

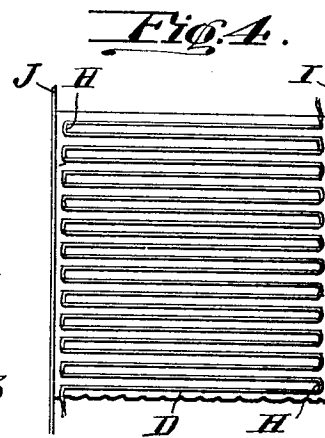
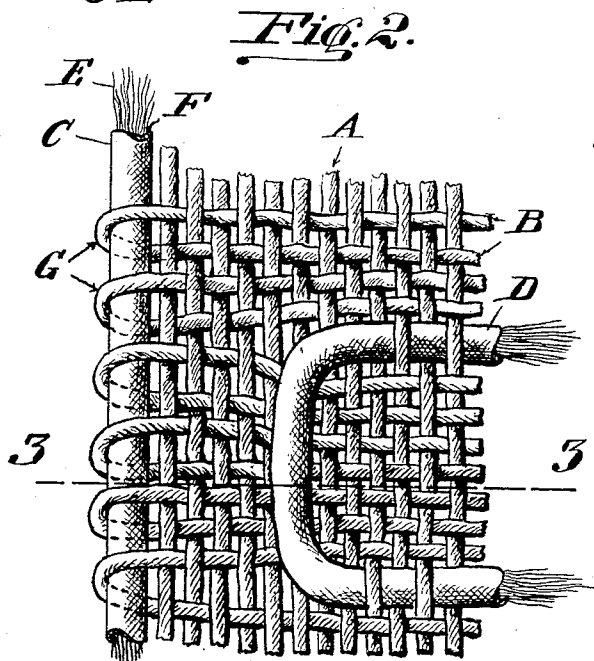
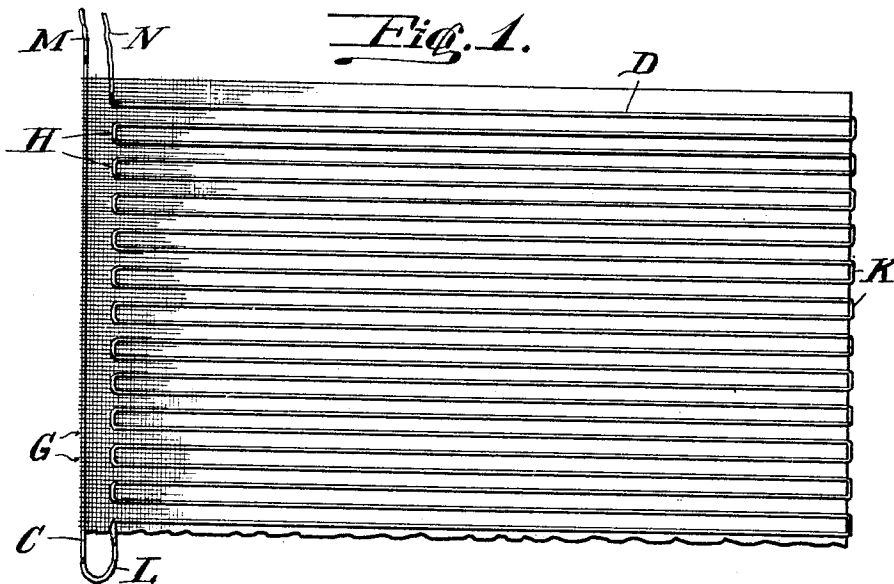
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CLOTH OR FABRIC

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## UNITED STATES PATENT OFFICE.

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CLOTH OR FABRIC.

Application filed August 18, 1925. Serial No. 50,927.

This invention particularly pertains to a woven cloth or fabric which is especially adapted for use in the manufacture of electro-magnetic therapeutic devices such as blankets, pads, garments and the like, and especially relates to that class of woven fabrics in which an electrical conductor is interwoven with the threads of the fabrics.

An object of the invention is to provide a cloth or fabric of the above character in which an electrical conductor is interwoven with the warp threads of the fabric to extend transversely back and forth across the fabric sheet together with the weft or woof threads, and in which an electrical conductor is interwoven with the weft or woof threads along with the warp threads to extend longitudinally of the sheet of fabric along a side margin thereof in spaced relation to the transversely extending conductor.

The invention resides generally in forming a woven cloth or fabric embodying warp and weft threads in which at least one margin or longitudinal edge of the woven fabric is formed of an insulated electrical conductor which serves as a border warp and is held in place in the fabric sheet by the weft threads, and in interweaving a conductor back and forth transversely of the sheet of fabric between certain of the weft threads with the return bends of said second conductor adjacent the marginal conductor spaced inwardly from the latter.

The invention is illustrated in the accompanying drawings, in which:—

Fig. 1 is a plan view of a portion of a sheet of cloth or fabric constructed in accordance with the invention;

Fig. 2 is an enlarged plan view of a fragmentary portion of the sheet showing the manner of interweaving the longitudinal and transverse conductors with the warp and weft thread;

Fig. 3 is a detail in cross section as seen on the line 3—3 of Fig. 2;

Fig. 4 is a detail in plan showing the sheet of fabric as formed with marginal conductors on each of its longitudinal edges.

Referring to the drawings more specifically, A and B indicate the warp and weft threads respectively, C designates the longitudinally extending conductor, and D denotes the transversely extending conductor. The threads A and B are formed of any suitable fibrous material, being preferably formed of cotton. The electrical conduc-

tors C and D preferably consist of magnet wire embodying a series of metallic electrically conductive strands E covered with an insulating sheath F, but may embody any appropriate construction.

In carrying out the invention the conductor B is fed from a loom together with the warp threads A, being arranged to form or constitute a border warp so as to extend along at least one longitudinal extreme margin of the fabric. The weft threads C are interwoven with the warp threads A in the manner common in woven fabric construction, and in weaving the fabric the return bends of the weft threads are passed around the conductor C as indicated at G, so as to retain the conductor C in place and whereby the conductor C will form the extreme side margin or selvage of the woven sheet.

The conductor D is woven back and forth between certain of the weft threads, being interwoven with the warp threads A so as to extend transversely of the sheet with adjacent leads of the conductor spaced apart and with a series of leads of the weft threads extending between the adjacent leads of the conductor. It being desirable that the conductors C and D be spaced apart, the return bends H of the conductor D are spaced inwardly from the conductor C.

In some instances it may be desirable to form both side margins of the sheet of longitudinal conductors as indicated at I and J in Fig. 4, in which event the return bends H of the conductor D will be spaced inwardly from the conductors I and J, but it has been found in practice that for all ordinary purposes it is only necessary to provide the sheet with a longitudinal conductor only on one side edge thereof as shown in Fig. 1, in which event the return bends of the conductor D at the side of the sheet opposite the conductor C are formed at the extreme side edge of the sheet as indicated at K in Fig. 1.

By thus interweaving the conductors C and D into the body of the fabric a strip or ribbon of fabric may be formed of indeterminate length and be thereafter cut transversely into sections between a pair of the adjacent leads of the conductor D. Then in order to afford a continuous circuit through the conductors C and D a splice or connection may be made between one end of the conductor C and an adjacent end of the conductor D as indicated at L in Fig. 1 and

the other ends of the conductors C and D may be attached to leads M and N extending from the fabric sheet and connecting with any suitable device whereby they may be connected into an electric circuit.

By thus weaving the longitudinal conductor C into the fabric sheet as a side warp it is readily incorporated in the fabric and is securely held in place and while serving as a means of facilitating connecting the ends of the conductor D into an electrical circuit from one corner of the fabric sheet is also advantageous in that it affords a desirable reinforcement along the marginal edge of the fabric. This construction is further advantageous in that it obviates the necessity of stitching a terminal conductor onto a sheet of wire-carrying fabric as is now commonly practiced in the manufacture of electro-magnetic blankets and the like.

I am aware that it is old in the art to interweave electrical conductors back and

forth through the warp threads of a fabric, and accordingly, I do not claim such construction per se, but what I claim and desire to secure by Letters Patent is:—

A cloth or fabric consisting of interwoven warps and wefts, an insulated electrical conductor interwoven back and forth with the warps, and a second conductor constituting a side warp interwoven with the wefts along at least one extreme margin of the fabric sheet, an electrical connection at one corner of the fabric aligning with said margin between one end of the marginal conductor and one end of the transverse conductor, and a spliced continuation of said conductors which connects them together at the corner of the fabric at the other end of said margin to complete the circuit.

In testimony whereof I have affixed my signature.

THOMAS H. MCCOMSEY.