Nov. 17, 1953

H. ABRAHAM

SHINGLE

2,659,322

Filed Dec. 23, 1952

4 Sheets-Sheet 1

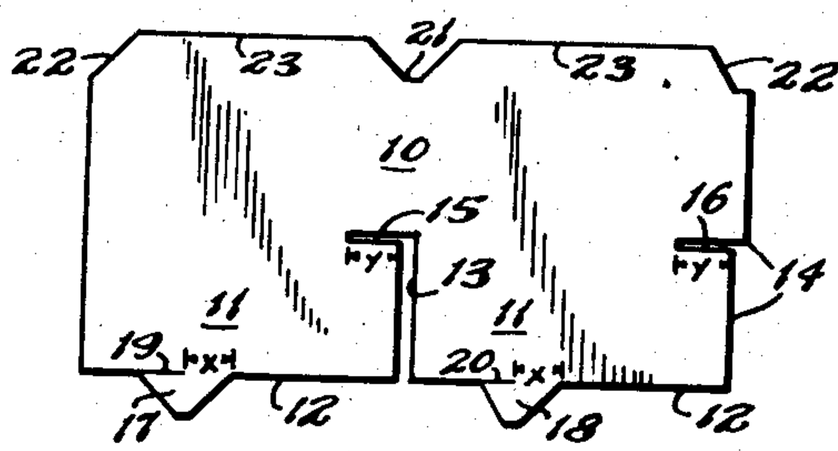

Fig. 1.

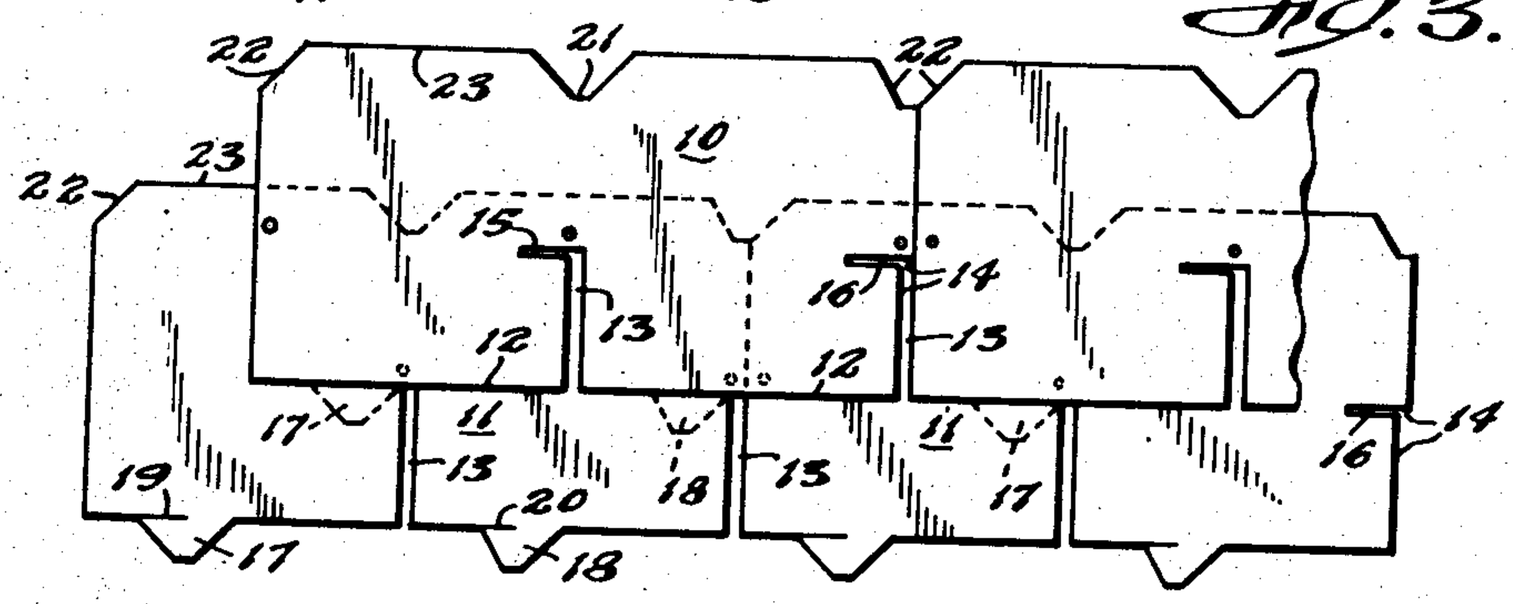

Fig. 3.

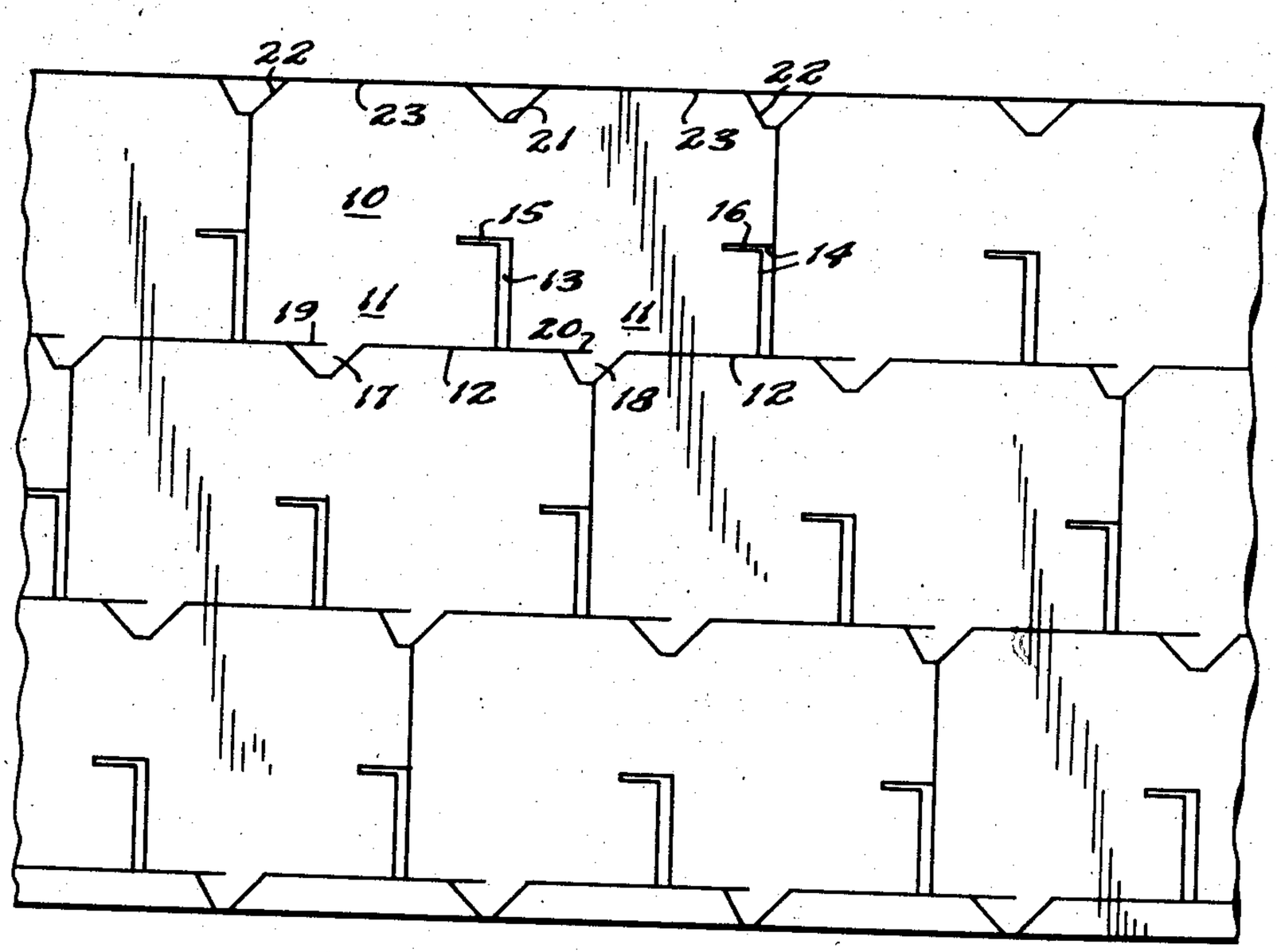

Fig. 2.

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4 Sheets-Sheet 2

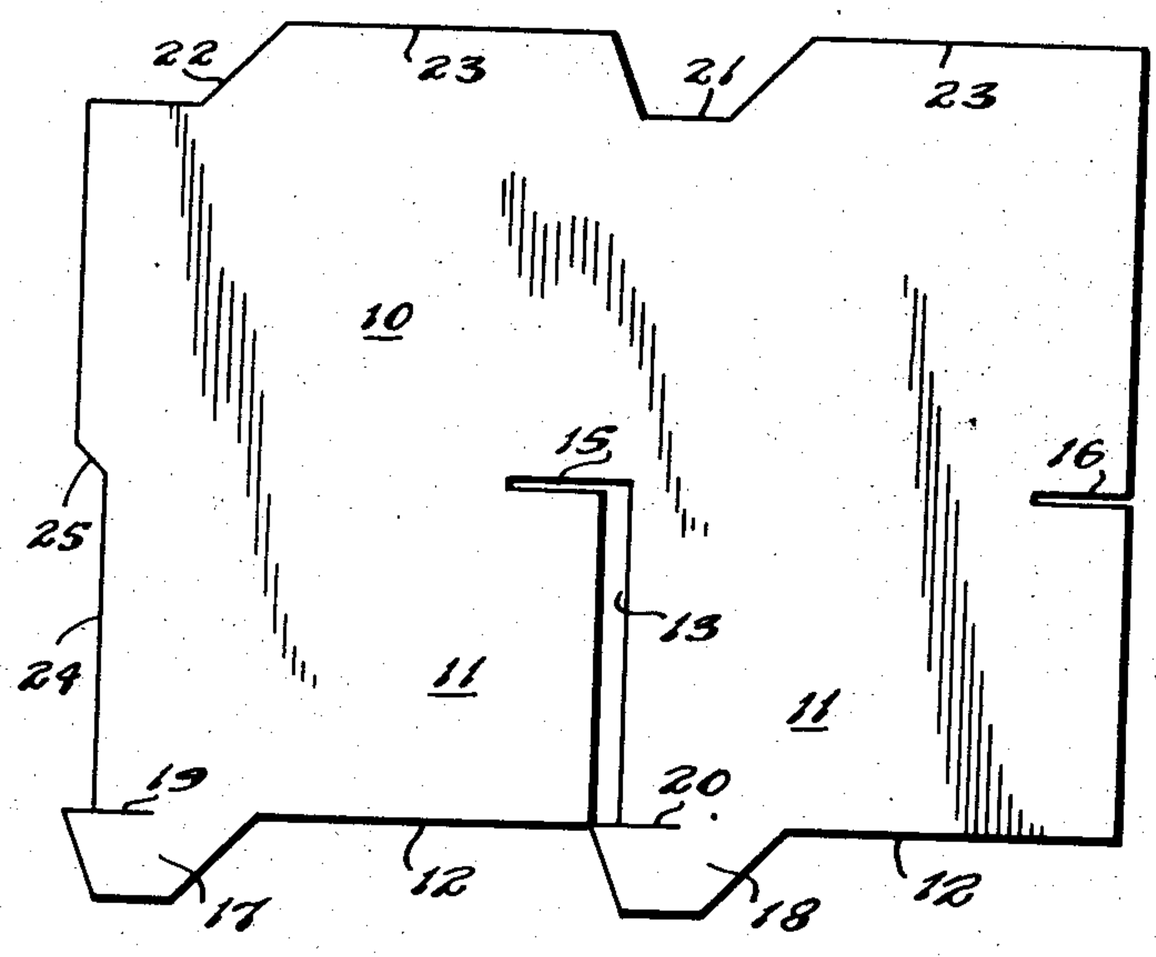

Fig. 4.

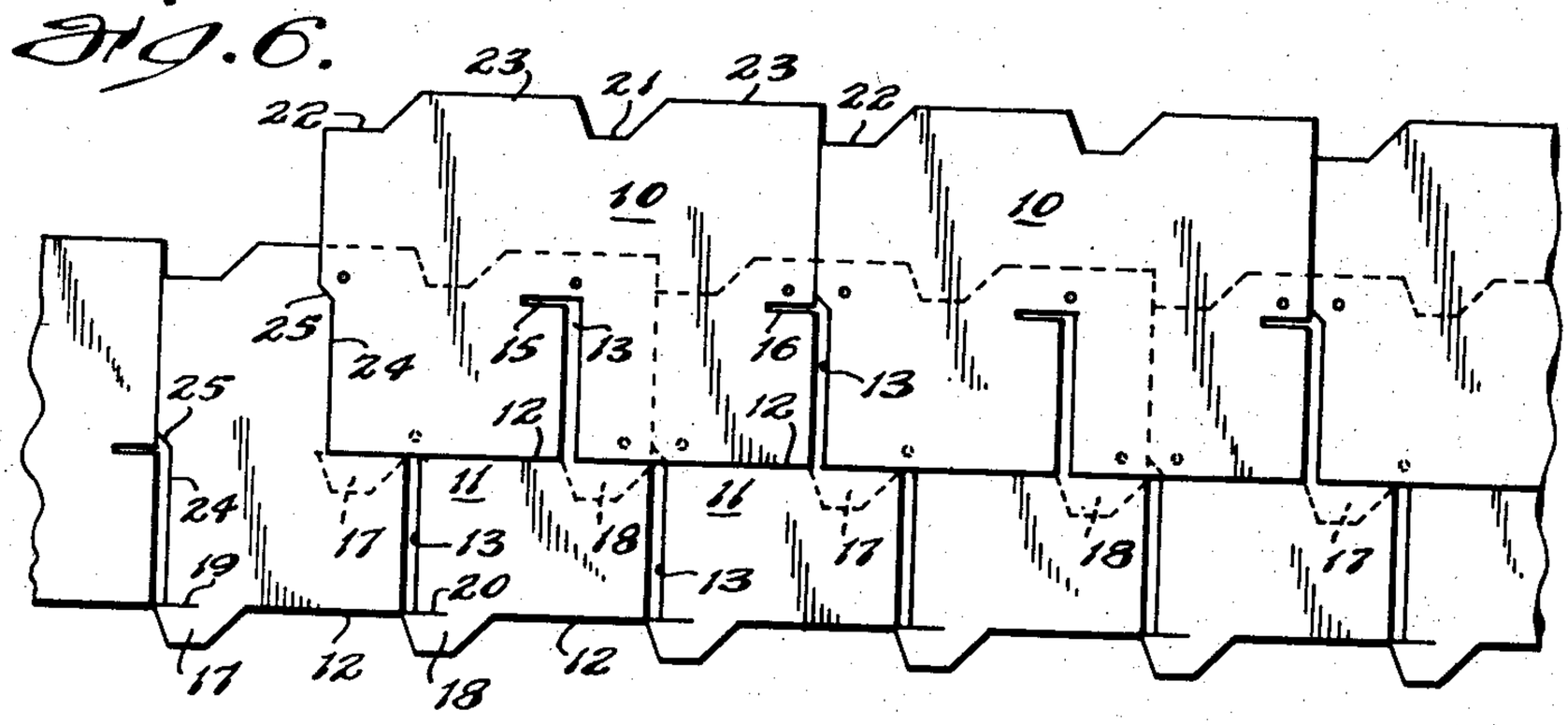

Fig. 6.

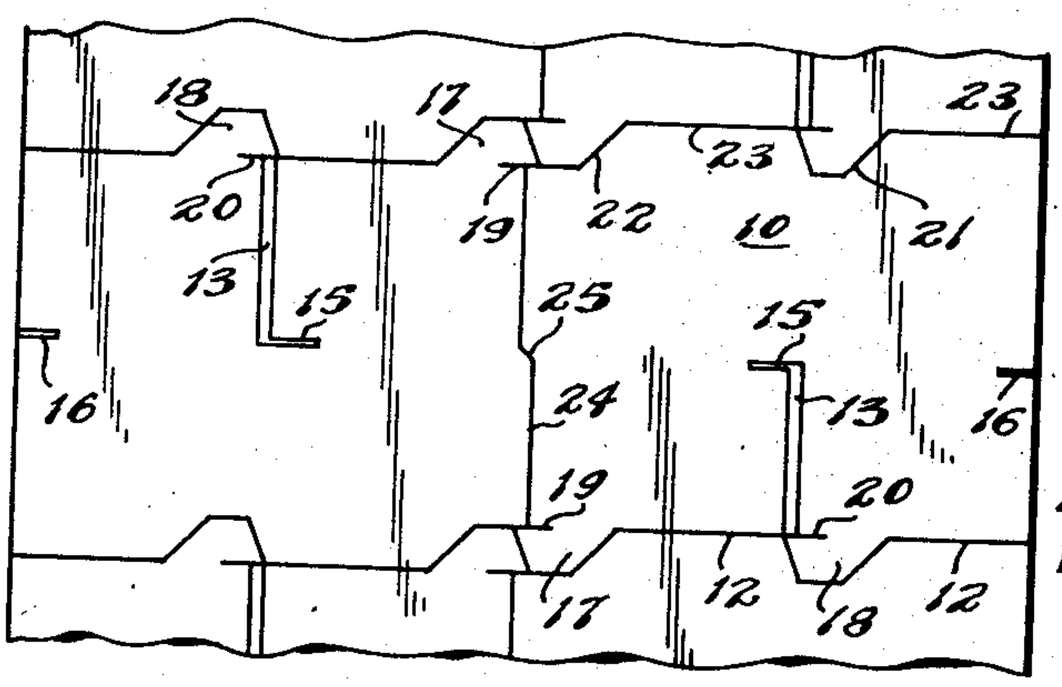

Fig. 5.

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4 Sheets-Sheet 3

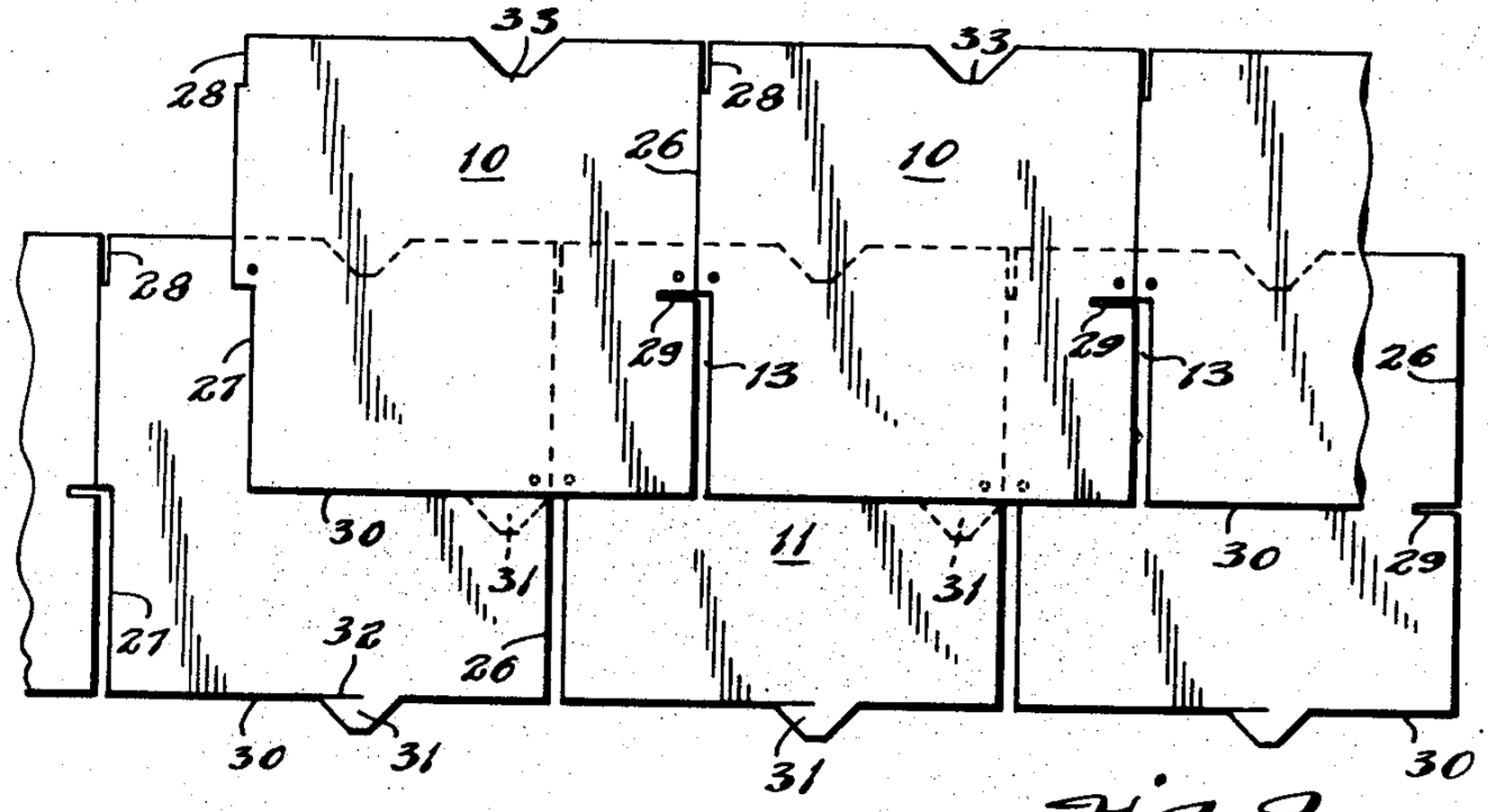


Fig. 9.

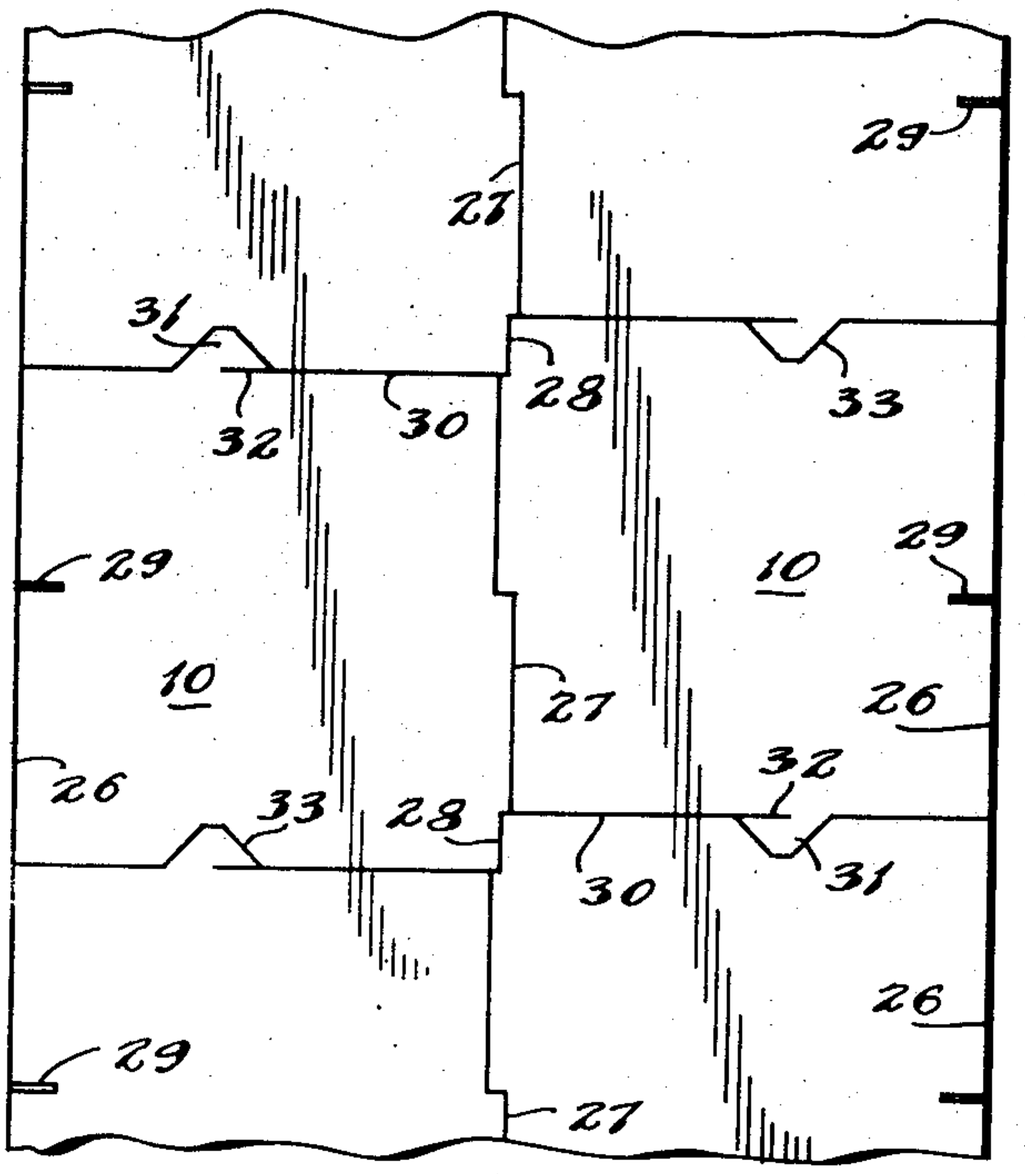
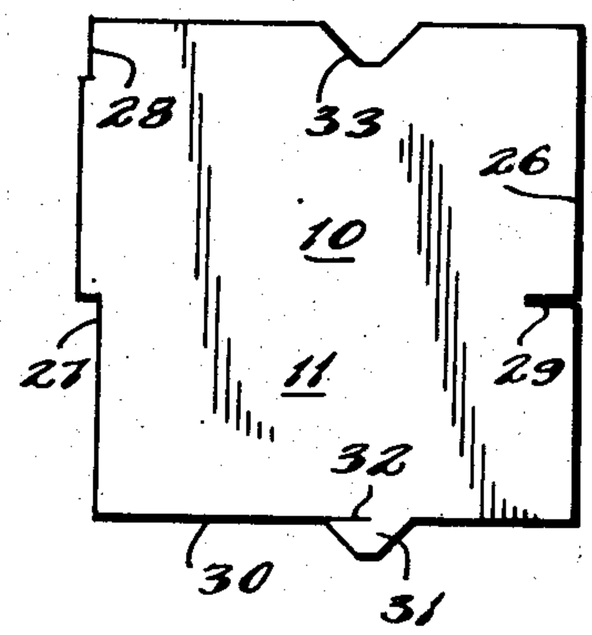


Fig. 8.

Fig. 7.



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4 Sheets-Sheet 4

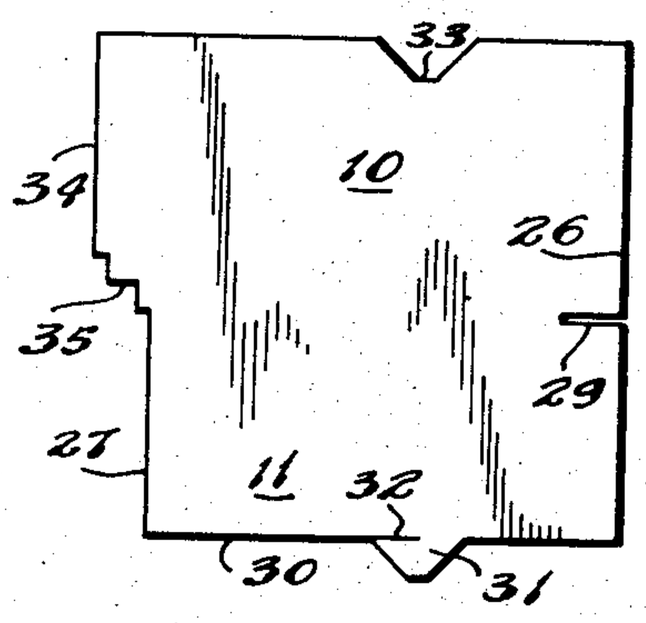
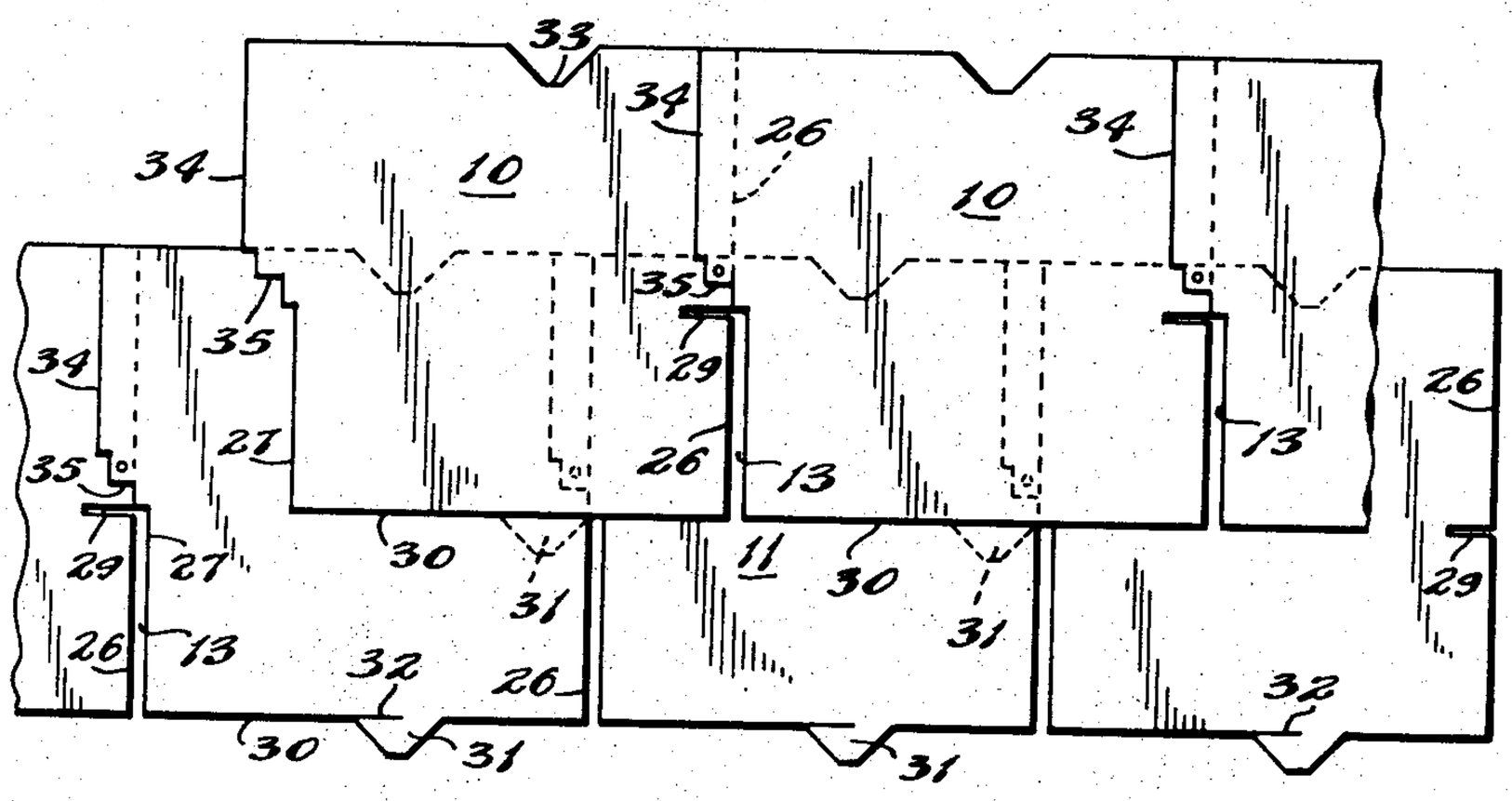


Fig. 10.

Fig. 12.



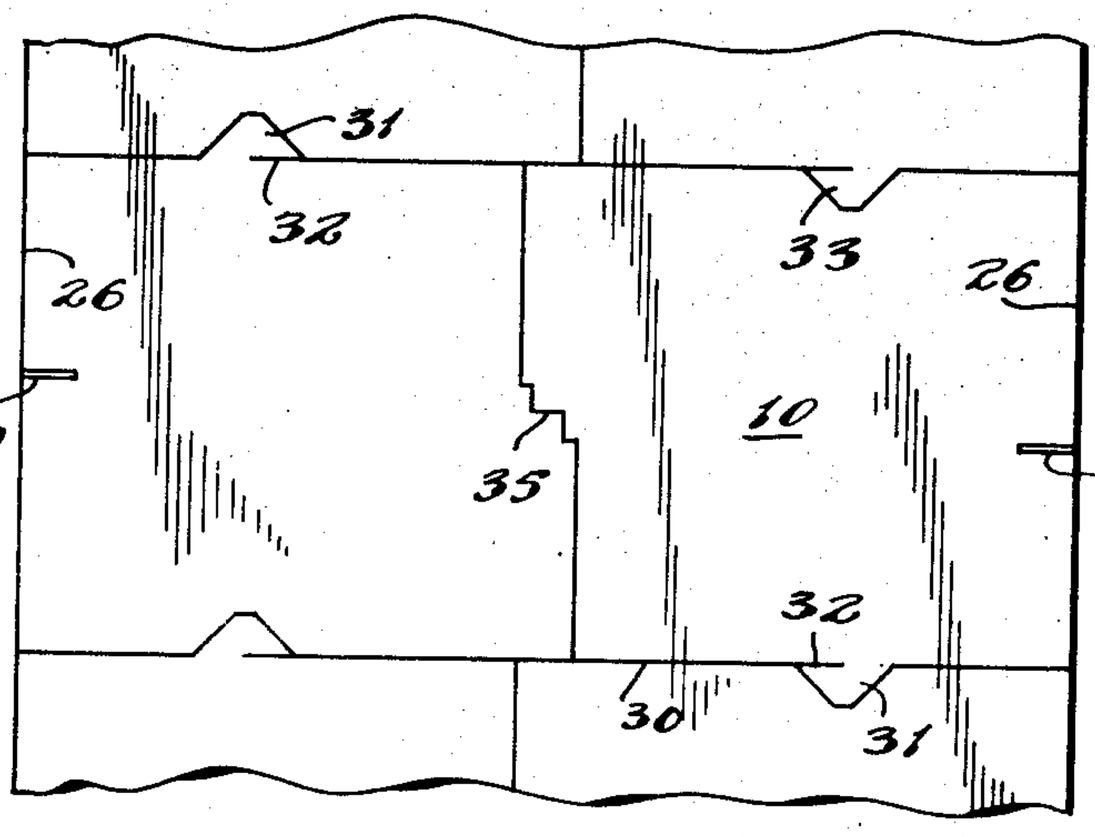


Fig. 11.

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UNITED STATES PATENT OFFICE

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SHINGLE

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Application December 23, 1952, Serial No. 327,580

7 Claims. (Cl. 108—7)

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This invention relates to improvements in a shingle of the kind commonly known as an asphalt shingle either in the form of an individual shingle or in the form of a strip shingle consisting preferably of two units integrally joined together in a flat strip, although the strip in some cases may consist of more than two units.

The invention is specifically concerned with shingles of the "square-butt" type, that is shingles the butts or exposed portions of which when laid present a rectangular pattern or form, with the butts of adjacent shingles or units of a course spaced apart by vertical slots.

Shingles of the square-butt type are very popular in that they give the roof a neat, symmetrical and attractive appearance. One objection, however, to the ordinary shingles of this type is that the butts are unsecured with the consequent likelihood of their being turned up by wind.

In my Patent No. 2,452,708 I have shown and described a strip shingle of the square-butt type having self-contained means for locking down the butts. It has been found however that as the construction comprises locking flaps in the body of the strip, difficulty has been experienced in properly and expeditiously laying them in interlocked relation.

One of the objects of the present invention is to provide a shingle of the square-butt type that can be easily and quickly laid with its butt or butts securely fastened down.

Another object is to provide shingles that can be cut from webs of asphalt roofing material of conventional widths with relatively little waste.

A further object is to provide shingles that when laid will effect a roof covering of the square-butt type having the butts fastened, with the least amount of material per square required to obtain the desired effect.

A still further object is to provide shingles of the interlocking square-butt type that are designed to overlap sufficiently when laid to obtain the maximum safety at all potential points of leakage in the roof covering. It has been found in practice that to safeguard adequately against leakage the shingles should have an overlap of at least two inches at all such points.

In the drawings, in which several embodiments of the invention are shown:

Fig. 1 is a plan view of a twin square-butt shingle embodying the invention;

Fig. 2 is a plan view illustrating the manner of cutting the shingles from a web of material with the least amount of waste;

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Fig. 3 is a plan view of shingles of the form of Fig. 1 laid in interlocked relation, staggered in halves;

Fig. 4 is a plan view of another form of square-butt twin shingle embodying the invention;

Fig. 5 is a plan view illustrating the manner of cutting said shingles from a web of material;

Fig. 6 is a plan view of shingles of the form of Fig. 4 laid in interlocked relation, staggered in thirds;

Fig. 7 is a plan view of a form of lock-down individual square-butt shingle;

Fig. 8 is a plan view illustrating the manner of cutting the form of shingles of Fig. 7 from a web of material;

Fig. 9 is a plan view of shingles of the form of Fig. 7 laid in interlocking relation, staggered in thirds;

Fig. 10 is a plan view of a modified form of individual shingle of the square-butt type;

Fig. 11 is a plan view showing a manner of cutting shingles of the form of Fig. 10; and

Fig. 12 is a plan view of shingles of the form of Fig. 10 laid in interlocked relation, staggered in thirds.

The several species of the invention illustrated in the drawings all have, among other things, the following features in common; (1) they each form roof coverings of the "square-butt" type, that is having rectangular exposed patterns spaced apart by vertical slots, when laid in interlocked relation; (2) each has at least one locking tab along its butt or lower edge; (3) each tab has a horizontal opening or slit cut therein in line with the butt edge; (4) each has a horizontal opening or slot cut therein at the upper end of the vertical slot and at a right-angle to said slot; (5) when the shingles are applied to a roof no portion of their locking tabs is visible in the vertical slots that intervene the rectangular exposed patterns; (6) the shingles are self-aligning both horizontally and vertically; and (7) they have a high wind resistance.

Referring to Fig. 1, 10 indicates a shingle of asphalt roofing material or other suitable substance formed with two similar rectangular shingle-simulating portions 11 each having a straight horizontal lower or butt edge 12. A vertical cut-out or slot 13 intervenes the two portions 11, and a notch or recess 14 is cut in one side edge which notch or recess, as seen in Fig. 3, forms a space similar to slot 13 when the shingles of a course are laid side by side.

An opening or slot 15 is cut in the material at the upper end of the slot 13 at a right angle thereto. A similar opening or slot 16 is cut inwardly

from the notch 14 in a horizontal alignment with the slot 15. Locking tabs 17 and 18 extend downwardly from the butt edges 12 of the two shingle-like portions 11. Horizontal openings or slits 19 and 20, in line with the edges 12 are cut in the tabs 17 and 18, respectively. As seen in Fig. 1 the slit 20 is shorter than the slit 19, preferably about two thirds the length, for the reason hereinafter stated. The distance "X" between the inner end of each of said slits and the opposite end of its corresponding tab is not greater than, and is preferably equal to the length "Y" of either of the slots 15 and 16, so that no part of the tab will extend into slot or space 13 when the shingles are interlocked.

With this construction and relationship of parts, when the shingles are laid in interlocked relation as indicated in Fig. 3, that is with the slits 19 and 20 of one course engaged and locked in the slots 15 and 16 of the next lower course, no part of the locking tabs will be visible in the slots. It has been found in practice that application of the shingles in interlocked relation is facilitated by having the tab 18 somewhat shorter or narrower horizontally than the tab 17, as shown in Fig. 1.

Cut-outs 21 and 22 are formed in the upper edge portion 23 of each shingle. These cut-outs are complementary, respectively, in contour to the locking tabs 17 and 18, and so permit of cutting the shingles from a web of roofing material with a minimum of waste, as illustrated in Fig. 2.

Another form of shingle 10 is illustrated in Figs. 4, 5, and 6. In that form, as in the preceding form, the shingle has two similar rectangular shingle-simulating portions 11 each having a straight horizontal butt edge 12, the two portions being separated by a vertical cut-out or slot 13. The cut-out 13 has a slot or opening 15 at its upper end at a right-angle thereto, and a corresponding slot or opening 16 is cut inwardly from one side edge, in line with the opening 15. In this instance the side edge into which the opening 16 is cut is a straight vertical edge. However a notch or recess 24, with an inclined upper end 25, is formed in the opposite side edge, which notch forms a space, similar to slot 13, when the shingles of a course are laid side by side, as in Fig. 6.

The shingle of Fig. 4 has locking tabs 17 and 18 each formed with a horizontal opening or slit 19 and 20, respectively, in line with the butt edge 12. In this form of twin shingle the length of the two slits 19 and 20 may be the same without detriment to ease of application. This is due to the fact that the locking tabs in this case are located at one end of each shingle-simulating portion 11 with a corner protruding somewhat beyond the end, instead of being spaced from the end, as in the form of Fig. 1.

The shingles of form of Fig. 4 may be cut from a web or sheet of roofing material with a minimum of waste as shown in Fig. 5, and for that purpose the upper edge 23 has cut-outs 21 and 22, as described in connection with the shingles of the form of Fig. 1.

Figs. 7, 8, and 9 show a form of shingle 10 consisting of single unit embodying the invention. In this form the shingle has one continuous vertical side edge 26, the opposite side edge having a rectangular recess or notch 27 cut into it. The recesses or notches 27, when the shingles are laid as in Fig. 9, form slot-like spaces 13 between the exposed portions of shingles of the course. To permit of cutting with a minimum of waste, as

shown in Fig. 8, the upper end of said side edge has a rectangular notch 28 cut into it.

The unit shingle has a horizontal opening or slot 29 cut inwardly from the side edge 26 at a distance upward from the butt edge 30 a distance equal to the height of the recess of notch 27. It also has a single locking tab 31 at its butt edge formed with a horizontal opening or slit 32 in line with the butt edge. A cut-out 33, similar in shape and size to the tab 31, is formed in the upper edge portion of the shingle.

A modified form of unit shingle 10 is shown in Figs. 10, 11, and 12. This form differs from the unit shingle previously described in that the upper portion of the left side edge is defined by a straight vertical line 34 which portion is connected with the notch portion 27 by an intermediate stepped portion 35 located half way between the top and bottom of the shingle. The edge portions 34 and 27 are of equal length, and the provision of the steps 35 between those portions permits of cutting the shingles, as shown in Fig. 11, with no waste except that caused by cutting openings or slots 29 in the edges of the web or sheet.

When shingles of the Fig. 10 form are laid in interlocked relation, the upper edge portion 34 and the stepped portion 35 of one shingle of each course will overlap the upper portion of the edge 26 of the adjacent shingle of the course, above the slot 29, as shown in Fig. 12. Shingles of this form are economical of nails as only one nail per shingle is required in application.

The relationship of the distances X and Y noted in connection with the shingle of the form of Fig. 1 applies to all of the forms of shingle illustrated and described herein. While it is preferred that the openings in the tabs be slits and those with which they interlock be slots, either slits or slots may be interchangeably used in either case. The term "linear opening" as used in the claims is intended to include either a slit or a slot.

While I have shown and described several forms of the shingle, it is to be understood that the invention is not specifically limited to those forms.

What I claim is:

1. A locking shingle of the square-butt type, comprising a body portion, a butt portion separated by a vertical slot from an adjoining similar butt portion when the shingle is laid, a linear opening in the body at the upper end of the vertical slot and at an angle to the slot, and a locking tab on the butt edge of the shingle, said tab having a linear opening adapted for insertion into the first-mentioned linear opening of a immediately underlying shingle, when laid on a roof, to lock down the butt portion of the overlying shingle.

2. A locking shingle of the square-butt type, comprising a body portion, a butt portion separated by a vertical slot from an adjoining similar butt portion when the shingle is laid, a linear opening in the body at the upper end of said slot and at an angle to the slot, and a locking tab on the butt edge of the shingle, said tab having a linear opening, the distance from the inner end of said opening to the opposite end of the tab being not greater than the length of the first-mentioned opening, the opening in the tab being adapted for insertion into the first-mentioned opening of an immediately underlying shingle, when laid on a roof, to lock down the butt portion of the overlying shingle with no part of the locking tab extending into the vertical slot.

3. A locking shingle of the square-butt type,

comprising a body portion, a substantially rectangular butt portion separated by a vertical slot from an adjoining similar butt portion when laid on a roof, a linear opening in the body at the upper end of the vertical slot and at a right-angle to the slot, and a locking tab on the butt edge of the shingle, said tab having a linear opening in line with the butt edge.

4. A locking shingle of the square-butt type, comprising a body portion, a substantially rectangular butt portion separated by a vertical slot from an adjoining similar butt portion when laid on a roof, a linear opening in the body at the upper end of the vertical slot and at a right angle to the slot, and a locking tab on the butt edge of the shingle, said tab having a linear opening in line with the butt edge, the distance from the inner end of said opening to the opposite end of the tab being equal to the length of the linear opening in the body of the shingle.

5. A locking shingle of the square-butt type, comprising a body portion, a substantially rectangular butt portion, a notch in one side edge of the shingle so that when the shingle is laid side by side with a like shingle said notch will form a vertical slot between the two, a linear opening extending into the body portion from a side edge of the shingle, and a locking tab on the butt edge of the shingle, said tab having a linear opening in line with the butt edge.

6. A locking shingle of the square-butt type, comprising a body portion, two butt portions separated by a vertical slot, a notch in one side edge so that when the shingle is laid side by side with

a like shingle said notch will form a corresponding vertical slot between the two, a linear opening extending inward from the upper end of said notch, a similar linear opening at the upper end of the first mentioned vertical slot, and a locking tab on the lower edge of each butt portion, said tabs each having a linear opening in line with said lower edges.

7. A locking shingle of the square-butt type, comprising a body portion, two butt portions separated by a vertical slot, a notch in one side edge so that when the shingle is laid side by side with a like shingle said notch will form a corresponding vertical slot between the two, a linear opening at the upper end of the vertical slot separating the butt portions at a right-angle to said slot, a similar linear opening extending inward from an edge of the shingle in line with the first mentioned linear opening, and a locking tab on the lower edge of each butt portion, said tabs each having a corner portion that extends somewhat beyond the corresponding side edge of the respective butt portions, and each having a linear opening extending inward from its corner portion in line with the lower edge of the butt portions.

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