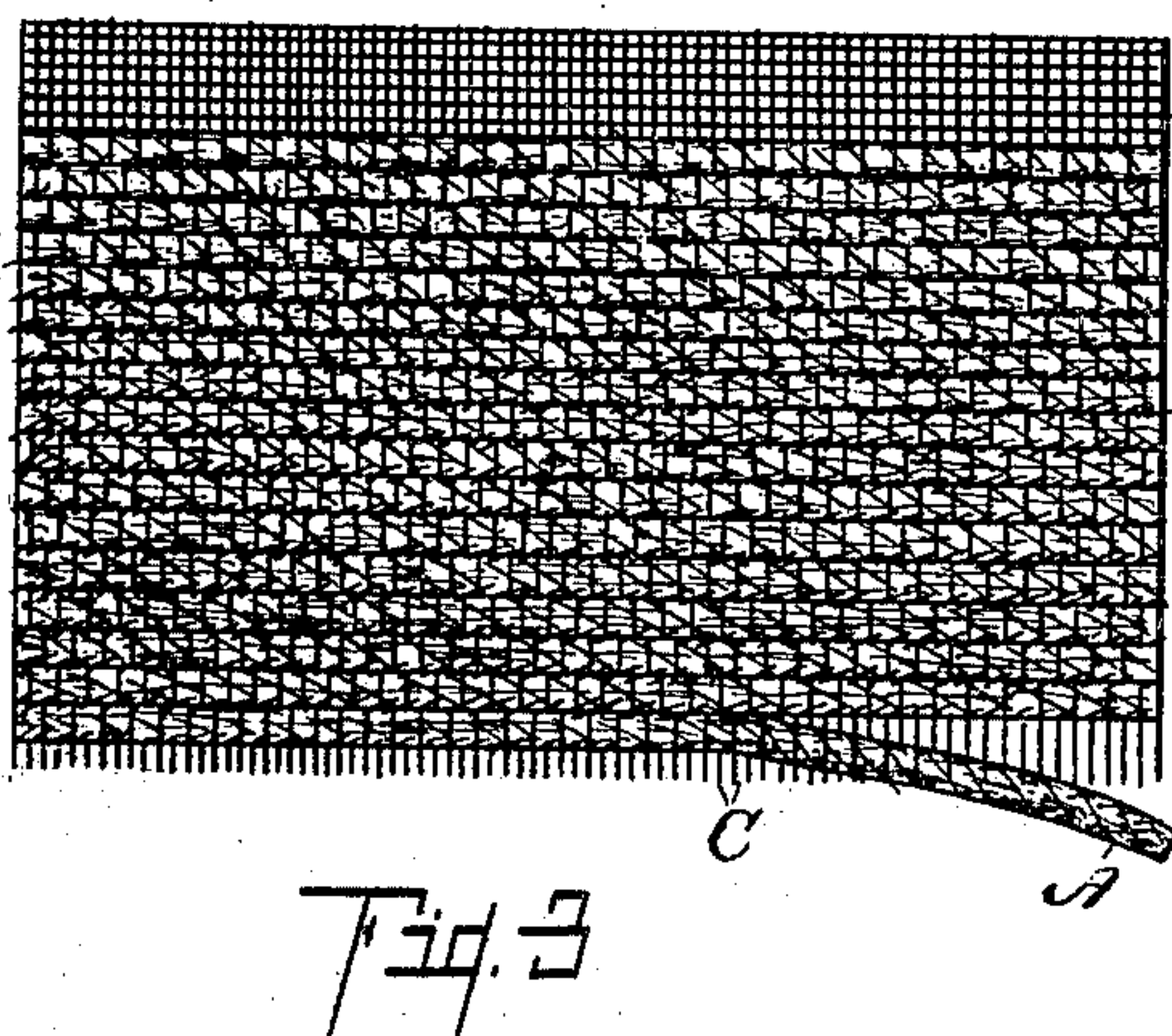
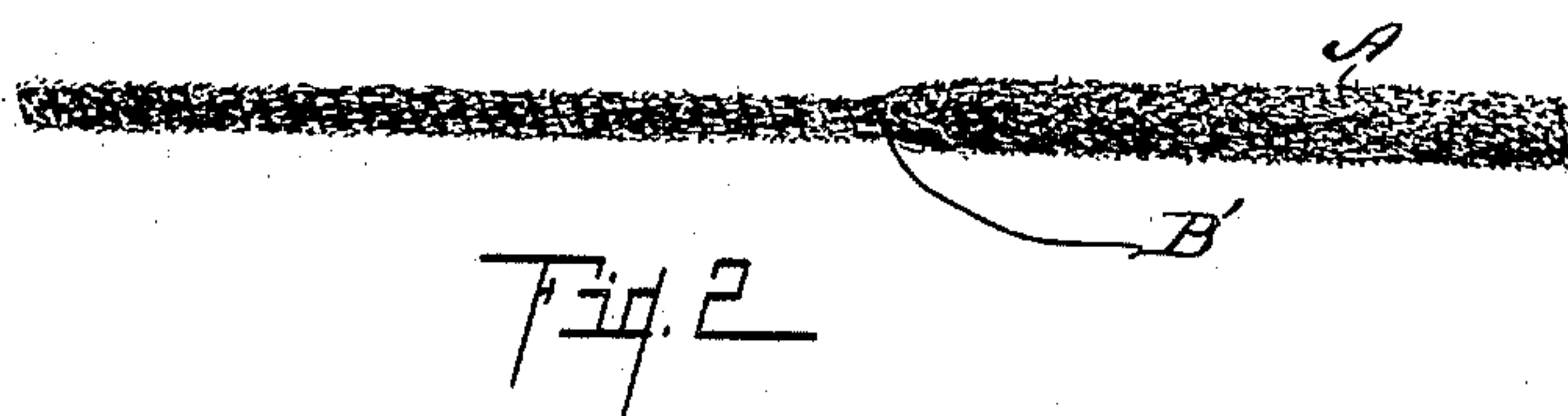
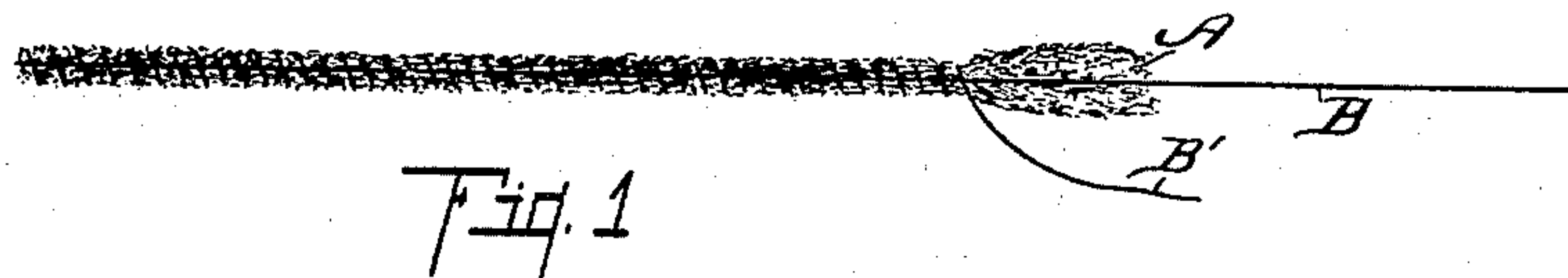
Patented Sept. 23, 1902.

E. K. WARREN & J. H. HOLDEN.

WOVEN FEATHER FABRIC.

(Application filed Nov. 21, 1899.)

(No Model.)



Witnesses:

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Att'y.

UNITED STATES PATENT OFFICE.

EDWARD K. WARREN AND JONAS H. HOLDEN, OF THREEOAKS, MICHIGAN.

WOVEN FEATHER FABRIC.

SPECIFICATION forming part of Letters Patent No. 709,620, dated September 23, 1902

Application filed November 21, 1899. Serial No. 737,828. (No specimens.)

To all whom it may concern:

Be it known that we, EDWARD K. WARREN and JONAS H. HOLDEN, citizens of the United States, residing at the city of Threeoaks, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Woven Feather Fabrics, of which the following is a specification.

This invention relates to improvements in woven feather fabrics, and particularly to an improved means of utilizing down or plumage or other light fluffy material in such woven fabrics.

The object is to provide a fabric in which light fluffy material is incorporated and utilized by an improved method.

It relates also to an improved strand for this purpose.

Still further objects will definitely appear in the detailed description to follow.

We accomplish the objects of our invention by the devices and means described in this specification.

The invention is clearly defined and pointed out in the claims.

A structure fully embodying our invention and the method of carrying it out is illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 illustrates our improved strand for use in the fabric in its most approved form. Fig. 2 illustrates a modified form of the strand. Fig. 3 illustrates our improved fabric.

In the drawings similar letters of reference refer to similar parts throughout the several views.

In the manufacture of our improved fabric we prefer to secure the down, feathers, or other similar material A to a longitudinal fibrous strand B by means of a wrapping-thread B', which wraps spirally around the same. By this means a strand can be of any desired size, very short fibers and feathers can be utilized, and the whole be retained securely together by the longitudinal strand and the wrapping-strand thereon. Where the down or feathers are of superior quality, the longitudinal strand can be omitted and the material can be wound into a strand, as clearly appears in Fig. 2. These strands are utilized in the fabric either as warp or weft, the same

being shown as weft in Fig. 3 with the fine warp retaining the same. The fabric can be made entirely of these strands; but it is preferred to use a fine crossed strand with the same, and when properly so woven the material is very compact and smooth and the warp is very inconspicuous.

While our invention is specially adapted for using down and feathers, it is also adapted to use any downy material in this way, and we are aware that there are numerous downy fibers which can be so utilized.

We desire to remark that we are aware that feathers and like material have heretofore been incorporated into fabrics; but the aim heretofore has been to produce an ornamental effect with the feathers or to produce a pile fabric. In our invention, as appears from the foregoing description, the material is incorporated into the strands of the fabric, so that it forms the substantial part thereof. This is particularly desirable, as it produces a practically waterproof fabric and one which can be woven thick and still be very light. While the same is practically waterproof, the air circulates very freely through the same, and it has in addition many other desirable qualities of woolen fabrics and is adapted to many of the uses to which woolen fabrics are especially adapted and has the advantage of being very light and, as before stated, practically waterproof.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A fabric made up of strands formed of feathers wrapped upon a longitudinal fibrous strand by a wrapping-thread, as specified.

2. A fabric containing in its warp or weft, strands made up of down or feathers wrapped upon a longitudinal strand by wrapping-thread as specified.

3. A strand for use in making fabrics formed out of down or feathers secured upon a longitudinal fibrous strand by a wrapping-thread, as specified.

4. A fabric made up of strands formed of downy material wrapped upon a longitudinal fibrous strand by a wrapping-thread, as specified.

5. A fabric containing in its warp or weft,

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strands made up of downy material wrapped upon a longitudinal strand by wrapping-thread as specified.

6. A strand for use in making fabrics formed
5 out of downy material secured upon a longitudinal fibrous strand by a wrapping-thread, as specified.

7. A strand for use in making fabrics formed from down or plumage of feathers retained by
10 a wrapping-thread having its coils close together so as to embrace the same to compact

the said down or plumage into a firm strand, as specified.

In witness whereof we have hereunto set our hands and seals in the presence of two 15 witnesses.

EDWARD K. WARREN. [L. S.]
JONAS H. HOLDEN. [L. S.]

Witnesses:

WM. C. HALL,
DELLA C. WARREN.