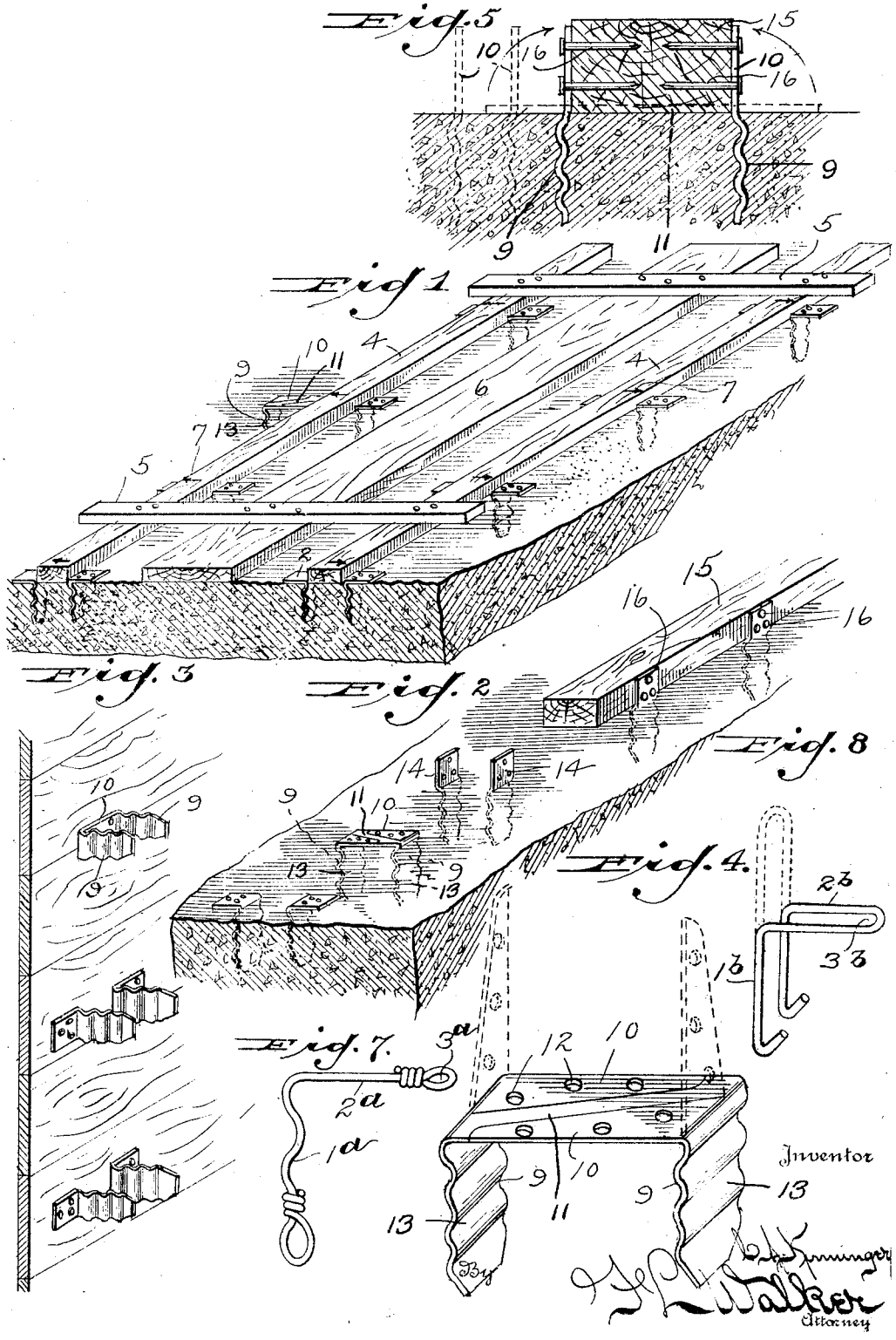
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ANCHOR INSERT

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ANCHOR INSERT.

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My invention relates to concrete construction and more particularly to an anchor insert and the method of installing the same for the attachment of sleepers, furring, interior finish, light machinery and analogous purposes.

The object of the present invention is to simplify the structure as well as the means and mode of setting or applying such anchor inserts or grips which may be embedded in the concrete structure, either by being attached to the interior of the form or mold and around which the concrete is poured while in a fluid or plastic stage, or which may be embedded in floors, or in the top of other substantially horizontal concrete bodies by being thrust into the body of concrete while the latter is yet in a semi-liquid or plastic state. For either method of embedment, the anchor insert consists of an initially substantially right angle member formed of flexible material, preferably, tho not necessarily, stamped from sheet metal, one arm of which is preferably embossed, corrugated or of otherwise irregular outline to afford interlocking anchorage with the concrete body while the portion initially projecting at right angles thereto is perforated to receive nails to secure it to the interior of the mold form and later to the sleeper, the furring strip or other attached members. Such right angle anchor inserts may be interconnected in pairs to insure their embedment in proper spaced relation. Subsequently to the setting or hardening of the concrete body in which the anchor inserts are embedded, the laterally extending portions of the inserts initially extending perpendicular to the embedded corrugated arm and parallel with the surface of the concrete body are then bent upwardly perpendicular to such concrete body and into substantial alignment with the embedded portion of the anchor. Such upstanding portions of the anchor insert are subsequently attached to the sleepers, furring strips or other members to be secured.

The method of installing such anchor inserts hereinafter described enables the accurate placement of such insert in proper alignment with each other and separated predetermined distances equivalent to the width of the sleeper or furring strip to be received therebetween.

One of the objects of the invention is to simplify the structure as well as the means and mode of installation of such anchor inserts, whereby they will not only be cheapened in construction, but will be more efficient in use, capable of being securely and firmly embedded, durable, easily applied and unlikely to get out of order.

A further object of the invention is to provide a simple, and inexpensive form of anchor insert, which may be secured in a retracted form to the interior of a concrete mold or form, or embedded directly in a body of concrete while in a plastic condition and subsequently extended by outbending after the body of concrete has become set and hardened.

A further object of the invention is to provide means and method by which such anchor inserts may be quickly and accurately installed by unskilled labor.

With the above primary and other incidental objects in view as will more fully appear in the specification, the invention consists of the features of construction, the parts and combinations thereof, and the mode of operation or their equivalents as hereinafter described and set forth in the claims.

In the accompanying drawings, wherein is shown the preferred, but obviously not necessarily the only form of embodiment of the invention, Fig. 1 is a perspective view of a concrete surface on which has been laid a locating gage hereinafter described and illustrating a succession of anchor inserts of different form installed in the concrete body in conformity with the gage member. Fig. 2 is a similar view of a portion of a concrete body subsequent to the setting or hardening of the concrete, showing several forms of the anchor inserts forming the subject matter hereof in different stages of utilization. Fig. 3 illustrates different forms of the anchor inserts secured to the interior of a concrete form or mold, preparatory to the pouring of the concrete about such inserts as would be the case on vertical wall surfaces and ceilings. Fig. 4 is a perspective view illustrating two of the anchor inserts of right angle form interconnected into a pair to insure proper relative spacing during installation. Fig. 5 is a detail sectional view illustrating application of the insert anchor to a sleeper or furring strip.

Like parts are indicated by similar characters of reference throughout the several views.

In laying wood floor upon a concrete sub-base or foundation, it is desirable to anchor or otherwise secure stringers or sleepers to which the flooring is to be nailed, to such concrete sub-base.

Likewise in the course of concrete building constructions, it is necessary to apply furring strips to side walls and to ceilings for supporting interior finish, attaching interior frame partitions, for supporting shelving and for attaching light machinery and the like, which it may be desirable to suspend from the ceiling or secure to a side wall. The present form of anchor is adapted to be embedded in the concrete body while still in a plastic stage, either by being initially secured to the interior of the concrete mold or form, or by being thrust into the body of concrete while the latter is yet in a semi-fluid or plastic stage. The anchor insert is initially installed by either method with its attachment wings or ears in a retracted or recumbent position, substantially parallel with the surface of the concrete body, such attachment wings being subsequently extended to a position perpendicular to the surface of the concrete body, for attachment to the sleeper or furring strips. The anchor member is quite simple in its construction as is illustrated in detail in Fig. 4, where it is shown as consisting of a single piece of sheet metal bent into right angle U-shaped form, with the arms 9 thereof corrugated to afford secure anchorage engagement while the intermediate portion is split to form laterally extending arms 10 perforated at 12 to receive nails for initially securing it to the interior of the form or mold and subsequently to the sleeper or furring strip after the arms are bent to upright positions. In installing this anchor insert in a floor or in the top surface of a concrete body, the corrugated arms 9 are thrust into the plastic concrete until the laterally extending perforated wings 10 rest upon the surface of the concrete body. To insure the proper placement of these inserts in alignment with each other, and in transversely separated relation, agreeing with the sides of the sleeper or furring strip to be received thereby, it is preferable to insert such anchors closely contiguous to the margin of a straight edge. For convenience in making such installations, two straight edges 4 are interconnected one to the other by cross ties 5 in properly spaced relation and a board 6 is interposed between the straight edges 4 and secured to the cross ties 5 upon which the workman may walk to and fro while installing the anchors by thrusting them into the plastic concrete. The straight edges 4 are preferably tho not necessarily, marked at intervals as at 7 to indicate the longitudinal spacing of the series of anchors.

While the gage device illustrated in Fig. 1 is particularly adapted for the installation of the duplex or paired anchors shown in Fig. 4, it may be also successfully employed in installing other forms of anchor inserts as illustrated in Fig. 1. In the construction illustrated in Fig. 4 the pair of right angle anchor members are formed from a single strip of sheet material, the opposite ends of the strip are bent at right angles to the intermediate portion and corrugated as at 9. The intermediate transverse connecting portion between the corrugated right angle extensions 9 is diagonally cut to form two tongues or arms 10—10 separated one from the other by an intermediate diagonally disposed strand 11. The tongues or arms 10 are perforated at 12 to receive the securing nails. Each arm 10 and its interconnected corrugated extension 9 forms a right angle anchor insert. However, these right angle inserts are integrally united in predetermined spaced relation by the intermediate diagonal tie 11. This tie insures the proper relative spacing of the anchor members when embedded in the concrete body. The gage member illustrated in Fig. 1 may be employed in locating these duplex or paired anchors in the plastic body as is shown in Fig. 1 at 13.

The anchor members being embedded in the concrete body, after the latter has been allowed to set and harden, the inturned arms 10 Fig. 4, are flexed or bent upwardly to positions perpendicular to the surface of the concrete body as shown at 14 in Fig. 2. The sleeper 15 is then interposed between the upstanding perforated arms of the anchor insert and is secured in such position by nails 16, driven thru the perforation of such arms.

In the event that the insert anchors are to be installed in a vertical surface, such as a wall, or in an overhanging surface as in a ceiling, in which case it is not practical nor possible to embed the anchors by thrusting them into the body of concrete while yet in a plastic condition, the anchors in such case are initially installed in the interior of the concrete form or mold. To this end the anchor members are secured to the inner face of the form by nails driven thru the perforations of the laterally extending wings 10, with the corrugated anchor arms projecting perpendicular to the wall of the form or mold as is shown in Fig. 3. The form or mold being filled with concrete which flows about the corrugated anchor arms, the latter thereby become embedded in the concrete, the form is removed subsequent to the hardening of the concrete body, leaving the perforated wings 10 exposed upon the surface of the concrete body. These wings when bent to perpendicular relation with the surface of the wall or the ceiling as before described receive the sleeper, furring strip or other body to be secured, which is attached thereto by nails driven thru the perforation of the attachment wings.

In Fig. 5 the relation of the anchor insert to the sleeper and concrete body has been

shown in sectional elevation. The initial positions of the laterally extending perforated wings, have been shown by dot and dash lines, and their direction of bending or flexing upwardly to receive the sleeper or furring strip has been indicated by arrows. In the same figure different spacing of the anchors has been illustrated by dotted lines to accommodate sleepers of different widths, by merely varying the relative spacing of the anchor members. The present form of anchor necessitates a minimum amount of material, all of which is used to maximum advantage. It has the further advantage of being capable of being nested compactly for shipment and because of the minimum material required it is light in weight, yet equally as strong in its coupling or tying function, as other sleeper grips employing a large excess of material.

While the perforated arms 10 have been heretofore described and hereafter referred to in the claims as perforated for initial attachment to the interior of a concrete form and subsequent attachment to a sleeper or furring strip, it is to be understood that the device is not limited to such attachment interiorly of the concrete form but may be thrust directly into a plastic concrete body. Such ability for initial attachment to a form and the herein described method of installation by pouring the concrete about the attached insert is especially desirable when such inserts are to be embedded in side walls or ceilings. However when applied to floors or to top surfaces of other concrete bodies, such step of initial attachment is entirely omitted and it is not intended that the claims shall be limited thereto.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific details shown, but that the means and construction herein disclosed comprises the preferred form of several modes of putting the invention into effect and the invention is, therefore, claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

Having thus described my invention, I claim:

1. In a furring anchor or the like, a pair of substantially L shaped members, one arm of each of which is formed for anchorage embedment in a body of concrete, the other arm of which is extended toward the opposite member intermediate the anchorage arms and perforated for initial attachment to the interior of a concrete form for supporting the anchor arm in predetermined position while concrete is being deposited thereabout, and an integral transverse tie bar connecting the members in predetermined spaced relation at opposite sides of which the perforations of said second mentioned arms are exposed and accessible, the perforated arms being capable of being bent after removal of the concrete form to positions angularly disposed in relation to the face of the concrete deposit for subsequent engagement with a furring strip or the like.

2. As an article of manufacture, a pair of anchor inserts each comprising an L shaped piece of flexible metal, one arm of which is corrugated for embedment in a body of concrete, the other arm of which is perforated for initial attachment to the interior of a concrete form, and for subsequent attachment to a furring strip or the like after removal of the form and an intermediate tie bar of less width than that of said pieces permanently connecting the L shaped pieces in overlapping relation with which the perforated arms extend with their perforations exposed and accessible at opposite sides of said bar.

3. As an article of manufacture, a furring anchor or the like comprising two substantially L shaped members interconnected one to the other, each having an arm formed for embedment in a body of concrete which arms extend in the same direction and in parallel spaced relation, and each having a perforated arm for engagement with a furring strip after being bent to upright parallel relation, said perforated arms being initially disposed in a common plane intermediate the spaced anchor arms and a tie portion also extending intermediate the anchor arms and in the initial common plane of said perforated arms.

4. In a construction of the character described, substantially L shaped members arranged in pairs, each having an arm formed for anchor embedment in a body of concrete in spaced relation with each other, and each having an oppositely disposed perforated arm for engagement with a furring strip or the like, said perforated arms extending in substantially parallel relation in a common plane intermediate the anchor arms and an intermediate integral tie bar connecting said members in pairs in parallel relation with which the perforated arms initially extend.

5. In a device of the character described, a substantially U shaped member comprising spaced arms formed for embedment in a body of concrete and an intermediate transverse portion slit and punched to form two perforated arms each integral with one of the anchor arms and extending in a common plane each toward the opposite anchor arm, and a tie strip located intermediate the per-

forated arms and fixedly connecting the anchor arms.

6. In a device of the character described, two substantially L shaped members each comprising an arm formed for embedment in a body of concrete, and a laterally projecting perforated arm for initial attachment to a concrete form and subsequent attachment to a furring strip or the like after removal of the form, the arms of the L shaped members being engageable with opposite sides of the strip, and a diagonally disposed tie strip formed intermediate two of the aforementioned arms of the respective members for insuring the proper spacing of the members.

7. In a device of the character described, a substantially U shaped member the spaced parallel arms of which are formed for embedment in a body of concrete, the intermediate transverse portion of which is provided with longitudinally disposed substantially parallel slits forming spaced tongues, an intermediate transverse tie portion and an unslit terminal portion therebeyond, the terminal portions and integral tongues being initially bent to right angle relation, one member of each of such right angle portion being perforated for attachment to a furring strip after being bent to upright position.

8. A device of the character described comprising a single strip of material slit on diagonal substantially parallel lines extending inwardly from opposite margins at mid length points, forming an intermediate diagonal tie bar, the strip being transversely bent in approximate relation with the intersection of the margins by said diagonal slits to form interconnected pairs of substantially L shaped members one arm of each of which extends in parallel relation with the intermediate tie bar and the other arms extend substantially perpendicular thereto for embedment in a concrete body, the first mentioned arms being perforated and subject to subsequent bending to perpendicular relation with the tie bar for engagement with a furring or sleeper strip.

9. A device of the character described, comprising a single strip of material medially slit in substantially longitudinal direction to form a pair of unslit terminal portions, an integral narrow tie bar connecting the terminal sections and a pair of reversely disposed tongues intermediate the terminal sections and contiguous to the tie bar portion, the unslit terminal portions and tongues being initially bent to right angles with each other and one of said parts being perforated, such perforated portion being subject to bending into parallel relation with the connected portion and perpendicular to the tie portion for attachment to an interposed strip.

In testimony whereof I have hereunto set my hand this 31st day of October, A. D. 1924.

CARL A. KINNINGER.