

Aug. 15, 1933.

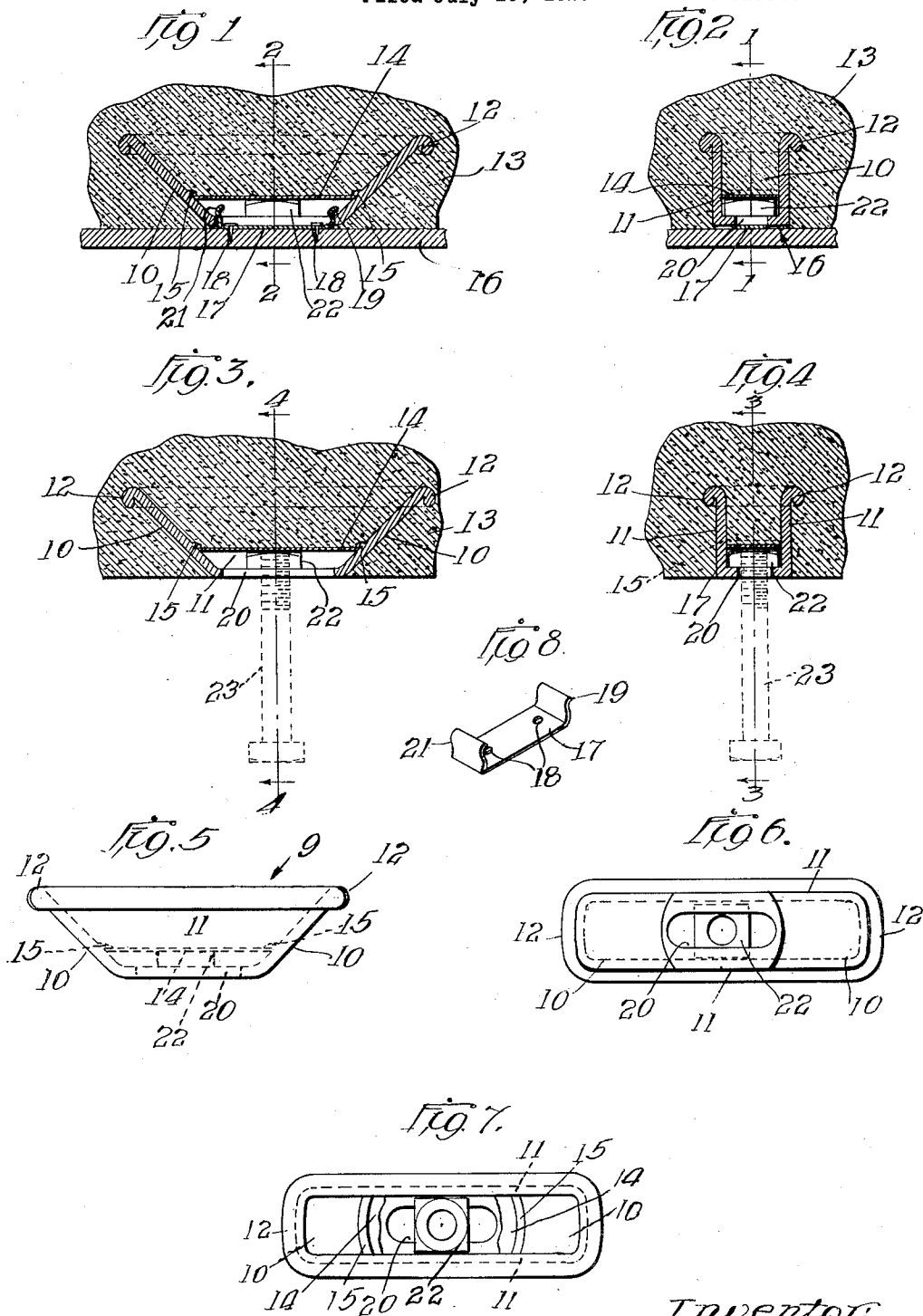
P. N. JOSLIN

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ADJUSTABLE CONCRETE INSERT

Filed July 10, 1929

2 Sheets-Sheet 1



Inventor  
Pliny N. Joslin  
By Fisher, Clapp, Soana & Pond, Attys

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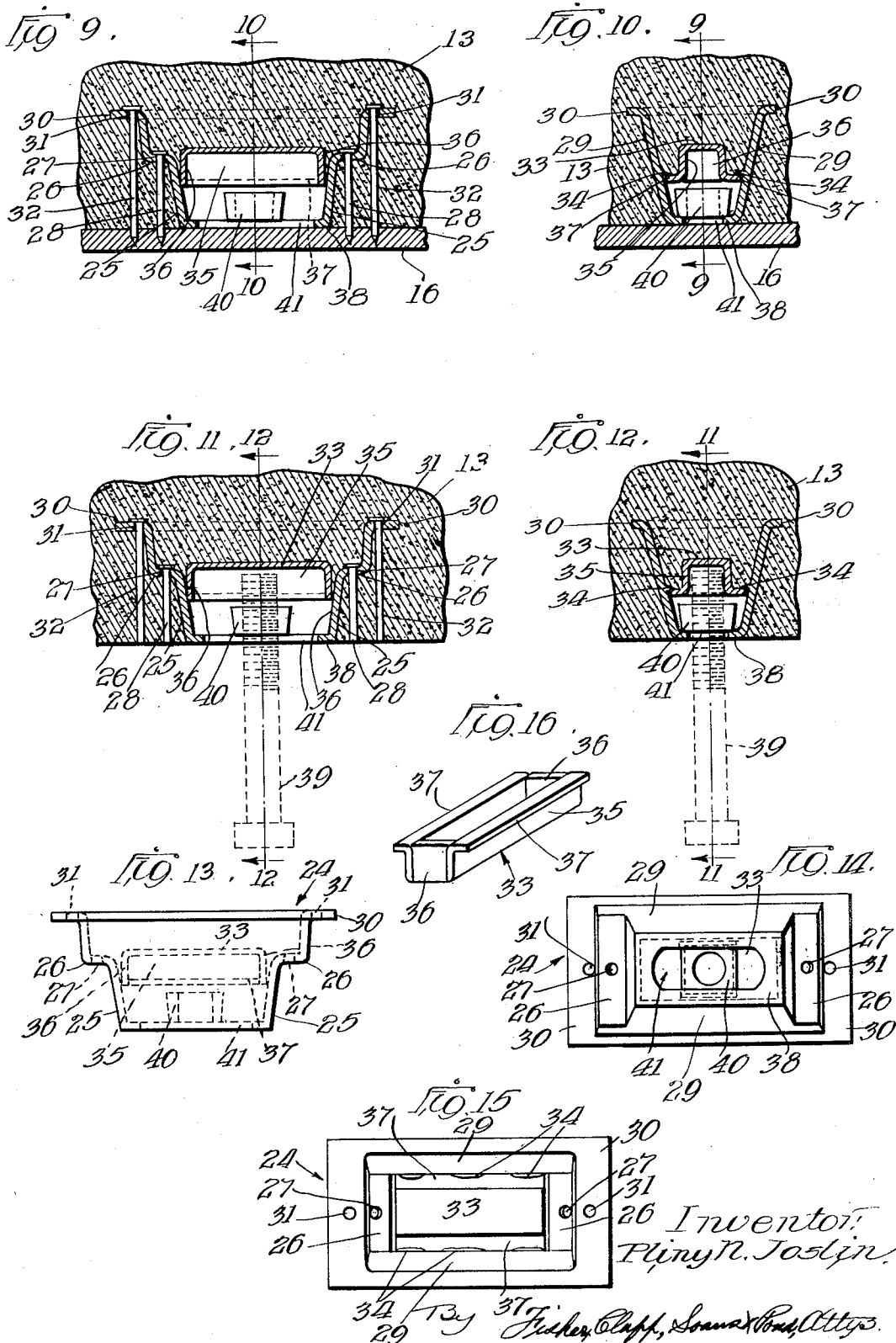
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Inventor:  
P. N. Joslin.

By *J. H. Fisher, Claff, Son & Co., Attys.*

## UNITED STATES PATENT OFFICE

1,922,479

## ADJUSTABLE CONCRETE INSERT

Pliny N. Joslin, De Kalb, Ill.

Application July 10, 1929. Serial No. 377,153

3 Claims. (Cl. 72-105)

My invention relates to an adjustable concrete insert.

The primary object of the invention is to provide a simple and economical concrete insert adapted to be embedded in a concrete wall or ceiling for the purpose of supporting or suspending shelf angles, brackets, hangers, or the like; to provide novel means to secure the device in the proper position on a mold form while the concrete is being poured and is setting, which means can be easily removed without leaving the nails project; and which provides for adjustment of bolts used for attaching the objects to be supported.

Other objects and advantages will be apparent as the description proceeds.

In the accompanying drawings:—

Fig. 1 is a longitudinal sectional view of a concrete insert constructed in accordance with the invention together with the attaching means for securing the same to a mold form, the same being taken on the section line 1-1 of Figure 2.

Fig. 2 is a sectional view taken on the section line 2-2 of Figure 1.

Fig. 3 is a sectional view taken on the section line 3-3 of Figure 4 and showing the mold form removed and the anchoring means for objects in position.

Fig. 4 is a sectional view taken on the section line 4-4 of Figure 3.

Fig. 5 is a side elevation of the insert.

Fig. 6 is a bottom view.

Fig. 7 is a plan view with a part broken away.

Fig. 8 is a perspective view of the insert anchoring means.

Fig. 9 is a longitudinal sectional view of another form of concrete insert together with attaching means for securing the same to a mold form, taken on the line 9-9 of Figure 10.

Fig. 10 is a sectional view taken on the line 10-10 of Figure 9.

Fig. 11 is a sectional view taken on the line 11-11 of Figure 12, and showing the mold form removed and the anchoring means for objects in position.

Fig. 12 is a sectional view taken on the line 12-12 of Figure 11.

Fig. 13 is a side elevation of the insert.

Fig. 14 is a bottom view thereof.

Fig. 15 is a plan view.

Fig. 16 is a perspective view of a protecting or covering plate used with the device and constituting a part thereof.

Referring to the drawings in detail, the insert is designated generally at 9 and consists of a cup-

like member of elongated form representing a frusto-conical wall with flattened sides. The ends 10 are inclined in opposite directions and the sides 11 are flat and parallel.

The top edge or open side of the body of the insert is flanged over as indicated at 12 so as to provide retaining means for the insert when embedded in the concrete designated at 13. A plate 14 is secured in the concavity of the insert as by punching out shoulders 15 from the inner surface thereof. The plate 14 may be snapped over these shoulders by reason of its being of sheet metal.

In order to secure the device to a mold form designated at 16, a fastening means shown in Figures 1 and 8 is provided consisting of a resilient metal strip 17 with openings 18 for receiving nails to attach the same to a form. One end of the strip has a tongue 19 which is curved outwardly and then inwardly and finally outwardly at its free end to form a retaining member under which the edge of the insert at one end of an opening or elongated slot 20 provided in the flat bottom thereof is engaged. The other end of the strip is first bent inwardly and then outwardly and finally inwardly, as indicated at 21, so that the opposite edge of the slot will ride over the same and be frictionally held by the resiliency of the tongues detachably to the form 16, as more particularly shown in Figure 1 of the drawings.

The concrete is then poured while the insert is thus retained in position as shown in Figures 1 and 2. The plate 14 prevents the concrete from entering into the space between it and the reduced bottom portion of the insert which is provided with the elongated opening or slot 20. The form is then removed as shown in Figures 3 and 4 without leaving any projecting nails or fastenings, simply by releasing the frictional engagement of the insert with the tongues 19 and 21. A nut 22, which is slidably mounted between the bottom wall of the insert and the plate 14 before the latter is inserted in position, then serves to take a bolt or the like 23 by which suitable objects to be supported may be attached.

In the form of the invention shown in Figures 9 to 16, inclusive, the body of the insert is substantially of the same form as previously described in connection with Figures 1 to 8, inclusive, except that in this form the insert generally designated at 24 consists of a cup-like member of elongated form, generally rectangular in outline. In other words, the end walls 25 are inclined in opposite directions, but in-

stead of being curved are flat, and have stepped portions 26 forming shoulders, each provided with an aperture 27 for receiving nails or other fastening means 28 by which the insert may be attached to the mold form. The mold form and other parts corresponding to the other figures are given the same numbers for the sake of convenience.

The side walls 29 are inclined, giving a tapering cross section to the body or cup-like portion of the insert, and the top thereof is provided with a surrounding flange 30 projecting outwardly, the end portions thereof having apertures 31 receiving nails or other fastening devices 32 as an additional means for anchoring the insert to the boards of the mold form in any desired position. This flange, as well as the tapering formation of the stepped portions producing the shoulders 26 which extend entirely across the width of the device, serves as an efficient anchoring means to retain the insert in the concrete when embodied therein so as to prevent displacement under heavy loads or strains.

A box-like structure or plate 33 is secured in the concavity of the insert, as by punching out shoulders 34 from the inner faces or sides thereof and also the ends if desired. It should be noted that this plate forms a protective covering to prevent the concrete from flowing into the concavity at the small portion thereof and is produced from a sheet metal blank bent to form side and end walls 35 and 36, respectively. The sides have outturned flanges 37 engaging the sides of the insert and forming shoulders with the bottom 38 of the insert, while the receptacle-like portion is adapted to accommodate the end of a bolt 39 so that the latter may be adjusted and have considerable clearance therein when engaged with a nut 40 placed between the plate and particularly the flanges 37 thereof and the bottom of the insert prior to securing the retaining plate in position. The bottom is slotted, as indicated at 41, so as to permit adjustment of the bolt or other suspension means within a range generally sufficient for all purposes, according to the element or object to be hung or supported. As the nut fits snugly in position, it is held from turning, thus facilitating the engagement of the bolt therewith.

In the use of this device, the concrete is poured, while the insert is secured to the mold form as in the form previously described, and the flat or box-like structure 33 prevents the concrete from entering into the space between it and the reduced bottom portion of the insert which is provided with the elongated slot 41. The form is then removed, as shown in Figures 11 and 12, without leaving any projections, nails or other fastenings, since the nails 31 and 32 may be cut off. The device is used for the purposes common to inserts of this character, as already explained. It will also be apparent that the fastening device for securing the insert to the mold

form, as shown in Figures 1, 2 and 8, may be employed with this form of the device instead of using the nails 28 and 32.

The device may be embedded in a concrete wall or ceiling for the purpose of supporting or suspending shelf angles, brackets, hangers for machinery, or the like, and, owing to its construction, will give maximum resistance to being pulled out of position. On the other hand, it may be very economically manufactured and may be stamped out of heavy sheet metal or cast.

Thus, for example, in the embodiment shown in Figures 9 to 16 inclusive, both the insert 24 and the plate 33 may have curved rather than squared ends, and the step-like portions of the insert 24 may also be curved rather than angular, as shown.

While I have shown and described my invention in a preferred form, I am aware that various modifications and changes may be made therein without departing from the principles of the invention, the scope of which may be determined by reference to the appended claims.

I claim as my invention:

1. The combination with a concrete insert including a dish-like member with flattened sides and a retaining flange; of a plate mounted in the member spaced from the bottom thereof, said bottom having a slot therein, and means to detachably secure the device to a mold form including a resilient strip having means for securing it to the form and having oppositely curved resilient tongues bent up therefrom to resiliently and detachably engage the edges of the wall at the ends of the slot to secure the insert in position during the pouring and setting of the concrete and adapted to be disengaged therefrom.

2. The combination with an insert having a retaining wall, a slot in the bottom thereof and a wall over said slot providing a hollow chamber for receiving an anchoring means, of means for detachably securing the insert to a form, including an elongated resilient strip having openings for receiving nails to anchor the same to the form and having end tongues bent therefrom with oppositely curved free ends resiliently and detachably engaging the end walls of the slot.

3. A concrete insert comprising a substantially cup-shaped member with inclined ends and flat sides, and having an outwardly directed flange at its open side, a plate positioned in the cup-shaped member spaced from the bottom thereof, said bottom having a slot, a nut or bolt head being adapted to be held in the space of the cup-shaped member between the plate and the bottom and the ends of the cup-shaped member having stepped portions provided with apertures for receiving fastening means to temporarily anchor the device to a mold form.

PLINY N. JOSLIN.