

(No Model.)

W. LAPWORTH.
ELASTIC OR CORDED FABRIC.

No. 360,450.

Patented Apr. 5, 1887.

Fig:1.

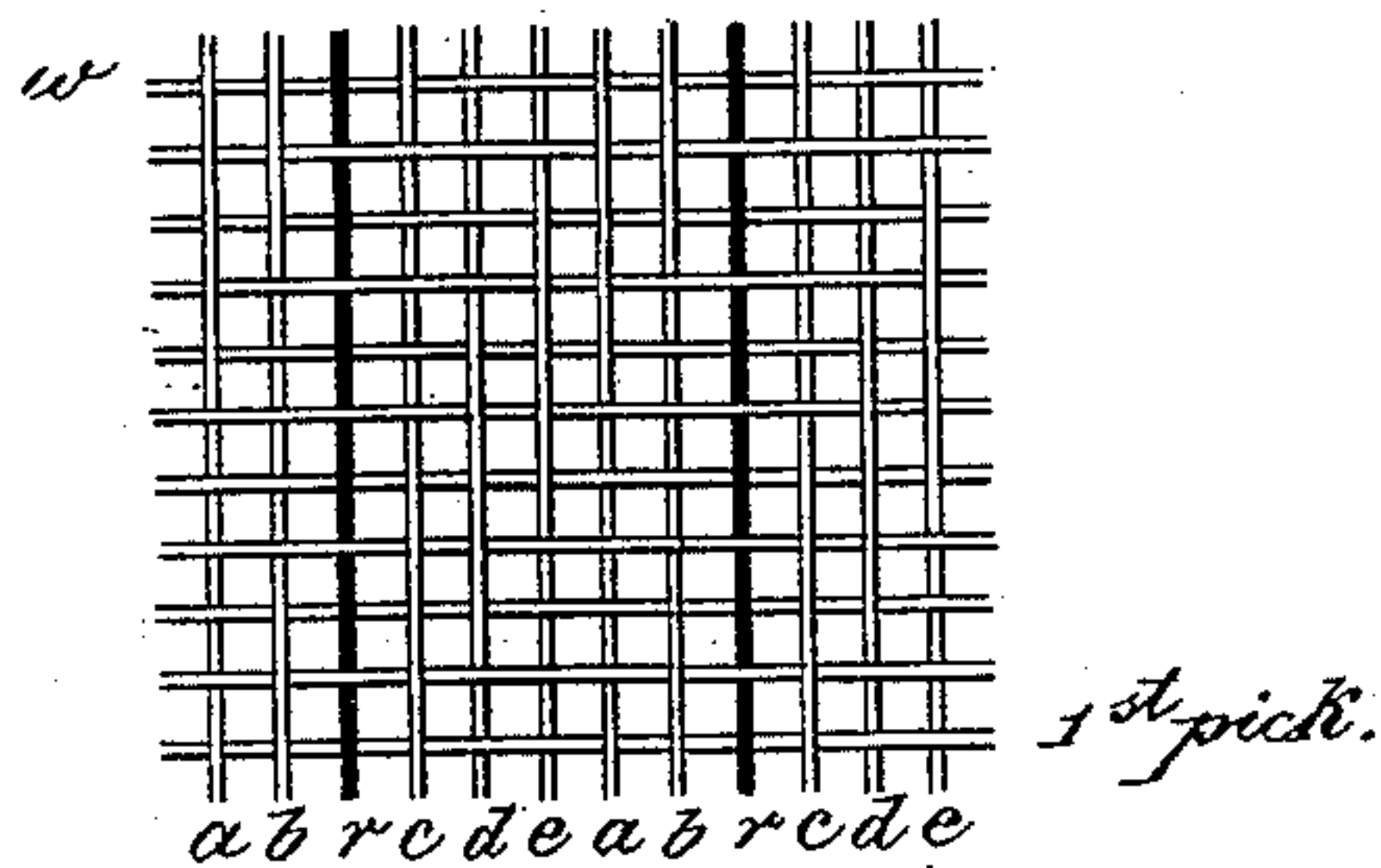


Fig:2. $\begin{matrix} a & b & r & c \\ \circ & \circ & \circ & \circ \end{matrix} \begin{matrix} a & b & r & c \\ \circ & \circ & \circ & \circ \end{matrix} \rightarrow$ Pick No 1.

Fig:3. $\begin{matrix} b & c \\ \circ & \circ \end{matrix} \begin{matrix} b & c \\ \circ & \circ \end{matrix} \leftarrow$ Pick No 2.

Fig:4. $\begin{matrix} b & r & c & d \\ \circ & \circ & \circ & \circ \end{matrix} \begin{matrix} b & r & c & d \\ \circ & \circ & \circ & \circ \end{matrix} \rightarrow$ Pick No 3.

Fig:5. $\begin{matrix} c & d \\ \circ & \circ \end{matrix} \begin{matrix} c & d \\ \circ & \circ \end{matrix} \leftarrow$ Pick No 4.

Fig:6. $\begin{matrix} r & c & d & e \\ \circ & \circ & \circ & \circ \end{matrix} \begin{matrix} r & c & d & e \\ \circ & \circ & \circ & \circ \end{matrix} \rightarrow$ Pick No 5.

Fig:7. $\begin{matrix} d & e \\ \circ & \circ \end{matrix} \begin{matrix} d & e \\ \circ & \circ \end{matrix} \leftarrow$ Pick No 6.

Fig:8. $\begin{matrix} a & r & d & e & a & r & d & e \\ \circ & \circ & \circ & \circ & \circ & \circ & \circ & \circ \end{matrix} \rightarrow$ Pick No 7.

Fig:9. $\begin{matrix} a & b & r & c & d \\ \circ & \circ & \circ & \circ & \circ \end{matrix} \begin{matrix} a & b & r & c & d \\ \circ & \circ & \circ & \circ & \circ \end{matrix} \leftarrow$ Pick No 8.

Fig:10. $\begin{matrix} a & b & r & c & d \\ \circ & \circ & \circ & \circ & \circ \end{matrix} \begin{matrix} a & b & r & c & d \\ \circ & \circ & \circ & \circ & \circ \end{matrix} \rightarrow$ Pick No 9.

Fig:11. $\begin{matrix} a & b \\ \circ & \circ \end{matrix} \begin{matrix} a & b \\ \circ & \circ \end{matrix} \leftarrow$ Pick No 10.

Fig:12. $\begin{matrix} a & b & r & c \\ \circ & \circ & \circ & \circ \end{matrix} \begin{matrix} a & b & r & c \\ \circ & \circ & \circ & \circ \end{matrix} \rightarrow$ Pick No 1 of the repeat.

Witnesses.

Arthur Zippert.
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UNITED STATES PATENT OFFICE.

WILLIAM LAPWORTH, OF EAST HAMPTON, ASSIGNOR TO THE HOPEDALE ELASTIC FABRIC COMPANY, OF HOPEDALE, MASSACHUSETTS.

ELASTIC OR CORDED FABRIC.

SPECIFICATION forming part of Letters Patent No. 360,450, dated April 5, 1887.

Application filed December 3, 1885. Serial No. 184,559. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM LAPWORTH, of East Hampton, county of Hampshire, and State of Massachusetts, have invented an Improvement in Elastic or Corded Fabric, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention has for its object the production of a firm and durable elastic or corded fabric wherein the face and back are made chiefly from the warp, and is twilled alike at both sides, the rubber or cord warp being
15 bound in like manner at every pick, it rising for one and falling for the next pick, the fibrous warps controlled by five harness-frames rising for five picks, and then remaining down for five picks, the pattern being completed in
20 ten picks, the fabric produced being a thick fabric without binders, the weft being carried by a single shuttle.

A harness-frame carrying some of the fibrous warps is raised or lowered with the
25 rubber or cord warp each time it is moved by its harness-frame.

Figure 1 in plan view shows a piece of fabric embodying my invention, the warp and weft being separated to show their crossings,
30 the warp-threads shown being sufficient for two spaces of the usual reed. Fig. 2 is a cross-section of my improved fabric at the first shed, it showing the positions of the warps at the first pick of the pattern. Figs. 3 to 11,
35 inclusive, show like views of the warp-threads for the remaining nine picks of the pattern; and Fig. 12 shows the first pick of the repeat, it being the same as Fig. 2.

The fibrous warp-threads *a*, as well as those
40 marked *b*, *c*, *d*, and *e*, will be carried, like designated threads, by themselves in the heddles of five separate harness-frames, which may be as commonly used in any ordinary loom for weaving elastic fabrics, the rubber or
45 cord warps *r* being carried by the heddles of a sixth harness-frame.

Referring to Fig. 2, representing the first pick of a pattern called a "ten-time motion," or one requiring ten picks to complete it, the

warp *a* is up, but it is down for the second to 50 the sixth pick, inclusive, rising for the seventh to the tenth pick and remaining up for the first repeat. In Fig. 2 the threads *b* are up, and remain up for the second and third picks, going down for the fourth to the eighth 55 picks, inclusive, and rising for the ninth and tenth. The rubber or cord warps *r* rise for one and fall at the next pick, and vice versa. The warp-threads *c* are up for the first to the fifth pick, inclusive, and down for the sixth to 60 the tenth pick, inclusive. The warp-threads *d* are down for the first and second pick, rising for the third to the seventh pick, inclusive, falling for the eighth, ninth, and tenth pick. The warp-threads *e* are down for the 65 first to the fourth pick, inclusive, and up for the fifth to the ninth pick, inclusive, falling for the tenth pick. In this way a harness-frame containing either the warps *a*, *b*, *c*, *d*, or *e* is raised or lowered at every time that a 70 harness-frame containing the rubber or cord warps is raised or lowered, and consequently the rubber is bound alike at every pick, which would not be the case were the sheds formed in an eight-time motion, for in such a 75 motion the rubber warp cannot be bound in like manner at every pick, as is necessary to produce a fabric alike at back and front. In other words, in weaving my improved fabric a fibrous warp is changed from one side of the 80 weft *w* to the other at each pick with a rubber warp, so that each rubber warp will be bound in by the weft with a fibrous warp which is raised or lowered therewith, and the rubber warps will thus be bound in like man- 85 ner, or with a warp which is changed therewith, at every pick.

To produce a fabric in an eight-time motion, it will be necessary to separate the rubber or cord warp so that it will be bound only at 90 every second pick with the fibrous warp, and consequently the rubber is permitted to relax more than is desirable or preferable when the tension on the fabric is removed.

I claim—

The herein-described elastic or corded fabric, composed of fibrous warps, rubber or cord warps, and a weft, the fibrous warps being on 95

one side of the weft for five picks, and then on
the opposite side thereof for five picks, and
the rubber or cord warps being on the oppo-
site sides of the weft at alternate picks, a
5 fibrous warp crossing from one side of the weft
to the other, with a rubber or cord warp at
each pick, the said fabric being thus twilled
alike on both sides, and each rubber or cord
warp being bound alike, or bound in with a

fibrous warp crossing the weft therewith at 10
every pick, substantially as set forth.

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

WILLIAM LAPWORTH.

Witnesses:

GEORGE M. JOHNSON,
ALBERT W. LOCKE.