

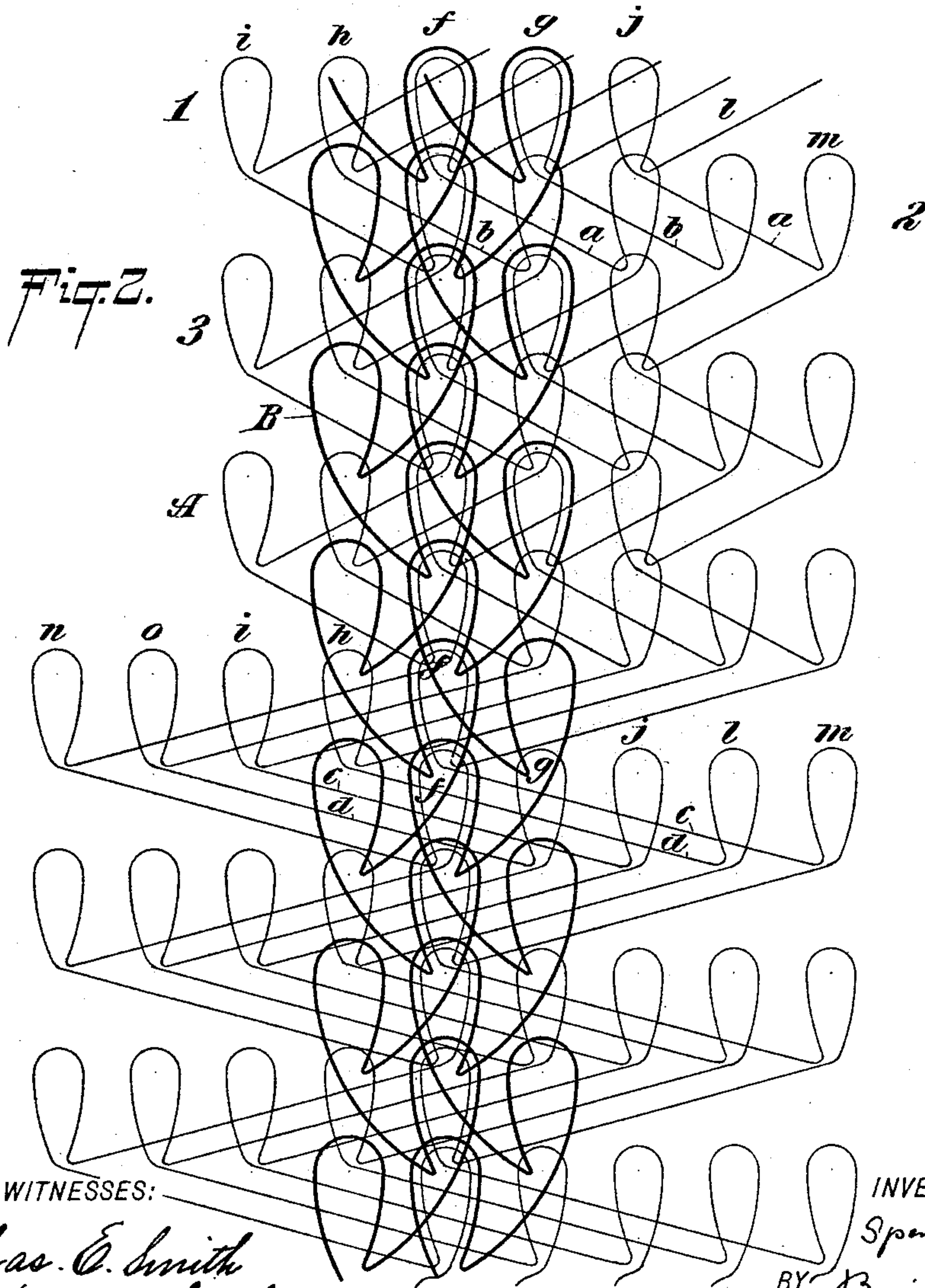
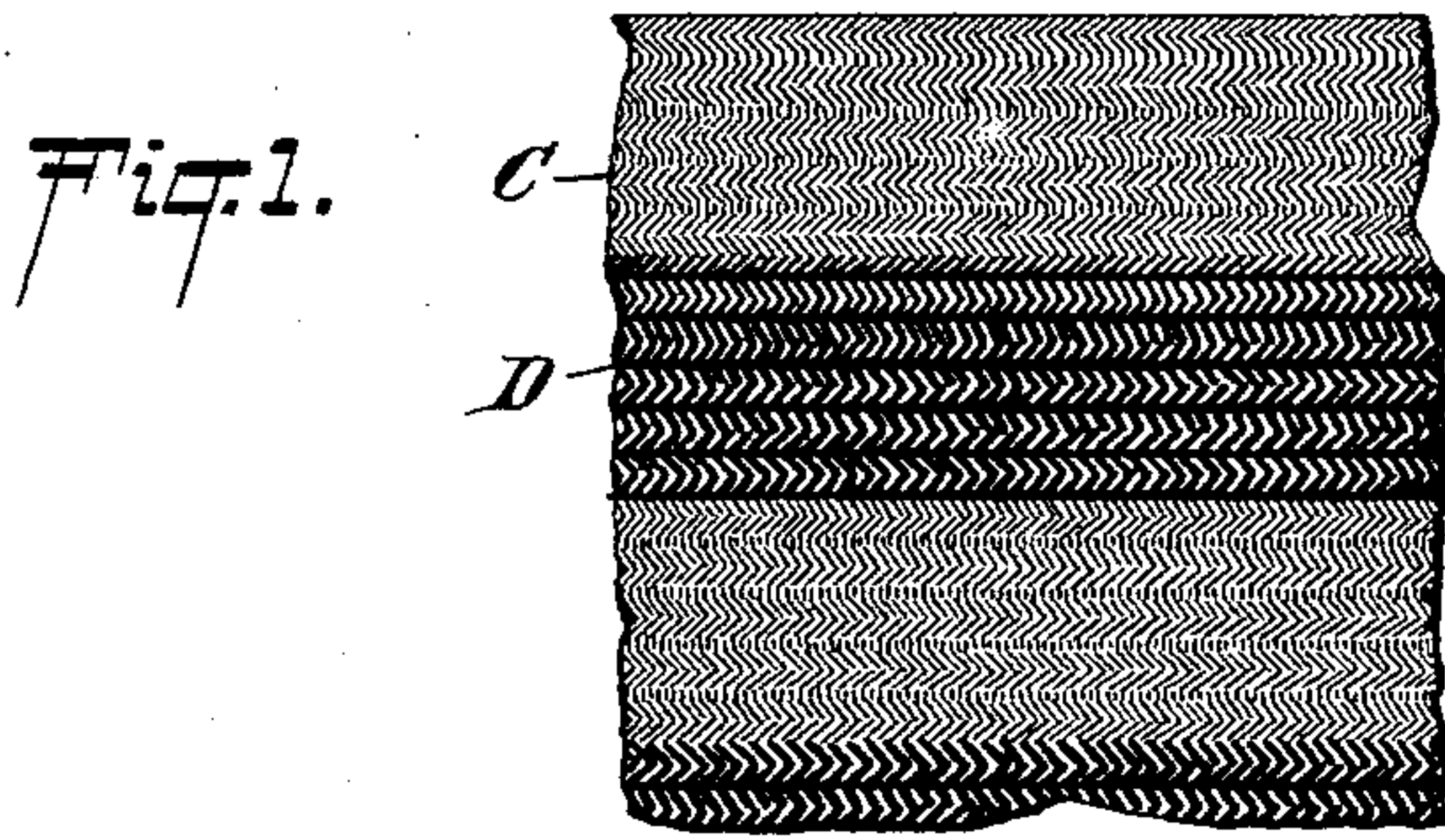
(Specimens.)

S. SPOONER.

PROCESS OF MAKING WARP FABRICS FOR GLOVES OR THE LIKE.

No. 500,165.

Patented June 27, 1893.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

SPENCER SPOONER, OF BROOKLYN, NEW YORK, ASSIGNOR TO ABRAHAM G. JENNINGS, OF SAME PLACE.

PROCESS OF MAKING WARP FABRICS FOR GLOVES OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 500,165, dated June 27, 1893.

Application filed August 29, 1892. Serial No. 444,360. (Specimens.)

*To all whom it may concern:*

Be it known that I, SPENCER SPOONER, a citizen of the United States, residing at Brooklyn, in Kings county, State of New York, have  
5 invented a new and Improved Process of Making Warp Fabrics for Gloves and the Like.

This invention relates to an improved process of making warp fabrics of two or more thicknesses in the same piece for use in gloves,  
10 stockings and like articles, wherein it is essential that some portions of the article be of greater thickness than its adjacent portions, and consists in series of steps hereinafter described and specifically pointed out in  
15 the claim.

In the drawings, Figure 1 represents a piece of fabric made in accordance with my improved process. Fig. 2 is a plan view showing the relation of the strands one to the other  
20 and clearly illustrating my improved process.

My improved process is carried out on an ordinary warp machine used for making laces and jersey fabrics whose nature is to be more or less elastic, and which is produced on such  
25 machines by linking or looping the threads together upon the needles, with the threads passing through the guides which traverse from right to left certain distances and lap on the needles; the threads always following to  
30 a certain extent the direction of the selvages of the fabric.

In my improved process, I employ two or more sets of threads (two being shown) as A, B, which are threaded through two or more  
35 sets of guides on as many separate guide bars, which guide-bars move from right to left in opposite directions and lap the threads on the needles in the usual way in this character of machine, and which produces the ordinary  
40 jersey fabric as indicated at C in Fig. 1 of the drawings and the upper portion of Fig. 2.

Now at certain intervals, or where it is desired to make the article thicker (as indicated at D, Fig. 1) for the purpose of wear, the  
45 guides as shown, of one guide bar traverse one or more needles in excess of the number traversed in making the thinner portion of the fabric, and loop the needles that are adjacent to the guides when the end of the traverse  
50 is reached; the length of each thread

between where a guide loops the two different needles forming a float on the surface or the fabric. So it will be readily understood that the farther a guide is traversed, or the farther apart the needles are when looped, 55 the more thread will be floated and the closer the diagonal strands or the warp will be laid, consequently the greater will be the thickness of the fabric; the number of needles traversed by each thread without looping determining the thickness of the material. At the  
60 upper portion of Fig. 2 the five parallel rows of loops *i, h, f, g* and *j* of the five strands A (and all of which are carried on one guide-bar, five being taken for illustration merely) traverse to the right two needles; laying loops  
65 *f, g, j, l* and *m* in line 2. In line 3 the strands go back to the left and lay the strands *i, h, f, g* and *j*, as in line 1, and so on.

When it is desired to make a thicker fabric or portion, the guide-bar, (as shown in the lower part of Fig. 2) is traversed two needles in excess of the number traversed in knitting the thinner portion (although evidently a different number in excess may be traversed), 75 whereby the loops *n, o, i, h, f* are laid. It will be observed that while the threads are looped on different needles at different times, the same number of threads are always looped at each movement of the guide-bar. 80

The straight lengths of the strands between the lines of loops 1 and 2 (upper part of Fig. 2), as indicated by *a b*, show the length of threads to be floated on the surface in the thinner portion of the fabric, and the distance 85 between such strands, indicate the laying of the warp. A comparison of these strands *a b* with the corresponding strands *c d* in the thicker portion of the fabric (lower part of Fig. 2) shows that the floated thread of the  
90 latter is almost twice the length of that made in the thinner knitted portion, while they (the warp) are laid about half as far apart.

It will be observed that the thread B is regularly looped as shown in the drawings. 95

By my invention I am enabled to make a large variety of thicknesses in the same piece of material without increasing or decreasing the number of threads.

Having described my invention, I claim— 100



The process herein described of making warp fabrics of varied thicknesses in the same piece, which consists in traversing a number of threads each over one or more needles and  
5 looping the threads to form a comparatively thin knitted portion, traversing the same threads each over one or more needles in excess of those first traversed, forming a float,

and looping the threads thus traversed or carried to form a thicker knitted portion, substantially as described.

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Witnesses:

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