Oct. 31, 1944. J. E. BLACK 2,361,450

SHINGLE JOINT INSERT

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Fig. 1

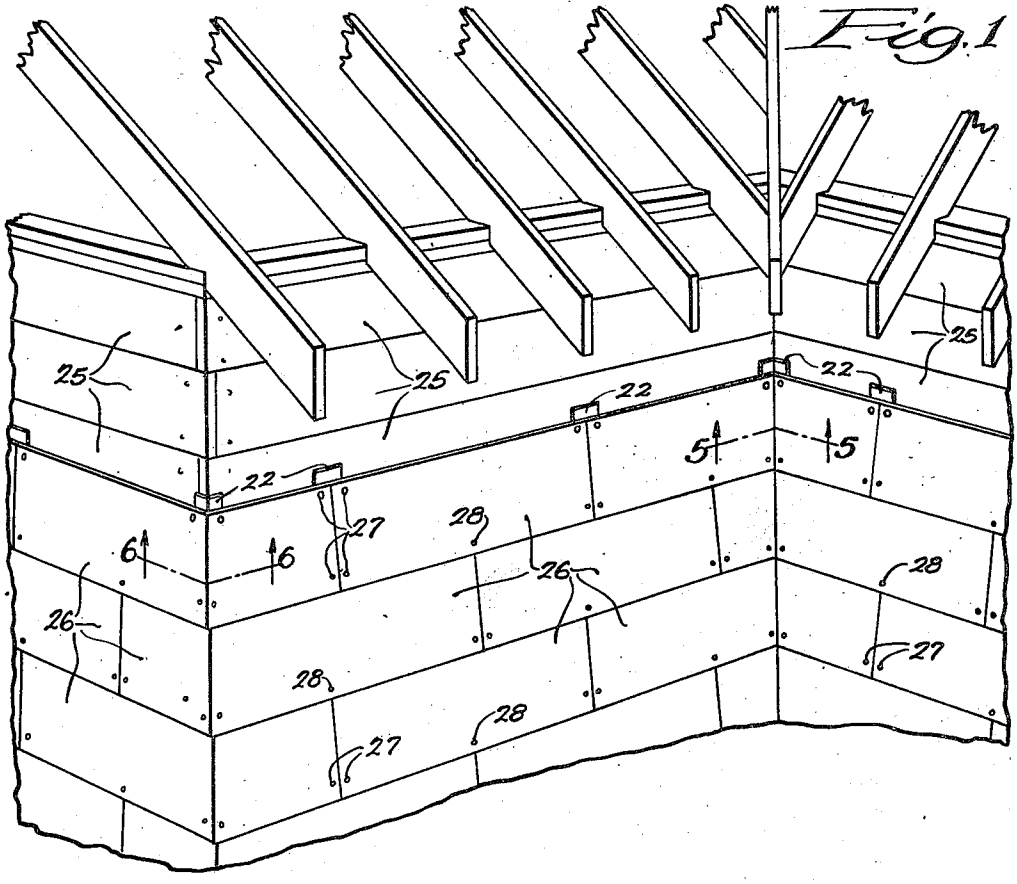
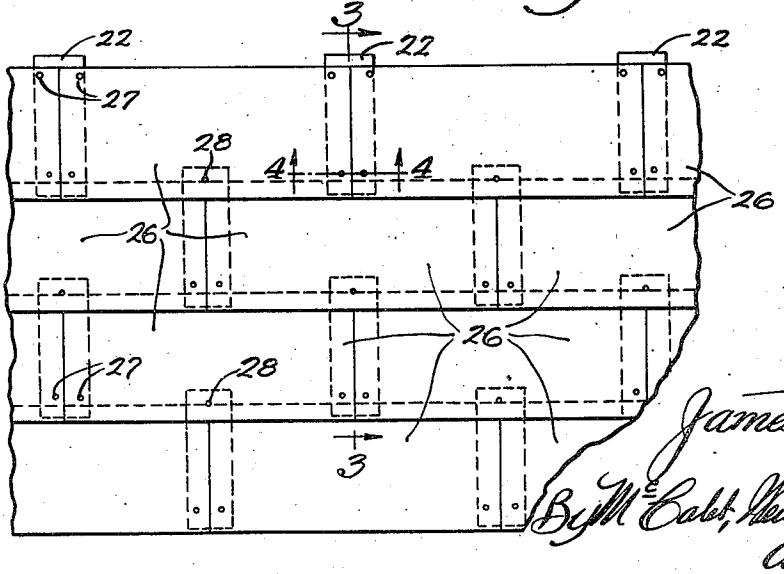


Fig. 2



Inventor.
James E. Black,
By McCabe, Hart & Dickinson
Attorneys.

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SHINGLE JOINT INSERT

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Fig. 3

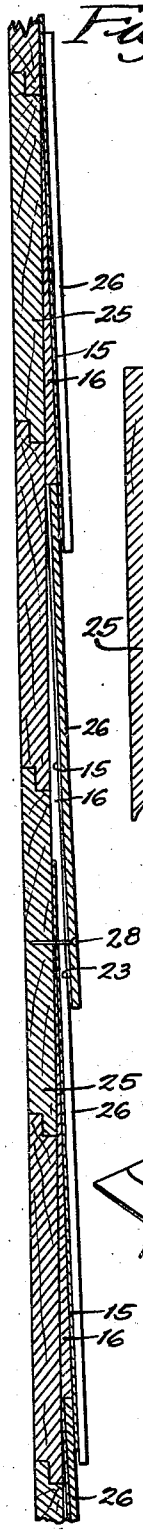


Fig. 4

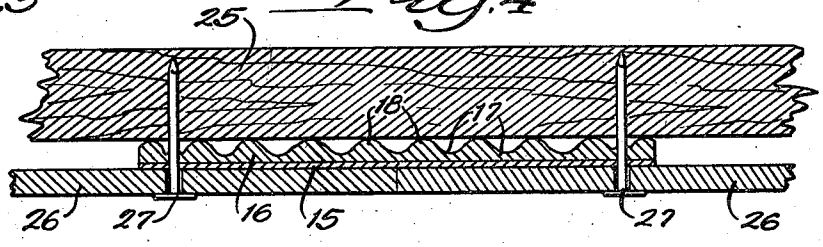


Fig. 5

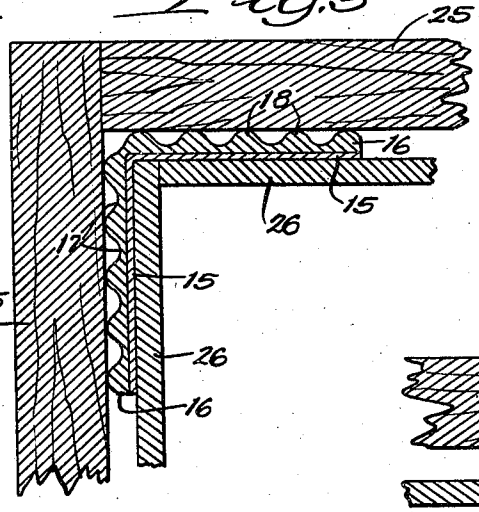


Fig. 6

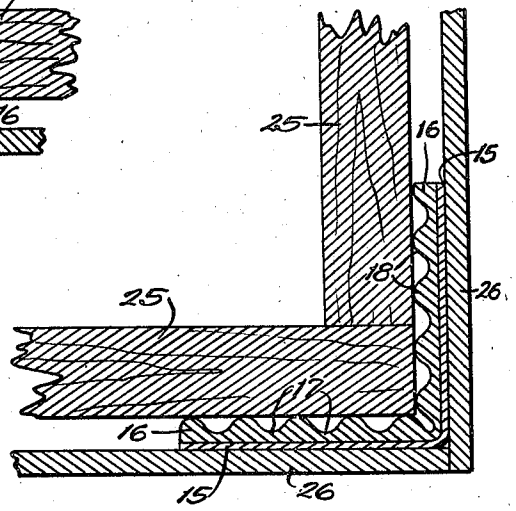
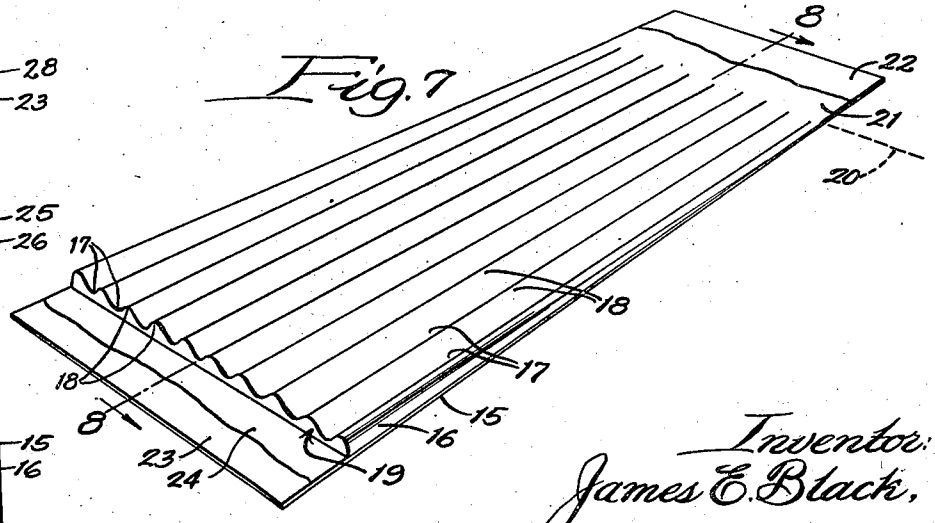


Fig. 7



Inventor:
James E. Black,
By McCaleb, Woodward & Dickinson
Attorneys.

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SHINGLE JOINT INSERT

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Fig. 8

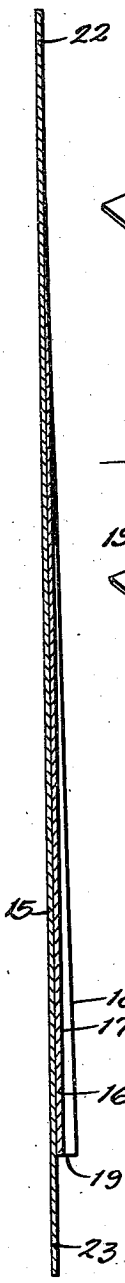


Fig. 9

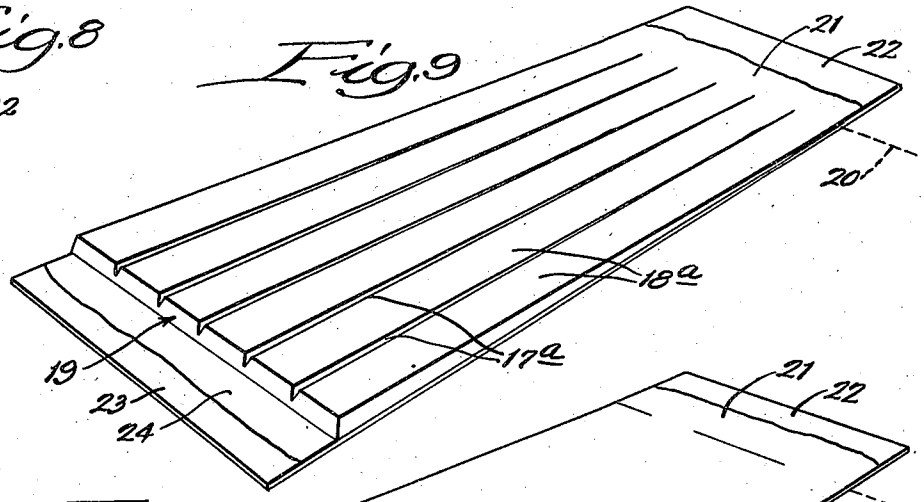


Fig. 10

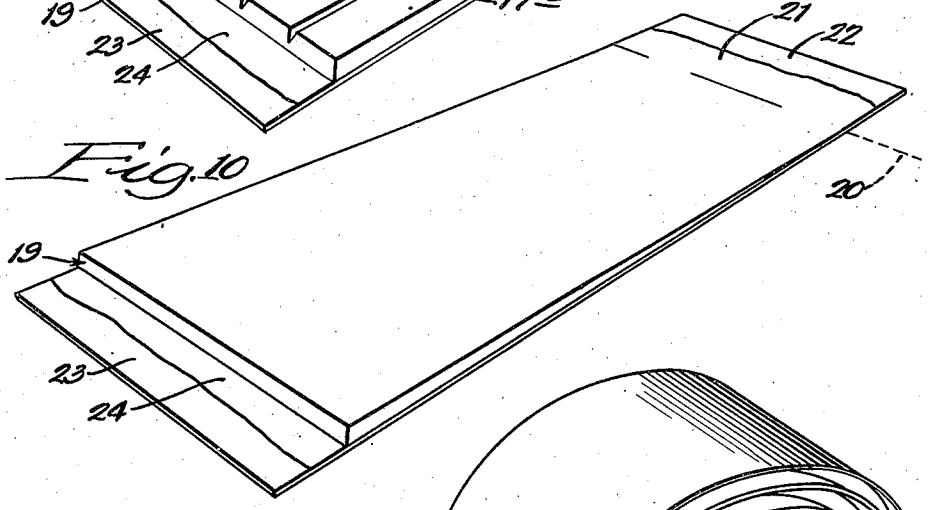
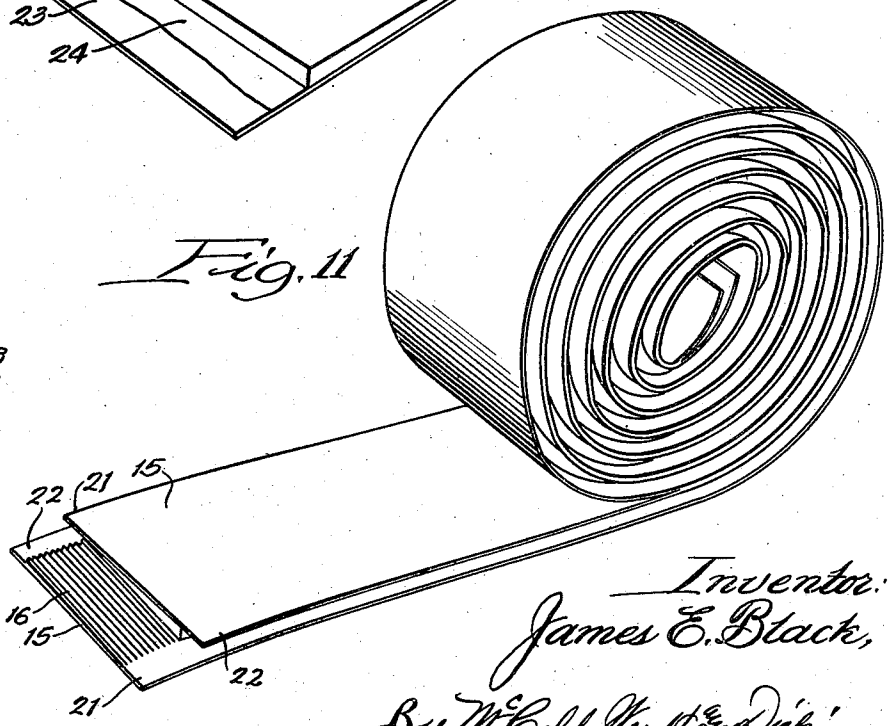


Fig. 11



Inventor:
James E. Black,
By McCabe, Hewitt & Dickinson
Attorneys.

Patented Oct. 31, 1944 2,361,450

UNITED STATES PATENT OFFICE

2,361,450

SHINGLE JOINT INSERT

James E. Black, Chicago, Ill., assignor, by mesne assignments, to James E. Black, Elam L. Black, Whitfield J. Black, and Virginia Black, a partnership doing business as Black Systems, Chicago, Ill.

Application January 12, 1944, Serial No. 517,931

5 Claims. (Cl. 108—9)

My invention relates to shingle joint inserts.

The object and accomplishment of the invention is to provide inserts that practicably may be installed to give long continuing excellent service as constituent parts of wall and roof coverings.

Shingle joint inserts of the prior art have been of three types—i. e., firstly, the initially straight strip type; secondly, the all metal type, and thirdly, the metal and wood wedge type.

The prior art inserts of the initially straight strip type have been of but limited usefulness because of their characteristic tendency to sag away from the shingles they underlie and because they permit water seepage through the holes of roofing nails piercing them. Inserts of the all metal type and of the metal and wood wedge type cannot feasibly be utilized in conjunction with composition shingles because they necessarily must be held in position by means other than nails piercing them, and because they cannot practicably be manipulated to give them angular transverse cross sections that will accommodate the internal and external corners of walls and roofs being shingled. These and other shortcomings of the prior art inserts have been recognized and overcome by the present invention.

Salient problem-solving features and characteristics of an insert of the present invention are these: it comprises a thin elongated outer stratum of impregnated felt to which adheres a shorter inner stratum in the nature of a wedge-shaped solid cushion formed essentially of a bitumen that is deformable, flexible, cohesive and glutinous; the thicker end of the wedge-shaped stratum is spaced from the proximate end of the felt stratum and the other proximate ends of the two strata are preferably similarly spaced; the aforesaid strata constitute an integral mass in which a hole-closing cold flow action takes place when the insert is pierced by nails; and the wedge-shaped stratum is longitudinally corrugated, or otherwise provided with endwise extending ridges and grooves, to accommodate the aforesaid cold flow action, to permit ready adaptation of the insert to the internal and external corners of a wall or roof being shingled, and to facilitate reduction of the insert's transverse dimension or its separation from a long strip of which it initially forms a part.

These and other features, objects and advantages of my invention will appear from the following detailed description wherein reference is made to the accompanying drawings in which:

Figure 1 is a perspective view depicting several partially shingled walls of a building in construction;

Fig. 2 is a fragmentary elevational view of four courses of shingles on one of the aforesaid walls;

Fig. 3 is a vertical sectional view which may be regarded as taken on the line 3—3 of Fig. 2 and looking horizontally as indicated by the arrows;

Fig. 4 is a horizontal sectional view which may be regarded as taken on the line 4—4 of Fig. 2 and looking upwardly as indicated by the arrows;

Fig. 5 is a horizontal sectional view which may be regarded as taken on the line 5—5 of Fig. 1 and looking upwardly as indicated by the arrows;

Fig. 6 is a horizontal sectional view which may be regarded as taken on the line 6—6 of Fig. 1 and looking upwardly as indicated by the arrows;

Fig. 7 is a perspective inner-surface-up view of the preferred form of my improved shingle joint insert;

Fig. 8 is a longitudinal sectional view which may be regarded as taken on the line 8—8 of Fig. 7 and looking in the direction indicated by the arrows;

Figs. 9 and 10 are views, similar to Fig. 7, illustrating other desirable forms of the insert; and

Fig. 11 is a perspective view illustrating a coil of two strips from which inserts of the present invention readily may be separated when required.

Similar characters of reference refer to similar parts throughout the several views.

Referring first to Figs. 4 to 8 inclusive, the insert there depicted comprises an outer stratum 15 in the form of a readily pliable felt strip that has been impregnated with low melting point asphalt. The felt employed usually will consist of vegetable fibers such as those from cotton rags and wood, but desirably may include some wool fibers.

Tenaciously adhering to the outer or felt stratum 15 is a shorter intermediate stratum 16 which constitutes a longitudinally tapering cushion. Such tapering cushion 16 is formed of a material that is readily deformable, flexible, cohesive and glutinous, and which is prepared and applied to the felt stratum as follows: Sixty parts, by weight, of asphalt that melts at approximately 200° F. is heated to a temperature between 300° F. and 500° F., and while thus heated, is thor-

oughly intermixed with forty parts of suitable mineral thickener such as slate flour. A coating of such mixture, approximately one-sixteenth inch ($\frac{1}{16}$'') thick, is applied while hot to the felt strip **15**. After such coating has been thus applied, it is sprinkled with very finely granulated stone or sand (not shown) to give it a third stratum in the nature of a thin non-adhesive coating for the cushion. The assembly is now passed between hot rollers to form the longitudinally extending grooves **17**, and the intermediate ridges **18**, in the cushion **16**. The depth of the grooves **17** and the height of the ridges **18** gradually diminish from the transverse shoulder **19** of the cushion to a transverse line **20** (Fig. 7) where both the ridges and the grooves merge with and lose their identity in a very thin film **21** of the cushion material which partially (or wholly) covers the upper flap **22** of the insert. The insert also has a lower flap **23** which preferably is partially (or wholly) covered by a very thin film **24** of the cushion material. The films **21** and **24**, like the cushion **16**, have been sprinkled with the aforesaid finely granulated stone or sand (not shown). The insert is now ready for use.

In Fig. 1 I have shown building sheathing **25** in the process of being covered with composition shingles **26** conventionally laid, with the shingles of alternate courses aligned, with the vertical edges of the shingles abutting corresponding edges of contiguous shingles and with each shingle above the lowermost course slightly overlapping a shingle or shingles of the next lower course. The shingles shown, being of the rigid variety, are provided with pre-formed apertures for the reception of the holding nails **27** and the lap gauge nails **28**. When the lap gauge nails **28** are employed, they pass through the shingles of full length midway between their ends and at a distance above their lower edges corresponding with the desired degree of shingle lap.

As the shingling proceeds upwardly, course by course, the inserts of my present invention are so disposed as to underlie and completely generously bridge the joints between each laterally contiguous pair of shingles being laid, and to project somewhat above the aligned upper edges of such shingles—all as clearly depicted in Figs. 1, 2 and 3. More specifically each insert (except those employed at the corners of the shingled walls) is disposed with its felt stratum **15** engaging the pair of shingles having their vertical joint bridged by the insert, its tapering cushion **16** engaging the sheathing **25**, its transverse shoulder **19** engaging the upper edge of the adjacent shingle in the next lower course, its lower flap **23** overlapping the outer face of such last-mentioned shingle, and its upper flap disposed to underlie the lower portion of the adjacent shingle in the next course to be laid. With each insert so disposed, its tapering cushion **16** becomes pierced by holding nails **27**, and its upper flap **22** may be pierced by one of the lap gauge nails **28** when the latter are employed.

The cushion of each insert is compressed in the space, between sheathing and shingles, which it occupies, and functions to hold its associated felt stratum tightly against the under faces of the abutting shingles which the insert underlies. As such shingles are laid, the cushion adapts itself to irregularities in the sheathing and, when rigid shingles are being applied, acts yieldingly to protect the shingles against hammer blow breakage. Moreover, and very important, the material of the cushion acts, by cold flow action, to seal nail holes formed in the insert—this cold flow hole-sealing action being accommodated by the cushion grooves **17** which enable the material of the cushion ridges readily to deform when, upon the driving home of the nails, the insert is squeezed in the space between the sheathing and the shingles. The adhesiveness of the cushion material is sufficient permanently to hold the cushion stratum and the felt stratum firmly united despite any deformations undergone by the cushion.

My improved inserts, as hereinbefore described, readily may be bent along the lines of their medial grooves to adapt themselves to the interior and external corners of a wall or roof being shingled—as depicted in Figs. 5 and 6. At such corners the upper flap **22** of each insert underlies both angularly disposed portions of the cushion of the insert associated with the next higher course.

Whenever it is desirable to diminish the width of one of these inserts, that readily may be done by folding it tightly along one of its grooves **17** in such manner that the felt stratum lies inwardly of the fold, and then tearing the insert along the line of the fold. In the same manner individual inserts may be removed from a long strip in which they are originally formed. Fig. 11 illustrates how two such strips, wtih their cushion portions reversely disposed face to face, conveniently may be coiled together for handling and shipment.

Inserts of the kinds depicted in Figs. 7, 9 and 10 readily adapt themselves to bundling in packages having all sides rectangular—the appropriate manner of stacking the inserts for such bundling being to dispose the thick end of the cushion of each insert opposite the thin end of the cushion of each contiguous insert.

Fig. 9 illustrates an insert of the present invention provided with grooves **17***a* and ridges **18***a* differing somewhat from the corresponding grooves **17** and ridges **18** of the insert depicted in Fig. 7; and Fig. 10 illustrates how, if desired, the grooves and ridges may be omitted from the insert if the user is willing to forego the hereinbefore discussed advantages afforded thereby. Aside from the matter of grooves and ridges, the inserts of Figs. 9 and 10 are formed in the same manner, and with the same materials, as is the insert of Fig. 7.

The improved shingle inserts of the present invention are useable in roof coverings as well as side wall coverings and with flexible or semi-flexible shingles as well as with shingles of the rigid variety. Within the meaning of this specification and its appended claims the term "shingles" includes any strips of wall or roof covering which abut end to end in overlapping courses.

Having thus illustrated and described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. A shingle insert comprising: a pliable felt strip of sufficient width to be overlapped by the abutting edges of shingles to prevent leakage laterally from the crack between said edges, and a cushion adhering to one face of such felt strip, such cushion consisting of a bitumen and a thickener therefor and being readily deformable, cohesive and glutinous, one end of the cushion constituting a shoulder disposed transversely of the felt strip and being spaced from the corresponding end of the felt strip so that the insert presents a flexible flap adapted to overlie a shingle having its upper edge engaged by said shoulder.

2. A shingle insert comprising: a pliable felt strip of sufficient width to be overlapped by the abutting edges of shingles to prevent leakage laterally from the crack between said edges, and a cushion adhering to one face of said felt strip, said cushion consisting of a bitumen and a thickener therefor and being readily deformable, cohesive and glutinous, the ends of said cushion being spaced from the ends of the felt strip so that the insert presents flexible flaps projecting beyond the ends of the cushion, said cushion being of substantial thickness at one of its ends, presenting a transverse shoulder at such end, and tapering away from said shoulder in the longitudinal direction.

3. A shingle insert comprising: a pliable felt strip of sufficient width to be overlapped by the abutting edges of shingles to prevent leakage laterally from the crack between said edges, and a cushion adhering to one face of said felt strip, said cushion consisting for the most part of a bitumen and being readily deformable, cohesive and glutinous, one end of the cushion constituting a shoulder disposed transversely of the felt strip and being spaced from the corresponding end of the felt strip so that the insert presents a flexible flap adapted to overlie a shingle having its upper edge engaged by said shoulder, said cushion being provided with longitudinal ridges and grooves substantially as and for the purposes set forth.

4. A shingle insert comprising: a pliable felt strip of sufficient width to be overlapped by the abutting edges of shingles to prevent leakage laterally from the crack between said edges, and a cushion adhering to one face of such felt strip, such cushion consisting of a bitumen and a thickener therefor and being readily deformable, cohesive and glutinous, the ends of such cushion being spaced from the ends of the felt strip so that the insert presents flexible flaps projecting beyond the ends of the cushion, said cushion being of substantial thickness at one of its ends, presenting a longitudinal shoulder at such end, tapering in the longitudinal direction away from said shoulder, and provided with longitudinally extending ridges and grooves substantially as and for the purposes set forth.

5. A shingle insert comprising: a pliable felt strip which is of sufficient width to be overlapped by the abutting edges of shingles to prevent leakage laterally from the crack between said edges, and a cushion adhering to one face of such felt strip and spaced from the ends of the latter to leave the insert with flexible flaps projecting beyond the ends of the cushion, said cushion consisting largely of a bitumen and being readily deformable, cohesive and glutinous, said cushion being of substantial thickness at one end and there presenting a transverse shoulder, said cushion tapering in the longitudinal direction away from said shoulder, and said cushion being provided with a plurality of longitudinal ridges and grooves, the depth of said grooves and the height of said ridges diminishing progressively away from said shoulder.

JAMES E. BLACK.