Oct. 13, 1931. O. F. MOTTWEILER ET AL 1,827,035

INSULATING JACKET

Filed Nov. 25, 1927

Fig. 1.

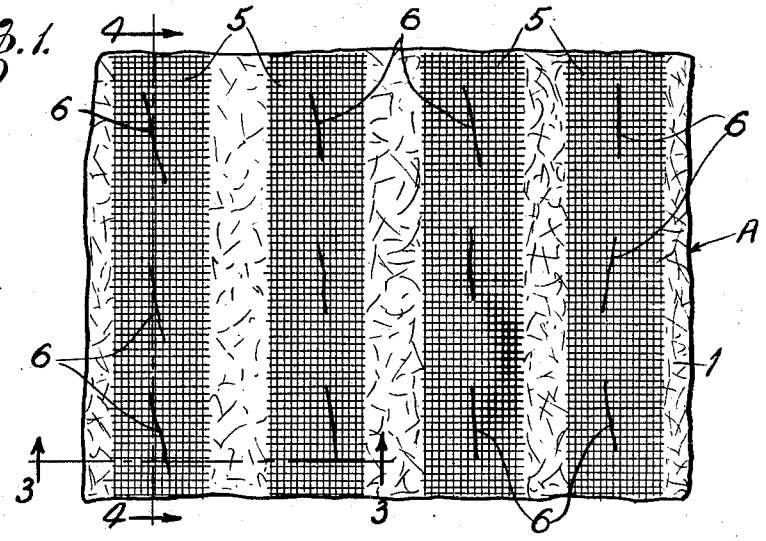


Fig. 2.

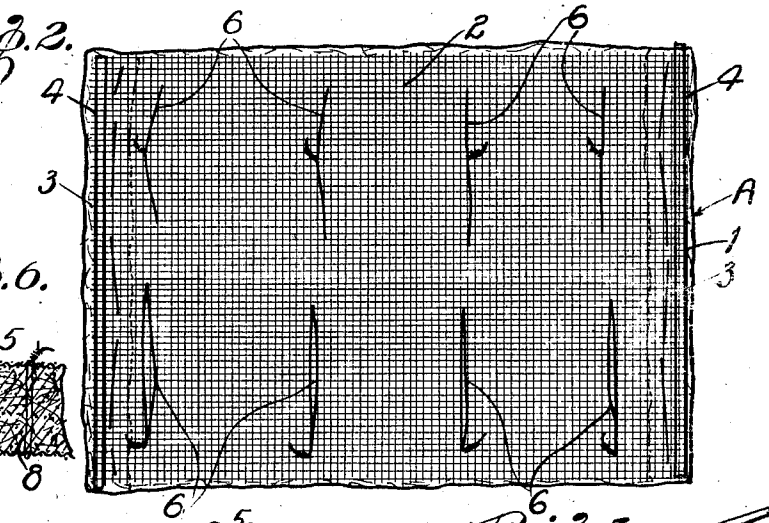


Fig. 6.

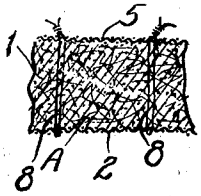


Fig. 3.

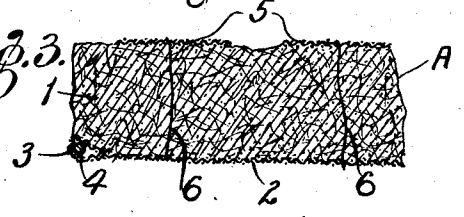


Fig. 5.

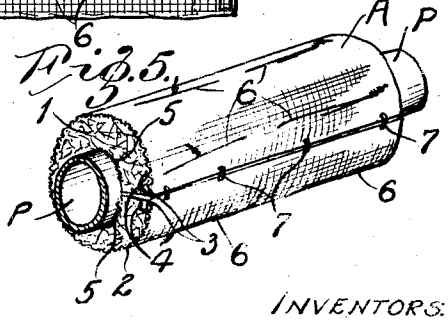
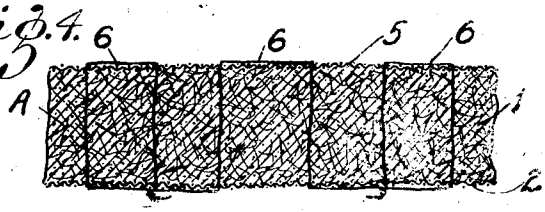


Fig. 4.



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Patented Oct. 13, 1931

1,827,035

UNITED STATES PATENT OFFICE

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INSULATING JACKET

Application filed November 25, 1927. Serial No. 235,554.

This invention relates generally to insulating jackets, and particularly to jackets adapted to be used for insulating purposes in connection with circular or cylindrical structures such as pipes, boilers, and the like, the predominant object of the invention being to produce an insulating jacket of the type mentioned which is much more simple to manufacture and which functions more efficiently when in use than similar insulating jackets heretofore known.

Prior to this invention, insulating jackets were produced, each of which was provided with a plurality of V-shaped spaces formed in the body of the insulating material which comprised the jacket. The jackets referred to were provided with these V-shaped spaces under the false impression that they were necessary to prevent cracking of the outer casings of the jackets when said jackets were arranged in circular form about the element to be insulated, but it has been found when an insulating jacket is made in accordance with our invention, that no V-shaped spaces are necessary as there is no tendency for the outer casings of the jackets to be cracked in the absence of said V-shaped spaces. The elimination of the V-shaped spaces referred to renders the cost of manufacturing our improved jacket much less than the cost of manufacturing the jackets heretofore used.

In addition to the foregoing, it has been found that the presence of the V-shaped spaces in the body of the insulating jacket decreased the insulating efficiency of the jacket at the points of location of the spaces. It is true that the spaces referred to, which are V-shaped when the jacket is in flat form, are intended to be drawn together when the jacket is arranged in circular form so that mere lines are presented, but these lines destroy the uniformity of the density of the insulating material of which the jacket is formed, and, consequently, seriously affect the insulating properties of the jacket and render same non-uniform. Our improved insulating jacket does not include any spaces formed in the insulating material which would affect the uniformity of the density of said material, and, therefore, the insulating properties of the jacket are uniform throughout said jacket.

Also, it was thought heretofore that the V-shaped spaces were necessary to provide sufficient flexibility to enable the insulating structure to be wrapped about pipes or other elements of small diameters, but it has been found that a structure made in accordance with our invention has all of the flexibility required.

Figure 1 is an inverted plan view of a fragment of an insulating jacket made in accordance with out invention, the uppermost face of the jacket in said view being the face thereof which is arranged in contact with the element being insulated when the jacket is in use;

Figure 2 is a plan view of a fragment of an insulating jacket looking at the face thereof which is remote from the element being insulated when the jacket is in use;

Figure 3 is a section on line 3—3 of Fig. 1;

Figure 4 is a section on line 4—4 of Fig. 1;

Figure 5 is a fragmentary perspective showing our improved insulating jacket when same is in use.

Figure 6 is a fragmentary section illustrating a modified form of the fastening means of our improved insulating jacket.

In the drawings, which illustrate one embodiment of our invention, A designates the improved insulating jacket which comprises an insulating strip formed of a body portion 1 made up of an amount of rock wool or similar insulating material which has been subjected to compression to give to said material the required density. The body portion 1 is preferably rectangular in plan and may be of any desired dimensions with respect to length, breadth and thickness, and the density of the rock wool of which said body portion is comprised is substantially uniform throughout so that the insulating value of said body portion will be substantially uniform at all points thereof. Also, the body portion 1 is of approximately constant thickness and there are no depressions or notches formed therein which would tend to decrease the insulating efficiency thereof at any particular point of said body portion.

Arranged in contact with the face of the body portion which is remote from the element being insulated when the jacket is in use is a layer of material which is adapted to confine the insulating material of which the body portion 1 is formed. This layer may be of various materials which may be found to be suitable, such as canvas, tar-paper, cheese-cloth, etc., but we prefer to use, and we show in the drawing, this layer being in the form of wire mesh 2. The layer of wire mesh 2 is co-extensive with the face of the body portion 1 with which it is in contact, and we prefer to turn opposite end portions of said layer of material rearwardly on itself and secure said portions in said turned-back condition by suitable fastening means to produce elongated loops 3 in which rods 4 are arranged longitudinally, as shown in Figs. 2 and 3.

Arranged in contact with the face of the body portion 1 opposite to the face thereof having the layer of wire mesh associated therewith, is a plurality of strips of material 5, preferably of wire mesh. Here also, we may, if desired, employ canvas, tar-paper, cheese-cloth, or other material which may be found to be suitable to produce the strips 5. The strips of material 5 are spaced from each other longitudinally of the body portion 1, as shown in Fig. 1, there being spaces between the adjacent pairs of strips which are intended for a purpose to be hereinafter set forth.

The body portion 1, the layer of wire mesh 2, and the strips of wire mesh 5 are secured together to produce a unitary structure by means of pieces of wire 6 which are extended longitudinally of the strips of wire 5, there being preferably one of these pieces of wire associated with each strip of wire mesh, and said pieces of wire being passed through the associated body portion 1, layer of wire mesh 2, and strips of wire mesh 5, alternately from one face of the jacket to the other, as shown in Fig. 4, to stitch the elements making up the jacket together. The ends of the pieces of wire which will be present after the stitching operation has been completed will be twisted, as suggested by Fig. 4, to secure said ends in place.

The continuous layer of material 2 which is arranged in contact with the outer face of the jacket when same is in use, is preferably painted with a suitable waterproof paint to render the outer surface of the jacket waterproof and to prevent rusting of the material of which this continuous layer is formed when said layer is wire mesh. When a jacket is required to withstand relatively low temperatures only, we prefer to use asphalt paint, but other paints may be used with equal success if desired.

When one of our improved jackets is put in use in connection with a pipe, for instance, said jacket is formed about the pipe as shown in Fig. 5, in which view P designates the pipe to be insulated. The strips 5 will be in contact with the pipe P when the jacket is arranged about said pipe, the spaces between said strips permitting the jacket to bend freely so that it may be arranged in circular form. When the jacket is arranged in circular form as described, the rods 4 will be brought into proximity with each other, as shown in Fig. 5. The edges of the jacket which are brought together by the action of bending said jacket about the pipe are then secured together by suitable fastening devices 7 which are caused to embrace the rods 4, and for this purpose, we prefer to employ ordinary hog rings which may be bent to embrace the rods 4, as suggested in Fig. 5. The important function of the rods 4 is to provide rigid means to which the fastening devices 7 may be attached, for it is obvious that in the absence of the rods 4, the fastening devices 7 would have to be connected directly to the wire mesh or other material arranged adjacent to the outer face of the body portion 1, and it is quite likely that the wire mesh or other material may be torn by the fastening devices, whereby the connected edges of the jacket would be permitted to pull away from each other.

When one of our improved jackets is arranged about the pipe or other circular element as described, it is plain that said element will be surrounded by an insulating strip of uniform insulating value throughout, whereby very high insulating efficiency will be obtained.

If desired, we may substitute for the wire stitches 6 a plurality of individual anchor members 8, such as shown in Fig. 6, the free ends of said anchor members being twisted together as illustrated in the view mentioned to secure the body portion 1, the layer of material 2 and the strips of material 5 together.

We claim:

1. An insulating structure comprising a body portion formed of insulating material having its opposite sides formed with continuous surfaces, a continuous layer of material arranged in contact with one continuous surface of said body portion, rods attached to said continuous layer of material at opposite ends thereof, a plurality of strips of material arranged in spaced relation in contact with the opposite continuous surface of said body portion, and fastening means extending through said body portion, said layer of material and said strips of material whereby a unitary insulating structure is produced.

2. An insulating structure comprising a body portion formed of insulating material having its opposite sides formed with continuous surfaces, a continuous layer of material arranged in contact with one continuous surface of said body portion, said continuous layer of material being provided with loops

at opposite ends thereof, rods arranged in said loops, a plurality of strips of material arranged in spaced relation in contact with the opposite continuous surface of said body portion, and fastening means extending through said body portion, said layer of material and said strips of material whereby a unitary structure is produced.

3. An insulating structure comprising a body portion formed of insulating material having its opposite sides formed with continuous surfaces, a continuous layer of wire mesh arranged in contact with one continuous surface of said body portion, said continuous layer of wire mesh being coated with a paint adapted to render same waterproof and prevent rusting thereof, rods attached to said continuous layer of wire mesh at opposite ends thereof, a plurality of strips of material arranged in spaced relation in contact with the opposite continuous surface of said body portion, and fastening means extending through said body portion, said layer of wire mesh and said strips of wire mesh whereby a unitary insulating structure is produced.

4. An insulating structure comprising a body portion formed of insulating material having its opposite sides formed with continuous surfaces, a continuous layer of material arranged in contact with one continuous surface of said body portion, rods attached to said continuous layer of material at opposite ends thereof, a plurality of strips of material arranged in spaced relation in contact with the opposite continuous surface of said body portion, fastening means extending through said body portion, said layer of material and said strips of material whereby a unitary insulating structure is produced, said insulating structure being arranged about the element to be insulated in a manner to bring the edges at which said rods are arranged together, and fastening means embracing said rods whereby said insulating structure is maintained in position about the element to be insulated.

In testimony whereof, we have hereunto set our hands.

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