United States Patent [19]

Fulton

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[54] **TIRE ROOF**

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[52] **U.S. Cl.**..... **52/533,** 52/543, 52/748, 52/750, 52/DIG. 9

[51] **Int. Cl.**..... **E04d 1/22,** E04d 1/26, E04d 1/34

[58] **Field of Search** ..... 52/DIG. 9, 533, 528, 748, 52/547, 548, 543, 552, 750; 293/1, 51 F, 71 P, DIG. 3; 40/125 M

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Primary Examiner—Frank L. Abbott

[57] **ABSTRACT**

A method for constructing a roof covering out of automobile tires, said tires being cut and segmented in a certain manner and then attached to the roof decking, and the roof covering resulting from the method. The invention is also in a covering for the outside walls of a building and for other structures.

13 Claims, 8 Drawing Figures

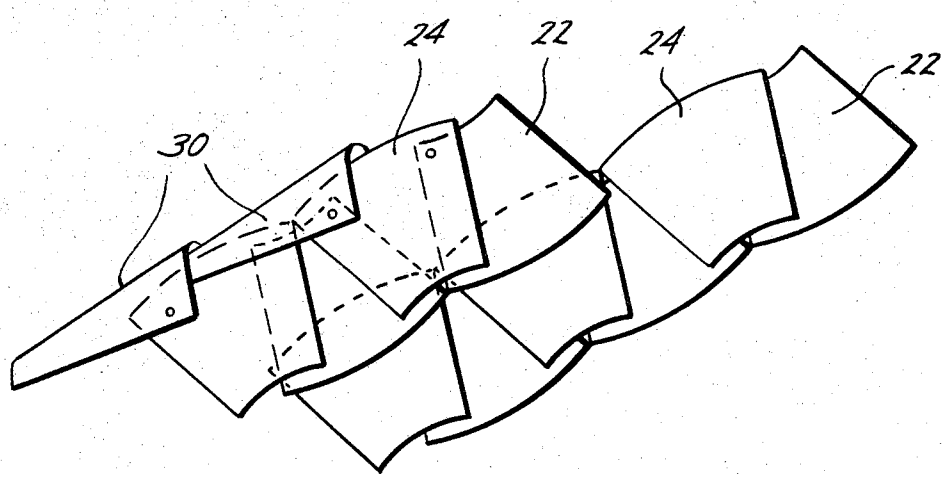


Fig. 1

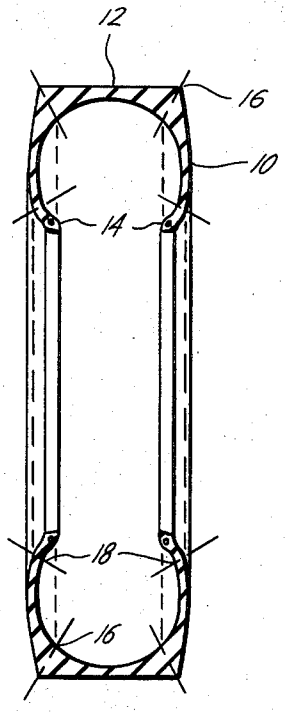
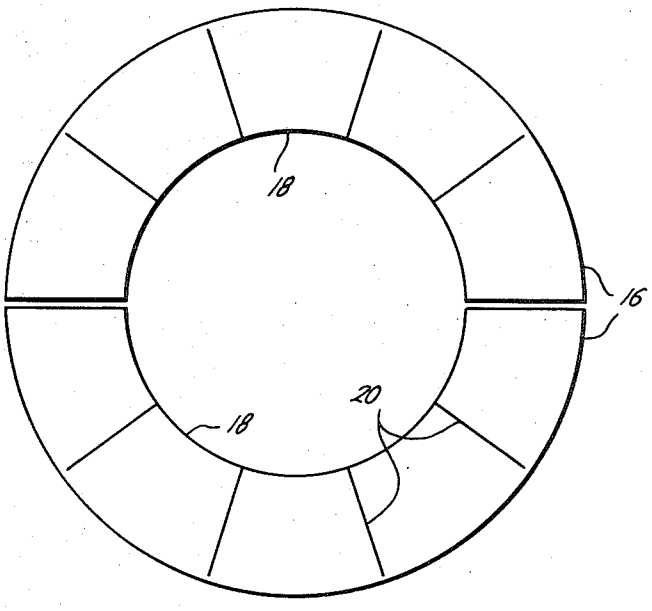


Fig. 2



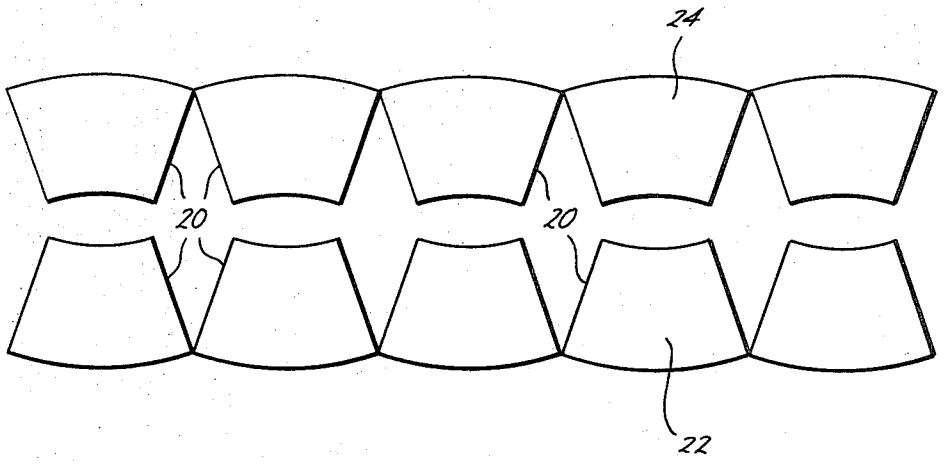


Fig. 3

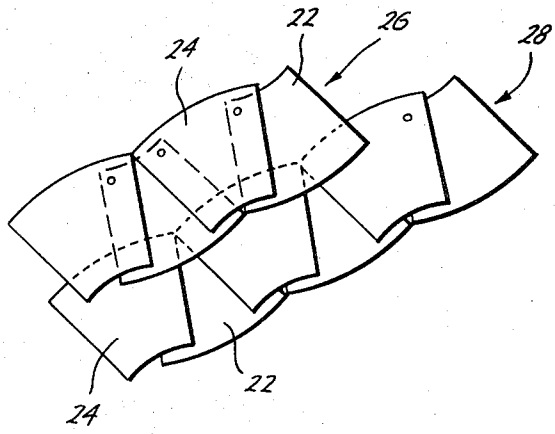


Fig. 4

Fig. 5

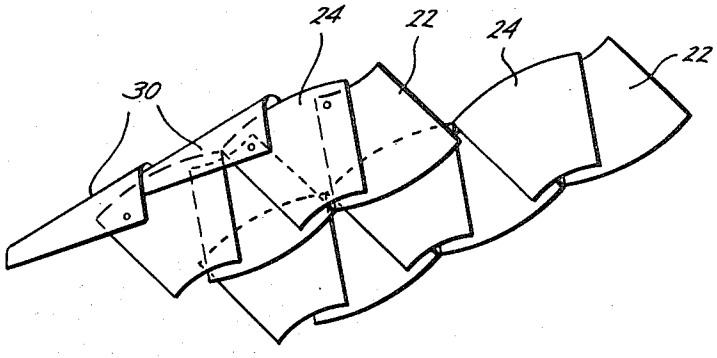
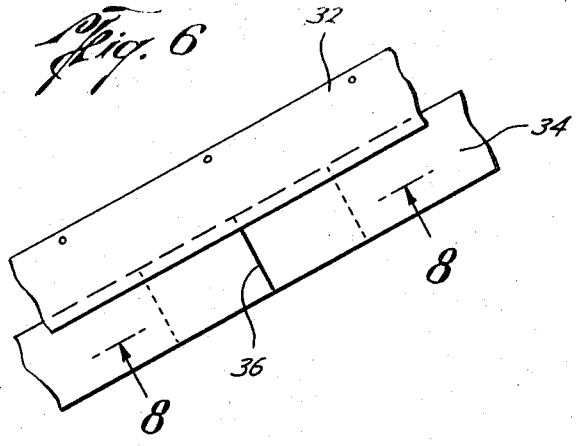


Fig. 6



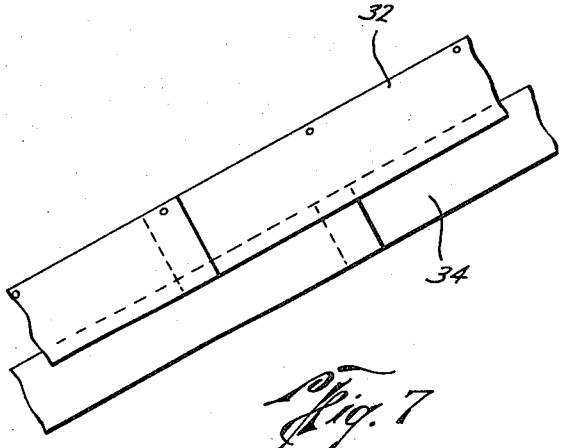


Fig. 8

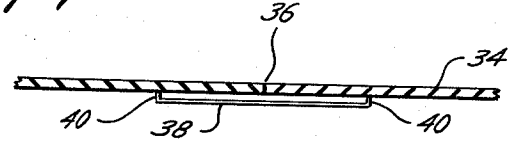


Fig. 7

TIRE ROOF

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to coverings for structures.

2. Description of the Prior Art

In the past, roof coverings have been constructed of many types of materials. These materials in part include aluminum shingles, galvanized metal, tin, slate, tile, wooden shingles and asbestos and cement shingles. Other materials used have been composition shingles, which are felts saturated with black asphalt and then coated with asphalt and sprinkled with solid particles, and layers of felt paper and hot asphalt forming the so-called built-up type of roof.

The period of time during which the above mentioned roof coverings remain functional after installation will, of course, vary. The present invention should have a life far in excess of that of many of the above mentioned roof coverings. The invention also disposes of discarded automobile tires which otherwise have been found to be useless. Up to this time, these tires also have created a disposal problem and a health hazard. As an example, tires have often been found to form a breeding place for mosquitoes.

SUMMARY OF THE INVENTION

The present invention is in a method for converting automobile tires into roof coverings for buildings, and in the resulting roof covering. The invention is also in coverings for the outside walls of a building and in coverings for other structures.

At the outset, the treads and the sidewalls are separated from the tires and from each other by means of a suitable cutting mechanism. Thereafter, the tread portion is segmented into substantially flat portions and the segments thus formed are used to construct one type of roof covering.

The sidewalls likewise form another type of roof covering. The sidewalls are cut to form substantially flat shingles shaped substantially like trapezoids joined together at their bases by a thin strip of uncut tire material located at the outer edge of each sidewall. This strip is thin enough to be flexible in order that the shingles may be laid in a straight line. The gaps which are located between the shingles are filled by a second overlaying strip of shingles. The rows of shingles overlap the previously attached rows in order to allow for water drainage down the roof.

It can be expected that the roof covering which is constructed from the tire material will have an extremely long useful life. In addition, the use of discarded tires as components in roof construction puts to beneficial use goods which have been previously of no substantial value.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a vertical sectional view of an automobile tire;

FIG. 2 is a front view of a sidewall of a tire which has been cut into shingles;

FIG. 3 is a front view showing the shingles cut in accordance with FIG. 2 lying in a straight line;

FIG. 4 is a plan view of two rows of shingles according to one embodiment of the invention attached to a roof structure;

FIG. 5 is a plan view of another embodiment of the roof of this invention;

FIG. 6 is a plan view of still another embodiment of the roof of this invention;

FIG. 7 is a plan view of yet another embodiment of the roof of this invention; and

FIG. 8 is a vertical sectional view of the embodiment of FIG. 6, taken at line 8—8 of FIG. 6.

DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 shows an automobile tire having sidewalls **10**, tread portion **12**, and beads **14**, from which the roof covering of this invention may be made. A cutting mechanism is first placed in contact with the outer circumferential edges **16** of the sidewalls **10**. This cutting mechanism works to separate the treaded portion **12** of the tire from the sidewalls of the tire by cutting throughout the entire circumference of the outer circumferential edges **16** of the sidewalls **10**. A manually operated knife may, for example, be used for the cutting mechanism. Alternatively, those skilled in the art will appreciate that machines for automatically performing such cutting operations may be readily devised.

The beads **14** are separated from the sidewalls **10** by utilizing suitable cutting mechanisms to cut through the entire circumference of the inner circumferential edge **18** of the sidewalls **10**.

To make shingles such as those shown in FIG. **2**, a cutting mechanism is placed in contact with the inner circumferential edges **18** of the sidewalls. Separations **20** are made in certain locations about the tires by cutting from the inner circumferential edges **18** to a point a short distance from the outer circumferential edges **16**. As shown by FIG. **3**, the distance between the points where the cuts end and the outer edges of the sidewalls should be small enough to allow the material to flex without any substantial amount of buckling, which will then allow the shingles to be laid in a straight line. The amount of material left may be, for example, one-eighth inch to one-half inch, or preferable no more than about the thickness of the sidewall. Preferably, as shown by the drawing, each sidewall is cut in half, and each half is segmented to form from three to eight shingles, depending on the dimensions of the sidewall.

A roof covering may be constructed from the shingles cut from the sidewalls. To form each row of shingles, two sets of shingles are required. As shown in FIG. **4**, in each row of shingles there is an underlying layer **22** and an inverted overlaying layer **24**. The overlaying layer **24** is required to cover the gaps between the shingles in the underlying layer existing when separations **20** are spread apart.

FIG. **4** shows the layers of shingles in their positions relative to each other when attached to the roof decking, in one embodiment of the invention. Attachment may be by many means including cementing with a suitable cement such as asphalt, nailing each set of shingles individually to the roof decking, or nailing both sets of shingles at one time to the roof decking by driving the nails at the places where the overlaying set of shingles **24** contact the underlying set of shingles **22**. Alternatively, holes for nailing may be prepunched rather than driving nails through the roofing material at the job site. In a preferred embodiment, the nails may be driven through both the overlaying and underlying sets

of each row of shingles to bind them together before delivery to the roofer. This greatly facilitates installation of the roofing material, and makes it unnecessary for the roofer to provide nails to secure the material to the roof. The nails should be long enough to pass through the subjacent row and extend into the roof decking to secure the material to it.

In FIG. 4, the shingles of each row are shown aligned with each other. However, alternatively they may be staggered as shown in FIG. 5. As is common in the application of roofing materials, the first set of shingles is attached at the eave of the roof. As shown in FIG. 4, each successive row 26 is caused to overlap the previously attached row 28 lying nearer to the eave of the roof. The overlap is sufficient to allow water to properly drain from the roof without wetting the surface underlying the shingles, and normally three-fourths inch to 1 inch is sufficient.

As shown in FIG. 5, the ridge at the apex of the house may be covered by a row of individual shingles 30 each overlapping an adjacent shingle. Alternatively, the ridge may be covered by other conventional materials.

A roof covering may also be constructed from the tread portion of the tires. A cutting mechanism is placed in contact with the tread portion 12 of the tire and the tread portion is cut into one or more segments. As shown in FIG. 6, the segments are attached to the roof decking. Each successively installed row 32 may be lapped over each previously installed row 34 as discussed above to allow for proper drainage of water. In addition, as a crevice 36 may be formed between the abutting ends of the segments of the tread portion, as shown in FIG. 7 the tread segments may be overlapped on the ends also. Plastic cement may be used within the laps. As shown in FIG. 6 and FIG. 8, drainage pans 38 having a width at least equal to the width of the segments and upturned end lips 40 may be provided as an alternative. These pans, which may be made of any material such as galvanized steel sheet, would be located underneath the crevices and operate to direct the water down the roof. Preferably, the pans are held in place by a suitable cement such as tar, but may also be held in place by nails or other means. These pans may be attached to one end of each segment at the plant to insure that they are used for every joint.

It will be appreciated that instead of being on a roof, the material of this invention may be used on a sidewall, or in Hansard roof construction, or in locations where other roofing materials may be used.

Many variations to the above preferred embodiment will be apparent to those skilled in the art. It is impractical to show and describe all the variations included within the invention and as a result the embodiments described should be considered illustrative only, and not limiting — the scope of the invention being as broad as is defined by the appended claims. The form of the claims and the specification, including the abstract, is adopted solely for explanation and should not be considered in interpreting the scope of the invention as claimed.

I claim:

1. A tire roof comprising

rows of shingles, which have been cut from the sidewalls of automobile tires, attached to the roof decking of a building,

said shingles shaped substantially like trapezoids,

a number of said shingles connected together by the uncut outer circumferential edges of said sidewalls,

said rows of shingles formed by underlying and overlaying layers of said shingles,

said overlaying layers filling the gaps between the shingles in said underlying layers,

said rows of shingles lying nearer the apex of the roof overlapping the adjacent rows of shingles lying nearer the eave of the roof.

2. A tire roof as set forth in claim 1 wherein

said overlaying and underlying layers of shingles are in inverse position to each other.

3. A tire roof as set forth in claim 2 wherein

the outer circumferential edges of said underlying layers lie nearer to the eave of the roof than the inner circumferential edges.

4. A tire roof as set forth in claim 1 and including

individual shingles overlapping each other covering the ridge at the apex of the house.

5. A method comprising

separating the tread portions of automobile tires from the sidewalls by cutting circumferentially throughout the outer circumferential edges of the sidewalls,

separating the sidewall portions of the tires from the beads by cutting circumferentially throughout the inner circumferential edges of the sidewalls,

cutting through each sidewall from the inside circumferential edge to the outside circumferential edge,

cutting a plurality of separations in each sidewall from the inside circumferential edge to a point near the outside circumferential edge, so that a single layer of shingles is formed between said separations, the distance from the end of each cut to the outside circumferential edges of the sidewalls being small enough to flex and allow the shingles to be laid in a straight line,

attaching a first layer of shingles to the eave of a roof decking,

attaching a second layer of shingles over the first layer so that the spread separations within the first layer of shingles are covered by the second layer, to form a first row,

attaching a second row of shingles in a manner similar to that used in attaching the first row, said second row overlapping said first row and extending up the roof therefrom, and

in like manner attaching additional rows of shingles necessary to reach the apex of the roof structure.

6. A method as set forth in claim 5 comprising

placing each said overlaying layer of shingles in inverse position to each said underlying layer of shingles.

7. The method as set forth in claim 6 comprising

placing each said underlying layer of shingles so that the outer circumferential edge is nearer to the eave of the roof structure.

8. A method as set forth in claim 5 comprising

inserting roofing nails into the overlaying and underlying layers before they are delivered to the roofer, in order to bind them together, said nails being at the appropriate positions to later be driven to attach the layers to the roof decking.

9. A method comprising

separating the tread portions of automobile tires from the sidewalls by cutting circumferentially throughout the outer circumferential edges of the sidewalls,

cutting completely through the tires from the first circumferential edge of the tread portion to the second circumferential edge of the tread portions

cutting in like manner similar separations in the tread portions of the tires so that segments are formed,

attaching a first row of said segments to those portions of the roof decking nearest to the eave of a roof,

attaching a second row of said segments so that the second row overlaps the first row and extends up the roof therefrom, and

in like manner attaching the rows of shingles necessary to reach the apex of the roof structure.

10. A method as set forth in claim **9** comprising

placing drainage pans under the abutting ends of the segments, between said segments and the roof decking.

11. A method as set forth in claim **9** comprising overlapping the abutting ends of said segments.

12. A method as set forth in claim **9** comprising inserting roofing nails into the segments before they are delivered to the roofer, said nails being at the appropriate positions to later be driven to attach the segments to the roof decking.

13. A method of preparing a roof covering material comprising

separating the sidewalls of an automobile tire from the tread and beads of the tire,

cutting through each sidewall from the inner circumferential edge to the outer circumferential edge, and

cutting through each sidewall at a plurality of substantially equally circumferentially spaced locations from the inner circumferential edge to a distance from the outer circumferential edge no greater than that which will allow flexing sufficient for the adjacent portions of the sidewall to be spread in a substantially straight line.

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