M. E. CHASE.

CONCRETE INSERT.

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1,409,524. Patented Mar. 14, 1922.

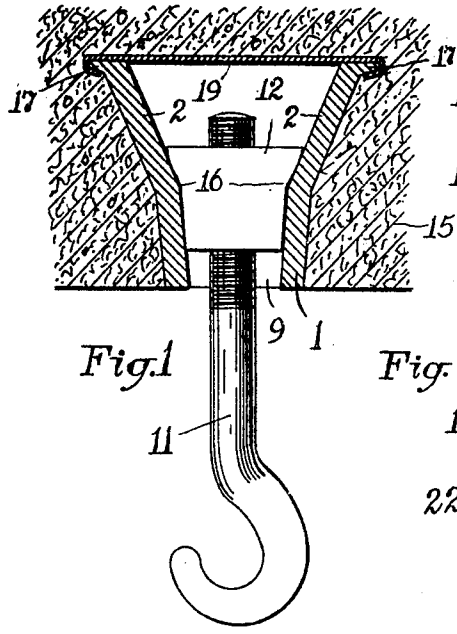


Fig. 1

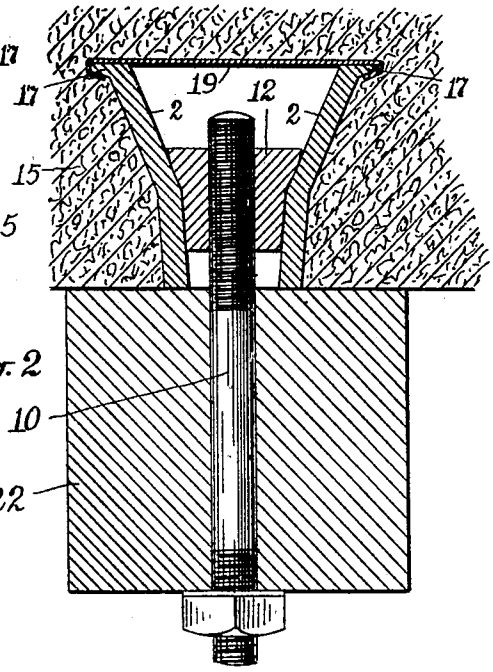


Fig. 2

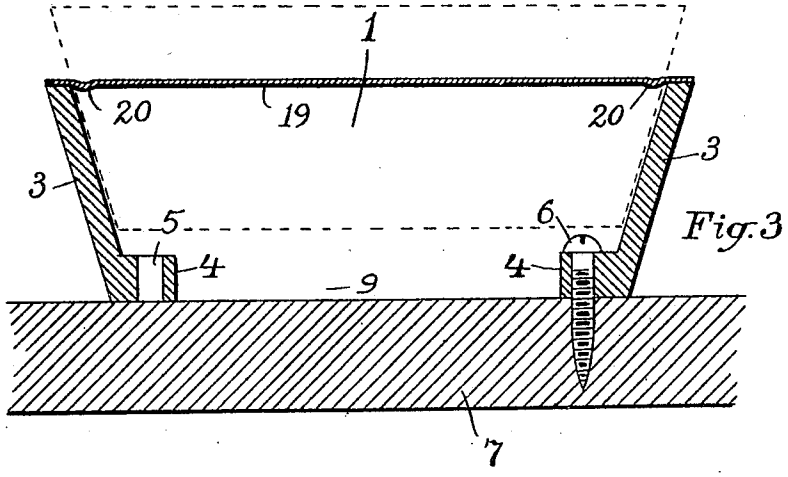


Fig. 3

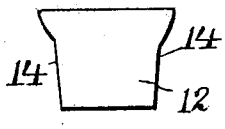


Fig. 4

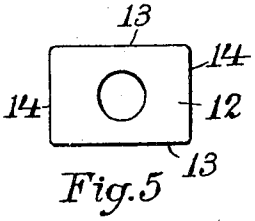


Fig. 5

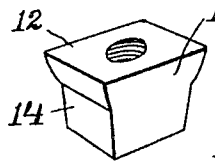


Fig. 6

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UNITED STATES PATENT OFFICE.

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CONCRETE INSERT.

1,409,524. Specification of Letters Patent. Patented Mar. 14, 1922.

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To all whom it may concern:

Be it known that I, MAURICE E. CHASE, a citizen of the United States, and a resident of Cambridge, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Concrete Inserts, of which the following is a full, clear, and exact specification.

It is customary in the laying of reinforced concrete floors to locate therein small metal devices from which to suspend steam, gas and other piping. The purpose of this invention is the construction of inserts of this kind which shall be capable of remaining securely in place prior to and during the pouring of the concrete; the fastening means for which can be easily and entirely removed therefrom; whose suspended hooks can be readily adjusted both laterally and vertically; which can be nested one within another for compactness in transportation and storage, and which shall possess the advantages in detail of construction hereinafter set forth.

In the drawings forming part of this specification, Fig. 1 is a sectional end view of the device, showing a suspension hook supported thereby. Fig. 2 is a sectional end view of the same showing it adapted for the support of a timber to which shafting bearings and other mechanism can be attached. Fig. 3 is a side sectional view of the insert. Fig. 4 is a side view of the wedge-nut forming a part of the invention. Fig. 5 is a top view of the same. Fig. 6 is a perspective view of the wedge-nut.

The main part of the concrete insert consists of an elongated shell 1 preferably rectangular in plan view, but having both its side walls 2 and end walls 3 sloping inward toward the bottom, and both top and bottom being open. At each end of the open bottom is a cross flange 4 having a screw hole 5 through it, as shown in Fig. 3, through which screws 6 are introduced and firmly screwed into the planking 7 forming part of the form put up for the support of the hardening concrete.

Up through the open mouth 9 of the shell 1 is introduced, after the concrete has hardened and the form 7 removed, a terminally threaded bolt 10 or hook 11 having a wedge-nut 12 thereon, the latter being formed with parallel sides 13 slightly nearer together than the width of the mouth 9, but the other sides 14 being sloping to correspond with the interior of the sides 2 of the insert 1. The nut being thus put up into the shell 1 close to its upper and wider part, can then be turned around to present its wedge surfaces to the sides 2, and pulled downward, where it comes solidly at rest at about the level illustrated in Fig. 3, and no amount of strain can budge it, for, even should the walls 2 be incapable of alone withstanding the splitting force, the mass of concrete 15 in which the shell is embedded cannot be made to yield.

As shown, the inner surfaces of the walls 2 are not entirely plane, but the mouth 9 is made less inclined than is each side 2 from the point 16 upward; and the sides 14 are shaped to correspond. Thus formed, the upper more flaring part of the sides 14 firmly grip the side walls 2 to resist downward pull, while the more nearly vertical portions act to prevent swinging displacement of the suspension hook 11.

The upper edges of the side walls 2 are formed with external flanges 17 with which can be slidably engaged the over-turned edges of a cover 19, the latter being given a depression 20 near each end for preventing the too easy removal of the cover.

In using these concrete inserts, they are fastened down upon the form 7 in the proper number and disposition, by means of two screws 6 passed through the holes 5 in the cross flanges 4 of each insert. If desired, the nuts 12 can be inserted into each shell 1 before the covers 19 are slid on, but inasmuch as many more inserts are often put up than will probably be utilized for a long time after the building is first occupied, I prefer for the sake of economy not to thus supply the nuts.

The reinforcing and the concrete having been laid upon the form 7 in well known manner, and time allowed for the hardening thereof, the form is pulled away from the ceiling in the usual way, the screws 6 tearing out from the wood. The screws can then be readily removed by snapping them up and out from the holes 5 and permitting them to fall out through the mouth 9 and to be caught in the hand or otherwise.

The threaded hooks 11 having each a wedge nut 12 on its end is put up through the mouth 9 of each shell, the nut of each hook being turned to present its narrow dimentions parallel with the mouth. After each

nut has been elevated to the upper part of the associated shell, the hook and nut are turned through a right angle to present the sides 14 into contact with the side walls 2, as illustrated in Figs. 1 and 2. Then as the hook and nut are released, the nut is firmly held by the shell, and any desired weighty bodies can be suspended from the same.

By having the shells 1 sufficiently long, ample room is allowed for the lateral adjustment of the hooks to accommodate errors in locating the inserts and thereby to permit the pipes suspended by them to lie in perfectly straight lines. Further, by screwing the hooks 11 up or down in the nuts 12, the horizontal position of the pipes or other members being put up, can be accurately adjusted.

As shown in Fig. 2, the same inserts can be used for fastening to the ceiling the timbers 22 to which shaft-hangers and other objects can be attached, a bolt 10 taking the place of the hooks 11. In this case, the only practical way in which the bolts and nuts can be engaged is to partly screw the nuts onto the bolts after the latter have been put through the timbers. Then, the nuts resting on the upper surface of the timber and the bolt heads projecting below, the nuts being all turned to have their flat surfaces 13 parallel with the insert-mouths 9, all the nuts can be simultaneously pressed up through the mouths to the upper part of the inserts and there turned to present themselves transversely thereto, after which the bolts can be tightened up at leisure.

Although I have described the inserts as adapted for ceilings alone, it is evident that they can equally well be located in reinforced concrete side walls, and used for the support of vertical timbers and other objects in the same manner as illustrated in Fig. 2.

Previous to my invention, it has been a well known practice to employ an insert which has fastened down upon the form 7 by means of nails driven through ears exterior to the insert. After the concrete had hardened and the planking been removed, these nails could not be taken out but had to be nipped off close beneath the ceiling, but never flush therewith. In my arrangement, on the other hand, the screws are bodily removable.

What I claim is:

A concrete insert comprising a narrow shell having a slot through its bottom narrower than the space between the side walls a short distance above the slot, a threaded member, and a nut screwed upon said member, the interior of said shell being wider a short distance above said slot than the greatest dimension of said nut, one dimension of said nut measured between planes parallel with the axis of said threaded member being narrower than said slot, but the other dimension being wider, whereby said member and nut can be pushed up through said slot and then rotated to present the wider dimension into engagement with the side walls of the shell.

In testimony that I claim the foregoing invention, I have hereunto set my hand this 16th day of March, 1921.

MAURICE E. CHASE.