

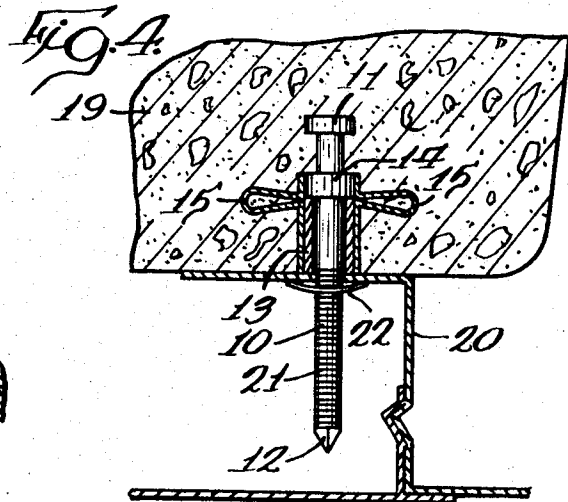
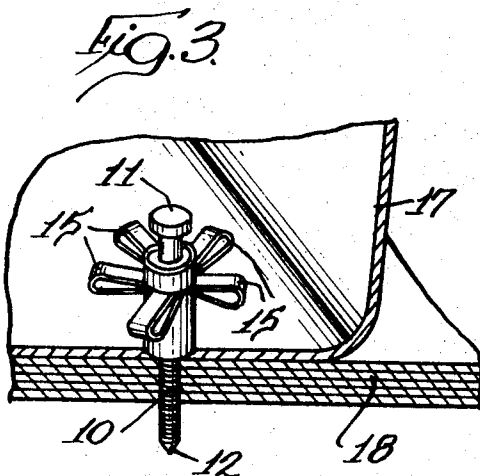
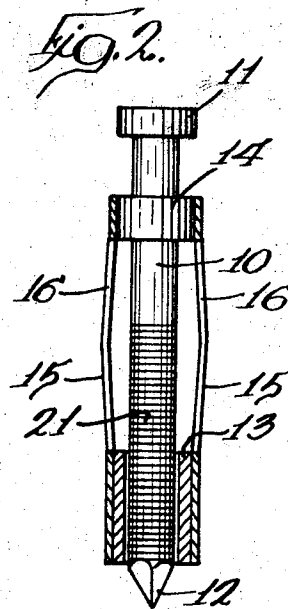
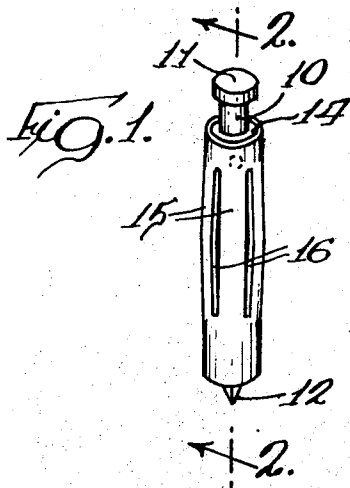
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FASTENER WITH ANCHORING HEAD

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FASTENER WITH ANCHORING HEAD

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2 Claims

ABSTRACT OF THE DISCLOSURE

A fastener having a driving head, a pointed end and a radially expandable portion consisting of a plurality of bands extending between a fixed subhead and a collar which is movable toward the subhead to accomplish the expansion of the connecting bands. The expanded head is received in a mass of concrete pending solidification for securely anchoring the fastener whereby the exposed pointed end may be used as a hanger to support accessories to the concrete mass.

This invention relates to improvements in the design and construction of a fastening member, such as a nail, and more particularly a fastener having anchorage in a mass of concrete by embedment of a portion thereof in said mass while said mass of concrete is undergoing solidification in a concrete forming member and which also provides a pointed end portion outside the confines of said concrete mass for use in establishing a nailed connection between said concrete forming member and a rigid supporting sub-structure of wood or the like pending ultimate withdrawal of said forming member and said sub-structure from the solidified concrete mass.

It is also an object of this invention to provide improved anchorage means in conjunction with a fastener of the type indicated whereby withdrawal of the form member and its sub-structure may be readily accomplished without risk of loosening or pulling out the fastener from its embedded position within the concrete mass and thus assure availability of the end portion of the fastener outside the confines of the concrete mass for use as a hanger for supporting accessories requiring attachment to the concrete mass.

It is also an object of this invention to provide a fastener of the character indicated which is readily manufactured on an extensive scale at relatively low cost and also provide an article which can be easily handled by the operator preparatory to installation thereof and which can be easily and rapidly placed in installed position.

With the above and other objects in view, as will be apparent, this invention consists in the construction, combination and arrangement of parts, all as hereinafter more fully described, explained and illustrated in the accompanying drawing wherein:

FIG. 1 is a perspective view of a fastener constructed in accordance with and embodying the present invention as the same appears preparatory to installation.

FIG. 2 is an enlarged vertical section taken along line 2—2 of FIG. 1.

FIG. 3 is a perspective view of a fastener as shown in FIG. 1 as the same appears in an installed position relative to a concrete forming member and a supporting sub-structure and preparatory to the reception of a concrete mass within the area of the forming member occupied by the fastener.

FIG. 4 is an enlarged fragmentary section through a solidified mass of concrete with the fastener of this invention shown as it appears upon withdrawal of the concrete forming member and the supporting sub-structure therefrom, and also illustrating the use of the exposed shank portion of the fastener as an accessory hanger.

Referring more particularly to the drawing, a fastener exemplifying the present invention is shown as including an elongated shank 10 having a driving head 11 at one end thereof and a pointed tip 12 at its other end. Reference numeral 13 designates a collar which occupies an initial position in encircling relation to the area of the shank 10 immediately rearward of the pointed tip 12. Such initial position of the collar 13 is established by means of a sub-head 14 formed integrally with the shank 10 and occupying a position in forwardly spaced relation to the driving head 11 as shown in FIG. 2 of the drawing, and a series of metal bands 15 having spot welded connection at one end thereof to the subhead 14 and at the other end fixed to the collar 13 to form an interconnection extending axially of the shank 10 between the collar 13 and the sub head 14. The bands 15, as shown in FIG. 1, are preferably defined by areas of a metal tube like structure which are separated by slots 16 which extend approximately the length of the distance between the collar 13 and the sub head 14.

As shown in FIG. 3 of the drawing, wherein the fastener of this invention is illustrated in installed relation to a concrete forming member 17 and a supporting sub-structure 18 of plywood or the like, it will be seen that the axially compressive forces applied at the surface of the collar 13 engaging the inner surface of the concrete form member about the opening through which the pointed end of the shank 10 extends and at the junction of the bands 15 with the sub head 14 has caused the bands to spread outwardly to form radially extending wings as an incident to the action of driving the pointed end of the fastener through the opening in the concrete form member and into the sub-structure 18. The wings thus developed by this action of the bands 15 are accordingly in a position to be completely embedded within a mass of concrete 19 confined in the form member 17 about the area occupied by the driving head of the fastener and said bands 15 as to assure permanent anchorage of the embedded portion of the fastener while the mass of concrete 19 containing said embedded portion of the fastener undergoes solidification.

After such solidification of the concrete mass, the supporting sub-structure 18 and the concrete forming member 17 may be dismantled and withdrawn from a fastened position about the pointed end of the fastener without risk of loosening or pulling out of the fastener from its embedded position and thereby also rendering the exposed pointed end portion of the anchored fastener accessible for use as a hanger for supporting accessories 20 as shown in FIG. 4 in order to provide for attachment of said accessories to the concrete mass. To this end, the portion of the shank 10 thus exposed outside the confines of the concrete mass 19 is preferably knurled or roughened as shown at lines 21 in FIG. 4 and thereby the shank 10 is prepared for receiving a speed nut 22 so as to more readily establish clamped engagement with the accessory member 20, as shown.

It will be manifest that the fastener of this invention is of such nail-like shape that it may be held with other like fasteners in closely bunched orderly arrangement in the hand of a workman without interference to freeing such fasteners one at a time as the fastener is applied to the article of work with which the fastener is to be operatively associated.

While only one more or less specific embodiment of the present invention has been shown and described, it is to be understood that this is for the purpose of illustration only, and that the invention is not to be limited thereby, but its scope is to be determined by the appended claims.

3

4

What is claimed is:

1. A fastener having a piercing point at one end thereof and a driving head at its other end for applying impact on said fastener to drive said point into a rigid supporting sub-structure of wood or the like whereby a concrete form member may be secured to said sub-structure via extension of said pointed end of the fastener through an opening in the wall of said concrete form member facing said sub-structure, and means for securely anchoring the end of the nail with the driving head in a mass of concrete pending solidification of said mass of concrete within the area of the form member containing said driving head of the fastener while allowing withdrawal of said form member and said sub-structure from said pointed end of the fastener after such solidification of said concrete mass, said means including a collar slidably supported on said fastener between said driving head and said pointed end which collar has engagement with the inner surface of said concrete form member about the opening through which the pointed end of said fastener extends, a fixed sub-head on said fastener between said driving head and the area occupied by said collar, and axially extending bands interconnecting said collar and said sub-head which bands spread outwardly to form radially extending wings by collapse of said bands under axially compressive forces applied at the surface of the collar engaging said inner surface of the concrete form

member and at the junction of said bands with said sub-head in response to impact applied to the driving head of said fastener to drive said pointed end thereof into a position to secure said concrete form member to a supporting sub-structure.

2. A fastener according to claim 1 wherein the portion of the fastener exposed outside the confines of said concrete mass is provided with a knurled surface.

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