C. J. BRANCH.

CONCRETE INSERT.

APPLICATION FILED AUG. 13, 1914.

1,146,686.

Patented July 13, 1915.

2 SHEETS—SHEET 1.

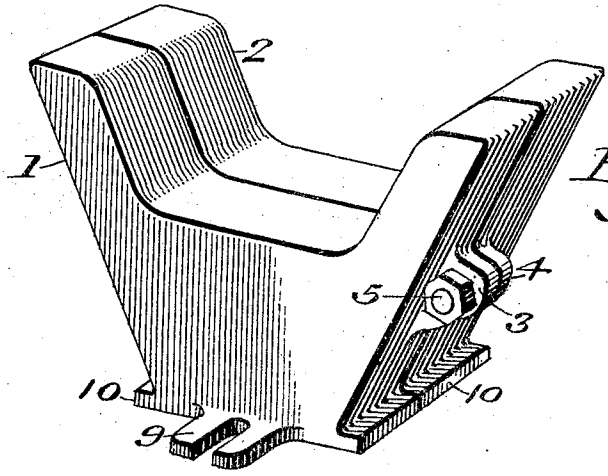


Fig. 1.

Fig. 2.

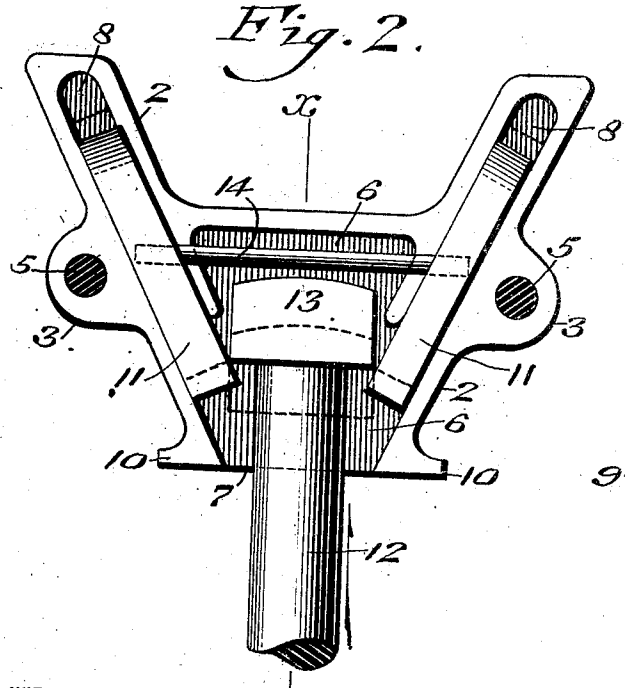
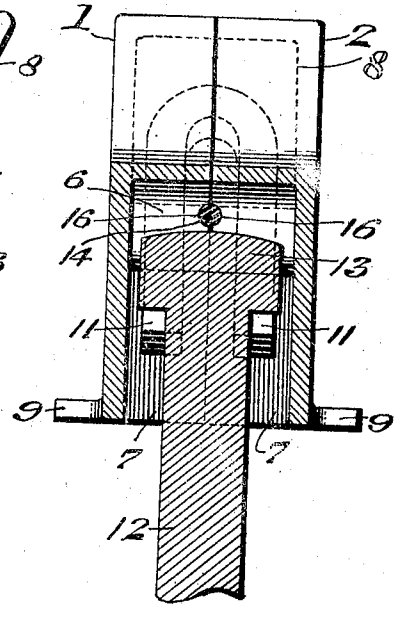


Fig. 3.



WITNESSES

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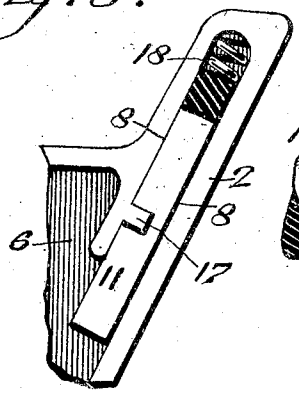
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2 SHEETS—SHEET 2.

Fig. 6.



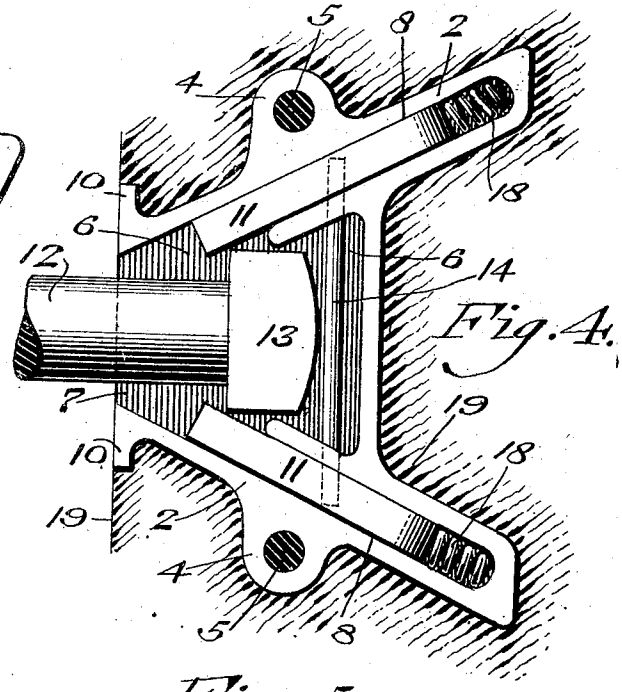


Fig. 4.

Fig. 7.

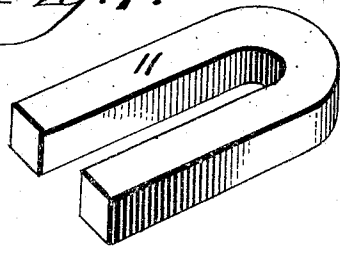


Fig. 5.

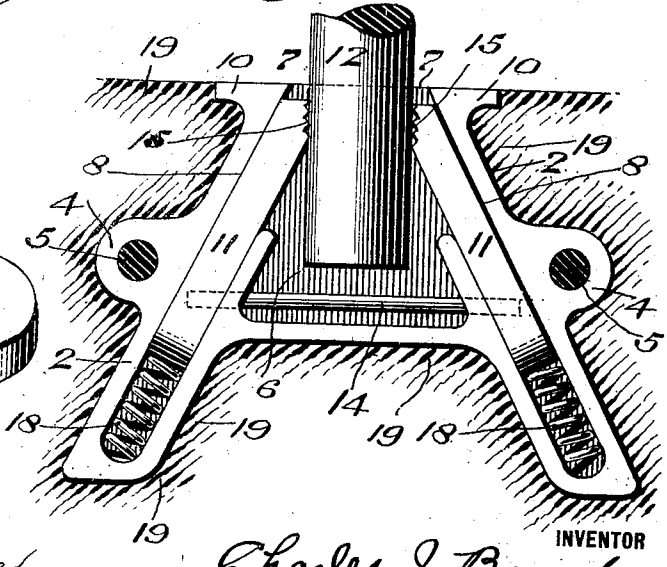
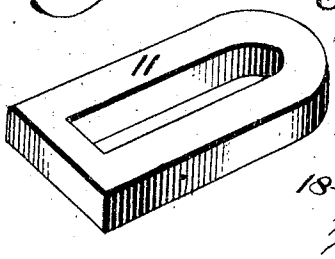


Fig. 8



WITNESSES

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UNITED STATES PATENT OFFICE.

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CONCRETE-INSERT.

1,146,686. Specification of Letters Patent. Patented July 13, 1915.

Application filed August 13, 1914. Serial No. 856,531.

To all whom it may concern:

Be it known that I, CHARLES J. BRANCH, a citizen of the United States, residing in the city of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented a new and useful Concrete-Insert, of which the following is a specification.

In the construction of buildings, or other structures, in which the floors, walls, ceilings, or other components, are made of concrete or other cementitious material, usually built or formed upon a temporary false wooden framework upon or against which the concrete is set,—anchoring devices, variously termed concrete inserts, insert supports, clamp-holders, or anchor blocks, are employed as the supporting means for bolts, hangers, or other hold-fasts, for carrying pipe or other devices to be supported exteriorly of the finished concrete surface.

The object of my invention as applicable to constructions of the foregoing character, is to provide a simple, inexpensive, durable and effective, concrete insert or anchor block for receiving and retaining bolts, rods, bars, or other hold-fast devices of varying forms and sizes.

With this object in view, my invention consists in certain constructions, preferred forms of convenient modifications of which are typified in the accompanying drawings and hereinafter described and claimed.

In the drawings the forms illustrating my invention are those at present preferred by me since in practice they will give satisfactory and reliable results. It is, however, to be understood that the various elements of which my invention consists can be variously arranged and modified and that my invention is not limited to the precise arrangement and organization shown and described.

In the drawings, Figure 1 is a perspective view of a preferred form of a convenient embodiment of my invention, in which the casing is made in two counterpart parts, the device being represented in the position which it occupies when applied, for instance, to a ceiling of a building. Fig. 2 is a side elevational view of one of the two component members of the casing shown in Fig. 1, the other being removed. Fig. 3 is a transverse sectional end elevational view on the dotted line *x*—*x* of Fig. 2. Fig. 4 is a side sectional elevational view of the insert in the position which it occupies when applied, for instance, to a wall of a building. Fig. 5 is a view similar to Fig. 4 except that the insert is shown in the position which it occupies when applied to a floor of a building. In both Figs. 4 and 5, such modifications of detail as are necessary to permit of the movement of the clamping blocks under positive and not gravitative action, are shown. Fig. 6 is a perspective fragmentary detail of a modified form of stop for a clamping block. Figs. 7 and 8 are perspective views of types of clamping blocks removed from their channels.

Similar numerals of reference indicate corresponding parts.

Broadly stated, my invention comprehends a hollow casing having an opening, within which are embodied converging channels to contain sliding, or otherwise movable, clamping blocks or kindred devices which coöperate and coact to receive and clamp or wedge between them a bolt or other hold-fast device adapted to be entered within the casing and which may be of any preferred character form or diametric dimension, so long as it be capable of introduction through the opening in the casing into the interior thereof.

Referring to the drawings, the casing is shown as composed of two hollow parts 1 and 2, counterpart in character and conveniently adapted for connection by means of two pairs of lugs 3 and 4 formed on them and united by bolts or screws 5. It is, however, to be understood that the casing may be formed as an entirety and not in separable parts.

The casing preferably possesses the flared or, so to speak, conical form represented, in order the better to adapt it for retention within the concrete 19, and is formed with a hollow interior chamber 6, having an opening 7 through which the bolt or other holdfast element to be inserted and retained is entered.

The parts of the casing which flare away from each other, are formed with internal channels 8 converging with respect to each other in the manner shown. 9 are a pair of slotted attaching lugs by means of which the insert as an entirety may, if desired, be temporarily screwed or bolted to the false wood work to hold it during its envelopment within the concrete and until the woodwork has been removed after the concrete has set. These attaching lugs 9 are simply devices of

convenience, and the flanged bottom edges 10 of the casing may be slotted or perforated for screws, or overlapped by clamps, to serve a similar purpose.

Within the channels 8 of the casing are inserted what I term clamping blocks 11, the same being longitudinally movable within the channels and serving to clamp and hold the bolt or other hold-fast or connecting device 12, which the insert is intended to receive and retain.

This bolt or connecting device 12 may, as stated, be of any desired form or diametric dimension so long as it be enterable with the opening in the casing, and may, if desired, be provided with a head, nut, or shouldered end 13, of greater diameter than its shank or body proper, or if desired, may be a rod of cylindric or other form, in which case the outer ends of the clamping blocks are preferably formed with serrated or other clenching surfaces 15, as shown in Fig. 5.

When the insert occupies the position represented in Figs. 1, 2 and 3, and before the bolt or other connecting device has been entered within it, the clamping blocks will be dropped by their weight to the limit of such downward movement as a stop rod, hereinafter referred to, permits, and, upon the entrance of the bolt, will be pushed upward and inward until the head of the bolt has passed between their lower ends, after which their weight will cause them to drop downward past the bolt-head to the position represented in Figs. 2 and 3, in which position they will clamp or lock the bolt within the insert.

In order to retain the clamping blocks within their channels and prevent their falling out of the casing, some device for retaining them and at the same time permitting of their motion, must be resorted to.

Any stop device may be used. I find it convenient, however, to form the blocks each in horse-shoe-shape as represented in all of the figures of the drawing except in Fig. 8, so that they each possess an open-ended bent-over or U-shape construction.

In Fig. 8, I represent them as being closed at both ends so that they are simply double-ended slotted blocks. It is to be understood, however, that the slot may not pass completely through them but be simply a side groove.

In the horse-shoe form, the stop device to which I prefer to resort to prevent the blocks from falling out of their channels, is a transverse stop rod 14, conveniently arranged common to both blocks and at its ends passing through their slotted bodies. This rod may be dropped in the notches 16 formed partly in each member of the casting of the casing; and one of the reasons I prefer to make the casing in two parts, is that by so doing it makes it possible at small foundry expense, not only to form within it its hollow interior chamber, its block channels and the notches for the stop rod, but also makes it possible and convenient to put and fasten its two parts together upon and so as to inclose the clamping blocks and the stop rod after they have been inserted.

As a substitute for the stop rod 14, I have in Fig. 6 shown a stop 17, one of which protrudes into each channel, is preferably cast within the casing, and serves to enter within the slot or groove in the clamping block and retain it free for movement but within the casing. The device of the stop rod 14, therefore, is simply one of convenience, and any other form of stop which permits of movement of the blocks within their channels and which may not necessarily be the particular stop 17 will be an equivalent of the stop rod.

When the insert is applied to a vertical surface or side wall of the building as shown in Fig. 4 or to a horizontal surface such as to the floor of a building, as shown in Fig. 5, it is obvious that the operation of the clamping blocks will not be gravitative, as in Figs. 1, 2 and 3, and that in order to cause them to perform their function it will be necessary to urge them outwardly laterally or upwardly as may readily be done by inserting within their channels above their inner ends, spiral springs 18, as their expelling devices, as shown in Figs. 4, 5 and 6.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A concrete insert, comprising a hollow casing embodying channels converging toward an opening into the casing, locking members slidable in said channels to converge toward each other, means for limiting the outward movement of said members, and an insertible device adapted to be inserted within the casing and clutched by said locking members.

2. A concrete insert, comprising a hollow casing embodying channels converging toward and opening into the casing, sliding slotted blocks movable both inwardly and outwardly within said channels, and an insertible device adapted to be inserted through the opening into the casing and when inserted to be clutched and retained by the blocks.

3. A concrete insert, comprising a hollow casing embodying channels converging toward an opening into the casing, horse-shoe shaped blocks movable within said channels, and a connecting device adapted to be inserted through the opening into the casing and when inserted to be retained by the blocks.

4. A concrete insert, comprising a hollow casing embodying channels converging toward an opening into the casing, blocks longitudinally movable within said channels

to converge toward each other, means for retaining the blocks within said channels, and a connecting device adapted to be inserted through the opening into the casing and when inserted to be retained by the blocks.

5. A concrete insert, comprising a hollow casing embodying channels converging toward an opening into the casing, horse-shoe shaped blocks movable within said channels, and a headed connecting device adapted to be inserted through the opening into the casing and when inserted to be retained by the blocks.

6. A concrete insert, comprising a hollow casing embodying channels converging toward an opening into the casing, blocks convergingly slidable within said channels, means for retaining the blocks within said channels, and a headed connecting device adapted to be inserted through the opening into the casing and when inserted to be retained by the blocks.

7. A concrete insert, comprising a hollow casing embodying channels converging toward an opening into the casing, horse-shoe shaped blocks movable within said channels, a stop to limit the outward movement of said blocks, and a connecting device adapted to be inserted through the opening into the casing and when inserted to be retained by the blocks.

8. A concrete insert, comprising a hollow casing embodying channels converging toward an opening into the casing, sliding locking members movable within said channel, means for positively moving said locking members outwardly toward the opening in the casing, and a connecting device adapted to be inserted through the opening into the casing and when inserted to be clutched by said locking members.

9. A concrete insert, comprising a hollow casing embodying channels converging toward an opening into the casing, sliding slotted locking members movable within said channel, means for positively moving said locking members outwardly toward an opening in the casing, and a connecting device adapted to be inserted through the opening into the casing and when inserted to be clutched by said locking members.

10. A concrete insert, comprising a hollow casing embodying channels converging toward an opening into the casing, sliding locking members movable within said channel, means for positively moving said locking members outwardly toward the opening into the casing, a stop to limit the outward movement of said blocks, and a connecting device adapted to be inserted through the opening into the casing and when inserted to be clutched by said locking members.

11. A concrete insert, comprising a hollow casing embodying channels converging toward an opening into the casing, sliding slotted locking members movable within said channel, a stop operating with respect to the slots of said locking members, means for positively moving said locking members outwardly toward an opening in the casing, and a connecting device adapted to be inserted through the opening into the casing and when inserted to be clutched by said locking members.

In witness whereof, I have hereunto signed my name this 10th day of August, A. D. 1914.

CHARLES J. BRANCH.

In the presence of—
J. BONSALL TAYLOR,
H. S. FAIRBANKS.

Correction in Letters Patent No. 1,146,686

It is hereby certified that in Letters Patent No. 1,146,686, granted July 13, 1915, upon the application of Charles J. Branch, of Philadelphia, Pennsylvania for an improvement in "Concrete-Inserts," an error appears in the printed specification requiring correction as follows: Page 2, line 112, claim 2, for the word "and" read *an;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 24th day of August, A. D., 1915

[SEAL.]

J. T. NEWTON,
Acting Commissioner of Patents.