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(54) Anchoring member

(57) An anchoring member for hoisting pieces of concrete, cement or the like, of the type consisting in a lost tube inserted in the concrete piece, shaped from a length of tubing of a length smaller than the height of the concrete piece in which it will be inserted, with a rectangle-shaped upper mouth (6). Near the opposite mouth it has a flattening in its wall that shapes two opposite triangle-shaped angular folds (2) defining on the inner surface of the tube two straight edges (3) of a length greater than diameter of said tube, which shape a widening in the flattened area. There are two slight transversal grooves (5) in a perpendicular direction to said widening in the upper zone from this flattened area where the flattening starts.

The anchoring member is such that the inner surfaces of the triangle-shaped angular folds (2) remain in contact with or near each other along the edges of said folds.

It is furthermore such that the rectangle-shaped upper mouth has dimensions such that it allows entry in it of the rectangular foot (10) of a hoisting eyebolt (7) and which remains locked inside of the rectangular mouth (6) of the anchoring member when this rectangular foot (10) is turned in a right angle.

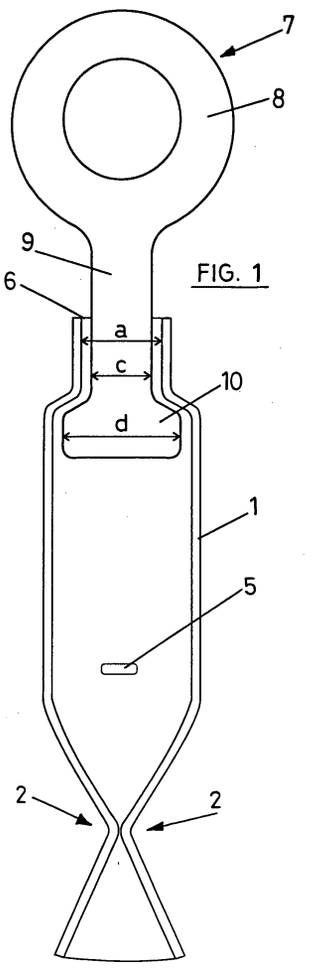

FIG. 1

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Description

Field of the Invention

[0001] The invention is included in the field of anchoring members for hoisting pieces of concrete, cement or the like, in particular to that of anchors consisting in a lost tube inserted in the piece.

Background of the Invention

[0002] Many systems for manipulating pieces of concrete, cement or similar materials are known.

[0003] The simplest one is to pass one or several cables under the piece, to join them in an eyebolt, and to hoist the piece. The drawbacks are clear: it is necessary to pass the cables underneath the piece, it is not very safe as the cables can weaken or break with the rubbing, it takes time and perhaps several operators to place them, ...

[0004] Another system is to use hooks or other gripping members on the crane which are placed to hook the concrete piece. The disadvantage of these members is that for them to be sufficiently safe they need to be carefully placed, sometimes by several operators.

[0005] A widespread system is to place a lost anchor within the piece, in the formwork prior to filling with concrete, which remains inserted within the piece when the concrete sets. By means of this anchor, the piece is held so as to be hoisted with the crane. These anchors are of many types; in some an eyebolt or the like protrudes where the crane is hooked. They have the drawback that the eyehole protrudes from the piece, and after the latter is placed in position the former frequently must be cut.

[0006] Thus, the preferred anchors in many precast concrete pieces for building belong to the type that remains hidden within the piece, without protruding from the surface of its faces. To this type of anchor belong tubular anchors having a mouth that remains level with the surface of the concrete piece and having a shape such that it allows introducing and leaving upstanding in the former a foot with a ring which the crane can pull on to move the piece.

[0007] However, it is necessary for the tubular anchors to have bores through which the bars of the armoring for the concrete are passed in order for the anchors to remain well attached to the concrete. This operation of placing the reinforcing bars through the anchors is not easy, and qualified operators are required in order to carry it out, whereupon the precast piece becomes costlier.

[0008] Another disadvantage is that both boring several holes in the tube and installing the armoring through them are time-consuming operations, whereupon they also are detrimental to the production of the precast piece.

Disclosure of the Invention

[0009] The present invention consists in an anchoring member for hoisting pieces of concrete, cement or the like, of the type consisting in a lost tube inserted in the concrete piece and which provides several advantages with respect to previously known members.

[0010] It is therefore one of the objects of the invention to provide an anchoring member shaped from tube portions which is easier and cheaper to manufacture than those known and which does not require a specialized operator in order to be placed in the concrete piece.

[0011] The anchoring member of the invention is shaped from a length of tubing of a length smaller than the height of the concrete piece in which it will be inserted. This length of tubing has a rectangle-shaped upper mouth having dimensions such that it allows entry in it of the rectangular foot of a hoisting eyebolt and it remains locked inside of the rectangular mouth of the anchoring member when this rectangular foot is turned in a right angle.

[0012] The anchoring member of the invention also has near the opposite mouth, i.e. near the bottom mouth, a flattening in its wall that shapes two opposite triangle-shaped angular folds defining on the inner surface of the tube two straight edges of a length greater than diameter of said tube, which shape a widening in the flattened area. The inner surfaces of the angular folds remain in contact with or near each other along the edges of said folds.

[0013] The angular folds form hollows in which concrete and the reinforcing bars of the armoring are introduced, and the widening produced by them serves to hold the anchoring member better. The inner surfaces of the folds, which remain in contact with or very close to each other, also serve as a plug for the entrance of concrete to the inside of the tubing.

[0014] There are two slight transversal grooves in a perpendicular direction to said widening in the upper zone from this flattened area where the flattening starts. These grooves have a dual function: on one hand, by having them coincide with the bars of the armoring for the piece, they can be firmly attached tying them off with wires or by a similar system, preventing their movement. On the other hand, they serve to help the aforementioned flattenings to correctly form the triangle-shaped angular folds during manufacturing, without the tubing deforming in the central part of the anchor.

[0015] An anchoring member is thereby obtained which is easy to manufacture and, by lacking holes through which the reinforcing bars must pass, is also easy to place in the formwork for the concrete piece which subsequently must be hoisted.

Description of the drawings

[0016] In order to complete the description and with the object of aiding to better understand the features of

the invention, some drawings are enclosed in the present specification, as an integral part thereof, in which with an illustrative and never limiting character, the following has been represented:

Figure 1 shows a sectional view of the anchoring member.

Figure 2 shows a sectional view of the anchoring member perpendicular to the prior one.

Figure 3 shows a sectional view of the anchoring member inserted in a concrete piece.

Figure 4 shows a view of anchoring member.

Preferred embodiment

[0017] Now, as an example to better explain the invention, an embodiment that does not exhaust the features of the object of the invention is described with the aid of the drawings.

[0018] A section of the anchoring member is seen in Figures 1 and 2. It consists in a not very long tube (in any case, its length should be smaller than the height of the concrete piece where it will be inserted), with a cylinder-shaped central body (1). Near the bottom end of the tube it carries a flattening in its wall which shapes two opposite triangle-shaped angular folds (2) defining in the inner surface of the tube two straight edges (3) having a length greater than the diameter of said tube, forming a widening (4) in the flattened area. The inner surfaces of the angular folds remain in contact with or near each other along the edges of said folds, as seen in Figure 1, where the bottom mouth of the tube of the anchor appears virtually closed.

[0019] These triangular folds (2) have two functions: on one hand, they act as plugs to prevent concrete from entering the inside of the tube and blocking the introduction of the hoisting eyebolt. On the other hand, it provides hollows where concrete or the armoring of the formwork are introduced so as to more solidly attach the anchor to the concrete piece.

[0020] Above this fold, slight transversal grooves (5) having the function of acting as attaching elements for the iron reinforcing bars of the armoring of the pieces are marked in the tube in a perpendicular direction to the folds (2). However, during the manufacturing of the anchor, they function to aid the above-mentioned flattenings to correctly form the triangle-shaped angular folds without the tube becoming deformed in the central part of the anchor.

[0021] In the upper end of the tube a rectangular mouth (6) is shaped. This rectangular mouth (6) has two short sides having a length "a" and two long sides having a length "b"; in it enters a hoisting eyebolt (7) consisting of a ring (8) with a straight stem (9) and rectangular, horizontal foot (10) having a minor width "c" of a length somewhat smaller than the minor side "a" of the mouth of the anchor and a major width "d" somewhat smaller than the major side "b" of the mouth of the anchor, and the major width "d" of the foot (10) being clearly larger than the minor side "a" of the mouth of the anchor.

[0022] Thus, the hoisting eyebolt (7) is fastened in the anchor by introducing the foot (10) with the major side "d" parallel to the major side "b" of the upper mouth of the anchor and then turning the eyebolt (7) and its foot (10) in a right angle so that, after the turn, the major side of the foot (7) is prevented from exiting as its major width "d" is clearly greater than the minor side "a" of the mouth of the anchor, making possible that if a hoisting means such as a crane is hooked to the ring (8) of the hoisting eyebolt (7) and pulls upwards thereof, it can drag the anchor, and by means thereof, the concrete piece.

[0023] The hoisting eyebolt (7) would be separated from the anchor in the same manner by turning it another straight angle and removing it from the anchor. Thus, the anchor would remain completely imbedded in the concrete piece and the hoisting eyebolt would be removed from it, without there remaining in the concrete piece any projecting element.

[0024] An anchor such as the one of the invention is seen in Figure 3, inserted in a concrete piece (11). The concrete piece (11) is reinforced via reinforcing bars (12), which encircle the anchor and aid in keeping it imbedded in the piece. As can be seen, the armoring should not pass through any hole in the anchor, but simply be placed in the conventional manner, passing the bars on one side and the other of the anchor of the invention.

[0025] The anchor of the invention is seen in Figure 4, in which the cylinder-shaped central body (1), the angular fold (2) near the bottom end of the anchor, the upper rectangular mouth (6) having major sides "b" and minor sides "a", and the slight grooves (5) are visible.

Claims

1. An anchoring member for hoisting pieces of concrete, cement or the like, of the type consisting in a lost tube inserted in the concrete piece, shaped from a length of tubing of a length smaller than the height of the concrete piece in which it will be inserted, with a rectangle-shaped upper mouth, **characterized in that** it has near the opposite mouth, a flattening in its wall that shapes two opposite triangle-shaped angular folds limiting on the inner surface of the tube two straight edges of a length greater than a diameter of said tube, shaping a widening in the flattened area, and **in that** there are two slight transversal grooves in a perpendicular direction to said widening in the upper zone to said flattened area where the flattening starts.

2. An anchoring member according to claim 1, **characterized in that** the inner surfaces of the triangle-shaped angular folds remain in contact with or near each other along the edges of said folds.

3. An anchoring member according to claims 1 or 2, **characterized in that** the rectangle-shaped upper mouth has dimensions such that said mouth allows the rectangular foot of a hoisting eyebolt to enter the mouth and to remain locked inside the rectangular mouth of the anchoring member when said rectangular foot is turned in a right angle.

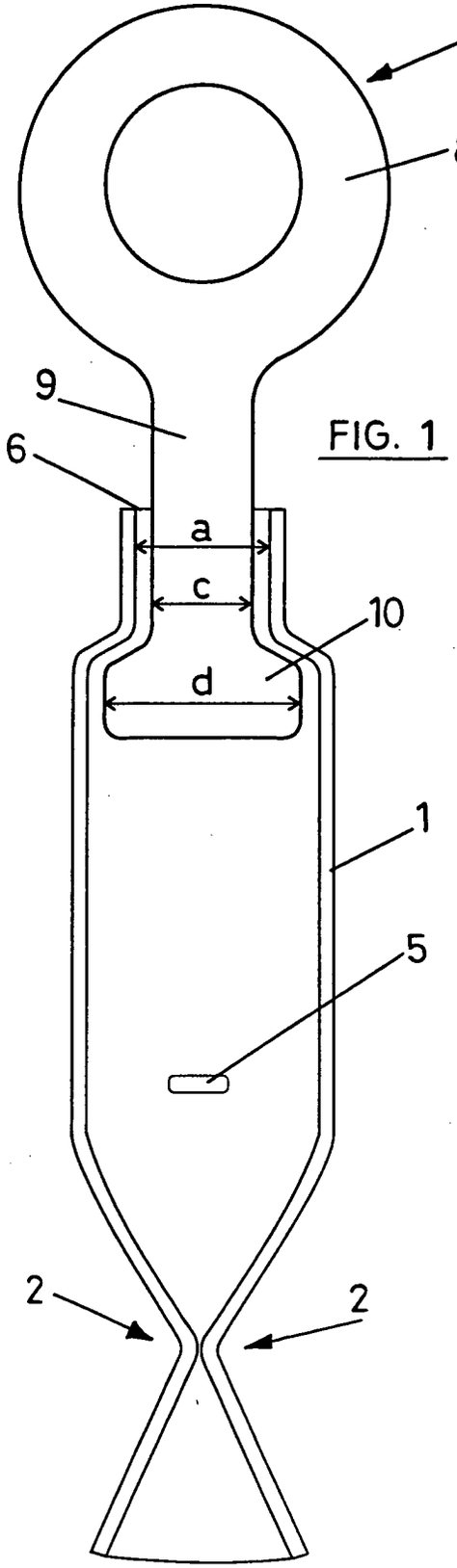

FIG. 1

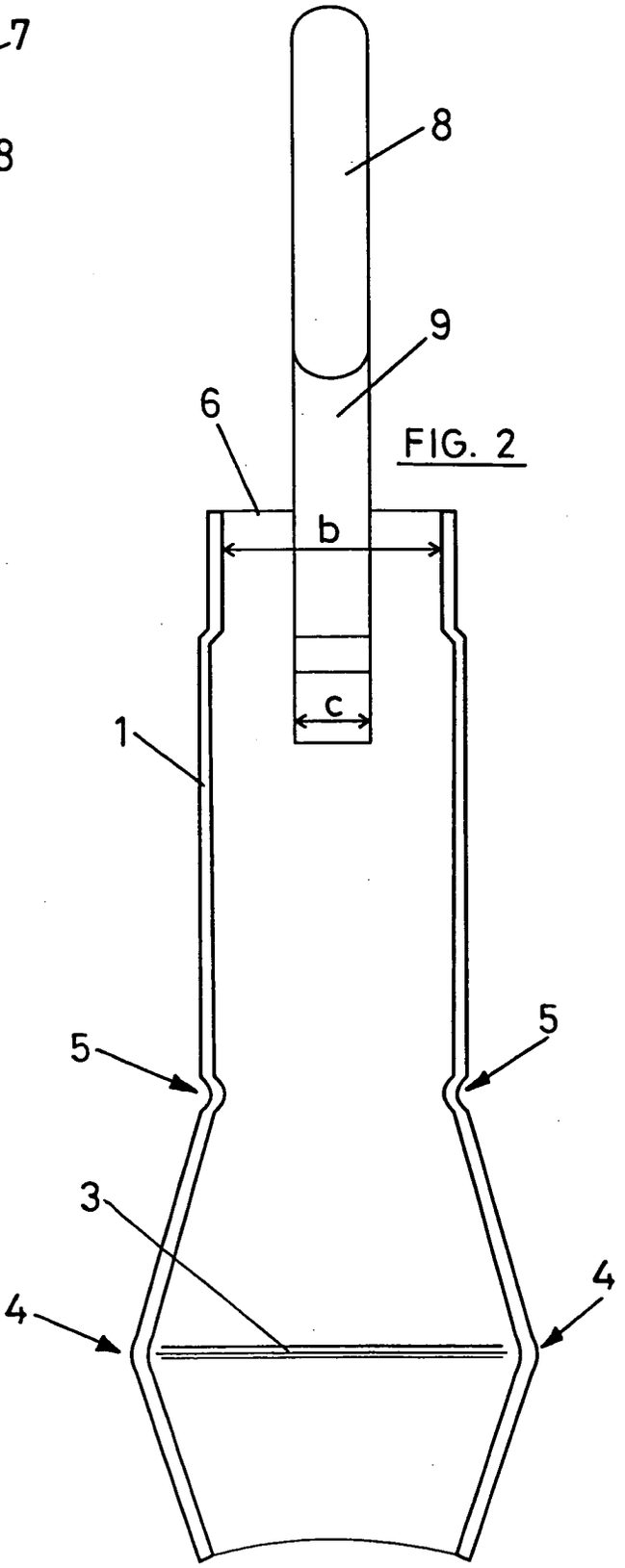

FIG. 2

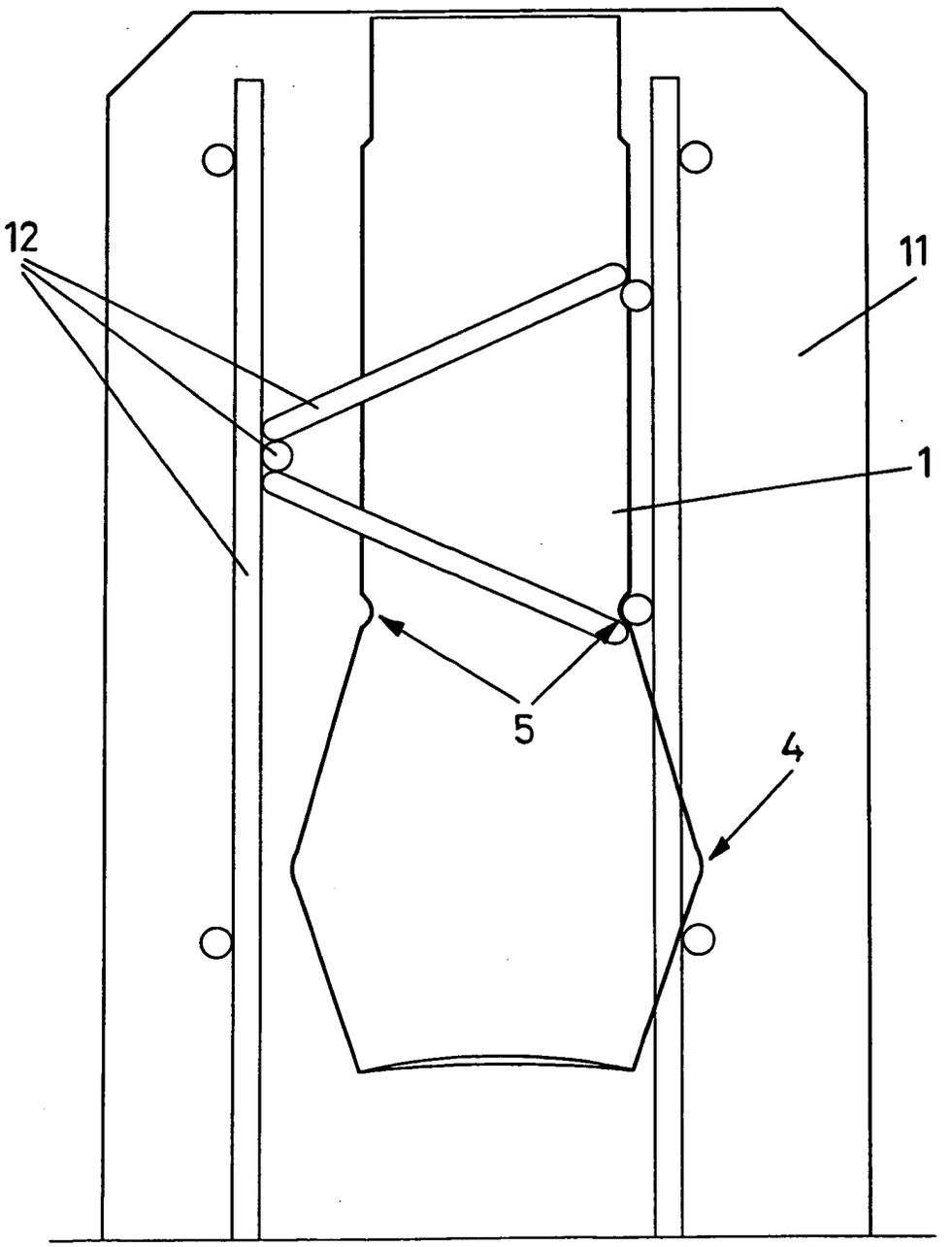

FIG. 3

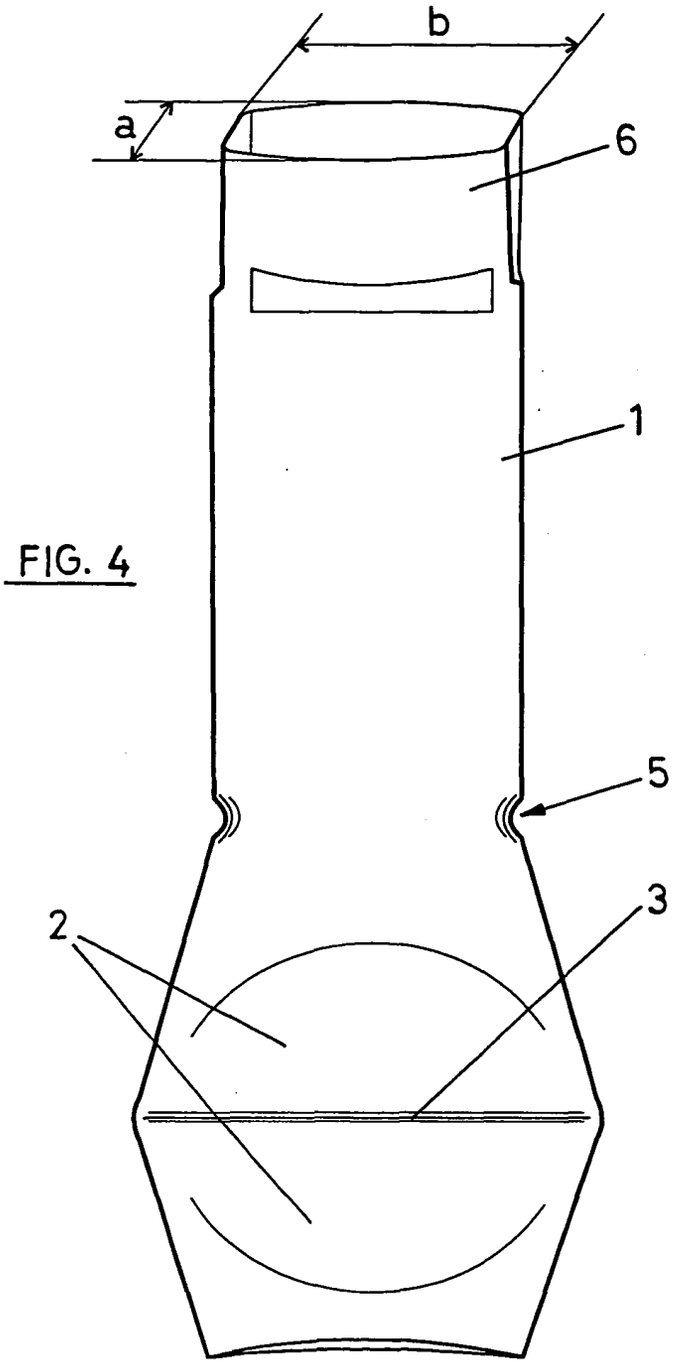

FIG. 4