

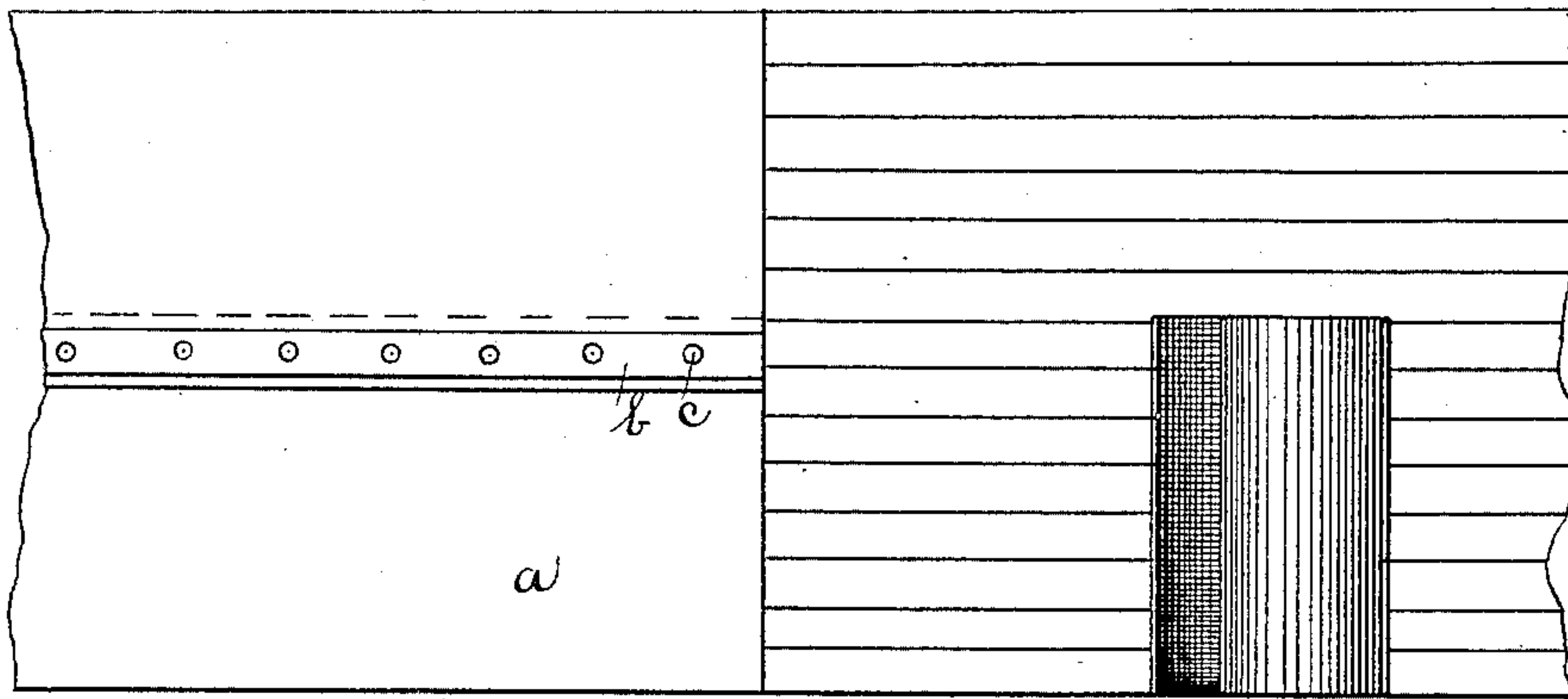
(No Model.)

D. HARGER.  
COMPOSITE ROOFING.

No. 419,120.

Patented Jan. 7, 1890.

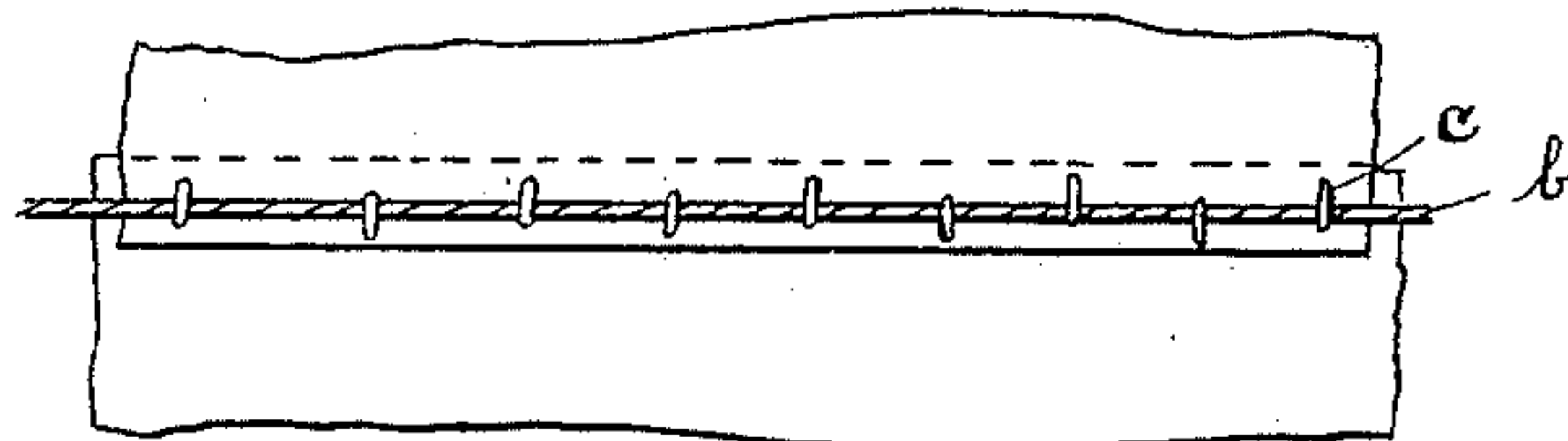
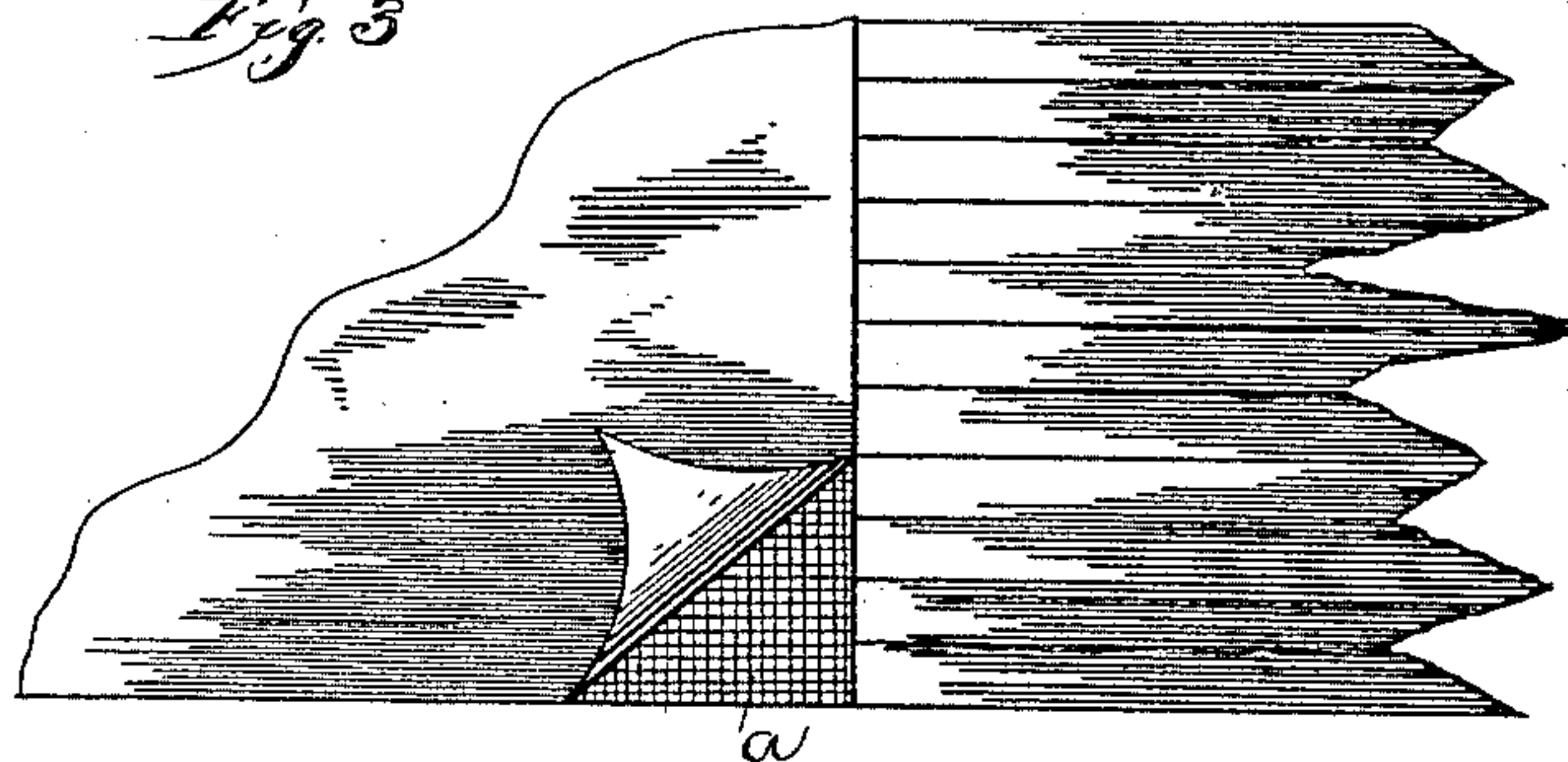
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*

Witnesses:

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# UNITED STATES PATENT OFFICE.

DAVID HARGER, OF DES MOINES, IOWA.

## COMPOSITE ROOFING.

SPECIFICATION forming part of Letters Patent No. 419,120, dated January 7, 1890.

Application filed March 19, 1889. Serial No. 303,903. (No specimens.)

*To all whom it may concern:*

Be it known that I, DAVID HARGER, of Des Moines, in the county of Polk and State of Iowa, have invented certain new and useful  
5 Improvements in Composite Roofing; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to  
10 which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in that kind of composite roofing which is made or formed directly on the roof it is designed to protect.

The object of the invention is to cover sheathing, tin, or old roofs of felt, or flat roofs,  
20 as well as very steep roofs having a smooth outer surface, either in broken places or in whole.

The invention consists in placing and securing a single-ply layer or sheet of cotton, felt, or other suitable open fibrous material on the roof to be covered. I then coat it with  
25 incombustible adhesive paint, then a second layer of cotton, muslin, or the like, and then secure the whole to the sheathing or roof. I  
30 then press the said layers together, uniting them by means of the adhesive paint between them, and the paint passing through the under layer to the roof-sheathing, and, finally, when dry this roofing receives another coat of  
35 non-combustible metallic paint, first heated to a consistency to readily spread and fill the interstices in the fiber of the cloth. When the paint dries and becomes hard, the roof as  
40 complete will appear glossy, and is perfectly impervious to water, and is fire-proof.

In the accompanying drawings, Figure 1 shows the roof as partly laid and finished, also showing the sheathing with a roll of cotton ready to be put down; Fig. 2, a section  
45 through the roof when complete. Fig. 3 shows a portion of a roof made of sheathing, upon which is laid a portion of my roofing material, one layer of the cotton being turned over; and Fig. 4 is a plan view showing the manner  
50 of uniting the meeting edges of the sections of the roofing.

The invention is an improvement on patent

granted to me on the 7th day of September, 1886, in which the roofing material is made before putting it on the roof; but I find by  
55 making it of two or more ply of felting, cotton, paint, and the like it is too heavy and expensive, and, besides, there is great waste; but with my new method I can handle it with safety and facility, and by laying the different  
60 materials on the roof separately and manufacturing the covering as I progress the roofing material lies better and is more compactly formed, is less liable to crack, makes a more complete roofing without waste, and  
65 is altogether a more satisfactory roof. It is also much cheaper by being put on and made where it is designed to remain, avoiding the cost of manufacture at factories, the breaking of the edge, and the cost of handling and  
70 transportation, as well as hoisting to the roof in bulk.

I may employ any of the well-known metallic paints, mixing them with adhesive substances, such as rosin, gum-shellac, rosin-oil,  
75 or linseed-oil, and asphaltum, in proper proportions, heating them sufficiently to melt the substances together, stirring and mixing the same to insure a perfect union thereof. For outside covering I may dispense with  
80 some of the vegetable substances.

Mineral paints mixed with mineral non-combustible adhesive substance, when in a heated condition, will adhere sufficiently to the fabric to hold it and fill the interstices of  
85 the fiber. Asphaltum and oil may be mixed with the paint to preserve the roofing from decay, as the less vegetable substances there are used the more lasting will be the roof.

The cotton or muslin is very cheap and  
90 durable when subjected to my preparation, and is not liable to rot out or break. It will not draw or warp when its fibers are fully saturated, and will therefore remain fixed in the position when laid in a continuous integral  
95 sheet.

In laying this roofing a sheet (of suitable width and length) of fibrous material *a* is first laid, stretched, and secured directly upon the roof, either the sheathing or old covering  
100 of the roof. This textile layer is then covered and saturated with a coating of the above-mentioned adhesive mixture *d*, Fig. 2. Another layer of the textile fabric *a* is then



stretched upon said paint while soft and pressed down upon the same, thereby uniting the textile layers when the adhesive paint hardens, and when this adhesive paint has  
 5 thoroughly dried and hardened the outer textile layer is covered with a coating of non-combustible mineral paint *e*.

Patches on old roofs and on leaky places can be readily put on as solid as if the whole roof  
 10 were covered with my material, as the cotton or felt is first laid on when very pliable and can be pressed into any crevices and on the edges of the old covering, so that when the cement is put on a close joint is formed, and both the  
 15 old and the new become an integral sheet, as if originally laid down.

Cotton or muslin may be substituted for the felt when desired, and when only a single thickness is laid on the roof and the adhesive  
 20 material applied it passes through the fibers of the cotton and adheres to the roof, and thus cements it in such manner not only to prevent leakage, but secures the roofing to the sheathing, so that the wind will never get  
 25 under it and blow it off. This is a great consideration in sheet roofing, as it is well known that many sheet roofs are blown off by the wind getting beneath them, and, not being properly secured to the roof, are blown off,  
 30 causing great destruction.

The manner of securing the seams of one width to the other is expressed in my patent above referred to, which is: "In applying the roofing material I simply overlap the edges  
 35 of the two adjacent widths and nail them to the sheathing; but I prefer to use in connection with this slip a strip or ribbon of tin or other metal, through which the nails are to pass;" or I may use a stiff wire *b* instead of the  
 40 metal strips over the seams, and secure it by driving hook-headed nails *C* over it into the sheathing through the roofing material, securing the whole rigidly together, and thus stiffen, and, in addition to the under ply being sealed to the roof, rigidly secure the roofing to the sheathing, which is of course properly anchored to the rafters. In this way I

produce a roof cheap, durable, and secure, which cannot be done by first making the roofing and afterward laying it on the sheathing and nailing it thereto. 50

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The herein-described composite roofing, 55 consisting of a layer of textile fabric stretched upon the roof, a coating of adhesive paint upon and saturating said textile layer and passing through the same and thereby cementing it to the roof, another layer of textile fabric pressed upon said coating of adhesive paint while soft and thereby cemented to the lower textile layer, and a coating of non-combustible mineral paint upon the outer textile layer, substantially as described. 65

2. The herein-described composite roofing, consisting of two or more layers of single-ply woven fabric or cotton cloth, saturated with and coated between the layers with a mixture of rosin, shellac, rosin-oil, and asphaltum, and having a top dressing of mineral paint mixed in suitable proportions with oil, for the purpose set forth. 70

3. The herein-described roofing material made in strips directly on the roof it is designed to cover, and consisting of a layer of woven fabric, such as cotton or muslin, stretched on the roof, a coating of rosin, shellac, rosin-oil, and asphaltum on said textile layer, and passing through and cementing the same to the roof, another layer of woven fabric pressed upon said adhesive coating while soft and thereby cemented to the same, the edges of said strips overlapping and being secured together by wire and hooked nails, 85 substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

DAVID HARGER.

Witnesses:

C. M. WERLE,  
 JOHN ENDERS, Jr.