

[54] SECURING MEANS FOR CONCRETE
REINFORCING BASKET

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1972, abandoned.

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248/301, 248/361 R, 85/10 E

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[58] Field of Search 404/134, 135, 136;
52/679-683, 357; 248/71, 220.5, 74, 300,
301, 361 R; 24/735 A; 85/10 E

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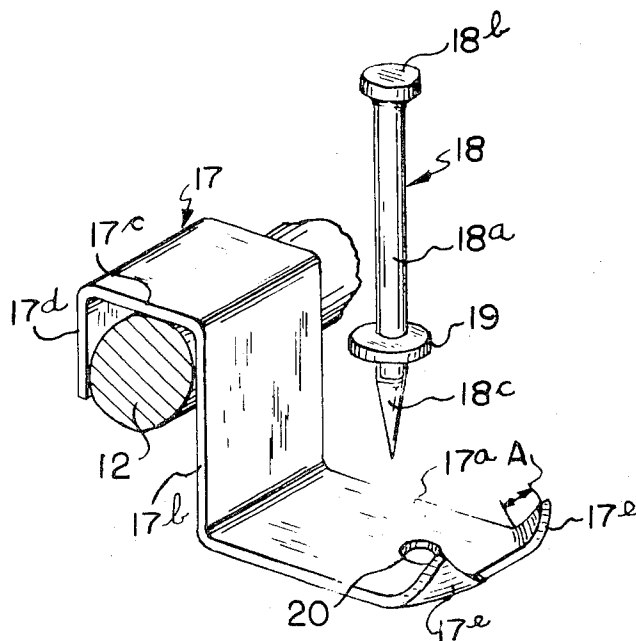
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Fetzer

[57]

ABSTRACT

A simple but effective fastening means is provided for anchoring reinforcing expansion baskets to a concrete treated base or to a black asphalt mix during highway construction. A novel clip has a flat horizontal leg adapted to rest against the base material and has an upstanding leg at the inner end of the horizontal leg, and a downwardly turned hook at the upper end of the vertical leg which is adapted to fit snugly over the top of a horizontal rod of the expansion basket which is normally held by vertical members of the basket at a predetermined height above the base. The clips are placed along the lower horizontal rod of the reinforcing basket and then a drive pin is driven through the horizontal leg into the base using a powder actuated firing tool.

2 Claims, 4 Drawing Figures



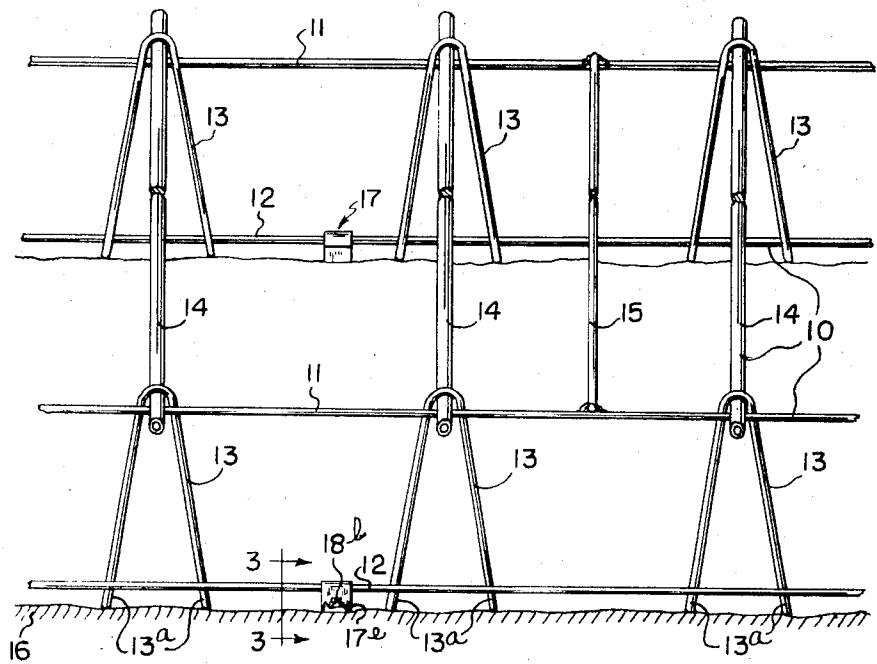


FIG. 1

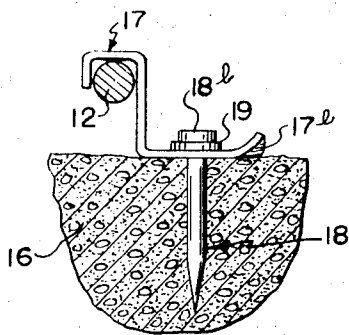


FIG. 3

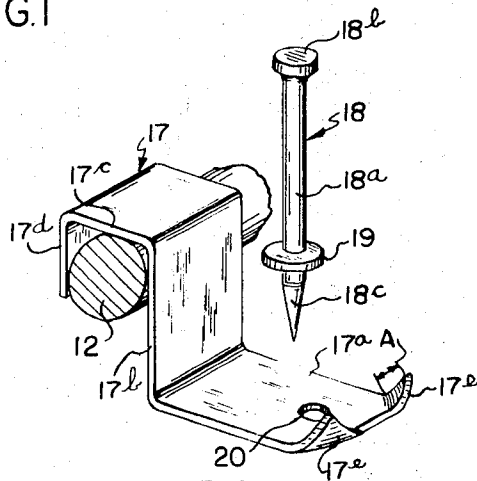


FIG. 2

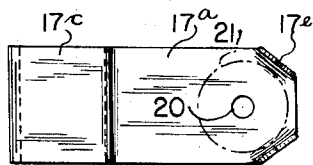


FIG. 4

SECURING MEANS FOR CONCRETE REINFORCING BASKET

This application is a continuation-in-part of my pending application Ser. No. 304,415, filed Nov. 7, 1972 and now abandoned.

BACKGROUND OF THE INVENTION

Expansion baskets of the type herein discussed are now commonly secured to the highway base by driving hook-shaped pins into the base with the hook portion engaging the lower rod of the reinforcing basket. This involves arduous work and involves long pins which are difficult to drive into the base.

The object of this invention is to provide a novel securing clip which can be placed flat on the base of the highway structure with an integral upstanding hook in position to snugly engage over the lowest horizontal rod of the expansion basket. A powder actuated tool then drives a short pin through the horizontal leg of the clip into the highway base with the head of the pin firmly engaged against the horizontal leg to secure the clip firmly in the base, thus anchoring the basket there.

Other objects and advantages of the present invention will be apparent from the accompanying drawings and description and the essential features thereof will be set forth in the appended claims.

In the drawings,

FIG. 1 is a perspective view of a portion of a reinforcing expansion basket with a clip of this invention hooked over the lower horizontal rod of the basket and secured by a drive pin into the base of the highway;

FIG. 2 is an enlarged perspective view of the clip of FIG. 1 in position over the adjacent rod of the basket and with the drive pin in position just prior to being driven into securing position;

FIG. 3 is a fragmental sectional view, enlarged, taken along the line 3—3 of FIG. 1 and showing the final position of the parts; while

FIG. 4 is a top plan view of FIG. 2.

Reinforcing baskets are commonly used when adding the final course of a highway over the preformed highway base of concrete, black asphalt or the like. Such a basket is in common use and comprises a rigidly connected assembly of spaced wires or rods including upper and lower horizontally spaced longitudinally extending rods, vertical spacers connected between each pair of upper and lower rods and extending a predetermined spaced distance below said lower rods to engage the base, and cross members extending between the longitudinal rods. Such a reinforcing basket, or a section thereof, is shown at 10 in FIG. 1. This comprises a pair of longitudinally extending upper rods 11 on each side of the basket and a pair of longitudinally extending lower rods 12 on each side, vertically below the upper rods 11. Vertical spacers 13 rigidly connected the upper and lower rods on each side of the basket as shown in FIG. 1. The projecting end 13a of each spacer 13 is designed to rest on the base 16 and thus position the longitudinal rod 12 an exact distance from said base. Cross members 14 are preferably supplied in the form of strong rods or tubular members 14 rigidly connected, as by welding, to the members 11 and 13 at each side of the basket at the top thereof. Other cross members 15 may be secured between the top longitudinal members 11 at each side of the basket as shown at 15 in FIG. 1. The preconstructed base of the highway

is indicated at 16 and this is quite often a concrete treated base known as C.T.B. or a black asphalt mix, sometimes called B.A.M. The vertical spacers 13 have portions 13a extending a predetermined distance below the lower longitudinal rods 12 so as to space the basket as desired above the base.

The novel securing clip of this invention is best seen in FIGS. 2 and 4. This clip in one embodiment is made of 16 gauge steel but this may be modified according to circumstances. In the embodiment shown, it is approximately three-fourths inches wide having a lower horizontal leg 17a which is flat and adapted to rest directly upon the base 16. At the inner end of this leg, an upstanding vertical leg 17b is provided which at its upper end is bent over and inward to provide the bight of a hook including a generally horizontal portion 17c at the inner end of which is a down turned leg 17d. In this embodiment, the leg 17a is approximately seven-eighths inches long, the leg 17b is approximately three-fourths inches high, the top 17c of the bight extends approximately three-eighths inches horizontally, while the down turned leg 17d is about one-fourth inch long. In this embodiment, the lower rod 12 of the basket is about five-sixteenths inches in diameter. Preferably the outer corners 17e of the horizontal leg 17a are turned up slightly as shown in FIG. 2, approximately on a radius suitable to engage the muzzle of a low velocity powder actuated tool, indicated at 21 in dot-dash lines, so as to center the driving pin 18 on the leg 17a, a concentric with hole 20 drilled through leg 17a of a diameter to receive pin 18. This centered driving prevents any ricochet from striking the edge of the clip and maximizes holding power. In this case, the dimension A is approximately one-eighth inch.

The weight is so proportioned in the clip 17 that when it is placed with the underside of the leg 17a on a flat surface, it will remain in that position.

In use, numerous clips like that described in connection with FIG. 2 are placed on the flat prepared base 16, in the position shown in FIG. 1, with the hook portion of the clip embracing the lower wire 12 of the reinforcing basket, and then a driving pin 18, as seen in FIG. 2, which usually is a minimum of three-fourths inches long and varies with the hardness of the base, is driven through the horizontal leg 17a. Usually, when using a low velocity powder actuated tool, its muzzle is placed as shown at 21. When using a high velocity tool, there is room on leg 17a to place the muzzle between hole 20 and leg 17b. In this embodiment the pin is one inch long by 0.140 inches diameter shank 18a of heat treated steel and having a ¼ inch diameter head 18b and a sharp point 18c at the lower end. It sometimes has a steel washer 19 or a plastic tip for guidance and stability when in the barrel of a drive tool. For each clip, one of these pins, 18 or similar, is then inserted in a suitable powder actuated tool and driven by an exploding charge of powder using a blank cartridge, through the mid-portion of the horizontal leg 17a of the clip using a high velocity powder charge, or through hole 20 when using a low velocity powder charge, into the concrete or asphalt base 16 until the head 18b is firmly pressed against the leg 17a and the pin is fully embedded in the base. The power of the powder charge used may vary in direct relation to the hardness of the concrete or asphalt base. Any suitable powder actuated tool may be used but one that has been successfully used with this invention is that described in U.S. Pat.

No. 3,066,302, granted Dec. 4, 1962 to Charles J. DeCaro.

In the described embodiment, the lower horizontal rod 12 of the reinforcing basket was five-sixteenths inches in diameter. The clip may be so constructed that the vertical leg 17b is just a little bit shorter than the distance between the top of rod 12 and the base 16 as determined by the projecting ends 13a of the vertical spacers 13 so that when the clip is firmly attached to the base as above described, the portion 17c of the clip gives a slight downward pull on the rod 12 so as to utilize the tension thus created in the rod 12 to help in firmly holding the basket in the desired position.

The use of this invention greatly decreases the time and effort necessary to secure reinforcing baskets of the type described to a prepared base in a highway. The necessary number of clips 17 are hooked over the lower horizontal wires 12 of the reinforcing basket at the desired securing points and the workman goes along with the power gun and drives the pins 18 into secure position. This invention saves a lot of time over that used by prior known methods.

What is claimed is:

1. Means for securing a concrete reinforcing basket to a base of concrete or black asphalt or the like, wherein said basket comprises a rigidly connected as-

sembly of spaced wires or rods including vertical spacers extending a predetermined spaced distance below said rods; said securing means comprising a plurality of spaced metal clips, each clip having a planar horizontal leg adapted to rest on said base and an integral upstanding leg at the laterally inner end of said horizontal leg and an integral hook inwardly extending at the upper end of said upstanding leg and having a downwardly opening bight of a size to snugly embrace a rod of said basket with the top of said bight at approximately said predetermined distance from the under side of said horizontal leg, said horizontal leg being rectangular and the outer corners being turned up slightly in position to engage snugly a low velocity tool driving said pin, there being a hole through said horizontal leg concentric with said outer corners, said horizontal leg being long enough to receive the muzzle of a high velocity powder actuated gun between said hole and said upstanding leg, and adapted to receive a pin fastener means for securing said horizontal leg to said base.

2. Securing means as defined in claim 1, wherein said bight of said hook is so spaced as to apply a slight tension on said embraced rod when said horizontal leg is tight against said base.

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