United States Patent [19]

Collier, Jr.

[11] **3,784,313**

[45] **Jan. 8, 1974**

[54] **MEANS FOR ATTACHING A KEY-JOINT FORMING STRIP TO A SUPPORT STAKE**

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[22] Filed: **Apr. 13, 1972**

[21] Appl. No.: **243,571**

[52] **U.S. Cl.** **404/51,** 249/3, 249/9

[51] **Int. Cl.** **E01c 11/04**

[58] **Field of Search** 404/51, 68, 67, 74, 404/48, 61, 62, 50; 249/9, 3

[56] **References Cited**

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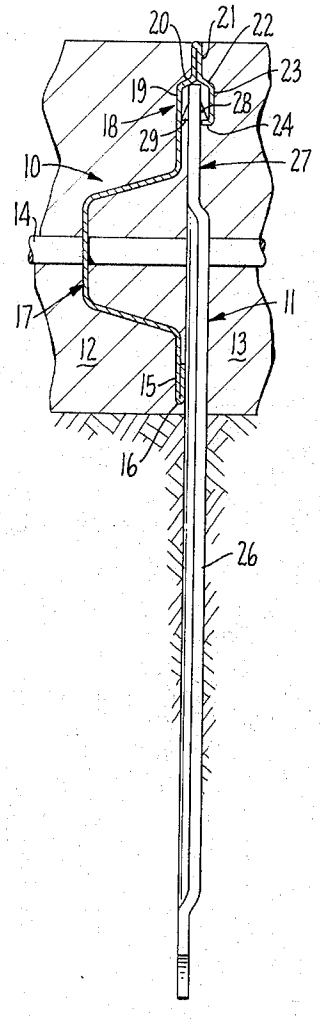
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[57] **ABSTRACT**

A concrete slab key joint forming strip has an upper edge construction that includes a folded-over portion which extends downwardly in spaced, parallel relationship with the upper part of the forming strip and terminates in a lip which extends inwardly toward the upper portion of the forming strip. A stake for supporting the forming strip has outwardly and downwardly sloping protrusions provided adjacent the upper end thereof whereby the upper end of the stake will snap into engagement with the forming strip between the upper and folded-over portions of the strip and the strip will be retained on the stake by the lip on the folded-over portion.

4 Claims, 5 Drawing Figures



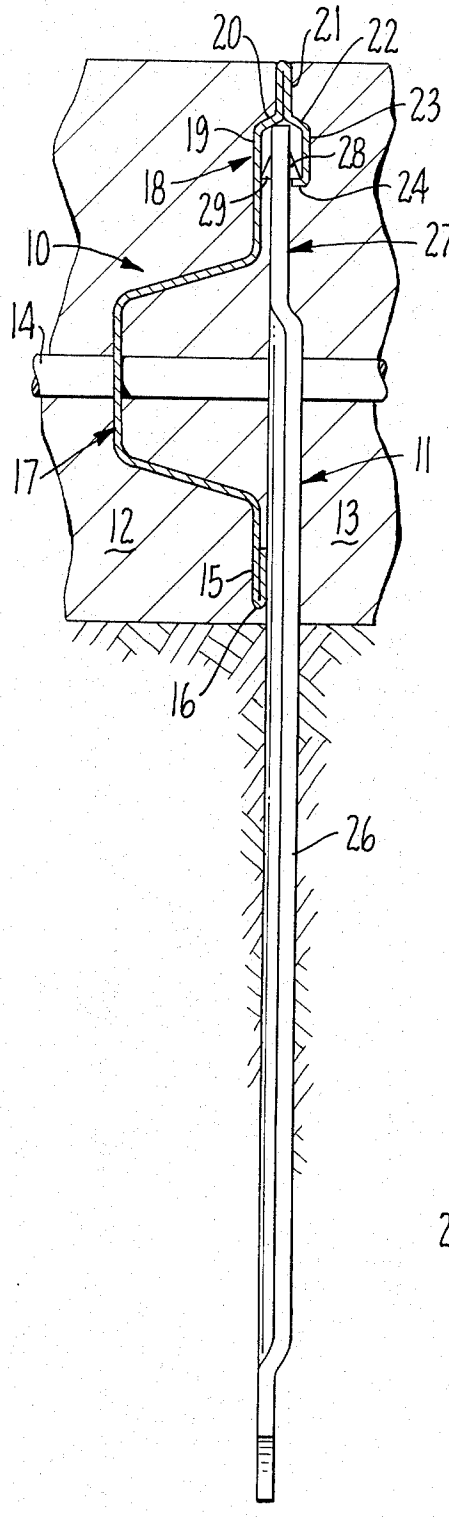


FIG. 1.

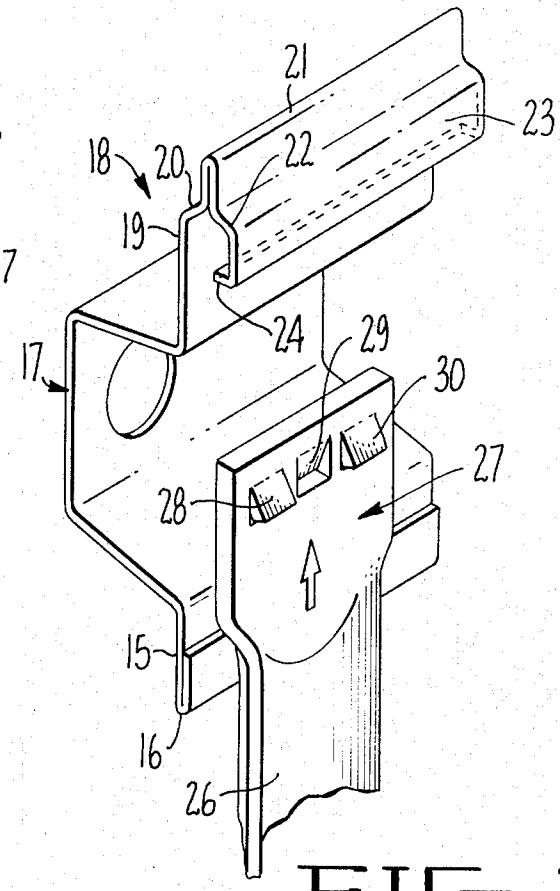


FIG. 2.

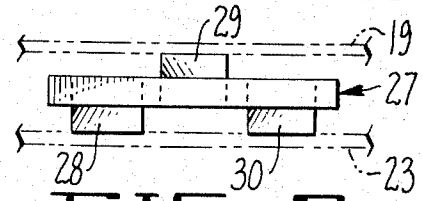


FIG. 3.

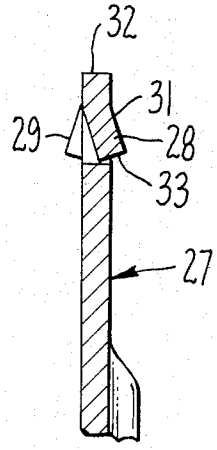


FIG. 5.

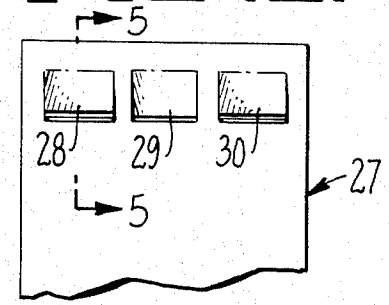


FIG. 4.

MEANS FOR ATTACHING A KEY-JOINT FORMING STRIP TO A SUPPORT STAKE

BACKGROUND OF THE INVENTION

This invention relates to the construction of key-joint forming strips and support stakes used in the construction of concrete slabs. Key-joint forming strips are sheet metal strips having a key-like sectional configuration. During the construction of concrete slabs, they function as forms which provide a tongue and groove arrangement in adjacent concrete slabs which serve to vertically lock them together. After construction of the slabs, the strips serve as contraction joints between the respective slabs.

The key-joint forming strips are erected by means of support stakes having upper ends adapted for engagement with the upper edge of the forming strip. In the past such forming strips have had their upper edge folded over into a portion of inverted Y-like configuration which results in a hook which is hooked over the end of the support stakes. One means of vertically restraining the strip on the stake is to provide an aperture in the stake adjacent its upper end, and to crimp the folded-over portion of the strip into the aperture. This construction is shown in U.S. Pat. No. 3,288,042 assigned to the assignee of the present invention. This construction requires the use of a special crimping tool for assembly. Other means of securing the strip to the supporting stake also require special assembly tools, or more expensive forming strip or support stake construction, and result in inferior engagement of the support stake by the forming strip.

BRIEF SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a means for attaching a concrete slab key-joint forming strip to a support stake which requires no tools for assembly of the forming strip on the support stake.

Another object of the present invention is to provide a means of attaching a concrete slab key-joint forming strip to a support stake which does not require a complicated or expensive construction of either the forming strip or of the support stake.

A further object of the present invention is to provide a means of attaching a key-joint forming strip to a support stake in a manner which results in a superior attachment of the strip to the stake.

Still another object of the present invention is to provide a means for attaching a key-joint forming strip to a support stake which will allow easy disengagement of the strip from the stake.

These and other objects are achieved in the present invention which comprises a key-joint forming strip having an upper edge portion which includes a spaced, folded-over portion which terminates in a horizontal lip extending inwardly toward the forming strip, and a support stake having downwardly and outwardly sloping protrusions provided adjacent the upper end thereof. As the upper edge of the forming strip is pressed down over the upper end of the support stake, the folded portion of the strip will flex, allowing the lip to ride out over the outwardly sloping protrusions until it reaches the lower edge thereof, whereupon it will snap in against the stake and engage the lower edge of the protrusions.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. **1** is a sectional view of the concrete slab key-joint forming strip and support stake of the present invention shown embedded in a concrete slab and in the earth;

FIG. **2** is a perspective view of a portion of the key-joint forming strip and an upper portion of the support stake of the present invention;

FIG. **3** is a top plan view of the support stake of the present invention;

FIG. **4** is a side elevation view of the upper portion of the support stake of the present invention; and

FIG. **5** is a sectional view of the top portion of the support stake shown in FIG. **4** taken along the plane designated by line **5—5** in FIG. **4.**

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. **1** a forming strip, shown generally at **10,** is erected on a support stake shown generally at **11,** and forms a key-joint between concrete slabs **12** and **13,** which is reinforced by a rod **14.** Forming strip **10** includes a lower portion **15,** the outer edge of which is folded over to form a bead **16,** a key portion **17** and an upper portion **18.** The upper portion of the forming strip includes an upper sidewall **19,** a longitudinal shoulder portion **20,** a folded-over upper edge portion **21,** a longitudinal shoulder portion **22** in opposed relationship with shoulder **20,** a downwardly extending hook portion **23** in spaced parallel relationship with sidewall **19,** and a lip **24** extending inwardly from the distal edge of the hook portion **23** toward sidewall **19.** Together, the sidewall **19,** shoulder portions **20** and **22,** and the portion **23,** define a section of generally inverted U-shaped cross-section. The shoulder portions **20** and **22** define the base of this section.

Support stake **11** includes a main body portion **26** adapted for being driven into the earth, and an upper end portion **27** adapted for insertion into the upper portion of the forming strip. The upper end portion of the support stake has protrusions **28, 29** and **30** provided therein and terminates in an upper end **32** adapted to abut against the shoulders **20** and **22,** upon insertion of the stake into the upper section of the strip.

Referring to FIGS. **2** and **3,** the protrusions are similar, but are formed alternatively on each side of the support stake for universality.

Referring to FIG. **5,** each protrusion comprises a small segment of the support stake that has been laterally deformed until a portion of the segment is sheared away from the rest of the support stake, resulting in a bent-tab configuration which includes an outwardly and downwardly sloping ramp surface **31** and an abrupt lower edge surface **33.**

Referring again to FIGS. **1** and **2,** the forming strip is erected on the support stake by moving the upper end of the support stake with respect to the forming strip up between sidewall **19** and hook **23.** As the upper end of the support stake is moved into the upper portion of the forming strip, lip **24** will engage ramp surface **31** and ride downwardly and outwardly therealong as the folded-over upper edge portion **21** flexes. As the top of the stake contacts shoulders **20** and **22,** lip **24** will reach the lower edge of ramp surface **31** and snap in against the side of the support stake. As shown in FIG. **1,** form-

ing strip will then be vertically restrained on the support stake by engagement of shoulders **20** and **22** with the top of the stake and engagement of lip **24** with a bottom edge **32** of the protrusions on the side of the support stake engaged by lip **24.** The provision of protrusions on both sides of the stake permits the lip to engage either side of the stake.

If it is desired to disengage the forming strip from the support stake, disengagement is easily achieved by slipping a prying tool, such as a claw hammer, between sidewall **19** and lip **24** longitudinally adjacent the support stake and applying a prying force to flex folded-over upper edge portion **21** sufficiently to allow lip **24** to slip back over the protrusions.

While preferred embodiments of the invention have been illustrated and described, it should be understood that the invention is not intended to be limited to these embodiments, but rather is defined by the accompanying claims.

I claim:

1. In combination with a concrete slab forming strip having an upper section of generally inverted U-shaped cross-section comprising a base portion having a downwardly extending hook portion extending from one side thereof and terminating in a distal edge and a stake adapted to be inserted into said section to effect the support of said strip, said stake having an upper end adapted to abut against the base portion of said upper section upon insertion of the stake thereinto, an improved construction for securing the strip against separation from the stake, said construction comprising:

a. a protrusion on the stake positioned to be confined within the upper section of the strip upon insertion of the stake into said section, said protrusion terminating in an abrupt edge disposed to be substantially opposite the distal edge of said hook portion upon insertion of the stake into the upper section of the strip with the upper end of the stake abutting the base portion of said section; and,

b. a lip on the upper section of the strip comprising a flange extending from the distal edge of the hook portion for abutting engagement with the abrupt edge of the protrusion upon insertion of the stake into the upper section of the strip with the upper end of the stake in abutting engagement with the base of said section.

2. In a combination according to claim **1,** the improvement wherein the protrusion and lip are preformed prior to insertion of the stake into the upper section of the strip and wherein the upper section of the strip is resiliently deflectable to permit the lip to snap over the protrusion upon insertion of the stake into the upper section of the strip.

3. The combination of claim **1** wherein the protrusion comprises tab-like segments of the stake which extend outwardly and downwardly from the support stake.

4. The combination of claim **3** wherein said segments include a ramp surface extending outwardly and downwardly with respect to the support stake, and a lower edge surface at the lower termination of the ramp surface.

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