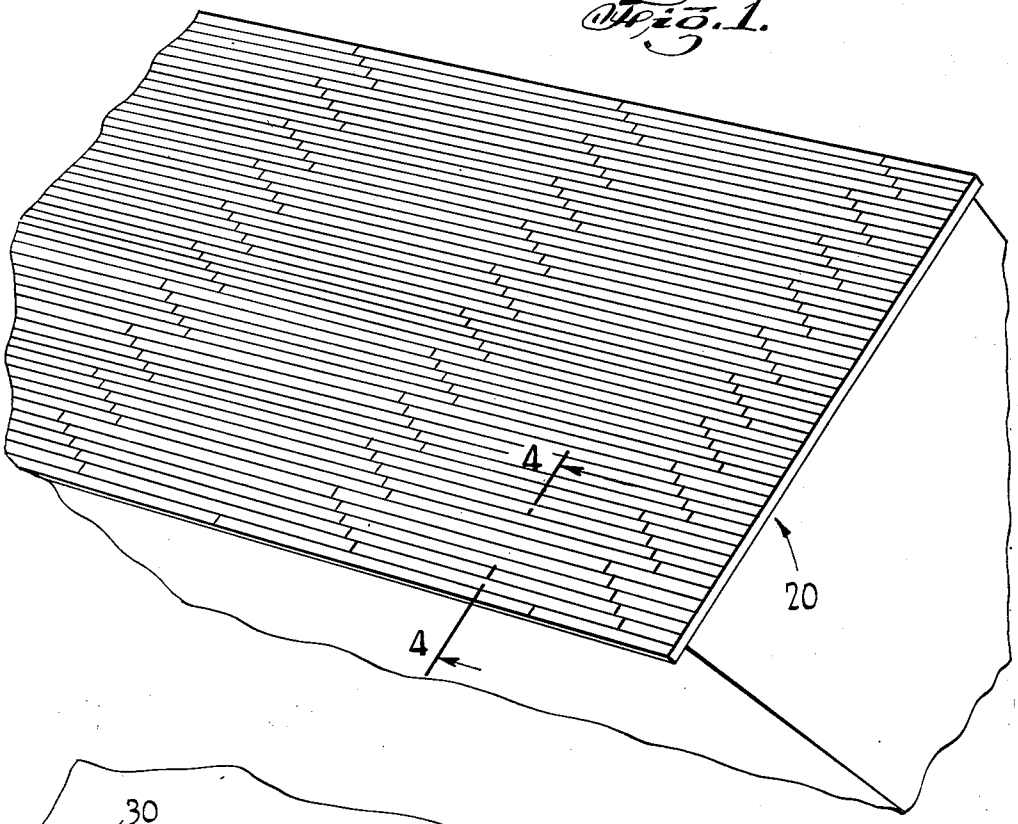
Nov. 26, 1940. B. FELLER 2,222,939

ROOFING CONSTRUCTION

Filed May 20, 1939 2 Sheets-Sheet 1

Fig. 1.



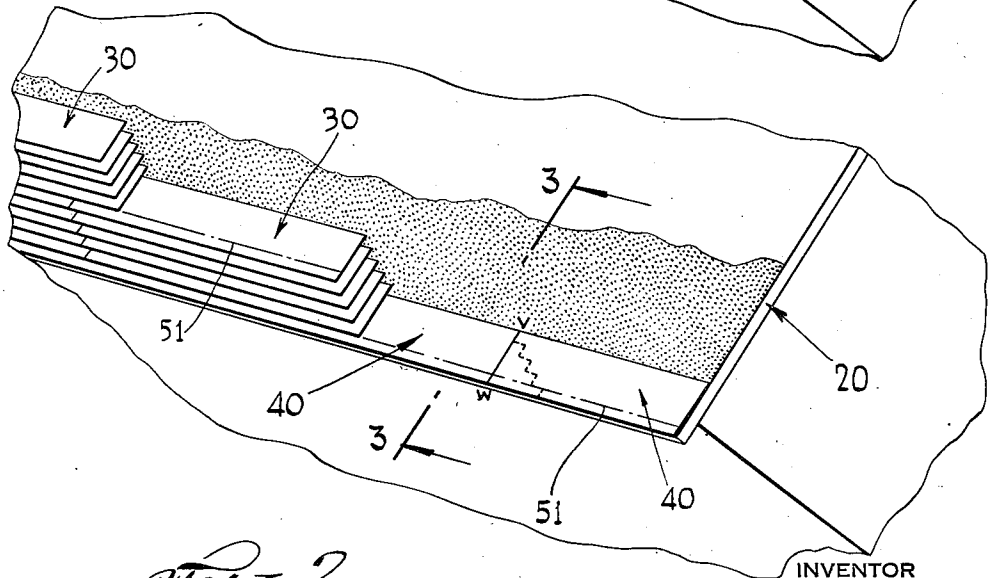


Fig. 2.

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Fig. 4.

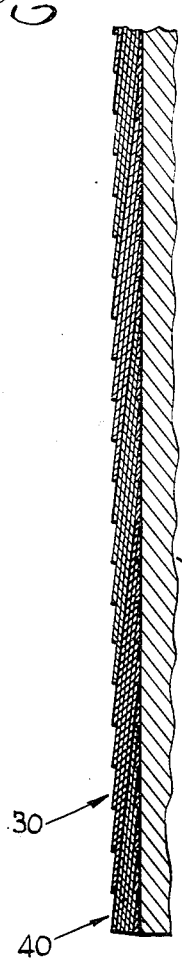


Fig. 3.

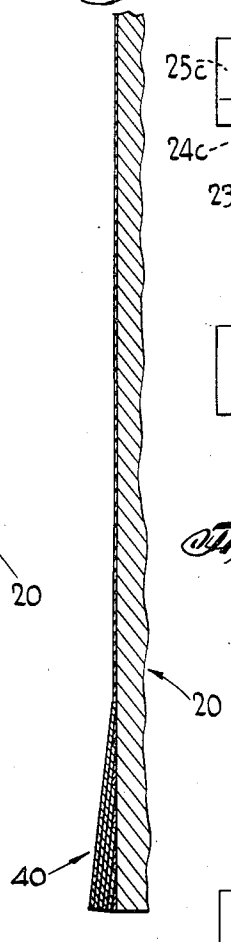


Fig. 5.

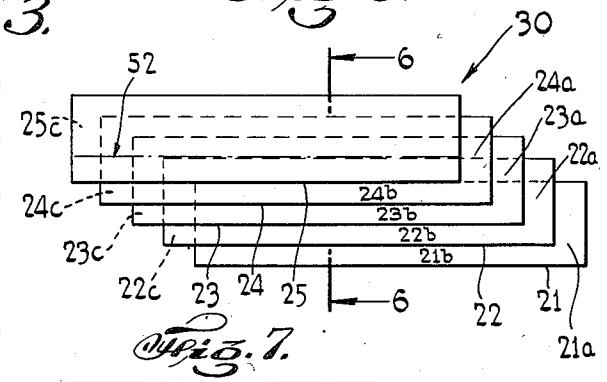


Fig. 7.

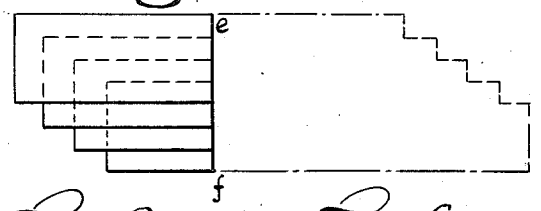


Fig. 9.

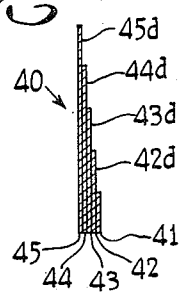
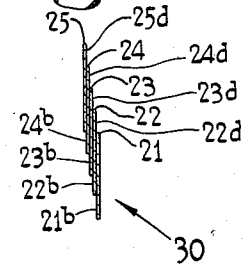


Fig. 6.



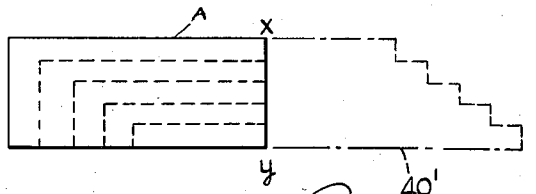


Fig. 8.

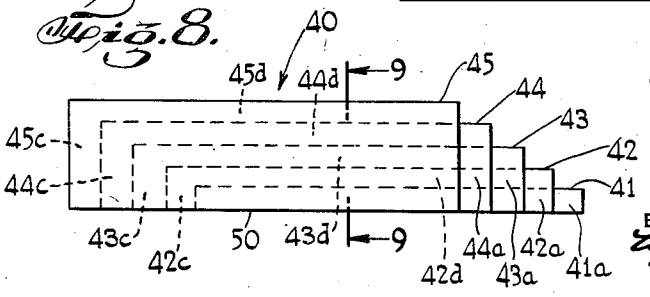


Fig. 10.

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UNITED STATES PATENT OFFICE

2,222,939

ROOFING CONSTRUCTION

Bernard Feller, Yonkers, N. Y.

Application May 20, 1939, Serial No. 274,713

8 Claims. (Cl. 108—7)

This invention relates generally to roofing. More particularly, my invention relates to an improved roofing construction employing novel preformed roofing elements.

One of the objects of my invention is to provide a roofing construction made of a series of pre-formed roofing elements or shingles of such novel construction as to be standardized and designed to interlock and overlap so as to render the roof leakproof throughout.

Another object of my invention is to provide in a roofing construction of the character described a standardized pre-formed roofing element which is of simple construction, which is so designed that the covering of the roof therewith will be accomplished in a simple manner and in a minimum of time, which shall be relatively inexpensive to manufacture and which, at the same time, shall possess a high degree of efficiency.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the claims.

In the accompanying drawings, in which is shown one of the various possible embodiments of this invention,

Fig. 1 is a perspective view in elevation of a portion of any standard type of roof having a roofing construction assembled in accordance with my invention;

Fig. 2 is a perspective view illustrating the manner of laying or constructing the roofing of Fig. 1;

Fig. 3 is an enlarged cross-sectional view taken substantially on the line 3—3 of Fig. 2;

Fig. 4 is a cross-sectional view taken substantially on the line 4—4 of Fig. 1;

Fig. 5 is a plan view of a roofing element or unit construction in accordance with my invention;

Fig. 6 is a cross-sectional view taken substantially on the line 6—6 of Fig. 5;

Fig. 7 is a view similar to Fig. 5, but illustrating a method of use thereof;

Fig. 8 is a plan view illustrating another form of roofing element or unit constructed in accordance with my invention;

Fig. 9 is an enlarged cross-sectional view taken substantially on the line 9—9 of Fig. 8; and

Fig. 10 is a view similar to Fig. 8 but illustrating a form of use thereof.

Referring now in detail to the drawings, I have shown a roof of any known type and construction generally employed in buildings and homes, such as for example the level roof 20 and which is generally covered by shingles, roofing strips or blocks.

In accordance with my invention, I have provided a roofing element or unit 30 which is of standard construction and which is so designed that adjacently disposed elements 30 may be arranged in interlocking and overlapping relationship to thereby facilitate the roofing construction and, at the same time, to render the same waterproof throughout. Also, the elements 30 are so designed that there will always be at any chosen cross-sectional area of the roof an equal number of layers of roofing material. In the drawings I have shown such number of layers to be five, but my improved roofing element may be so designed that any other number of layers may be provided.

As shown in Figs. 5 and 6 of the drawings, each roofing unit 30 comprises a plurality of rectangular-shaped sheets 21, 22, 23, 24 and 25 of uniform size and arranged in superimposed relationship and in stepped formation in two directions, i. e. longitudinally and transversely, as shown. The sheets 21 to 25 may be formed of any material suitable for roofing, such as for example roofing paper, tar boards, asbestos or the like, and are maintained in assembled superimposed relationship by any suitable adhesive material, such as pitch, tar or asphalt, customarily employed in the roofing art, to form a unitary member 30.

There is thus provided a series of transverse steps 21*a*, 22*a*, 23*a* and 24*a* and interconnecting longitudinal steps 21*b*, 22*b*, 23*b* and 24*b* respectively. Since the sheets 21 to 25 are of uniform size, the provision of the steps above described will also produce correspondingly arranged successively overhanging transverse portions 22*c* to 25*c* and successively overhanging longitudinal portions 22*d* to 25*d*. It is noted that the width of the steps and of the corresponding overhanging portions are equal.

It is thus seen from the above described construction that when two elements 30 are contiguously disposed in a longitudinal direction, the transverse overhanging portions 22*c* to 25*c* will overlie the transverse steps 21*a* to 24*a*, to interlock the adjacently disposed elements. It is also noted that in such interlocked relationship with

the elements 30, the longitudinal edges of the sheets 21 to 25 of one element will be in continuation of and in alignment with the longitudinal edges of the corresponding sheets 21 to 25 of the next element 30.

It is obvious that if a plurality of roofing elements 30 were placed end to end as above described along the longitudinal edge of the roof for the purpose of starting the roofing construction, that portion of the roof adjacent such longitudinal edge would not have five layers of roofing material as would be the case with the remainder of the roof. In accordance with my invention, therefore, I have provided a specially constructed starting strip or unit 40, illustrated in Figs. 8 to 10, and designed so that the portion of the roof adjacent the lower longitudinal edge thereof may also have the same number of layers of roofing material as the remainder of the roof. The element 40 comprises a plurality of rectangular shaped sheets 41 to 45 of equal length and progressively wider in size and arranged in stepped formation to provide the transverse stepped portions 41*a* to 44*a* but having the bottom longitudinal edges thereof arranged in a common straight line 50. By providing the steps 41 to 44 there is also provided corresponding transverse overhanging portions 42*c* to 45*c* and longitudinal rear overhanging portions 42*d* to 45*d*. It is thus seen that the unit 40 differs in construction from the unit 30 by having the bottom longitudinal edges of the sheets arranged in a common or registered line instead of the stepped formation shown in Fig. 5. The sheets 41 to 45 of the unit 40 are held together in the manner similar to that described in connection with the sheets 21 to 25 of the unit 30.

The manner of laying the roof with the preformed units 30 and 40 will now be described. The starting unit 40 is first cut transversely along a line *x*—*y* (Fig. 10), in order to provide a square transverse edge for the said element to line up with the edge of the roof. This edge *x*—*y* is placed flush up against a transverse edge of the roof floor 20. In Fig. 2 this edge is the left-hand edge or, in other words, opposite to the edge shown in the drawings, but it is understood that either edge may be employed. As shown in Fig. 10, the right-hand edge portion 40' of the element 40 is the stepped end and is arranged to terminate a short distance from the right-hand roof floor edge 20 so that the portion A (Fig. 10) which has been cut away from the element 40 may be utilized to furnish a square or flush end *x*—*y* for the opposite transverse edge of the roof and at the same time the transverse overhanging portions 42*c* to 45*c* will interlock and overlap with the steps 41*a* to 44*a*, as clearly shown in Fig. 2 of the drawings. While a seam *v*—*w* is provided between the element 40 and the portion A to complete the starting layer, it is noted that this seam *v*—*w* is leakproof in view of the interlocking and overlapping construction just described. The starting unit 40 may be retained on the roof floor by any suitable adhesive means generally employed in the art, such as hot tar or asphalt in a liquid state.

As shown in Fig. 2 of the drawings, the preformed unit 40 may be provided with a guiding line 51 spaced from and parallel to the edge 50. Also, the units 30 may be provided with similar guiding lines 52 (see Fig. 5). In each case, the guiding lines 51 and 52 are disposed on the uppermost sheet 45 and 25, respectively.

After the starting unit 40 has been positioned as described, the units 30 are then applied in the following manner. In order to provide a square starting edge, one of the units 30, as shown in Fig. 3, is cut transversely along the line *e*—*f* at a point midway between the transverse edges thereof, such point being located between the left-hand transverse edge of the lower member and the right-hand transverse edge of the uppermost member in order to provide a five ply thickness. The square end *e*—*f* is then placed flush up against the same edge of the roof, as described in connection with the laying of the unit 40, and the elements 30 are then contiguously disposed in a longitudinal direction so that they interlock as hereinbefore described. At the end of the course, in order to provide a squared end, the portion C (Fig. 7) which has been cut from the element 30 may then be employed to finish off the right-hand transverse edge of the roof in the manner similar to the laying of the part A of the unit 30 shown in Fig. 2. The units 30 in the first course overlie the starting unit 40 and are preferably spaced from the bottom longitudinal edge of the roof, such spacing being determined by the guide line 51. In other words, the longitudinal edge of the lowermost sheets 21 of the units 30 are lined up with the guide line 51. After the first course has been laid, subsequent courses are laid in a similar manner over the first course and by spacing the longitudinal edge of the lowermost sheet 21 from the longitudinal edge of the uppermost sheet 25 of the first course a distance determined by the guide line 52. The subsequent courses are laid in a similar manner until the roof is entirely covered.

The units 30 may be held attached to the roof and to each other by the application of hot tar therebetween, or in any other suitable manner.

It is noted that the guide lines 51 and 52 of the units 40 and 30 are respectively spaced from the longitudinal edges of the uppermost sheets of the elements a distance equal to the steps 21*b* to 24*b*, so that the roof will present a uniform appearance.

It is thus seen from the above described construction that, were the completed roof to be cut at any point, such as for example as shown in Fig. 4, there will be five layers or sheets of roofing material throughout. Also it is noted that due to the interlocking and overlapping arrangement of the units 30, the joints between the said units may separate due to expansion or contraction, without affecting the waterproof qualities of the entire roof.

It will thus be seen that there is provided a roofing construction in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a roofing construction of the character described, a prefabricated roofing element or unit comprising at least three separate sheets of uniform size and thickness arranged in superimposed relationship, said sheets being obliquely offset to provide two series of stepped portions, said stepped portions being disposed in spaced parallel planes, one of said series of steps being angularly

disposed with respect to the other of said series of steps, and means for joining said superimposed sheets to form a unitary structure before applying the same to the roof, a substantial part of the central portion of said unitary structure having a ply thickness equal to the number of sheets in said structure.

2. In a roofing construction of the character described, a prefabricated roofing element or unit comprising at least three separate rectangular sheets of uniform size and thickness and arranged in superimposed relationship, said sheets being progressively diagonally offset beginning with the lowermost of said sheets to provide a series of transverse steps and a series of longitudinal steps, the height of said steps being equal to the thickness of said sheets, and means for joining said superimposed sheets to form a unitary structure before applying the same to the roof, a substantial part of the central portion of said unitary structure having a ply thickness equal to the number of sheets in said structure.

3. A roofing construction of the character described comprising a plurality of pre-formed elements or units, each of said units comprising at least three separate sheets of uniform size and thickness and arranged in superimposed relationship, said sheets being progressively offset beginning with the lowermost of said sheets to provide a series of transverse steps at one end thereof and corresponding transverse overhanging portions at the opposite end thereof, the height of said steps being equal to the thickness of said sheets, said units being contiguously disposed in a longitudinal direction so that the said overhanging portions of one unit will overlie the said steps of the next adjacent unit to thereby interlock the units, and means for joining the superimposed sheets of each of said units to form a unitary structure before applying the same to the roof, a substantial part of the central portion of said unitary structure having a ply thickness equal to the number of sheets in said structure.

4. A roofing construction of the character described comprising a plurality of longitudinal strips of roofing material arranged with their longitudinal edges in overlapping relationship, each of said strips being composed of a plurality of preformed roofing elements or units, each of said units comprising at least three separate rectangular sheets of uniform size and thickness and arranged in superimposed relationship, said sheets being progressively diagonally offset beginning with the lowermost of said sheets to provide a series of transverse steps at one end thereof and a series of corresponding overhanging transverse portions at the opposite end thereof, said units being contiguously disposed in a longitudinal direction so that the said overhanging portions of one unit will overlie the said steps of the next adjacent unit to thereby interlock all the units of said strip, and means for joining the superimposed sheets of each of said units to form a unitary structure before applying the same to the roof, a substantial part of the central portion of said unitary structure having a ply thickness equal to the number of sheets in said structure.

5. A roofing construction of the character described comprising a plurality of pre-formed elements or units, each of said units comprising at least three separate sheets of uniform size and thickness and arranged in superimposed relationship, said sheets being progressively offset beginning with the lowermost of said sheets to provide a series of transverse steps at one end thereof and corresponding overhanging transverse portions at the opposite end thereof, the height of said steps and overhanging portions being equal to the thickness of said sheets, said units being contiguously disposed in a longitudinal direction so that the said overhanging portions of one unit will overlie the said steps of the next adjacent unit to thereby interlock the units, means for joining the superimposed sheets of each of said units to form a unitary structure before applying the same to the roof, a substantial part of the central portion of said unitary structure having a ply thickness equal to the number of sheets in said structure, and a longitudinal pre-formed starting strip adjacent the bottom longitudinal edge of the roof, said roofing units overlying said starting strip.

6. In a roofing construction of the character described, a roofing element or unit comprising at least three separate rectangular sheets of uniform size and thickness and arranged in superimposed relationship, said sheets being progressive diagonally offset beginning with the lowermost of said sheets to provide a series of transverse steps and a series of longitudinal steps, the uppermost sheet of each of said units being provided with a guide line parallel to the front longitudinal edge of said uppermost sheet and spaced from said last named front longitudinal edge a distance equal to the width of one step for the purposes set forth, and means for joining said superimposed sheets to form a unit before applying the same to the roof, the center of said unit having a ply thickness equal to the number of sheets in said unit.

7. A roofing construction of the character described comprising a plurality of pre-formed elements or units, each of said units comprising at least three sheets of uniform size and thickness and arranged in superimposed relationship, said sheets being progressively offset beginning with the lowermost of said sheets to provide a series of transverse steps at one end thereof and corresponding transverse overhanging portions at the opposite end thereof, means for joining the superimposed sheets of each of said units to form a unitary structure before applying the same to the roof, a substantial part of the central portion of said unitary structure having a ply thickness equal to the number of sheets in said structure, said units being contiguously disposed in a longitudinal direction so that the said overhanging portions of one unit will overlie the said steps of the next adjacent unit to thereby interlock the units, and a longitudinal pre-formed starting strip adjacent the bottom longitudinal edge of the roof, said roofing units overlying said starting strip, said pre-formed starting strip comprising a plurality of longitudinal strips of progressively greater width and arranged in superimposed relationship with their front longitudinal edges in registered alignment, said strips being at the same time offset to provide a series of transverse steps at one end and corresponding overhanging portions at the opposite end for the purposes set forth.

8. For use with a roofing construction of the character described, a preformed starting strip comprising at least three longitudinal strips of progressively greater width arranged in superimposed relationship with their front longitudinal edges in registered alignment, said strips being at the same time offset to provide a series of transverse steps at one end and corresponding overhanging portions at the opposite end.

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