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ANCHOR DEVICE FOR HOLLOW MASONRY TYPE WALLS

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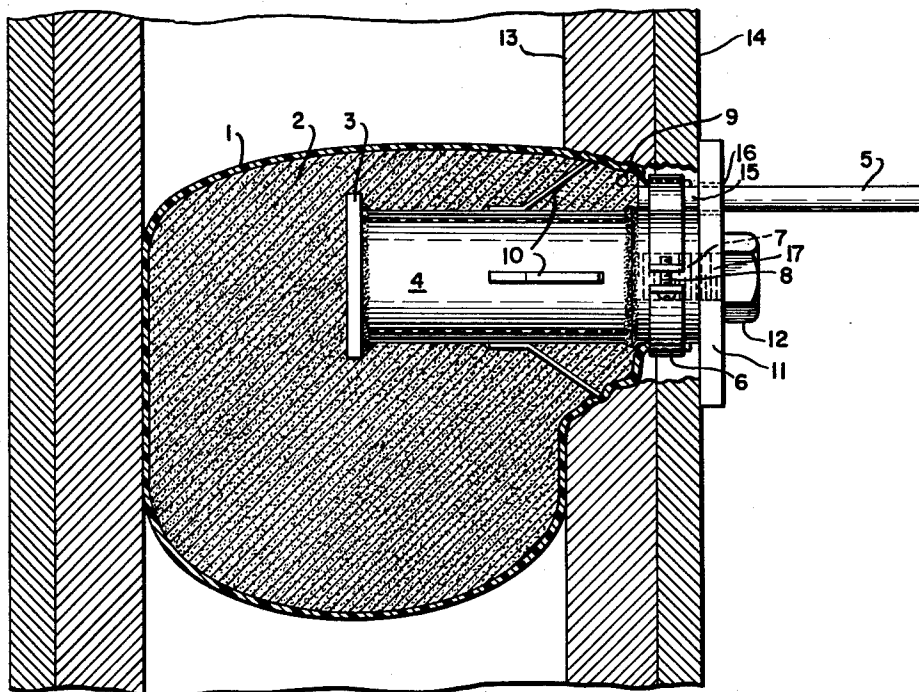


FIG. 1.

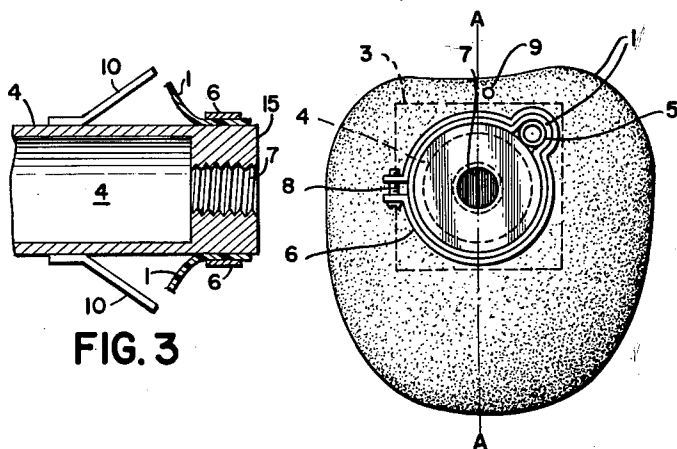


FIG. 2.

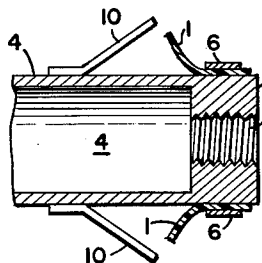


FIG. 3.

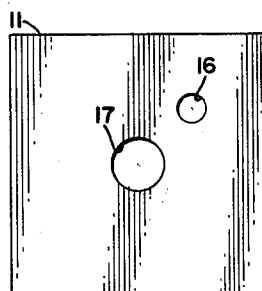


FIG. 4

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ANCHOR DEVICE FOR HOLLOW MASONRY
TYPE WALLS

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2 Claims. (Cl. 50—103)

This invention relates to certain new and useful improvements in anchor devices for use in existing hollow masonry type walls.

These anchor devices are used to support extreme amounts of weight and pressure. They are metallic and designed to grip the inside faces of a double vertical wall. The anchor has an external face with a centrally elongated opening to permit the shank of a bolt or other fastening means to pass there through.

There are already many types of inserts or anchors available which usually have to be bolted, bored, screwed, or inserted into a solid wall. Other anchors are designed to grasp the backside of a relatively thin wall of a double wall. The latter type are not able to accept a very high hanging pressure. Still other types of anchors when used with a hollow type wall require a temporary form which necessitates either a prepositioning before construction or the creation of a relatively large hole in the wall.

According to the improvements of the present invention, the anchor is so designed that a relatively small hole can be made in the facing wall of a hollow wall construction and yet after insertion, the anchor device will be able to support extreme amounts of weight or pressure in proportion to its size. On tests of a sample device, weights of up to five hundred pounds of hanging pressure on a one-half inch bolt screwed into the anchor were supported with no difficulty. In addition it is quickly mounted and can be very accurately placed. The mounting consists of inserting the cylindrical flanged housing through an opening in the facing wall slightly larger than the flange. The housing may have placed over it a polyethylene or other type of plastic bag. Masonry mortar is forced through a small filler tube until the plastic bag is filled. Before or after the mortar is inserted, the housing is centered properly by positioning and tightening the aligning springs. This can be most conveniently accomplished by drawing an aligning plate tight to the cylinder.

The principal object of this invention is to provide an improved anchor device to be used with hollow masonry type walls as briefly described above and as described in more detail in the specifications that follow.

Another object of the invention is to provide an anchor device which will hold extremely high amounts of weight in proportion to its size.

Still another object of the invention is to provide an anchor device which can be quickly inserted into an existing dry wall or hollow masonry type wall without the necessity of removing a large amount of the facing wall.

Other objects and advantages of this invention will be readily apparent to those skilled in the art from the following detailed description of the invention.

In the accompanying drawing: FIGURE 1 is a cross section of wall and masonry and a side view of the anchor device. FIGURE 2 is an end view of the anchor without the aligning plate. FIGURE 3 is a cross section of the anchor device at A in FIGURE 2. FIGURE 4 is a front view of the aligning plate.

In the example shown in FIGURE 1, the anchor is in the form of a tubular housing 4 which is the body of the device. Welded or otherwise attached to the housing is an inner closure plate 3, providing a flange which can be square, circular, or any other appropriate shape. Welded or otherwise attached to the opposite end of the housing 4 is an outer closure plate 15 which has a threaded open-

ing and is placed concentrically with the housing 4. Placed adjacent to the outer closure plate is a filler tube 5, which extends beyond the end of the housing and outer closure plate 15 as shown in FIGURE 1. Surrounding the outer closure plate 15 and the filler tube is a circular tightening band 6. This band also surrounds the lip of a plastic bag 1. The plastic bag and the filler tube are compressed against the outer periphery of the housing 4 by the bolt 8. The plastic bag is provided with one or more air escape holes 9.

Mounted against the face of the outer closure plate is the aligning plate 11 which has hole 16 for filler tube 5 and hole 17 for the anchor bolt and is held firm by the anchor bolt 12. Inside the plastic bag and on the outer periphery of the tubular housing are attached several aligning springs 10.

In use, the device is assembled as indicated in FIGURE 1 except that bolt 12 is connected loosely and the bag 1 is collapsed and twisted finger tight on the end of the inner closure plate 3 and around the housing 4. An opening in the facing wall 14 and its abutting wall 13 is made by chipping or other appropriate methods to the size which is slightly larger than the inner closure plate 3. The anchor device is then inserted through the wall 13 and 14 until registry is made on the backside of the aligning plate 11 to the surface of the wall 14. The bolt 12 is then turned in until the flexible aligning springs register against the opening in the wall section 13. The pressure thus created by the aligning plate 11 and the aligning springs 10 will then hold the device in the exact desired position. This may be done before or after the insertion of the mortar.

An appropriate type of masonry mortar 2 (an example is "pour rock") is then forced through the filler tube 5 into the bag 1 until it is completely filled. This setting compound is then allowed to set. The "pour rock" type is a material which has a fast, hard, and expanding setting quality. After the material has set, the bolt 12 can be backed out of threads 7. This also releases for removal the aligning plate 11. The filler tube 5 can then either be removed by breaking or by cutting off from the collar 6. The flange 3 of the inner closure is the main resistance to withdrawal pressure.

The above operations, it can thus be seen, can be performed very rapidly with no specialized tools except the pressure filler which can be a simple pressure gun. The mounting also does not require any particular skill.

It will be understood that these anchors can be made in many sizes and shapes depending upon the amount of hanging pressure necessary. It is further understood that the form of my invention illustrated and described herein is merely a preferred embodiment and that various changes may be made in the size, shape, and arrangement of parts without departing from the spirit of my invention.

For example, the inner closure plate member 3 may be circular in cross section rather than square; the filler tube may be positioned in other than the place illustrated; the outer closure plate may be part of the tubular housing or welded to it; the opening in the outer closure plate may have fastening means other than the threads 7 for a standard bolt; the aligning springs 10 may take other forms than that illustrated; the plastic bag may take other than the exact form illustrated; the bag may have none, one, or several holes 9 of larger or smaller sizes than described; under certain conditions, the bag may not be necessary. Another embodiment may have the filler tube pass through the outer closure plate, the housing and the inner closure plate, with the lip of the bag permanently fastened to the outer closure plate with no tightening band needed.

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Having thus described my invention, I claim:

1. A metallic anchor device comprising a tubular housing, an inner closure plate providing a flange and outer closure plate with a threaded opening, the outer closure plate positioned at the opposite end of the housing from the inner closure plate, an aligning plate, an anchor bolt which is positioned through the aligning plate and into the threads of the outer closure plate, aligning springs positioned around the periphery of the housing, a plastic bag surrounding the housing except for the outer face of the outer closure plate, a filler tube positioned longitudinally adjacent the outer closure plate and through a hole provided in the aligning plate, a circular tightening band covering the lip of the bag and encircling the filler tube and the outer closure plate, whereby when the device is inserted into a wall opening and as the anchor bolt is tightened, the aligning springs cooperate with the aligning plate to position the device with respect to the wall.

2. A wall anchor device positioned in an opening in a wall, said anchor comprising a tubular housing, an inner closure plate providing a flange, an outer closure plate

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with a threaded opening, the outer closure plate positioned at the opposite end of the housing from the inner closure plate, aligning springs positioned around the periphery of the housing, a plastic bag surrounding the housing except for the outer face of the outer closure plate, a circular tightening band covering the lip of the bag and encircling the outer closure plate, hardenable material in the bag, whereby the device is held stationary against the wall in the wall opening through the action of the hardening material.

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