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3,246,439

ADHESIVE HANGERS WITH PIVOTALLY CONNECTED BASE PLATE AND SPINDLE

Filed Oct. 17, 1962

2 Sheets-Sheet 1

FIG. 1

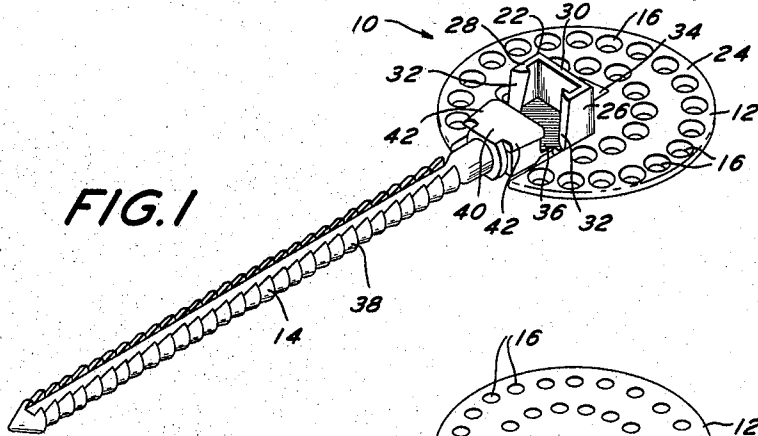


FIG. 3

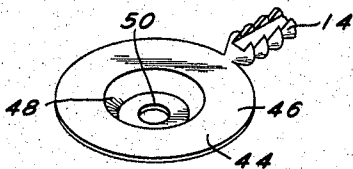


FIG. 2

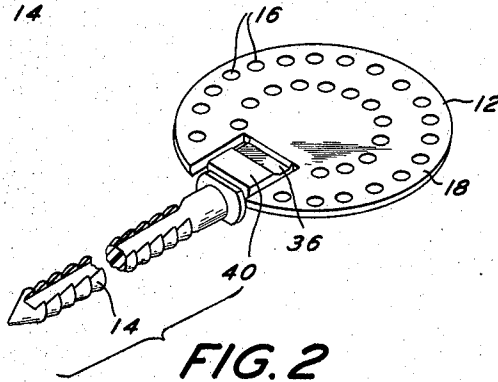


FIG. 4

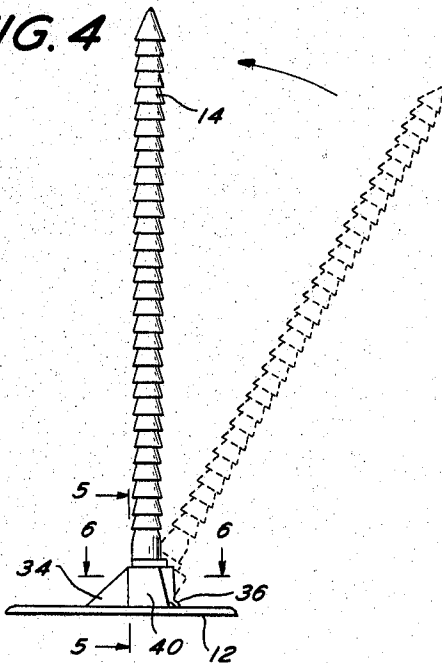
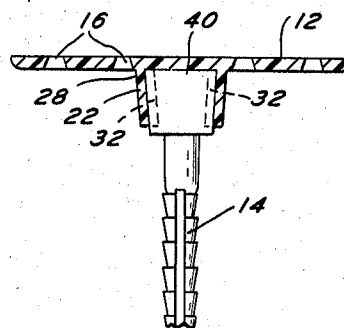


FIG. 5



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FIG. 7

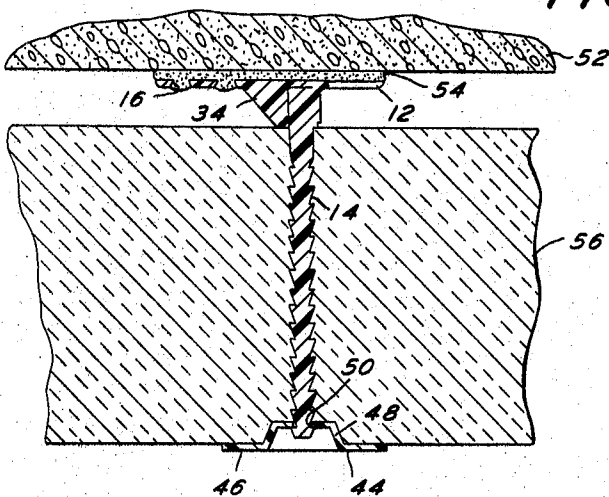


FIG. 6

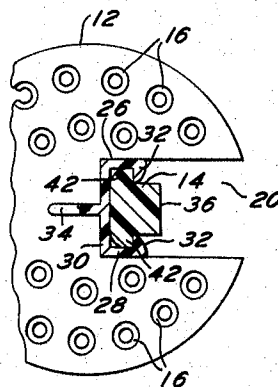


FIG. 8

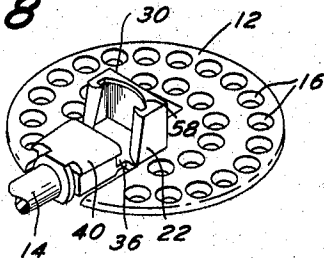


FIG. 9

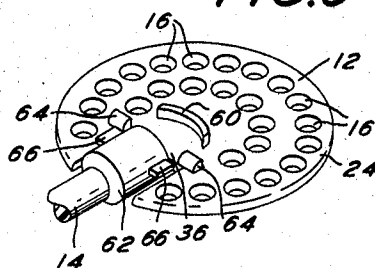
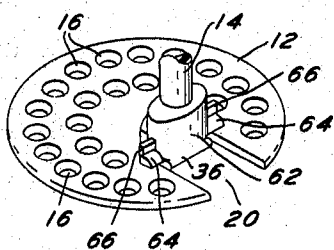


FIG. 10



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4 Claims. (Cl. 52-698)

This invention relates to adhesive hangers and has for its principal objective the provision of a new and improved adhesive hanger of this general class.

It is known to provide adhesive hangers which basically comprise a base plate which may be secured to a ceiling or other surface with the base plate having a spindle or nail projecting at right angles thereto. Insulation or other material is impaled upon the spindle in order to hold such insulation in a stable position.

While adhesive hangers heretofore known have functioned satisfactorily for their intended purpose, certain problems have been encountered with respect to such adhesive hangers. In one type of adhesive hanger the base plate and the spindle were provided as separate items which could be secured together. This not only required special handling in order that both components could be provided, but it also involved a certain amount of time in assembling the two separate pieces together.

It has also been suggested that the adhesive hanger be provided in a single piece. However, shipment of the adhesive hangers in such a condition proved to be relatively expensive in view of the relatively large bulk created by the upstanding spindles of the so called "one piece adhesive hangers."

It is accordingly a principal object of the present invention to provide a one piece adhesive hanger which is quite compact for shipment purposes and yet can be simply erected without special tools or time consuming work.

Yet another object of the present invention is to provide an adhesive hanger which is relatively low in cost and which, in certain cases, includes a washer for securement of insulation impaled upon the spindle of the adhesive hanger.

The foregoing as well as other objects of the invention are achieved by providing an adhesive hanger which basically comprises a base plate and a spindle extending therefrom, the spindle lying in essentially the same plane as that of the base plate. The spindle includes a head and is secured to the base plate by means of a hinge. The base plate includes a U-shaped locking chamber which is adapted to receive the spindle head upon pivoting of the same into the locking chamber, preferably, as permitted by the hinge.

The adhesive hanger of the present invention is of a one-piece construction and is formed preferably of a material with some resiliency such as nylon, polyethylene and polypropylene.

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:

FIG. 1 is a perspective view of a preferred embodiment of an adhesive hanger of the present invention taken generally from the top thereof.

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FIG. 2 is a fragmentary perspective view similar to FIG. 1 but taken generally from the bottom thereof.

FIG. 3 is a fragmentary perspective view showing an alternate embodiment wherein a washer is integrally molded to the spindle of the adhesive hanger.

FIG. 4 is a side elevational view of the adhesive hanger of FIG. 1 wherein the spindle has been pivoted to an upright position with respect to the base plate and also shows in phantom an intermediate position of the spindle.

FIG. 5 is an enlarged sectional view taken along the lines 5-5 of FIG. 4.

FIG. 6 is an enlarged sectional view taken along the lines 6-6 of FIG. 4.

FIG. 7 is a sectional view showing the adhesive hanger of FIG. 1 secured to a ceiling, having insulation impaled over the spindle of the adhesive hanger and having the insulation held in place by means of a washer.

FIG. 8 is a fragmentary perspective view of the base plate and associated spindle head constituting a second embodiment of the base plate of the present invention.

FIG. 9 is a fragmentary perspective view of the base plate and associated spindle head constituting a third embodiment of the base plate of the present invention.

FIG. 10 is similar to FIG. 9 but shows the spindle head pivoted to lie in its operative position at right angles to the plane of the base plate.

Referring now in greater detail to the various figures of the drawings wherein similar reference characters refer to similar parts, an adhesive hanger embodying the present invention is shown at 10 in FIG. 1.

Adhesive hanger 10 as manufactured generally comprises a base plate 12 and a spindle 14 projecting therefrom and lying in substantially the same plane as the base plate 12.

The base plate 12 is essentially circular and possesses a plurality of foraminations 16 in order that the underside 18 of the base plate 12 may be secured to a ceiling via adhesive as illustrated in FIG. 7. The base plate 12 as illustrated in FIG. 6 further includes a slot 20 in order to permit the spindle 14 to be pivoted upwardly relative to the base plate 12 as illustrated in FIG. 4.

The base plate 12 further includes a U-shaped locking chamber 22 projecting upwardly from the upper surface 24 of the base plate 12. As best illustrated in FIGS. 1, 5 and 6 the locking chamber 22 basically comprises upstanding side walls 26 and 28 tapering toward each other in the direction of the spindle 14 and terminating in inwardly tapering camming flaps 32 which also taper toward each other in the manner of walls 26 and 28. The flaps 32 possess a somewhat convex outer surface as illustrated in FIG. 5. A strengthening web 34 may be provided where necessary behind the back wall 30 of the chamber 22.

The spindle 14 is secured to the base plate 12 by means of a hinge 36 as best illustrated in FIGS. 1, 2 and 6. The spindle 14 basically comprises a serrated attachment portion 38 terminating in a tapered spindle head 40. As best illustrated in FIG. 1, the spindle head 40 possesses on its adjacent edges ears 42 which taper toward base plate 12 and away from each other.

It is thus seen that the spindle 14 is an integral part of the base plate 12 and as manufactured lies in substantially the same plane as the base plate 12.

In order to use the adhesive hanger 10, the spindle 14 thereof is pivoted as shown in FIG. 4 to lie in a plane sub-

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stantially perpendicular to that of the base plate 12. Such rotation is permitted by virtue of the hinge 36, and the spindle 14 may be locked in this perpendicular position because of the inner-action of the ears 42 of the spindle head 40 and the flaps 32 of the locking chamber 22.

As the spindle 14 is pivoted with respect to the base plate 12 as illustrated in FIG. 4 the ears 42 of the spindle head 40 contact the flaps 32 of the locking chamber 22. As previously noted the ears 42 taper with respect to each other and the flaps 32 taper with respect to each other. In other words, both the ears 42 and the flaps 32 define an inverted keystone. The degree of taper in both the ears 42 and the flaps 32 should be substantially identical. In addition, the respective separation between the ears 42 and the flaps 32 should be substantially identical so that the ears 42 may be urged past the flaps 32 in order to lock the spindle 14 in the upright position of FIG. 4.

In a preferred embodiment of the invention the entire adhesive hanger including the flaps 32 are made of a somewhat resilient material with the flaps 32 being spaced slightly closer together than the edges of the ears 42. Thus, in bringing the spindle 14 to the upright position it will be necessary to force the spindle head 40 including the ears 42 against the flaps 32 to snap spindle head 40 into the locking chamber 22. This action is enhanced by the convex surface of the flaps 32 and also by the convex surface of the ears 42. If a material of sufficient resiliency is employed, it will be possible to release the spindle head 40 from the locking chamber 22 by direct force. It is thus seen that the adhesive hanger 10 as manufactured is provided in a relatively flat condition but that the spindle 14 may be pivoted to an upright position in a very simple and quick manner. Thus, the adhesive hanger of the present invention possesses the advantage of compactness in shipment and simplicity of erection which was not known heretofore in the art.

Where desired, as shown in FIG. 3, a washer 44 may be integrally molded to the tip of the spindle 14. In order to use the washer 44 as illustrated in FIG. 7 it is simply necessary to break the same away from the tip of the spindle 14. As illustrated in FIGS. 3 and 7 the washer 44 is generally circular and includes an outer flange 46 and a somewhat tapered recessed area 48 concluding in a wall possessing an opening 50 for reception of the spindle 14.

The use of the adhesive hanger 10 is illustrated in FIG. 7 wherein the spindle 14 has been brought to and locked in the upright position in a manner which is illustrated in FIGS. 4, 5 and 6. The base plate 12 is secured to a ceiling 52 by means of adhesive 54 which enters the foraminations 16 in order to provide a better bond. Thereafter, insulation 56 is impaled over at least one serration of the spindle 14 and the washer 44 is thereafter forced on to at least one serration of the spindle 14 through the opening 50 in the washer 44 in order to secure the insulation in the position of FIG. 7. Of course, many other identical adhesive hangers 10 are employed depending upon the extent of the surface to be insulated. Upon completion of the installation of FIG. 7 the spindle 14 supports a substantial amount of insulation and in so doing the weight of the insulation exerts a downward pull upon the spindle 14. However, the spindle 14 will not become separated from the base plate 12 inasmuch as the respective tapering of the ears 42 and the side walls 26 and 28 of the locking chamber 22 exerts a wedging action so that the spindle 14 cannot be removed vertically from the locking chamber 22 as best illustrated in FIG. 4. In other words, both the spindle head 40 and the walls 26 and 28 taper inwardly toward each other downwardly or in the direction of the spindle 14 so that the spindle 14 cannot be separated vertically from the locking chamber 22.

A second embodiment of the present invention is shown in FIG. 8 wherein like reference characters for structure identical to the embodiment of FIGS. 1 to 7

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are used wherever possible. In this embodiment of the invention the back wall 30 of the locking chamber 22 possesses an upper edge 58 which is somewhat concave in order to assist the seating of the spindle head 40 in the locking chamber 22.

A third embodiment of the present invention is shown in FIGS. 9 and 10 wherein like reference characters for structure identical to the embodiment of FIGS. 1 to 7 are used wherever possible. In this embodiment of the invention, the base plate 12 is provided with a convex back plate 60 of a curvature substantially identical with the curvature of spindle head 62. The spindle 14 is secured to a base plate 12 by means of a hinge 36 in a manner similar to the previous embodiment. The base plate 12 is further provided with spaced cams 64 on its upper surface 24.

Furthermore, the spindle head 62 includes a pair of spaced ears 66.

As illustrated in FIG. 10 the spindle 15 may be moved to an upright position by merely pivoting the same in a manner similar to that shown in FIG. 4. As the spindle 14 nears its upright position the lower edges of the ears 66 are cammed against the convex surface of the cams 64. Thereafter, the ears 66 snap behind the cams 64 as illustrated in FIG. 10 so that the rear surface of the spindle head 62 abuts the back plate 60.

It is thus seen that in all of the embodiments of the present invention, an adhesive hanger is provided of one-piece construction wherein the spindle lies in substantially the same plane as the base plate. This spindle is moved to and locked in an upright position with respect to the base plate in a very simple manner.

The adhesive hanger of the present invention may be made from a relatively resilient plastic such as nylon, polyethylene or polypropylene or from other materials which will be apparent to those skilled in the art.

Obviously, many modifications and variations of the present invention are possible in the light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

What is claimed as the invention is:

1. An adhesive hanger of unitary construction adapted to be secured to a support, said hanger comprising a base plate and a spindle extending therefrom, said spindle, in one position, lying in essentially the same plane as said base plate, and said spindle, in a second position being brought to a locked upright position with respect to said base plate, a hinge uniting said base plate and said spindle, said hinge permitting said spindle to be brought to said upright position, said spindle including a head adjacent said hinge, said base plate having a U-shaped locking chamber extending therefrom and including upstanding locking side walls tapering toward each other in the direction of said spindle when brought to said upright position with said spindle head being seated in said locking chamber, said side locking walls terminating in upstanding camming flaps freely extending away from said base plate and tapering toward each other, and said spindle head including ears tapering so as to be complementary with said locking side walls when said spindle head is seated in said locking chamber, said ears being moved past said camming flaps as said spindle head is seated in said locking chamber to snap said spindle head into said locking chamber with said spindle head being thereby wedged in said locking chamber by the complementary tapering of said side walls and said spindle ears, said base plate having means for engaging said support and said spindle having means to engage a layer of material to be supported.

2. The invention of claim 1 wherein the adhesive hanger is formed from a somewhat resilient material.

3. The invention of claim 1 wherein said flaps and ears have convex surfaces.

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4. The invention of claim 1 wherein said flaps are spaced slightly closer together than said ears.

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