United States Patent [19]

Cutler

[11] **3,910,539**

[45] **Oct. 7, 1975**

[54] **ONE-PIECE ADHESIVELY SECURED ANCHOR**

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[22] Filed: **July 22, 1971**

[21] Appl. No.: **165,208**

[52] **U.S. Cl.** ..... **248/205 A**

[51] **Int. Cl.²** **F16M 13/00**

[58] **Field of Search** ..... 248/205 A, 467; 24/112; 52/506, 511, 712, 714

[56] **References Cited**

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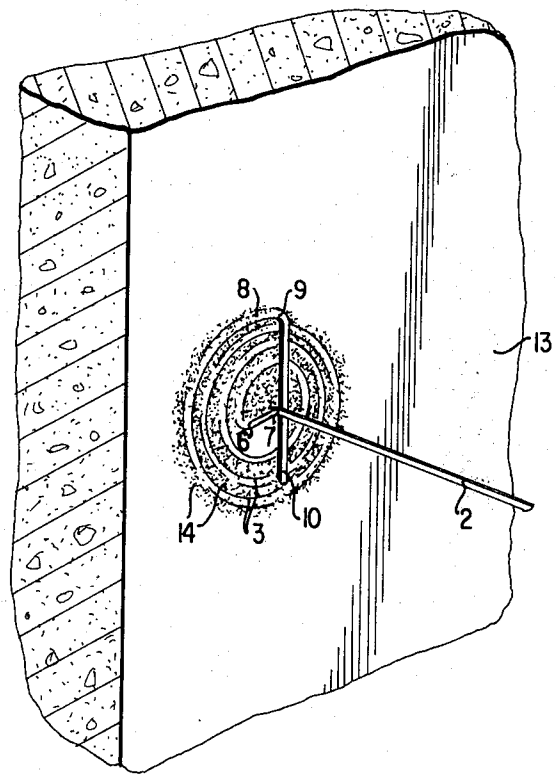
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Primary Examiner—William H. Schultz
Attorney, Agent, or Firm—Thomas J. Lannon

[57] **ABSTRACT**

The one-piece anchor is preferably fabricated of wire and comprises a base portion in the form of a planar spiral of spaced coils, and a shank portion formed by extending the center inner end of the spiral upwardly and generally perpendicular to the plane of the spiral. The base portion is adhesively secured to its support. The spaced coils of the base present a relatively large bonding surface with a sufficient open area to permit rapid dispersion and evaporation of the solvents of the adhesive, whereby the drying time of the adhesive to secure a good bond between the anchor and its supporting surface is greatly reduced when compared to the drying time of the prior art anchors. To reinforce and maintain the coils of the spiral in the planar position, the outer end portion of the spiral is extended upwardly and inwardly to extend across and contact the top of the coils. Further rigidity of the anchor is obtained by looping the outer end of the portion extending across the coils around the base of the shank.

1 Claim, 5 Drawing Figures



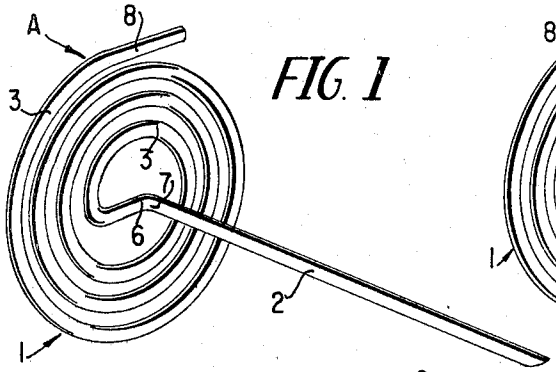


FIG. 1

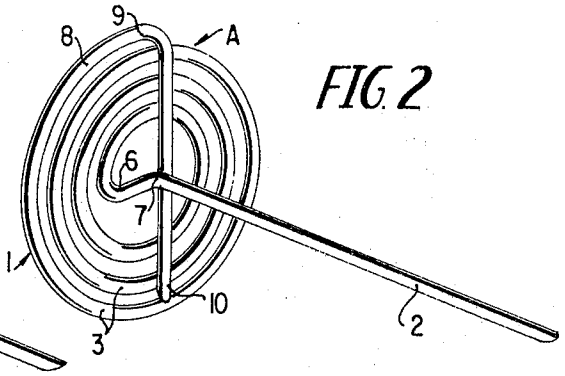


FIG. 2

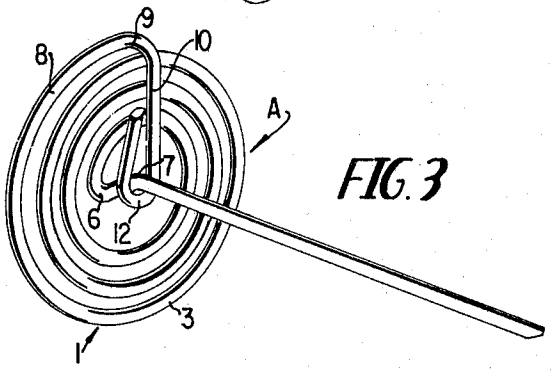


FIG. 3

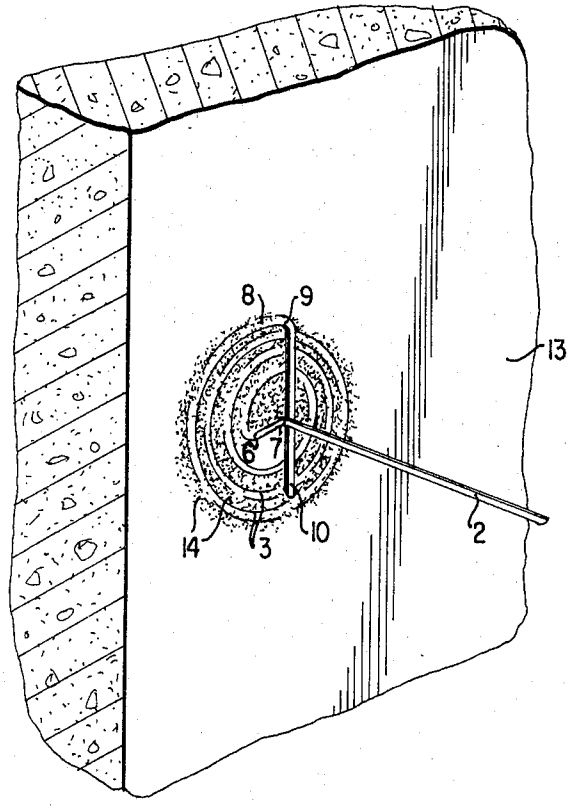


FIG. 5

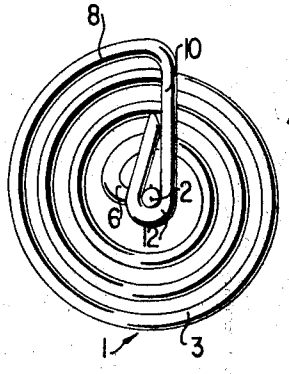


FIG. 4

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ONE-PIECE ADHESIVELY SECURED ANCHOR

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to anchors utilized to fasten and support insulation bats, panels, sheets, rolls and similar construction elements to fixed surfaces of walls, ceilings, ducts, etc. Particularly, this invention relates to anchors which comprise a base and a shank projecting at right angles therefrom, the base being fastened to the support surface by an adhesive or like bonding medium. The insulation, or the like, is impaled over the shank and held in place by self-locking washer means.

2. Description of the Prior Art

The prior art is represented by U.S. Pat. No. 1,971,396. The support or anchor disclosed in this patent comprises a base in the form of a perforated circular plate and a separable shank or prong mechanical secured to the center of the base. This arrangement constitutes a two-piece structure which is manufactured and assembled in several stages. In other prior art anchors, the shank is welded to the base.

While the prior art anchor performs satisfactorily in holding and supporting the load carried by the shank, it has certain drawbacks. The cost of the anchor is relatively high, since it involves the manufacture and assembly of a separable base and shank. The time it takes for the adhesive to dry to fully bond the anchor to the fixed surface is rather long because the adhesive is applied as a blob to the bottom of the base and forced through the perforation. It then takes some time before the solvent material in the adhesive disperses and dries to thereby form a bond sufficiently strong to receive the load on the anchor.

SUMMARY OF THE INVENTION

The present invention relates to the adhesively secured anchors and incorporates certain novel improvements over the prior art anchors.

One of the objects of this invention is to provide an economical, easily manufactured one-piece anchor. This object is accomplished by making a one-piece or integral anchor wherein the base is in the form of a planar spiral having spaced coils and the shank is an integral extension of the inner end of the spiral which extension is bent substantially perpendicularly to the plane of the spiral. Such structure can be fabricated by conventional wire bending and coiling machines.

A further object is to provide a one-piece anchor whereby the possibility of the shank to break off due to faulty welding or poor assembly, as in the prior art, is eliminated.

Another object of this invention is to reduce the time involved in bonding the anchor to the fixed surface of its support. This object is attained by spacing the coils of the spiral so that sufficient open space is provided for the solvent material in the adhesive to disperse and evaporate rapidly and evenly and thereby reduce the drying time of the bond between the base of the anchor and its support.

A further object is to provide an economical anchor wherein its size can be easily varied to suit the load to be supported thereby. This is easily accomplished by varying the size of the wire or by varying the number and size of the coils of the spiral.

A further object is to provide a one-piece anchor of the type described with a reinforcing means to maintain the coils of the spiral in their original planar position against the loading stresses thereon.

Further objects and advantages will be apparent from the following description and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front perspective view of one form of the anchor;

FIG. 2 is a front perspective view of an anchor embodying a reinforcing rod across the top of the coils of the spiral base;

FIG. 3 is a front perspective view of a third form of the anchor wherein the end of the reinforcing rod is looped around the base of the shank;

FIG. 4 is a top view of the anchor illustrated in FIG. 3; and

FIG. 5 is a perspective view of an anchor adhesively secured to its supporting surface.

DESCRIPTION OF THE INVENTION

Referring to FIG. 1, the one-piece anchor A comprises a base 1 and a shank 2 extending from its top face and generally perpendicular thereto.

The anchor is fabricated of suitable size wire, preferably of circular cross section, on conventional wire bending and coiling machines. Base 1 is in the form of a planar spiral having a selected number of coils 3 spaced a desired distance from each other. The size of wire, the number of coils and their spacing will be selected in accordance with the intended loading on the anchor and the bonding properties of the adhesive. While the base is illustrated as being of a general circular configuration, it may be of elliptical, rectangular or other configurations. The conventional wire bending and coiling machines may be adjusted to bend and coil the stock wire in any spiral configuration desired.

The shank 2 is formed by the extension of the inner end 6 of the spiral and bending it at point 7 to cause it to project from the top face of the spiral, as illustrated in the FIGURE. Shank 2 is bent to be generally perpendicular to the plane of the spiral. While the above description refers to the inner end of the spiral extending to form the shank, in most wire working machines the stock wire is fed in and is bent and coiled to form the spiral at the end of the wire forming the shank. The above description refers to the completed anchor per se and should not be considered as a limitation on the mode of its fabrication.

The anchor is fabricated with the coils of the spiral being in a planar position. Under certain loading stresses it is sometimes necessary to provide positive means to maintain them in the original planar position. FIG. 2 discloses means for reinforcing and maintaining the coils in their proper position. As illustrated in the FIGURE, the peripheral outer end 8 of the spiral is extended and bent upwardly and inwardly at point 9 to extend across and contact the top of coils 3 in the form of a reinforcing rod portion 10. Rod portion 10 preferably extends generally in a diametral direction across the top of coils 3 and may contact the base of shank 2 in the vicinity of point 7 to form a one-piece rigid base and shank structure.

FIG. 3 illustrates a further modification. The end of rod portion 10 is looped to form loop 12 around the base of shank 2. Thus, rod portion 10 is rigidly secured

in its superimposed position on top of coils **3** by shank **2** and mutually reinforces the base of shank **2** to hold the shank rigidly against the cantilevered loading forces thereon.

FIG. **5** illustrates the mode of installation of the anchor on a fixed surface **13** of a building. Surface **13** may be the supporting surface of a wall, ceiling, stud, or other building element which carries the insulation, panels, sheets or other loads supported by the anchor A. The anchor is secured to surface **13** by an adhesive type bonding means. The adhesive **14** is appliied to the bottom of the base in the form of a blob and spread over the bottom surfaces of the coils and forced through the spaces between the coils to form a holding film or layer on a major portion of the surfaces of the several coils, and also between the coils.

The spiral form of the base offers a large bonding surface. The spacing between the coils may be designed to offer a sufficient large open area to permit the solvent material of the adhesive to disperse and quickly evaporate. Thus the spiral nature of the base results in a reduced adhesive drying time, and thereby a quicker installation of the anchors is attained over the prior art anchors using perforated plate bases. The bonding surface area for a given over-all area of base is also increased by the use of a spiral configuration.

The end of each shank is shaped to form an edge or point for facilitating the impaling of insulation bats, or the insertion of the shanks in the holes formed in the panels, sheets, etc. which the anchors are to support.

While the invention has been described and illustrated in detail, it is to be clearly understood that this is intended by way of illustration and example only and is not to be taken by way of limitation.

I claim:

1. A one-piece anchor having a base portion for receiving adhesive for securing the anchor to a rigid supporting surface and having a shank portion extending generally perpendicular to the base portion to receive a generally cantilever load, said base portion comprising a planar spiral having spaced coils terminating in an inner end and in a peripheral outer end, said shank portion comprising an extension of the inner end bent upwardly to extend from one face of the spiral, the outer end having an end portion which is bent upwardly and inwardly to extend across said one face and contact the top of the coils with the terminal end of the end portion being looped around the shank at a point adjacent the base, said coils being sufficiently spaced from each other to receive an application of adhesive to a major portion of their surfaces and to provide an open area to permit the dispersion and evaporation of the solvent material in the adhesive.

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