

# United States Patent Office.

WILLIAM B. COATES, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR FOR ONE-HALF HIS RIGHT TO JOSEPH LEEDS, OF SAME PLACE.

*Letters Patent No. 106,327, dated August 16, 1870; antedated August 4, 1870.*

## IMPROVEMENT IN ROOFING-FELT.

The Schedule referred to in these Letters Patent and making part of the same

*To all whom it may concern:*

Be it known that I, WILLIAM B. COATES, of the city of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Roofing-Felts; and I do hereby declare the following to be a full, clear, and exact description of the same.

The object of my invention is to make the various roofing-felts now known more valuable and better adapted to the purpose of turning rain or snow-water than they proved to be in actual use, and to make them superior non-conductors of heat.

The nature of my invention consists in applying a properly-prepared sizing to the upper and lower sides and edges of roofing-felts, and, after it dries, a coat of some good carbon paint, with as much fine dry sand sprinkled over the paint as the latter will hold; also, a wash of lime, white or colored, with pigments to suit the fancy, prepared so as not to readily come off, to be put on after the sand is perfectly dry.

In order to enable others skilled in the art to make and use my invention I will proceed to describe the same.

The common feltings are liable to become rough and somewhat flimsy from frequent handling and transportation, and this rough usage leads to a partial separation of the fibers composing the material, and occasions a tendency to leak when put on roofs that are unusually flat, and even when painted are not generally deprived of their objectionable feature.

There are large numbers of persons who would like to use the felts for roofing, if assured that they could rely upon them to turn snow-water and be of satisfactory utility.

After repeated experiments I have proved that the felts can be much improved and rendered next to slate, double-cross tin, or cedar shingles, in durability.

The manner of accomplishing this will depend, somewhat, upon the quality of the felts and the judgment of those who may carry out my ideas.

Though the success of my invention does not exactly depend upon a perfectly correct proportion of ingredients in the sizing, or the thickness of the coats of paint and sand or washes, yet, to prevent any misunderstanding, I will be exact in my description in regard to the requisite details of preparation and the manner of accomplishing my purposes.

The felting is first carefully examined, as none but good and perfect goods should be used, and is then ready for sizing.

This can be done in small quantities, by hand, and using a wide brush or in large quantities, by machinery.

The main object of sizing is to keep the paint on the surface and act as a base for other coats; without it the paints sink into the feltings and seem to disappear.

I make the sizing of wheat or rye flour and water, in the proportion of one quarter of a pound, more or less, of wheat or rye flour to one gallon of water, and it should boil, without burning, for ten minutes; when done, strain it through a coarse bag.

Next, take one-half ounce, more or less, of good glue, and boil it in one quart of water for fifteen minutes, strain it, and mix well with the boiled flour or rye.

They can be prepared in lukewarm or cold water to answer as well, but the glue should remain till dissolved, and the wheat or rye flour, ten minutes.

In these proportions, and in either manner, any quantity of sizing can be made.

The felts are run through the sizing by means of proper machinery, quite rapidly, so as not to absorb too large a quantity, and are then dried.

If a small lot of felting is required, the sizing can be put on with a hand-brush.

In covering the felting with a coat of paint a hand-brush can be used for small lots or machinery for large quantities.

The machinery used is quite simple, consisting of a vat with a sliding roller near the lower part, inside, and two gummed rollers at the top.

One end of the felting is put under the lower roller and brought up through the top rollers.

The sizing is put in a vat of this construction, the paint in a second, and the washes in others. Each vat is half filled.

The felts are made in one continuous piece by securing them at the ends, and are forced through each preparation by turning the two rollers; first, they can be sized and dried, then run through the paint, brought over a fourth roller within a box, where they are sprinkled well on every part with fine sand, and when dry, can have a second coat, or more, of paint and sand, or run through the third vat, and finished with whitewash or fancy washes.

I propose and intend running the felts, after being covered with either of the above washes and dried, through a preparation, as follows:

Two ounces of white glue, dissolved in warm water, say one gallon, and half a pound of white flour, mixed raw, in one gallon of water, strained, to hold or fix the washes.

The whitewash is made by slaking lime in the proportion of one quarter of a peck to a bucket of warm water, strain it, and mix in it the following preparation: glue, half an ounce, more or less, dissolved in

a quart of warm water, stir in the glue-water one ounce, more or less, of raw wheat flour, and, if fancy colors are desired, use various pigments.

As soon as the wash is dry, the prepared felts can be rolled in long or short pieces, at pleasure, bound in wrappers, and is then ready for sale and use.

By these various coats the ordinary felts are protected and strengthened, and rendered not only more lasting, but proof against all sparks or coals of fire.

The coats fill up all the small holes in the felts and transform them into an external mineral substance better able to resist snow-water and frost. They are rendered a better non-conductor of heat, while the white or other colored wash gives the roofs a more beautiful appearance.

Another advantage is that all dirt arising from the workmen tracking paint from the roofs down through a tidy house is entirely prevented.

The price at which this improved felting can be furnished will be less than the present cost of twice painting the felts when on the roofs.

The felts are put on roofs with a lap of two inches at the joints.

I do not desire, at present, to claim the machinery I shall use in preparing the roofing-felts.

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

The preparation of roofing-felts by the process of sizing, carbon painting, sanding, white or color washing, and fixing the washes, as fully set forth and described in the foregoing specification, as a new article of manufacture.

WILLIAM B. COATES.

Witnesses:

JOSEPH LEEDS,

JOHN T. HOUGHTON.