

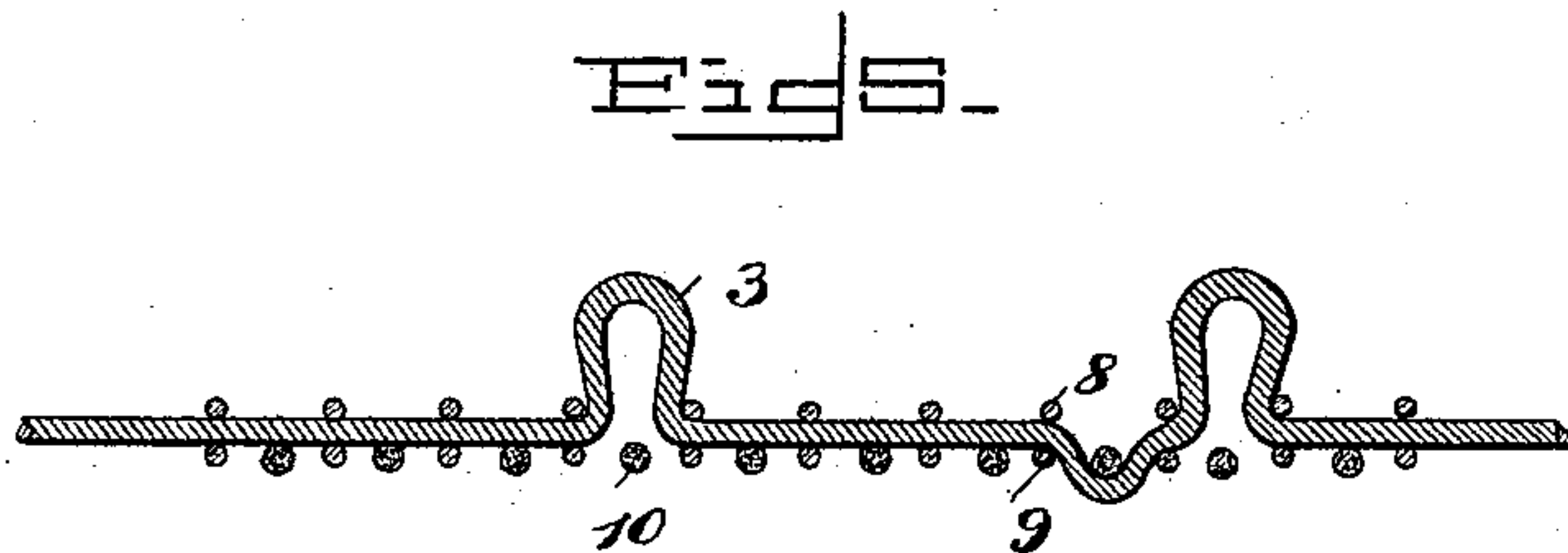
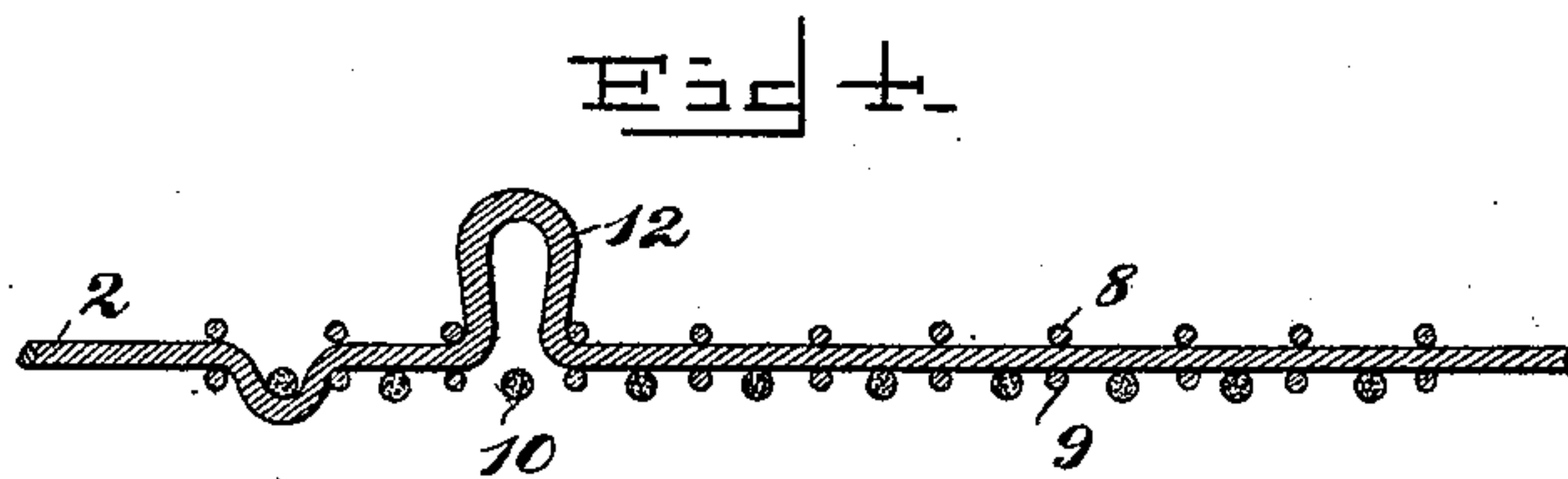
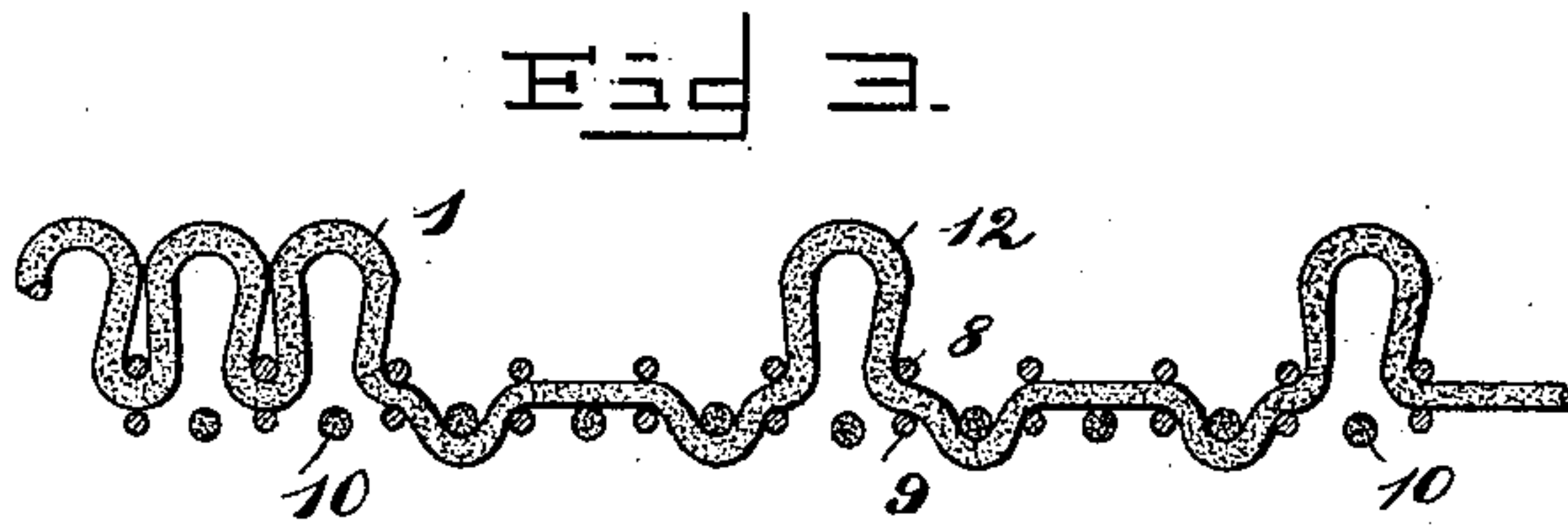
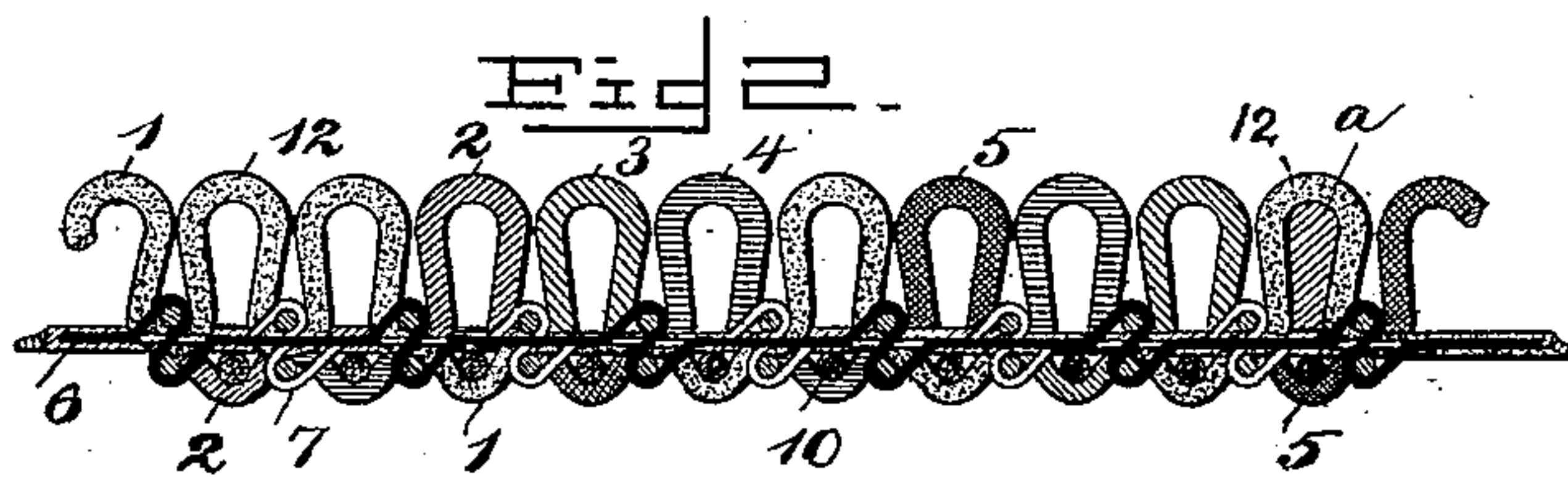
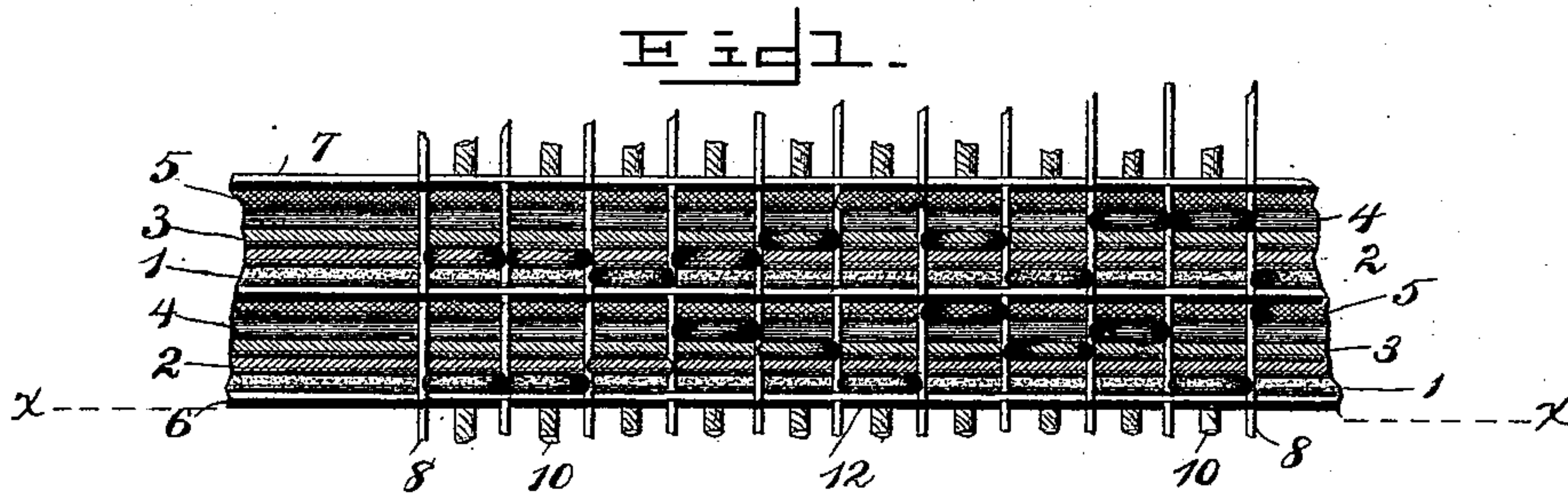
(No Model.)

2 Sheets—Sheet 1.

W. WEAVER.
DOUBLE FACED FABRIC.

No. 541,645.

Patented June 25, 1895.



Witnesses
Lauriston
William Oberling Jr

Inventor:
William Weaver,
By Foster Freeman & Chamberlain,
His Attorneys.

(No Model.)

2 Sheets—Sheet 2.

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Fig 6.

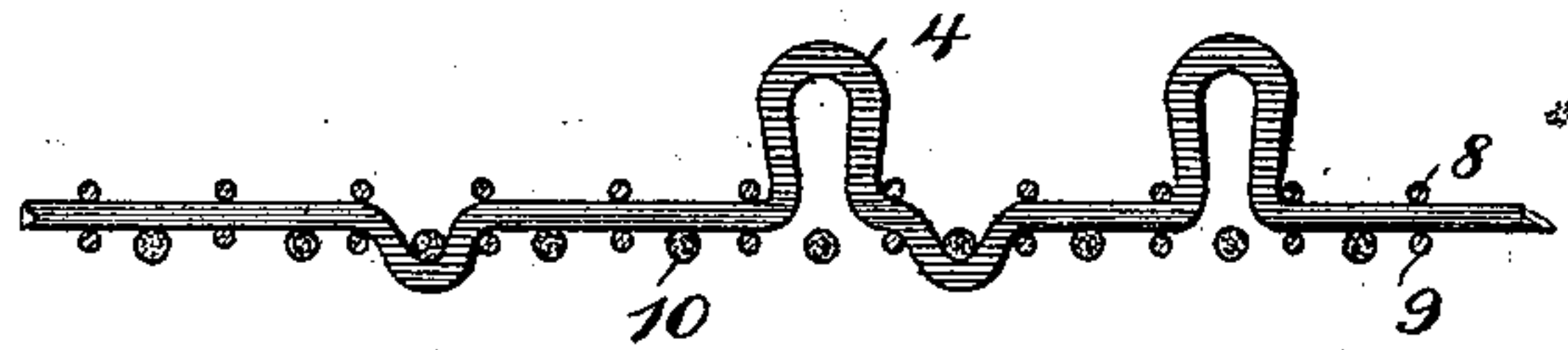


Fig 7.

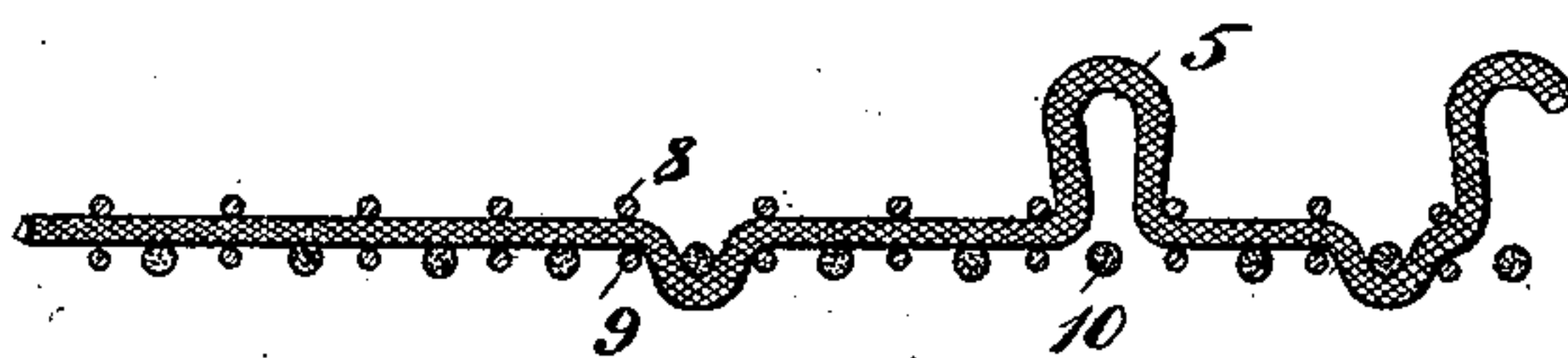


Fig 8.



Fig 9.

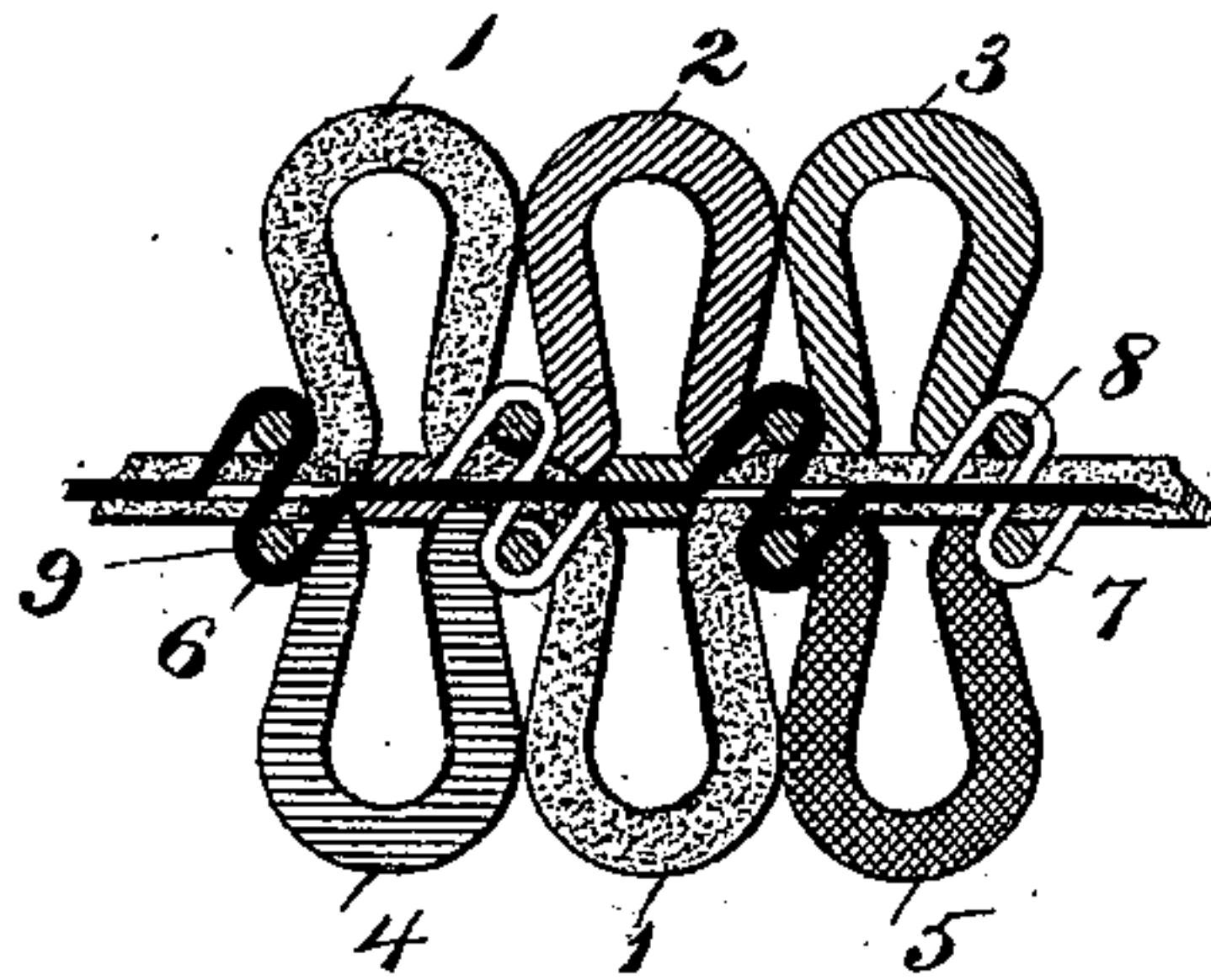
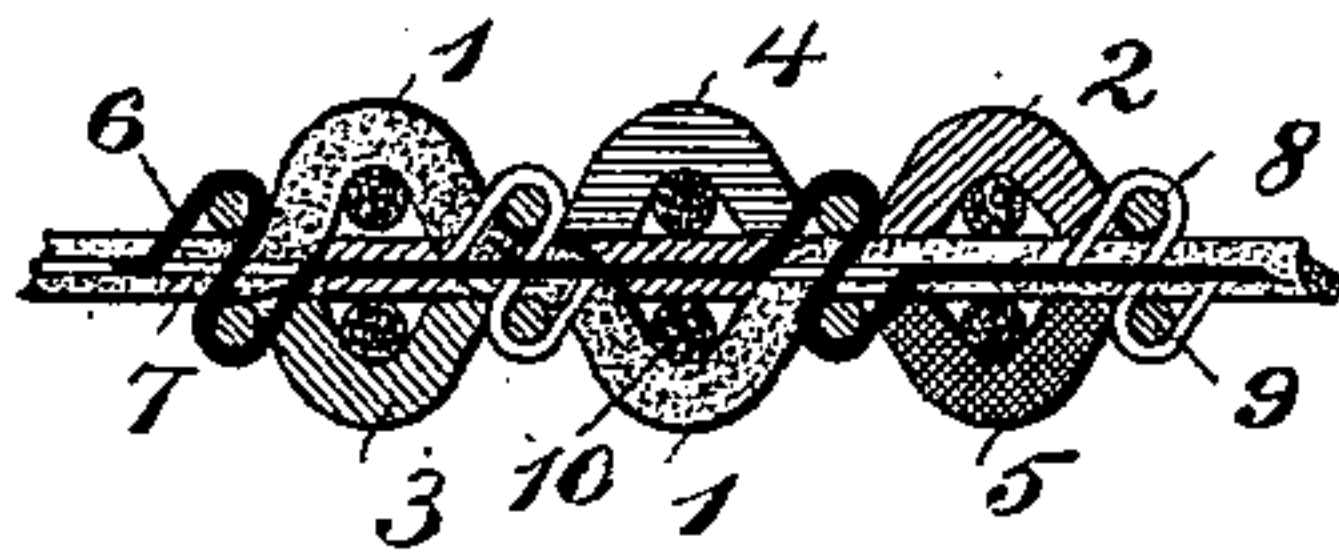


Fig 10.



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UNITED STATES PATENT OFFICE.

WILLIAM WEAVER, OF NORWALK, CONNECTICUT, ASSIGNOR TO THE WEAVER
JACQUARD AND ELECTRIC SHUTTLE COMPANY, OF SAME PLACE.

DOUBLE-FACED FABRIC.

SPECIFICATION forming part of Letters Patent No. 541,645, dated June 25, 1895.

Application filed July 19, 1894. Serial No. 518,048. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM WEAVER, a citizen of the United States, residing at Norwalk, county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Double-Faced Fabrics; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to woven fabrics, its object being to produce a double-faced reversible fabric, the opposite faces of which are totally different in design; a further object of the invention being to produce a reversible double-faced fabric having a pile face and an opposite plain face as shown and claimed.

In the accompanying drawings, forming a part of this specification, and in which like letters and numerals of reference indicate corresponding parts, Figure 1 is an enlarged detail plan view of a portion of my improved fabric. Fig. 2 is a longitudinal sectional view taken on the lines *xx* of Fig. 1. Figs. 3, 4, 5, 6, and 7 are detail views, showing the relative positions assumed by the figuring warp threads in the fabric illustrated in Figs. 1 and 2. Fig. 8 is a detailed view showing the arrangement of the binding warp-threads. Fig. 9 illustrates a modified form of my improved fabric, formed with opposite pile faces; and Fig. 10 illustrates another modified form of my fabric in which both faces are formed smooth.

My improved fabric may be manufactured upon any of the well known looms by slightly modifying their construction.

In Figs. 1 and 2 of the accompanying drawings a fabric is illustrated which employs five figuring warp threads, 1, 2, 3, 4, 5, of different colors or characters. It will be understood, however, that as many figuring warp threads as desired, of different color or character may be employed. These figuring warp threads 1, 2, 3, 4 and 5 are arranged in groups across the fabric and between each group of warp-threads 1, 2, 3, 4, and 5, two binding warp-threads 6 and 7 are interposed, which are designed to interchange and bind the figuring warp-threads, between the binding weft threads. The binding weft-threads 8 and 9

are successively inserted into the fabric intermediate of the weft filling-threads, the binding weft-thread 8 passing across the upper surface of the fabric, and the binding weft 9 across the under surface thereof, in vertical alignment with the binding weft thread 8. After the binding weft-threads 8 and 9, have been inserted they are beat up by the reed. A filling weft thread 10 is then put into the under face of the fabric adjacent to the binding weft 9 and beat up by the reed, after which the binding wefts are again inserted and beat up as described above, this operation being repeated throughout the length of the fabric.

As the figuring-warps in the fabric above described are arranged in groups and it is possible to use only two warps of each group in the formation of coincident loops or ribs it is essential that the remaining figuring warps be compressed into as small a space as possible otherwise the ground of the fabric would be objectionable on account of thickness and would be visible between the loops or ribs.

In order to insure the fabric being compact the two binding warp-threads 6 and 7 are inserted into the fabric between each group of figuring warps to bind the binding weft threads 8 and 9 which are inserted across the fabric on the upper and lower faces thereof, respectively, and these binding warp threads 6 and 7 are used alternately to bind the binding weft threads 8 and 9, that is one of them passes over the binding weft on the upper face of the fabric thence downwardly between the binding wefts and around the binding weft on the lower face of the fabric from whence it passes upwardly to the normal plane of the figuring warps where it floats through the next adjacent pair of wefts which are bound by the remaining binding warp.

It will be obvious that by binding each pair of coincident binding wefts with one binding warp they are drawn closer together than would be possible if the binding warps were passed over the binding weft on one face of the fabric and thence over the next succeeding weft on the opposite face of the fabric.

When one of the figuring warp threads 1, 2, 3, 4, or 5 is raised above the upper surface

of the fabric by the Jacquard mechanism, a pile wire *a* (Fig. 2) is inserted between it and the remaining four pile warp threads to form a loop 12. The raised warp thread is then returned to its place among the remaining figuring warps and a thread of a different color or character is lowered below the under surface of the fabric, to permit a weft filling thread 10 of the desired color to be inserted between it and the remaining four figuring warp threads. The lowered figuring warp thread is then returned to its place among the other figuring warp threads, and the binding warp thread 6 is elevated to permit the binding weft thread 8 to be run between it and the figuring warp threads 1, 2, 3, 4, 5, after which it is lowered beneath the lower surface of the fabric and the binding weft thread 9 is inserted between it and the figuring warp threads 1, 2, 3, 4, and 5. The binding warp thread is then returned to its place among the figuring warp threads and the reed is caused to beat up the fabric. It will be noted that during the operation described above the three figuring warp threads of said group and the binding warp threads which are not used, are run straight through the fabric. This operation is repeated throughout the entire length of the fabric, the binding warp threads 6 and 7 being used to bind the binding weft threads 8 and 9 in the manner described in the preceding paragraph and illustrated in Figs. 2 and 8 of the drawings.

It will be understood, of course, that when one of the figuring warp threads 1, 2, 3, 4, and 5 is brought to the upper face of the fabric any one of the remaining four figuring warp threads may be brought to the lower surface thereof, and hence my invention will be distinguished from those in which the figuring warp threads are arranged in pairs, wherein when one thread of a pair is carried to the upper surface of the fabric the remaining thread is carried to the lower surface thereof to form the same pattern on opposite sides of the fabric in the same or in different colors.

It is not deemed necessary to herein describe the means for weaving my improved fabric, as the same forms the subject matter of a separate application filed July 19, 1894, Serial No. 518,046.

It will be noted that by inserting pile wires on both faces of the fabric a double-faced

pile may be woven, as shown in Fig. 9; or by inserting weft filling threads in both faces of the fabric a double smooth faced fabric may be made, as shown in Fig. 10.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A double-faced fabric having the figuring warp threads arranged across the faces of the fabric in groups, and also two binding warp threads passing lengthwise through the fabric and arranged intermediate of the groups of figuring warp threads, and binding weft threads passing across the fabric on both faces thereof, the binding warp threads alternately binding the weft threads by passing over the binding weft on the upper face of the fabric, thence downwardly between the binding weft threads and around the binding weft on the lower face of the fabric, from whence it passes upward to the normal plane of the figuring warps where it floats through the next adjacent pair of wefts, substantially as described.

2. In a double faced fabric having a pile face and an opposite smooth face, the combination of the figuring warps arranged across the faces of the fabric in groups, the loops and ribs on opposite faces of the fabric being formed by the said figuring warps, the binding weft threads passing across both faces of the fabric, the filling weft threads arranged across the lower face of the fabric intermediate of the lower binding weft threads, and two binding warp threads arranged between each group of figuring warp threads and alternately binding the binding weft threads by passing over the binding weft on the upper face of the fabric, thence downwardly between the binding weft threads and around the binding weft threads on the lower face of the fabric from whence it passes upward to the normal plane of the figuring warp when it floats through the next adjacent pair of wefts, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM WEAVER.

Witnesses:

PAUL W. STEVENS,
ELBERT O. HULL.