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J. H. GRAHAM

SHINGLE COVERING

Filed Oct. 22, 1926

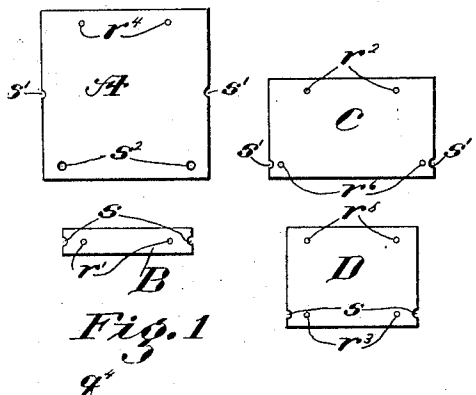


Fig. 1

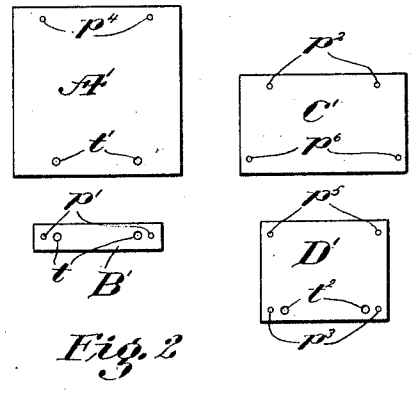


Fig. 2

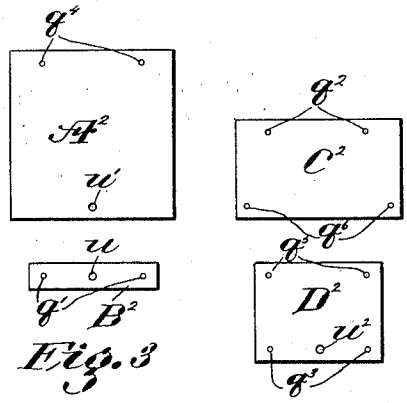


Fig. 3

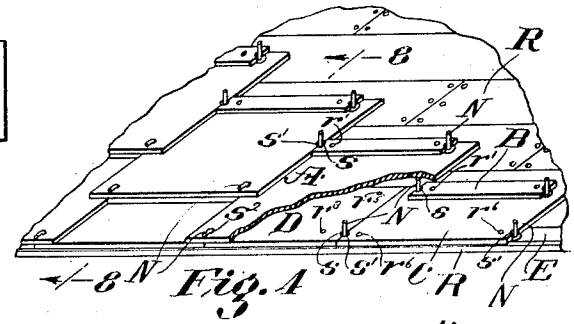


Fig. 4

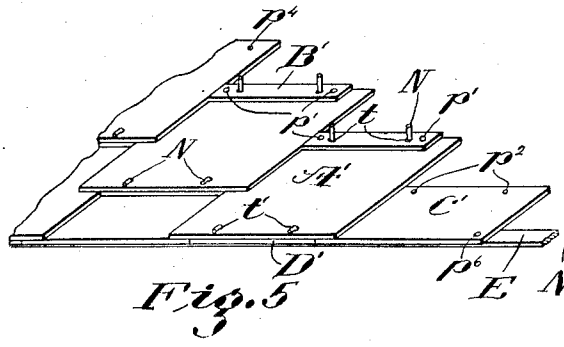


Fig. 5

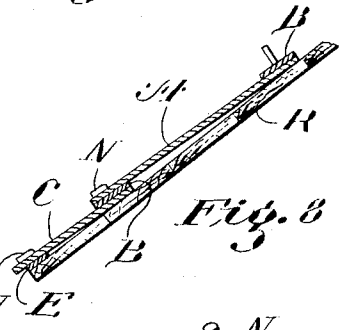


Fig. 8

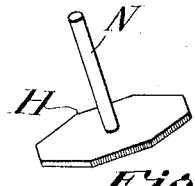


Fig. 7

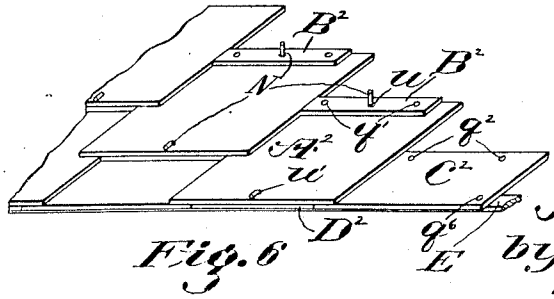


Fig. 6

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UNITED STATES PATENT OFFICE.

JAMES H. GRAHAM, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO JOHNS MANVILLE CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

SHINGLE COVERING.

Application filed October 22, 1926. Serial No. 143,405.

This invention relates to shingle covering and consists in a novel assemblage of rectangular shingles and spacers, in which each shingle and each spacer is prepared for attachment by accurately spaced perforations for two types of fastening, one represented by roof nails which attach the shingle covering to the roof or siding of a building, the other by storm nails each having heads to rest upon one of the covering elements and a shank to pass upward through a perforation in an overlying shingle and adapted to secure the shingle by being clenched over its surface; the shingles and spacers, respectively, being identical and interchangeable, both in respect to their size and contour and the said perforations.

Objects of the invention are: to provide prepared roofing or siding materials which, after a starting tier of shingles and spacers has been accurately aligned and laid, as on or near the eaves of a roof, can from that starting point be assembled and secured rapidly, being practically self-aligning; also to provide a shingle covering which shall be as nearly as possible weather-proof and secure against dislodgment by wind.

In the drawings hereto annexed, which illustrate the invention as applied to a roof:

Fig. 1 shows in plan the preferred forms of the several elements which when assembled make up the entire shingle covering;

Fig. 2 is a similar plan view of essentially the same covering elements modified, however, in details as contrasted with those of Fig. 1;

Fig. 3 is a similar view of essentially the same elements in another modified form as respects the perforations therein;

Fig. 4 is a perspective view of a roof partly covered with the improved shingle covering herein described in which portions of the covering elements are broken away the better to show underlying parts; the specific forms of covering elements in this figure are those shown in Fig. 1;

Fig. 5 is a perspective view of a roof covering made up of the elements shown in Fig. 2;

Fig. 6 is a perspective view of another modified form of covering made up of elements such as shown in Fig. 3;

Fig. 7 is a perspective view on a large scale of one of the storm nails used in assembling the roof covering; and

Fig. 8 is a section taken on line 8—8 of Fig. 4.

This invention lends itself especially to an arrangement of rectangular shingles square with a roof, that is to say, with head and foot edges horizontal. Any reasonably strong and rigid shingle material may be used for the shingles and the spacers; both shingles and spacers are preferably rectangular, and the shingles may be true squares if so preferred. The shingle material which is recommended as especially well adapted to the within-described structure is a composition of matter consisting of asbestos fibre and a binding cement; such shingles may be made either by compressing such material into plates or by forming a laminated millboard thereof and cutting the millboard into suitable shingle sizes.

With the exception of shingles and spacers employed to build the starting tier as at the eaves of a roof, all the shingles and all the spacers, respectively, should be identical in size and shape. The elements employed are shingles and spacers such as shown in Fig. 1, wherein A is the shingle and B the spacer. C and D in this figure, respectively illustrate starting shingles and spacers used to form the starting or lowermost tier. Shingles A and spacers B are rectangular in form, these shingles and spacers, respectively, being all of identical dimensions. Each shingle A is pre-perforated at r^4 with holes for the reception of roof nails; that is, nails driven through into the roof for fastening purposes; each spacer B is also pre-perforated with roof nail perforations r^1. These perforations are arranged symmetrically with respect to the vertical diameter both in shingle and spacer, and the distance between perforations r^4—r^4 is the same as that between perforations r^1—r^1, so that when a spacer B is laid upon a shingle A, with the upper edges of shingle and spacer substantially coincident, each perforation

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r^1 will register with a perforation r^4. Each shingle A and each spacer B is also pre-perforated for the reception of the shanks N of storm nails H (see Fig. 7). In the instance shown in Fig. 1, each storm nail perforation is half in a shingle and half in a spacer, the side edges of each spacer B being semi-circularly notched at s and the side edges of each shingle A being similarly semi-circularly notched at s^1 in their opposite side edges. These notches s^1 in shingles A are so placed that when a shingle A of one tier is laid over shingles of the tier next below and just previously attached to the building the notches s^1 of this shingle may register with the similar notches s in the spacers previously secured near the upper edges of shingles A in such previously attached row or tier. Each shingle A is also provided near its lower edge with perforations s^2 which are so spaced apart that when a shingle is properly laid these perforations s^2 will register with the storm nail perforations s^1, s^2 formed by registering notches of shingles and spacers in the tier next but one below it.

The starter shingles and spacers C, D, of Fig. 1 are, respectively, of the same horizontal dimensions as the starters and spacers A and B, but in vertical dimensions are unlike A and B, both C and D being in this dimension a little more than half as large as the shingles A. Each starting shingle C is perforated at r^2 r^2 for roof nails near the upper edge and at r^6 r^6 for roof nails at the lower edge; and the starting shingles C are notched at s^1 in the same manner, and for the same purpose as the shingles A. The starting spacer D is pre-perforated at r^5 r^5 and at r^3 r^3 for roof nails and is notched at s like the spacers B.

Referring now to Fig. 4, the shingle covering is laid upon a roof (using the elements illustrated in Fig. 1) in the following manner. First, a strip E is secured to the roof R at the eaves in order to give the starting shingles and spacers substantially the same angular relation with the surface of the roof as the shingles and spacers A and B, which cover the main body of the roof. Shingles and spacers C and D are laid alternately so that roof nails driven through perforations r^3 and r^6, respectively, will pass through the strips E and into the roof R and also so that the edge notches s and s^1 will register so as to provide storm nail shank perforations as at s s^1, Fig. 4. As this starting tier of shingles and spacers is being laid the roof nails H are laid with their thin flat heads resting on the strip E and with their shanks N projecting up through each of the perforations s s^1. Roof nails driven through the perforations r^5 secure the upper edges of the spacers D to the roof. Before the upper edges of the starting shingles C are secured to the roof, there is laid over each of the said starting shingles near its upper edge one of the spacers B of which the roof nail perforations r^1 register with the roof nail perforations r^2 in the starting single C. Roof nails are then driven through these registering perforations, securing a spacer B to the head of each starting single C, and both to the roof R.

The next operation in the series is to lay the first tier of shingles A. These are placed in position by passing their storm nail perforations s^2 over the upstanding shanks N of the storm nails which were previously placed with their flat heads lying between the starting shingles C and starting spacers D, and their shanks projecting up through the perforations s s^1. The accurate placing of the perforations s^2 and the side notches s^1 in the shingles A insures juxtaposition of the said side notches s^1 with the similar notches s in the ends of the spacers B, previously nailed at the heads of the starter shingles C. Before the first tier of shingles A is placed thus in position storm nails will have been inserted between the spacers B and starting shingles C with their shanks N projecting upward so that when the first tier of shingles A is put in place, the juxtaposition of their notches s^1 with the notches s of the said previously secured spacers B will form positioning perforations s s^1 through which the shanks of said storm nails project upward. This registration of the notches is insured simply by positioning each shingle A with the lower storm nail shanks projecting up through its perforations s^2. The shanks of these storm nails are then clenched downwardly over the top of each shingle A; a spacer B is then laid at the head of each shingle A with the roof nail perforations r^1, r^1 registering with the roof nail perforations r^4, r^4, storm nails H are laid with their flat heads under each said spacer B and shanks N, in notches s, and roof nails are then driven through the registering perforations r^1 r^4, securing the spacers to the upper edge of the shingle A and both to the roof.

Then another tier of shingles A is laid by first passing the storm nail perforations s^2 over the upstanding shanks of the storm nails previously secured between spacers B and starting shingles C, with their shanks projecting upward through the pre-perforations s s^1, provided by the registering notches s in said spacers B and s^1 in the sides of the shingles A of the first tier. The side notches s^1 of the shingles A of the second tier will then register with the end notches s of spacers B which have been nailed near the upper edges of shingles A of said first tier. From this point on the operation is repeated until the roof is covered.

By this mode of proceeding it will be ob-

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vious that the only necessary provision for laying the entire covering with regularity is to ensure proper alignment of the starting tier of shingles and spacers C and D, and that thereafter the placing of the prepared interchangeable members A and B with the aid of projecting storm nails and the automatic guidance of the end edges of spacers B ensures proper alignment of each tier of shingles without further attention on the part of the workmen.

Each shingle will be securely fastened both at head and foot by roof nails and storm nails, respectively; the spacers B serve as wind and rain stops and the storm nail securement of the shingles renders dislodgment of shingles by wind pressure practically impossible.

The construction of a roof covering with the elements shown in Fig. 2 is essentially the same as that described hereinabove in connection with Figs. 1 and 4. The difference between the shingles and spacers of Fig. 1 and Fig. 2 is in the forming of all the pre-perforations within the borders of the roofing elements. Thus the storm nail perforations t, t in spacers B^1 which register with the storm nail perforations t^1, t^1 in the shingle A^1 are spaced so as to register, as are the roof nail perforations p^1, p^1 and p^4, p^4. The starter shingles C^1 are provided also with roof nail perforations p^6 p^6 near the lower edge. The storm nail perforations t^2, t^2, in the starting spacers D^1 are also spaced to register with the storm nail perforations t^1, t^1, in the spacers A^1, and the roof nail perforations p^2, p^2, near the upper edge of each starting shingle C^1 are spaced to register with the roof nail perforations p^1, p^1 in the spacers B^1. In laying the covering of elements such as shown in Fig. 2, the starting tier made up of starting shingles C^1 and starting spacers D^1 and the subsequent building up of the covering with shingles and spacers A^1 and B^1 is the same in substance as that above described with respect to the elements shown in Fig. 1. The shingle arrangement of elements shown in Fig. 2 is illustrated in Fig. 5.

The preparation of both spacers and shingles with perforations for two storm nails at the foot of each shingle is preferred, but in many instances a single middle perforation in each spacer and near the foot of each shingle for a single storm nail as illustrated in Figs. 3 and 6, will suffice.

Referring to Fig. 3, the roof nail perforations q^1, q^1 in the spacer B^2 and q^4, q^4 in the shingle A^2 are so positioned as to register, as are likewise the single storm nail perforations u and u^1. In the starter shingle C^2, roof nail perforations q^2 q^2 are positioned to register with perforations q^1 q^1 in a spacer B^2. Roof nail perforations q^3 q^3; q^5 q^5 and q^6 q^6 are for the reception of roof nails used to attach starter shingles and spacers to the roof. The storm nail perforation u^2 in starter spacer D^2, is placed so as to register properly with a storm nail perforation u^1 in a shingle like A^2. The succession in which the starter shingles and spacers C^2, D^2, spacers B^2 and shingles A^2 are laid, is the same as that above described in connection with Figs. 1 and 4. Storm nails such as H are placed in position with their flat heads lying against the under side of a spacer, whether B^2 or D^2, and their shanks N projecting upward to penetrate storm nail perforations u^1 in shingles such as A^2, which are aligned by these storm nail shanks and the ends of spacers B^2 which have been nailed in place.

I claim:

1. Shingle covering comprising interchangeable shingles preperforated near the head for roof-nails and near the foot for storm nails, interchangeable spacers having roof nail perforations placed to register with roof nail perforations of the shingles, a spacer secured near the head of each shingle by roof nails driven through the registering roof nail perforations of shingle and spacer, storm nails, each having a head and a clinching shank, the head lying between a spacer of one tier and roof covering material nailed thereover and the shank passing up through the storm nail perforation in a shingle of the next overlying tier, and each shingle fitting between spacers on shingles in the tier next below.

2. Shingle covering comprising interchangeable shingles preperforated near the head for roof nails and near the foot for storm nails, interchangeable spacers having roof nail preperforations placed to register with roof nail perforations of the shingles and with storm nail preperforations placed to register with the storm-nail perforations of the shingles, a spacer secured near the head of each shingle by roof nails driven through the registering roof-nail perforations of shingle and spacer, each shingle storm nail-secured to the spacer on a shingle in the tier below it, the storm nails anchored below said spacers and having shanks passing through the registered storm nail perforations of said spacers and said shingles, and each shingle fitting between spacers on shingles in the tier next below.

3. Shingle covering comprising shingles preperforated near the head for roof nails and near the foot for storm nails, spacers having roof-nail preperforations placed to register with roof nail perforations of the shingles and with storm nail preperforations placed to register with the storm nail perforations of the shingles, a spacer secured near the head of each shingle by roof nails driven through the registering roof nail perforation of shingle and spacer, each shingle

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storm nail secured to the spacer on a shingle in a tier below it, the storm nails anchored below said spacers and having shanks passing through the registered storm nail perforations of said spacers and said shingles, and each shingle fitting between spacers of shingles in the tier next below, the perforations for nails in each shingle and spacer respectively being placed symmetrically with reference to side edges.

Signed by me at Pittsburgh, Pennsylvania, this 18th day of October, 1926.

JAMES H. GRAHAM.