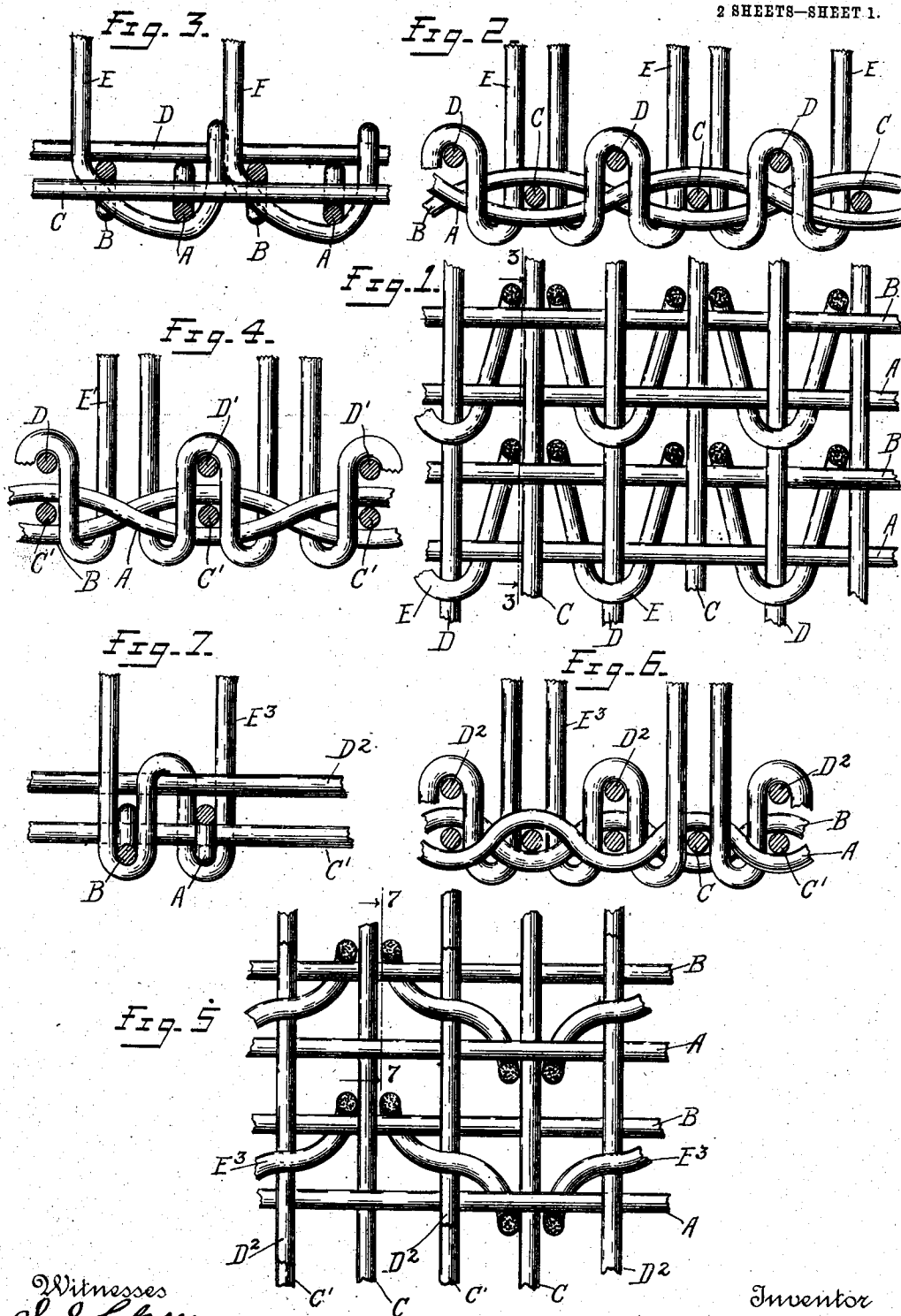


No. 834,001.

PATENTED OCT. 23, 1906.

E. S. CRADDOCK.
WOVEN PILE FABRIC.
APPLICATION FILED AUG. 7, 1905.

2 SHEETS—SHEET 1.



Witnesses
J. I. Colson
R. H. Allen

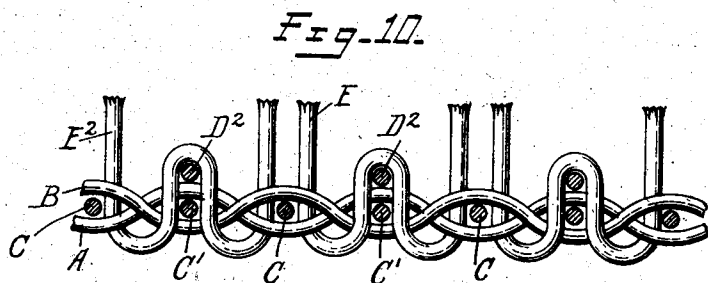
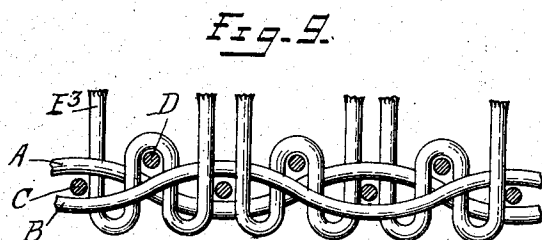
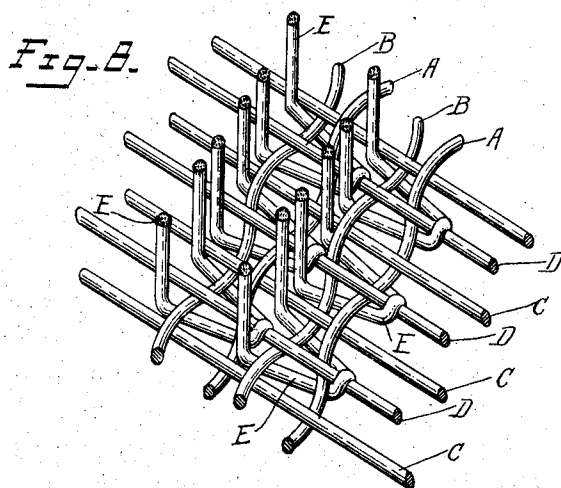
Inventor
EDWARD S. CRADDOCK
By his Attorneys
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2 SHEETS—SHEET 2.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD S. CRADDOCK, OF NEW YORK, N. Y.

WOVEN PILE FABRIC.

No. 834,001.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed August 7, 1905. Serial No. 272,948.

To all whom it may concern:

Be it known that I, EDWARD S. CRADDOCK, a citizen of the United States, residing at New York city, New York county, State of New York, have invented certain new and useful Improvements in Woven Pile Fabric, of which the following is a full, clear, and exact description.

My invention relates to improvements in pile fabrics, and particularly to improvements in heavy fabrics, such as rugs.

The object of the invention is to construct a fabric which can be manufactured rapidly in a loom without great expense and which will nevertheless possess great firmness and durability.

The invention consists in improvements the principles of which are illustrated in the accompanying two sheets of drawings.

Briefly, the fabric may be said to comprise a series of pairs of warp-threads interwoven with a series of body weft-threads, together with a series of alternating weft-threads not interwoven with the warp-threads but serving as a locking-thread for the pile-threads, which pile-threads are looped or knotted above the locking weft-threads and pass beneath the warp-threads and up between the pairs of the same.

Figure 1 is a plan view of a fragment of fabric, on a very much enlarged scale, with the threads separated to an exaggerated extent, but illustrating the simplest form of my invention. Fig. 2 is a vertical sectional view looking up as viewed in Fig. 1. Fig. 3 is a vertical sectional view on the plane of the line 3 3 of Fig. 1 looking in the direction of the arrows. Fig. 4 is a view similar to Fig. 2 of a modified form, the weft-threads which form the lock with the pile being located above the woven or body weft-thread. Fig. 5 is a view similar to Fig. 1 of a fabric in which the knot is formed above the locking weft-thread and between the members of a pair of warp-threads. Fig. 6 is a vertical sectional view of the same. Fig. 7 is a vertical sectional view of the same fabric on the plane of the line 7 7 of Fig. 5 looking in the direction of the arrows. Fig. 8 is a perspective view of the fabric shown in Figs. 1, 2, and 3. Fig. 9 is a vertical sectional view of a modification of the fabric shown in Fig. 5, the weft-thread beneath the locking-weft being omitted. Fig. 10 is a similar view of a modification of the type shown in Figs. 1, 2, 3, and 8 and

having an additional weft-thread beneath the locking-weft.

The fabric is designed to be constructed on a power-loom embodying the features of my invention as set forth in my application Serial No. 258,467. The warp-threads may be considered to be made up of pairs having the members A and B, which are fed from the warp-beam through the heddles, between the needles and the separators, and between the laying-reeds to the fabric-holding roller. The proper disposition of the warp-threads is produced by the movement of the needles.

The weft-threads C are thrown back and forth between the warp-threads by the usual shuttle, forming the basis for the woven fabric. The locking weft-thread D is thrown in a similar manner, but always above the warp-threads.

The pile-thread is fed continuously from a beam and passes through the eyes of the needles and then through the reeds, similar to the warp. The needles control the vertical movement of the pile-threads. The lateral movement of the pile-thread may be accomplished either by shifting the warp-threads laterally or by shifting the entire set of needles or the points of the needles laterally, in either event accomplishing the same relative movement.

E represents the units of the pile after they have been woven and cut. The cut occurs above the weft-threads C. The pile units are locked or knotted above the weft D, pass beneath the adjacent pair of warp-threads A and B, and then up on both sides of the locking-weft D between the adjacent wefts C. This is the simplest form of construction and may be woven rapidly without injury to the loom and without injury to the threads, even though they be of a soft nature.

In Fig. 4 the modified construction shows the locking-weft D' above one of the wefts C'. This forms a closer and heavier fabric and is accomplished by practically the same movement of the loom, except that the body-weft is thrown below a locking-weft instead of between two of the pile-thread ends E'.

The structure shown in Fig. 10 may be said to be a combination of the two structures shown in Figs. 1 and 4. In this structure the locking-weft D² passes above the body-weft C', and the body-weft thread C is between the ends of each pile unit E³. This produces a heavier body than either structure so far de-

scribed for higher classes of work. All of these three forms are produced by substantially the same movement of the loom by proper timing of the heddles and shuttle.

- 5 In the structure shown in Fig. 5 the warp-threads A and B are the same as above, arranged in pairs, but the pile-threads E³ are passed up between the warps A and B over the locking-weft D², the ends of the pile units
10 coming up on the outside of the members A and B instead of between the members B and A of the alternating pairs. This requires two distinct movements of the heddles, which consumes more time, but the fabric closely
15 resembles the form shown in Fig. 10 in appearance and in weight.

In Fig. 9 is shown a modification of the structure shown in Figs. 5, 6, and 7, in which the body weft-thread beneath the locking-
20 weft is omitted, forming a fabric more closely resembling that shown in Figs. 1, 2, 3, and 8 in appearance and in weight.

The advantages of the invention will be appreciated by those skilled in this art, both
25 from the standpoint of the user as well as the manufacturer.

What I claim is—

1. In a pile fabric, the combination of a series of pairs of warp-threads, body weft-
30 threads interwoven with the warp-threads, pile-threads and locking weft-threads beneath the loops of the pile-threads and running across above all of the warp-threads the ends of the pile-threads each passing down
35 and up around at least one warp-thread.

2. In a pile fabric, the combination of a series of pairs of warp-threads, body weft-threads interwoven with the warp-threads, locking weft-threads running across and
40 above all of the warp-threads, and pile-thread units looped above the locking weft-threads and having the ends passing below and up between the pairs of warp-threads.

3. In a pile fabric, the combination of a
45 series of pairs of warp-threads, body weft-threads interwoven with the warp-threads, locking weft-threads running across and above all of the warp-threads, and pile-

thread units looped above the locking weft-threads and having the ends passing below
50 and up between the warp-threads on the sides opposite to their locking-loops and adjacent the warps of the next pair.

4. In a pile fabric, warp and body weft-threads interwoven, locking weft-threads
55 running across and above all of the warp-threads and above alternate body weft-threads, and pile-thread units looped above and having their ends passing down on opposite sides of the locking weft-threads and the
60 corresponding body weft-threads and up around at least one warp-thread.

5. In a pile fabric, warp and body weft-threads interwoven, locking weft-threads running across and above all of the warp-
65 threads and above alternate body weft-threads, and pile-thread units looped above and having their ends passing down on opposite sides of the locking weft-threads and the corresponding body weft-threads and up
70 around two warp-threads.

6. In a pile fabric, a series of pairs of warp-threads, body weft-threads interwoven therewith, locking weft-threads running across and above all the warp-threads and super-
75 posed on alternate body weft-threads, and pile-thread units looped above the locking weft-threads and having their ends passing below and up between the warp-threads on the sides opposite their locking-loops and ad-
80 jacent the warps of the next pair.

7. A pile fabric comprising a series of pairs of warp-threads, body weft-threads interwoven therewith, locking weft-threads, and pile-thread units looped over the lock-
85 ing weft-threads, each of said units having the ends passing down and beneath both members of a pair of warp-threads and up on the side of the pair opposite the locking-loop and adjacent the members of the adjacent
90 pair of warp-threads.

EDWARD S. CRADDOCK.

Witnesses:

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ROBT. S. ALLYN.