(Specimens.)

R. H. H. HUNT

WOVEN FABRIC.

No. 361,360. Patented Apr. 19, 1887.

Fig. 1.

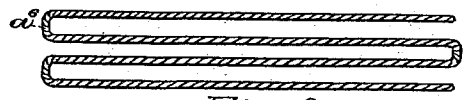


Fig. 2

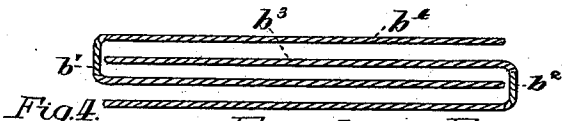


Fig. 3.

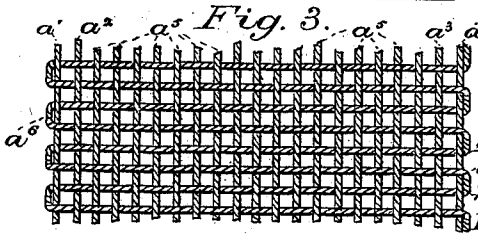


Fig. 4.

Fig. 5

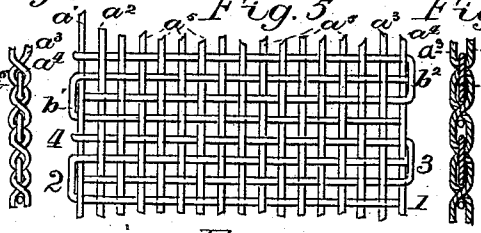


Fig. 6

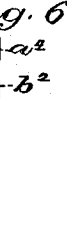


Fig. 7.

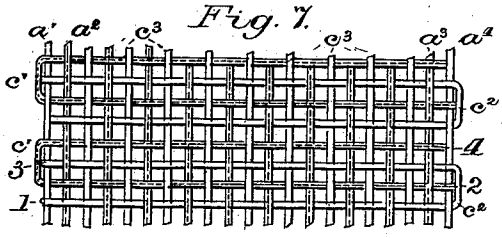


Fig. 8.

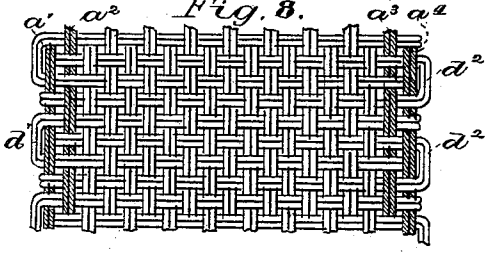


Fig. 9.

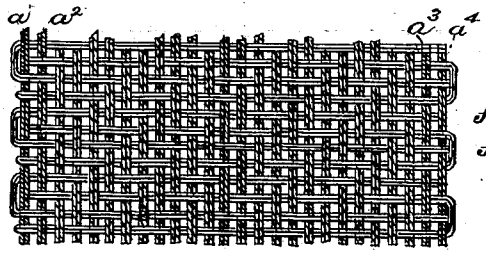
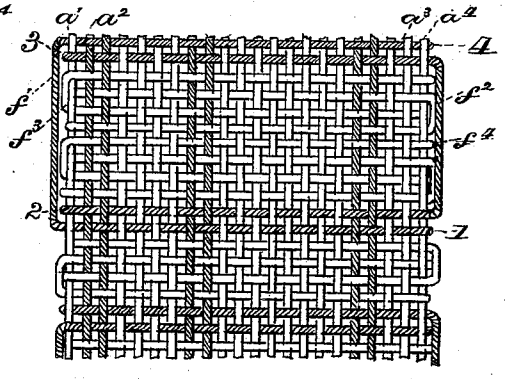


Fig. 10.



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UNITED STATES PATENT OFFICE.

ROBERT H. H. HUNT, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE HUNT AUTOMATIC LOOM COMPANY, OF CALIFORNIA.

WOVEN FABRIC.

SPECIFICATION forming part of Letters Patent No. 361,360, dated April 19, 1887.

Application filed August 2, 1884. Serial No. 139,507. (Specimens.)

To all whom it may concern:

Be it known that I, ROBERT H. H. HUNT, of the city and county of San Francisco, and State of California, have invented certain new and useful Improvements in Woven Fabrics, which consists in a novel combination of the warp and weft, and especially in the construction of the selvage, of which the following is a full, clear, and exact description.

Reference is had to the accompanying drawings, which are made to represent some different styles of woven fabrics enlarged and designed so as the better to show the manner of arrangement of the respective warp and filling threads.

Figure 1 shows the way the filling-yarns lie in the warp when paid off from a bobbin in a shuttle in the usual way of weaving plain fabrics. Fig. 2 shows the way the filling-yarns lie in the plain fabric as laid in in my peculiar way of weaving these fabrics. Fig. 3 is a plan view of a coarse open plain fabric, showing the manner of forming the plain selvage where one shuttle or kind of filling is used, as in ordinary plain cotton-weaving. Fig. 4 is an end view showing the way the outside selvage-threads cross and are bound by the filling in ordinary plain weaving. Fig. 5 is a plan view of a plain woven fabric, showing the manner in which the filling-yarns are laid in the warp and the way in which the selvage-threads are bound in my method of weaving this class of fabric. Fig. 6 is an end view of the selvage of a plain woven fabric, showing the manner in which the warp or selvage threads cross and are interwoven with the filling-threads in forming my peculiar selvage. Fig. 7 is a plan view of a fabric with two colors in warp laid one and one, and two colors of filling woven plain and pick-and-pick, as in forming a plain hair-line or pencil-stripe. Fig. 8 is a plan view of a fabric drawn two threads in an eye and woven plain two picks in the shed, as in plain basket or hop-sack weaving. Fig. 9 is a plan view of a fabric woven four-harness twill two widths broad, showing manner of forming my peculiar selvages in this class of fabrics. Fig. 10 shows the way the filling-yarns would be laid in by my method in weaving a check or plaid pattern.

In the ordinary woven fabric the thread is reeled off the bobbin and laid in by the passage to and fro of the shuttle in one continuous thread, as in Figs. 1 and 3, while in my improved fabric the thread forming the filling is cut in pieces equal in length to about twice the width of the fabric and laid in so as to interlock and bind the selvage, as shown in Figs. 2, 5, 7, 8, 9, and 10.

In Fig. 3, which represents the ordinary form of fabric, a', a^2, a^3, and a^4 represent the selvage-threads, a^5 a^5 the warp-threads, and a^6 the filling-yarn of a plain fabric in which the selvage-threads are drawn and worked the same as the rest of the warp, and cross, as shown in Fig. 4, with every beat of the lay, and so bind the filling-yarn, which is laid in, as usual, in one continuous length as it is paid off by the ordinary shuttle passing to and fro from side to side of the loom in the ordinary manner of weaving a piece of cloth.

In plain two-harness weaving it will be seen the filling-yarns 1 and 3, Fig. 3, or every alternate shot, are laid in the same shed—that is, over and under the same sets of alternate warp-yarns—and in this case all that is necessary to bind the outside selvage-thread is that it change its position with regard to the filling with every beat of the lay or passage of the shuttle, so that the filling passes alternately over and under it, as shown at 1, 2, 3, and 4, Fig. 3.

In my improved fabric, as shown in Fig. 5, it will be seen that owing to the filling being cut in short lengths and laid in, as also shown in Figs. 5, 6, 7, 8, and 9, the outside selvage-threads at least must change only once for each two beats of the lay, or only at every alternate passage of the shuttle, so as to bind the filling-yarn at the edge of the fabric. It will be seen that in this method of constructing a fabric the selvage or outside listing-threads of the warp are bound only by every alternate thread of filling—as, for instance, a' and a^2 are bound by the bight of the thread b', and a^3 and a^4 by the bight of the thread b^2, Figs. 5 and 6, while the ends 1, 2, 3, and 4 are left free and are laid in the selvage, as shown in Fig. 5. In these drawings I have shown only two threads for each selvage, as this is

sufficient for illustration; but ordinarily the usual number will be used. In all cases the free ends of the filling-threads being in the same shed of the selvage as the next adjoining thread that is bound, it will be beat up close to it by the reed in weaving, and be bound by the bight of the length of the filling-yarn that forms the two next adjoining threads and form a close firm selvage. In describing the manner in which these threads are laid in I will speak of the length of filling-yarn as it is measured off for either side of the loom as one thread, as b', Fig. 2, and when it is laid in the fabric in two separate sheds I shall call each end or half of it one thread, as the threads b^3 and b^4, Fig. 2, and the same applies to all the filling-yarns laid in from either side of the loom and of any of the fabrics woven in this way, as shown in Figs. 5, 7, 8, 9, and 10.

In Fig. 7 I have shown how the filling is laid in pick-and-pick, as in weaving hair-lines or in backing. It will be seen that by severing the filling-yarns and laying them in in this way the two colors or kinds of filling can be laid in pick-and-pick by one and the same shuttle or thread-carrier, and while the loom is working pick about the threads 1 and 3 of the light yarn c^2 of the right side being alternately laid in with the threads 2 and 4 of the dark yarn c' of the left side.

In Fig. 8 I show how two or more threads are laid in the same shed at each passage of the shuttle or thread-carrier. The advantage of this is best understood by supposing a case of basket-weaving where two or more colors or kinds of threads are used, and four or six or more threads are laid in the same shed. It will be apparent that the product will be proportionally increased, speed and other things being equal.

In Fig. 9 a common four-harness twill is represented, in which it will be seen that the selvage-threads a' and a^2 and a^3 and a^4 work twill the same as the body of the warp.

In Fig. 10 I represent a two-and-four and two-and-eight check or plaid pattern, in which it will be seen that the light yarns f^3 and f^4, forming the body or ground of the fabric, are laid in and the selvage formed by them, the same as shown in Figs. 5, 6, 7, and 8, while the dark threads f' and f^2, when less than four, or a multiple of four of these are used or laid in in succession in forming the check or bar, will be carried around, as shown, where ends 1 and 4 of the thread f', and the ends 2 and 3 of the thread f^2, will be laid on each side of the part woven by the yarns f^3 and f^4. In all such cases it will be necessary to measure off these yarns f' and f^2, Fig. 10, enough longer than double the width of the fabric woven to make up the difference.

As all woven fabrics are constructed by laying the filling-threads across the warp-threads and thus interweaving them, the quality and pattern of the fabric will not be affected by the device used or the method employed for laying in the filling, so long as the relative position of the warp and filling threads are the same.

I have presented in my drawings a sufficient number of fabrics to demonstrate the adaptability of my method of weaving to all kinds of woven fabrics.

Facing the drawings, as if standing in front of the loom as the fabric is being woven, the threads of filling 1, 2, 3, and 4, at the bottom of Figs. 3 and 7, are the first laid in, and the others follow in the order shown in the figures.

In an accompanying application, No. 139,711, filed August 5, 1884, I have given a detailed account of a device for preparing and laying in the filling in this method of weaving, but do not wish to confine myself to any particular device.

The advantages of my improved fabric are numerous, but need not here be particularly enumerated. It may be said, however, that two or more threads can be laid in at each beat of the lay or passage of the shuttle, as in basket-weaving. Two colors or kinds of filling are laid in pick-and-pick with the one shuttle, while the loom will not require to strike with both picker-sticks at the same time, or pick-and-pick in any case, and consequently run much lighter on all goods or fabrics of this class.

Having now fully described the manner in which my fabric and selvage are constructed, and some of the advantages of weaving fabrics in this way, what I claim as my invention, and desire to have protected by Letters Patent, is—

1. A fabric composed of warp-threads, selvage-threads, and filling-threads, said filling-threads being formed of pieces cut of a length double the width of the fabric to be woven, and being interwoven with the warp and selvage thread, as described, whereby loops and free ends are alternately presented, the selvage-threads binding one side of the loop of one filling-thread and the free end of the adjoining filling-thread, substantially as described.

2. In combination with the body of the woven fabric, a selvage composed of threads running with the warp, and of the alternately cut and looped ends of filling-threads, substantially as described.

In witness whereof I have hereunto set my hand.

ROBERT H. H. HUNT.

Witnesses:
S. H. NOURSE,
H. C. LEE.