

(No Model.)

S. W. BAKER.
Woven Endless Belt.

No. 229,939.

Patented July 13, 1880.

Fig. 1.

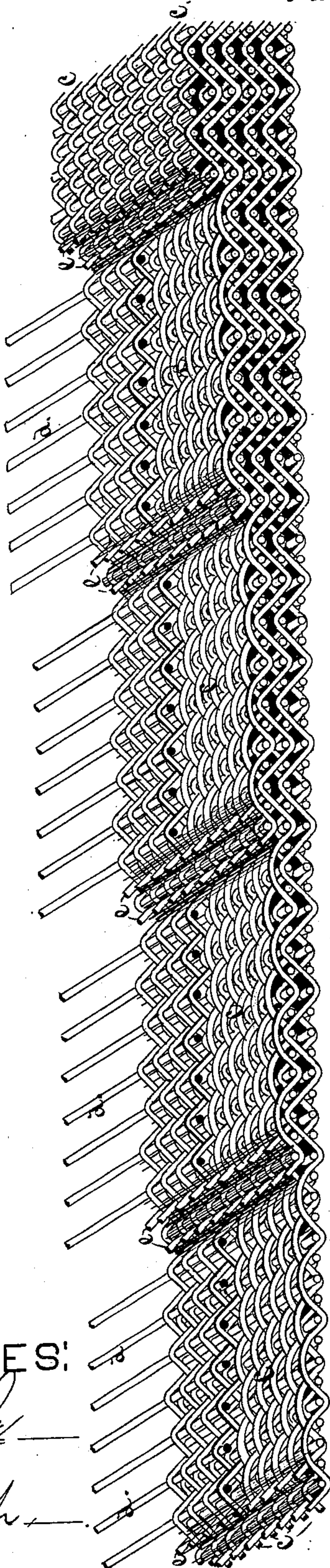
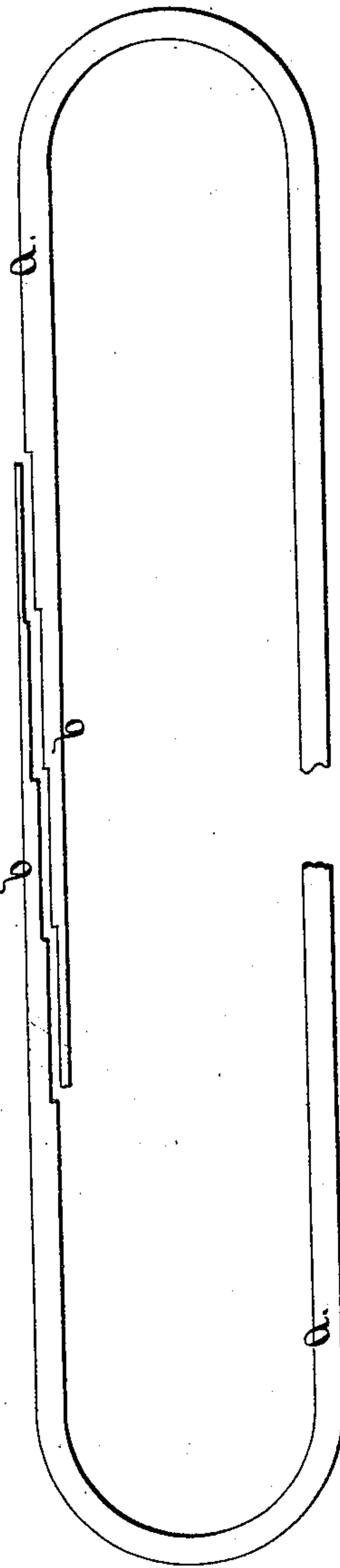


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

SETH W. BAKER, OF PROVIDENCE, RHODE ISLAND.

WOVEN ENDLESS BELT.

SPECIFICATION forming part of Letters Patent No. 229,939, dated July 13, 1880.

Application filed March 18, 1880. (No model.)

To all whom it may concern:

Be it known that I, SETH W. BAKER, of the city and county of Providence, and State of Rhode Island, have invented a new and useful Improvement in Woven Endless Belts; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

10 This invention has reference to an improvement in woven endless belts, such as are used for calico-printing machines, and other belts used for similar purposes.

15 The object of this invention is to unite the two ends of the fabric so as to make an endless belt of uniform strength, thickness, elasticity, and density, so that when used to carry cloth or other material between the rolls for the purpose of printing designs or figures on the material so carried by the belt the resistance of the belt will be uniform throughout the entire length.

25 Woven endless belts have heretofore been made of a woven fabric consisting of several plies woven into one web, and such fabric has heretofore been united at the end, so as to make an endless belt by cutting out the warp and filling threads at each end in steps or layers, so as to form a lap or joint secured together by means of cement, as is shown and described in the Letters Patent No. 33,510, granted to me October 22, 1861. In such a lap-joint each half of the lap or joint formed one-half of the whole fabric, and as a cement had to be used the joint was thicker and less elastic than the rest of the belt. The end of the joint also formed a positive line, which could be readily discovered in the printed fabric.

30 The present invention is an improvement on the previous invention; and it consists in removing or pulling out the weft or filling threads on the face of the joint or lap, removing some of the weft or filling threads at the ends of the splice or joint, and also at the edge of each offset of the splice or joint, so as to interlace the warp-threads of both laps or splices, so as to increase the strength of the joint, allow for the cement, and make the joint in all respects equal to the solid fabric, all of which will be more fully set forth hereinafter.

50 Figure 1 is a perspective view, showing the

fabric at the edge of the splice in section and the face of the splice, in view. A number of weft or filling threads are shown as partly drawn out of the fabric. Fig. 2 is a view of the woven endless belt, showing the two ends prepared so as to be united side by side. 55

In the drawings, *a* represents a multiple woven elastic fabric, in which the warp is sprung from one side toward the other, so as to form an open elastic wick-woven fabric, combining great strength with elasticity. 60

b b are the ends of the fabric prepared to form a splice, by which the same are connected so as to form an endless belt. 65

c c represent the warp-threads, and *d d* the weft or filling threads.

e e represent the offsets where the fabric is reduced in thickness by one ply. After this reduction to a stepped lap the operation which forms the subject of this invention commences. 70

By examining Fig. 1 it will be seen that at each of the steps or offsets *e* the ends of the warp-threads project beyond the fabric. This result is produced by drawing out some of the weft-threads, and when, now, the two laps are placed together the ends of the warp-threads of each lap will pass between the ends of the other, and the line of union will not be a sharply-defined line, but the warp of one will pass by the warp of the opposite end, and this will be the case with the warp-threads at each offset. When, now, such a splice is secured by an elastic cement the union will be more complete, the joint stronger, and the two fabrics will be more thoroughly interlaced. 75 80 85

In Fig. 1 the scarfed portion of the fabric is shown with a number of weft or filling threads projecting beyond the fabric. The object is to clearly show how the weft-threads are drawn out of the face of lap or splice, so as to reduce the thickness of the splice and compensate for the cement which has to be used. 90

Another object is to place the warp-threads of each splice in immediate contact with the warp-threads of the other splice, so that they will be firmly cemented together, thus securing a much stronger joint, as all the warp-threads are now cemented together, and in an endless belt the warp-threads are practically continuous throughout, and as all the strain is exerted on the warp-threads the strength of the belt 95 100

is uniform throughout. The lap or splice thus prepared is coated with any suitable cement, preferably of an elastic nature, such as india-rubber, gutta-percha, or similar material, and
5 I prefer such compositions as will set and retain their elasticity by being subjected to heat. After applying the cement to each scarfed lap a fine sheet of tissue rubber may be placed between the two laps forming the joint, and the
10 lap be placed into a press, the plates of which can be heated by steam, and the whole may be thus united firmly, making a yielding joint of the same elasticity and density as the rest of the fabric.
15 If it is preferred to secure the splice by sewing, the same advantages are secured by the removal of the warp-threads, as shown and described, as the threads removed compensate for the thread used in sewing, and thus a uni-
20 form thickness and density throughout the entire belt are secured.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The method herein described of forming 25 and uniting the ends of belts or bands composed of a multiple woven fabric, as described, the same consisting in scarfing the ends into stepped laps by removing the warp and weft of one ply for each step, drawing out the weft- 30 threads, and securing the two laps together, so as to form a splice of the same thickness as the rest of the fabric, as described.

2. In a splice formed in a thick woven fabric by removing the threads of each ply, so as to 35 form stepped laps, the projecting warp-threads *e e*, arranged to interlace at the joint, as and for the purpose set forth.

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Witnesses:

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