

W. A. VON WOLFFRADT.
CONCRETE INSERT.
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1,192,804.

Patented July 25, 1916.

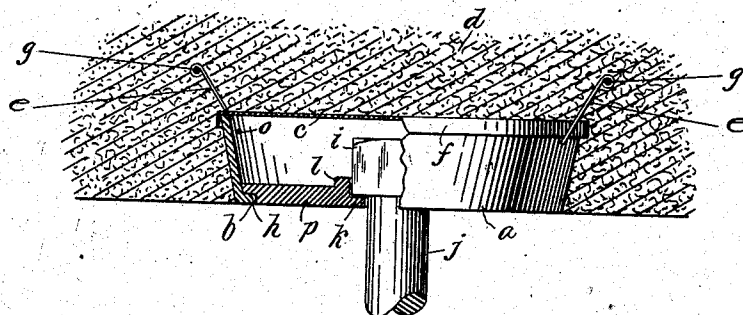


Fig. 1

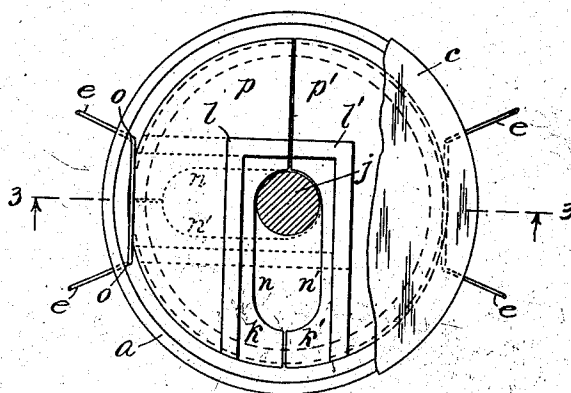


Fig. 2

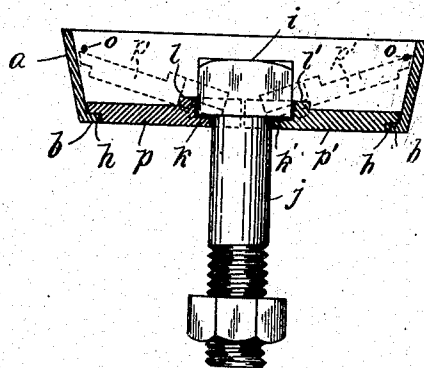


Fig. 3

Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM A. VON WOLFFRADT, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO
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CONCRETE-INSERT.

1,192,804.

Specification of Letters Patent.

Patented July 25, 1916.

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To all whom it may concern:

Be it known that I, WILLIAM A. VON WOLFFRADT, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Concrete-Inserts, of which the following is a specification.

This invention relates to means for sustaining or anchoring material things or devices to structures of concrete, cement, or any other unyielding substance to which it is adaptable.

The primary object of my present invention is to produce an insert for a ceiling, wall, beam, post or floor adapted to firmly hold a sustaining or anchoring bolt, and provide for universal adjustment of said bolt to any position within the limits of the device.

Further objects are to provide convenient means for inserting or removing the said anchor-bolt, to economize space, to provide for cleaning the interior of the insert or for renewing the supporting plates so that a different sized bolt may be used, and to bring forth a device which can be easily set in concrete, but present no unsightly appearance.

Referring now to the accompanying drawings illustrating preferable embodiments of my invention:—Figure 1 is a sectional view, partly in side elevation, of the insert set in a ceiling, beam, or other mass of concrete. Fig. 2 is a plan view of the insert with the cover partly broken away. Fig. 3 is a section taken on line 3—3 of Fig. 2.

The reference letter *a* indicates a shell of steel, or other suitable metal, preferably, though not necessarily, annular, as shown, and having a larger diameter at one end than at the other, like the curved surface of a frustum of a cone, and provided with an interior flange *b* about a circular aperture at its smaller end. A suitable cover *c*, preferably of short iron or steel, is fitted to the larger end of the shell *a*, being provided with a peripheral flange *f*, or any other suitable means for keeping it in place. Thus the said shell and its cover is adapted to be embedded in concrete or other plastic material *d*, as shown in Fig. 1, with its flanged end *b* flush with the surface of the structure; it being only necessary to lay its smaller end upon, or temporarily secure it

to the inside of the form, or mold, in which the plastic material is poured.

The larger end of the conical shell *a* being sunk in the structure of a ceiling, beam, wall, post or floor, it is obvious that, upon the hardening of the plastic mass of the structure, the said shell is firmly held and anchored therein by its flaring shape. But when additional anchorage is desired, I provide small apertures *o*, as many as may be required, in and near the larger end of the shell *a*, through which wires *e* are inserted, carried up, or into the structure, and secured to any convenient and suitable supports, such, for example, as the concrete reinforcing bars *g* shown in Fig. 1.

A pair of semi-circular supporting, or anchoring plates *p* and *p'*, of steel or other strong metal, are made respectively right and left handed, adapted to abut together along their straight diametrical edges, and rabbeted out on the exterior sides of their peripheries, as shown at *h*, to fit loosely over and rest upon the flange *b* of the embedded shell. The opposing diametrical edges of the plates *p* and *p'* are respectively notched, or partly cut away, as shown at *n* and *n'*, so as to form when in place a slot, in which the shank of a bolt *j* may slide radially of the device to or from a central position, as shown in Fig. 2. Ribs *l* and *l'* rise respectively from the interior surfaces of the plates *p* and *p'*, and bordering depressions *k* and *k'* in said plates, which depressions form an elongated countersink loosely fitting the head *i* of the bolt *j*.

As hereinbefore stated, the shell *a* of the insert with its cover *c* is firmly fixed in the hardened concrete structure, being set therein when the plastic concrete, or analogous material, is poured or tamped about it, and becomes substantially an integral part of the said structure. Then, when it is desired to secure a bracket, hanger, or other device to the concrete structure, the embedded shell *a* is cleaned out if necessary, and the circular segmental anchor-plates *p* and *p'* inserted in the said shell and tilted to positions such as those shown in the dotted lines of Fig. 3, in which positions it is obvious that the head *i* of the anchor-bolt *j* may be readily slipped into the shell between the said plates, passing through the slot notches *n* and *n'*. The plates *p* and *p'* are then

brought to their normal positions against the flange *b* of the shell, the countersunk portions *k* and *k'* slipping under the head of the bolt *j*. The bolt may be removed at any time by tilting the said plates, and new plates for another size of bolt inserted, but in their normal positions the latter form a firm anchorage for the bolt.

It being impracticable to set an anchor-bolt in concrete with extreme accuracy of position, my insert shell *a* is adapted for roughly approximate positions, since the bolt *j* may slide radially to any position, and may be turned or swung, carrying the plates *p-p'* with it, throughout the circle of the shell *a*, limited only by the length of the slot *n-n'*. For example, see dotted lines in Fig. 2. This provides a universal adjustment, yet, when the bolt is tightened upon the device to be secured, the latter is anchored firmly in place.

I further point out and distinctly claim as my invention:—

1. An insert for plastic hardening material comprising an annular shell having a larger diameter at one end than at the other, a cover for the larger end of said shell, and means supportable within said shell whereby an anchor-bolt may be secured to and adjusted in parallel axial alinement to positions in more than one line across the smaller end of said shell.
2. An insert for plastic hardening material comprising a hollow flaring shell covered at its larger end, a circular aperture at the smaller end of said shell, and means insertible through said aperture whereby an anchor-bolt may engage said shell and be adjusted in parallel axial alinement to any position within the limits of said aperture.
3. An insert for plastic hardening material comprising an annular conical shell provided with a cover for its larger end, and a pair of semi-circular plates supportable upon and within the smaller end of said shell and adapted to receive and hold an anchor-bolt therebetween.
4. An insert for plastic hardening material comprising an annular conical shell provided with a cover for its larger end and having an internal flange at its smaller end, and a pair of semi-circular anchor-plates rotatably adjustable and supportable within the smaller end of said shell against said flange and adapted to receive and hold a bolt between them.
5. An insert for plastic hardening material comprising an annular conical shell internally flanged at its smaller end, a cover for the larger end of said shell, a pair of semi-circular plates rotatable in said shell against its flange and opposable to each other at their diametrical edges, and a radial slot formed in the opposable edges of said plates adapted to receive and hold an anchor-bolt.

6. An insert for plastic hardening material comprising an annular flaring shell internally flanged at its smaller end and closed at its larger end, a pair of semi-circular plates rotatable in said shell against its flange and opposable to each other at their diametrical edges, and a radial slot formed in the opposable edges of said plates adapted to permit the passage of a bolt-head there-through when said plates are tilted within the shell and to slidingly engage said bolt-head when said plates are in normal position against the flange of said shell.

7. An insert for plastic hardening material comprising an annular flaring shell internally flanged at its smaller end and closed at its larger end, a pair of semi-circular plates rotatable in said shell against its flange and opposable to each other at their diametrical edges, a radial bolt-slot formed in the opposable edges of said plates, and a socket for a bolt-head countersunk in said plates with its sides parallel to the sides of said slot.

8. An annular flaring shell closed at its larger end and embedded in plastic hardening material substantially flush with its smaller end, an internal flange at the smaller end of said shell, a pair of removable anchor-plates supportable upon the interior of said flange, and a slot formed in said anchor-plates arranged to receive the shank of a bolt so that said plates may close in under the head of said bolt.

9. In a bolt-anchoring insert, a hollow closed shell adapted to be embedded and supported in structural material with one of its faces exposed, a circular aperture in the exposed face of said shell, a pair of removable semi-circular plates in said shell opposable to each other at their diametrical edges and rotatable in said aperture, said plates having peripheral flanges adapted to overlap the inside edges of said aperture, and indentations formed in the opposable edges of said plates whereby an anchor-bolt may be received and supported between them.

10. An anchor embodying a body member provided with a chamber therein, a pair of removable semi-circular plates mounted for rotation in said chamber, said pair of plates being formed with a transverse slot with which a connecting medium may engage at any point intermediate the ends thereof, substantially as described.

11. An anchor embodying a body member provided with a chamber therein, a rotatable disk member within the chamber formed with a transverse slot, with which a connecting medium may engage at any point intermediate the ends thereof, substantially as described.

12. An anchor embodying a body member provided with a chamber therein, a rotatable disk member within the chamber formed

with a transverse slot therein, the under side of said disk member being reinforced by walls disposed parallel to said slot and on either side a slight distance from the edges thereof to constitute in effect an undercut slot, the said slot and walls cooperating to allow movement of a bolt and bolt head therein in a longitudinal direction only, substantially as described.

In testimony whereof I affix my signature 12
in the presence of two subscribing witnesses,
at Cleveland, Ohio, this 7th day of October,
1913.

WILLIAM A. VON WOLFFRADT.

Witnesses:

LE ROY MILLS,
L. G. HOPPER.