(No Model.)

H. W. JOHNS.

FABRIC FOR COVERING HEATED SURFACES.

No. 310,205. Patented Jan. 6, 1885.

Fig. 1.



Fig. 2.

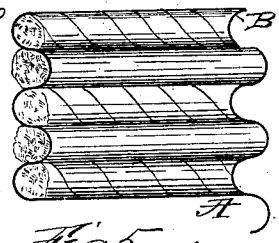


Fig. 3.

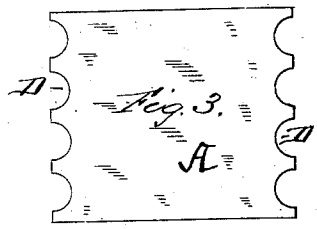


Fig. 4.

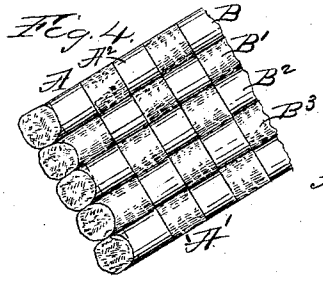


Fig. 5.



Fig. 6.



Fig. 8.

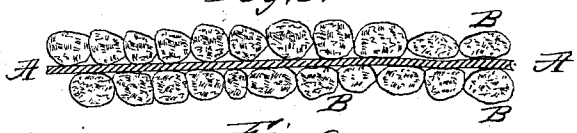


Fig. 9.

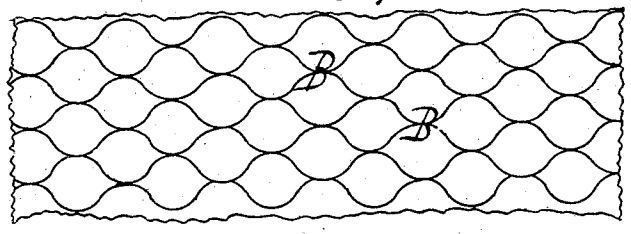


Fig. 10.

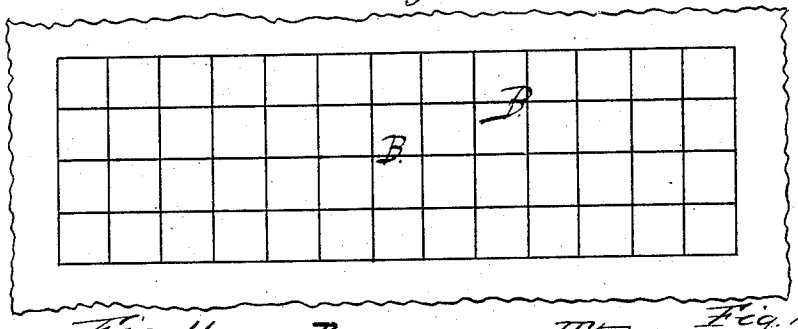


Fig. 11.

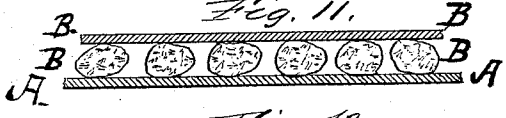


Fig. 12.

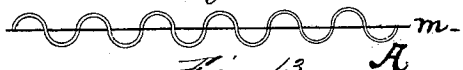
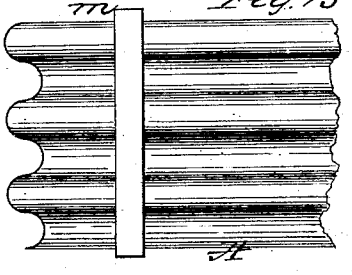


Fig. 13.



Fig. 13a.



Witnesses
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UNITED STATES PATENT OFFICE.

HENRY W. JOHNS, OF NEW YORK, N. Y.

FABRIC FOR COVERING HEATED SURFACES.

SPECIFICATION forming part of Letters Patent No. 310,205, dated January 6, 1885.

Application filed February 1, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. JOHNS, of the city, county, and State of New York, have invented a new and useful Improvement in Fabrics for Covering Heated Surfaces or Surfaces to be Protected from Radiation or Great Heat, of which the following is such a full, clear, and exact description as will enable others skilled in the art to make and use the same, when taken in connection with the accompanying drawings, in which—

Figure 1 is a sectional view of the fabric at right angles to the loose rolls. Fig. 2 is a perspective view of the fabric. Fig. 3 is a view of a sheet used in making the fabric. Fig. 4 is a perspective view of a fabric woven from the rolls and corrugated sheet. Fig. 5 is a section of a modification. Fig. 6 is a section of the same showing a joint. Fig. 8 is a section of a modification. Fig. 9 is a face view of another modification. Fig. 10 is a like view of another modification. Fig. 11 is a cross-section of a modification of Fig. 10. Figs. 12 and 13 show the manner of adding strengthening strips or threads to the sheet.

This invention relates to a new and useful fabric for covering heated surfaces or surfaces to be protected from radiation or great heat; and it consists of a combination of a paper sheathing or sheet with a covering of loose and compressible rolls or ropes of fibrous material and the various combinations hereinafter specified and claimed.

In carrying out this my invention a piece of heavy paper or sheathing is corrugated, as shown at A in Fig. 1, and within the corrugations on either side are placed the rolls, ropes, or bats B B and C C. These rolls or bats may be retained in their position by glue, cement, sewing or tying, or may be placed in position as the paper or sheathing is applied to the surface to be covered.

The rolls or bats may be used on either one or both sides of the paper or sheathing; but a more serviceable fabric is made when all the corrugations on each side of the sheet are filled.

The fabric may be made as shown in Fig. 2, where the corrugated sheet A is combined with the continuous rope or batting B, which continues from one edge of the sheet to the other, filling a corrugation first on one side and then the adjacent corrugation on the other side of the sheet.

The paper, sheathing, or sheet may be made with an edge having notches on it or scalloped edges, as shown in Fig. 3, where the notches are shown by D. This paper, sheathing, or sheet is so corrugated that the notches will form the sides of the corrugations, and not the top or bottom thereof, whereby the core or batting will pass from one corrugation to the next through one of the notches D, and be thereby held in its place in the corrugations; or the sheet may be plain or indented instead of corrugated, but provided with scalloped or notched edges, and the cord or batting wound or woven around it, the cord or batting fitting into the notches or scallops at the edges of the sheet.

The bats or batting may be fastened by glue or in any suitable manner.

Fig. 4 is a perspective view of a fabric made of several pieces of the corrugated paper, sheathing, or sheet A A, combined with the cord or batting B, so as to form a woven-like fabric, the strips of paper or sheathing acting as a warp. The piece A is over B and under B′, over B^2 and under B^3, and A′ is under B and over B′, under B^2 and over B^3, and A^2 is in the same relation as A, and so alternating throughout and making a firm and strong fabric more pliable than when a continous sheet of paper or sheathing is used.

The several pieces and parts may be attached to one another by gluing, cement, or in any appropriate manner, if desired.

To the faces or either of the faces may be fastened a sheet of asbestus, or other paper or cloth, or metal sheet or other suitable sheet, as shown in Fig. 5, where the corrugated sheet is shown by A, the rolls or ropes by B, and the sheets attached by E and F. The sheets E and F may be extended beyond the edge of the fabric to which they are applied, so as to form flaps *e* and *f*, which may be turned over the edge of the fabric, as at *e* and *f*, and, if desired, attached to E and F, respectively, by glue or cement, thereby binding the whole into a compact fabric, or these flaps may be left free and fastened to the edge of another like fabric, so as to make a continuous sheet, as at Fig. 6.

Two or more of any or either of these fabrics

may be placed together face to face, so as to increase the thickness, and glued, cemented, sewed, or otherwise fastened to one another into a firm fabric.

The fabric may be made by fastening to either or both sides of a plain sheet of paper, sheathing, or other sheet the loose roll, rope, or bat, so that they completely cover the surface or surfaces thereof, as shown in Fig. 8, wherein A represents the paper or sheathing, and B the roll or ropes. The paper may be flat and even or indented or corrugated. The rolls or ropes are glued or otherwise fastened to the surface of the paper or sheathing, or may be sewed thereto by sewing through the whole. When a plain paper is used for this purpose the rolls or ropes may be placed so as to run in a different direction on the two opposite sides of the paper, if desired.

The rolls or ropes may be placed on the paper, sheathing, or sheet in a serpentine or other form, so as to form spaces or chambers between them, as shown in Fig. 9. The rolls may be attached to the sheet at short intervals from one another, and the space between them divided into sections by cross-pieces, as shown in Fig. 10, dividing the surface of the sheet into squares or oblong divisions. There may be one or more layers of the rolls or ropes placed over the first, so as to close or divide the air-chambers left between the rolls or ropes first attached to the sheet of sheathing, as shown in Fig. 11, or to form a material of greater thickness.

The rope, roll, or batting used in making the above-described fabric may be composed of asbestus broken into a fibrous condition and formed by rolling or twisting into the desired form, or it may be asbestus mixed with mineral wool, hair, wool, or other fibrous substance, or any fibrous material alone or mixed with other fibrous material.

The paper, sheathing, or sheet may be asbestus paper or sheathing, or paper or sheathing of other material, or sheet metal, or cloth or felt.

When the fabric is to be exposed to great heat, it is preferred to have the paper and roll or rope each of pure asbestus.

Whatever material is used in making the fabric may be coated or saturated with a fireproof composition, or a binding or stiffening material, or both, during manufacture, when manufactured, or when applied, to form a stiff sheet, which will hold it in place, or when, if dried in a cylindrical form, it may be sprung on pipes.

The loose rolls may be saturated with a hardening substance before manufacture into a fabric, if desired. I have found a silicate of soda give good results; but many other materials may be used for the purpose.

For the loose and compressible roll or rope may be substituted a hard cord, roll, or rope, or strip; but a loose roll or rope is preferred.

Instead of the fibrous roll or rope a roll or rope made of strips of asbestus paper or board may be used, which should be twisted into a rope-like form.

The loose cord or rope may have within it a core or strengthening piece of wire or strong cord to keep it from stretching or breaking.

The sheets may have fastened to them other sheets or cords or wires to give an increased strength, and the corrugated sheets may have cords, wires, or strips passing through the corrugations so as to hold them in place, as shown in Fig. 12, or wires, cords, strips, or other sheets may be attached, as shown in Fig. 13, wherein A represents the sheet and *m* the cord, strip, or sheet attached.

What I claim as new, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, a fabric composed of a sheet having attached to the surface thereof rolls or ropes of fibrous material, substantially as specified.

2. The combination, in a fabric, of a corrugated sheet and rolls or ropes contained in the corrugations, substantially as specified.

3. The combination, in a fabric, of a sheet having notched edges and rolls or ropes covering the surface and fitting into the notches, substantially as specified.

4. The combination, in a fabric, of a corrugated sheet having notched edges and rolls or ropes fitting into the corrugations and notches, substantially as specified.

5. The combination, of a sheet, with rolls or ropes attached to one or both surfaces, the sheet extending at the sides beyond the covering, substantially as specified.

6. The fabric consisting of rolls or ropes woven with strips of paper, sheathing, or other sheet, substantially as specified.

HENRY W. JOHNS.

Witnesses:

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