April 8, 1930. R. R. ROBERTSON 1,753,316

CONTRACTION JOINT STAKE

Filed May 18, 1929

Fig. 1

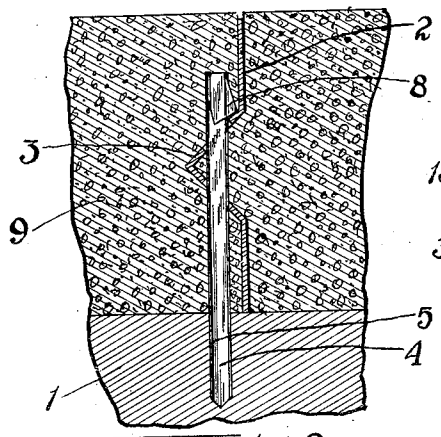


Fig. 5

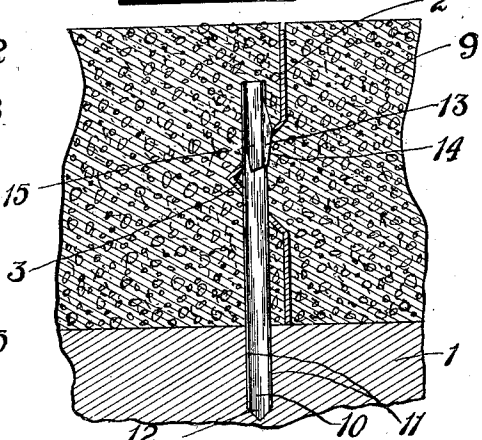


Fig. 2

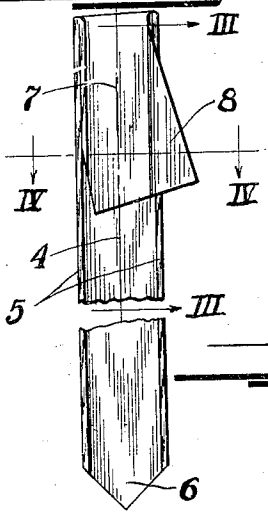


Fig. 6

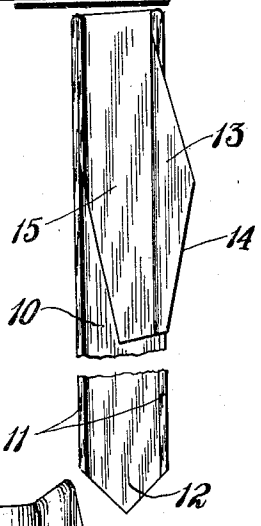


Fig. 3

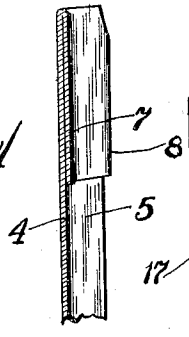


Fig. 4

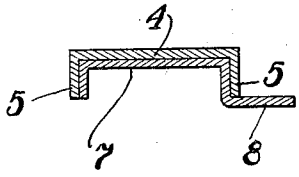
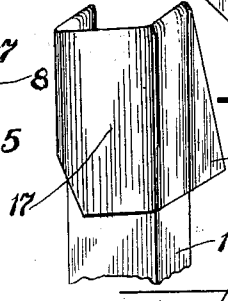


Fig. 7



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By Charles G. Siffley Atty

Patented Apr. 8, 1930 1,753,316

UNITED STATES PATENT OFFICE

ROBERT R. ROBERTSON, OF CHICAGO HEIGHTS, ILLINOIS

CONTRACTION-JOINT STAKE

Application filed May 18, 1929. Serial No. 364,166.

This invention relates to concrete road construction work and more particularly to an improved contraction joint stake or pin adapted to be used with a contraction joint center strip to hold the same in proper vertical position to securely hold the center strip properly seated on the sub-grade and having a head so formed to provide locking or retaining means whereby the center strip is prevented from floating or moving upwardly away from the sub-grade after concrete has been poured to complete the road.

It is an object of this invention to provide an improved stake or pin of channel cross section having one end thereof tapered and the other end bent over upon itself with the bent over section offset with respect to the body of the stake to afford not only a reinforced head for the stake but suitable flange means adapted to coact with a contraction joint center strip to prevent the same from moving out of contact with a road sub-grade after the concrete has been poured and begins to set.

It is also an object of this invention to provide an improved channel stake for use in connection with a contraction joint center strip, said stake having one end thereof bent over upon itself and offset to provide a tapered wing or projection at one side of the stake to obviate any possibility of a contraction center strip from moving out of contact with the road sub-grade after the center strip has been staked in position.

It is a further object of this invention to provide an improved contraction joint center strip retaining stake having one end thereof bent over upon itself and offset to one side of the stake to afford a wing member adapted to engage against the apertured channel portion of the center strip to hold the same locked against an upward movement away from the road sub-grade after the pouring of concrete around the contraction joint center strip.

It is an important object of this invention to provide an improved concrete road center strip retaining stake of substantially straight channel construction having an entrance tip or point at one end thereof and a reinforced head at the other end thereof formed with a projecting wing adapted to serve as a means for holding a contraction center strip locked in position properly seated on a road sub-grade during the pouring of concrete and the final setting of the same.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

This invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a fragmentary vertical sectional view through a concrete road and sub-grade illustrating a sectional view of a contraction center strip held in position by means of an improved stake embodying the principles of this invention.

Figure 2 is an enlarged fragmentary elevational view of the contraction joint stake.

Figure 3 is a fragmentary longitudinal sectional view of the stake taken on line III—III of Figure 2.

Figure 4 is a transverse detail section of the stake taken on line IV—IV of Figure 2.

Figure 5 is a fragmentary sectional view through a concrete road illustrating a contraction center strip secured in position by means of a modified form of stake.

Figure 6 is a fragmentary elevational view of the modified form of contraction joint stake.

Figure 7 is a fragmentary perspective view of the upper end of a modified form of stake with the end bent outwardly.

As shown on the drawings:

The reference numeral 1 indicates a concrete road sub-grade having a contraction joint center strip 2 seated thereon to afford a center strip placed longitudinally down the center of the road. The middle portion of the contraction center strip 2 is formed with a V-channel 3 having openings therein for the reception of a contraction joint stake or pin.

The contraction center strip is adapted to be secured in position upon the sub-grade by means of an improved stake or pin embodying the principles of this invention and com-

prising a body portion or shank of substantially straight channel cross section form embracing a main plate 4 and longitudinal flanges 5 curled or bended substantially at right angles with respect to the plate 4. One end of the stake is cut to afford a tapered tip or point 6. The opposite end of the straight channel body section of the stake has the end thereof bent over and partly offset at an angle and is pressed into the channel groove of the stake to form an inner reinforcing section 7 one flange of which projects over one of the flanges 5 of the stake to provide a tapered or pointed wing or lip 8. The bent over reinforcing portion 7 of the stake affords a strong head at the upper end of the stake to permit the stake to be driven into the sub-grade 1. The advance of the stake into the sub-grade is limited by the wing or lip 8 which is adapted to seat or rest against the upper surface of the V-channel 3 of the contraction center strip as clearly illustrated in Figure 1.

It will thus be noted that the improved stake which is adapted to be projected through the openings in the channel portion 3 of the contraction center strip is adapted to be driven into the sub-grade until the inclined lower edge of the wing or lip 8 of the reinforced head portion of the stake comes into contact with the upper surface of the channel portion of the center strip. After a center strip has been staked in position by means of the improved contraction joint stake concrete 9 is poured onto the sub-grade on opposite sides of the mounted center strip to a point wherein the upper edge of the center strip is positioned substantially one-half inch below the top surface of the pavement. The V in the center strip affords a dovetailed joint between the center strip and the concrete 9 which securely holds the two slabs on opposite sides of the center strip in position. Under ordinary conditions the forcing of concrete into the V pocket of the center strip acts to dislodge the center strip or sometimes raise the same out of contact with the top surface of the sub-grade thereby producing what might be termed a floating center strip. The improved contraction joint stake of this invention obviates the above difficulty since the projecting wing or lip 8 of the stake acts as a locking means to hold the center strip locked or seated in position upon the sub-grade so that the same cannot move away from the sub-grade or float when concrete is poured upon the sub-grade.

Figures 5 and 6 of the drawings illustrate a modified form of a contraction center strip retaining stake or pin comprising a shank of substantially straight channel construction comprising a back or main plate 10 the longitudinal margins of which are bent over at substantially right angles to form flanges 11. One end of the shank or body portion of the stake is cut to afford a tapered tip 12. The upper end of the shank of the stake is bent over upon itself with the bent over portion slightly deflected at an angle with respect to the shank portion of the stake and pressed into the channel groove of the shank with one side portion of the bent over section projecting outwardly over one of the shank flanges 11 to afford a wing or lip 13 one corner of which is cut away to afford the inclined edge 14 thereby forming the lower portion of the wing 13 into a wedge member adapted to be wedged into one of the openings of the V rib or channel 3 of the contraction center strip as clearly illustrated in Figure 5 to hold said center strip securely mounted in position upon a sub-grade 1 when the tapered end of the stake is driven into the sub-grade. The portion 15 of the shank which is bent over and is pressed into the channel portion of the upper end of the shank of the stake serves as a reinforcing member for the upper end of the stake and affords a double thickness head to permit the stake to be driven into the road sub-grade without any damage to the upper end of the stake. The wedging action of the lower tapered end of the wing 13 of the stake when engaged through the apertures of a contraction center strip as illustrated in Figure 5 serves to hold the center strip properly seated upon the sub-grade to prevent the same from moving away from said sub-grade when concrete is poured upon the sub-grade after the center strips have been located in position.

Figure 7 illustrated a modified form of stake comprising a channel shank or body section 16 the upper end of which is bent over outwardly upon itself to afford a reinforced head 17. The bent over portion is slightly offset or disposed at an angle with respect to the shank 16 and has one corner of one of the flange portions thereof bent over at an angle to form a tapered or pointed wing or lip 18. The lower end of the stake shank 16 is pointed to form a tip. The wing or lip 18 is adapted to serve as a stop to limit the movement of the stake through the openings of a center strip similar to the arrangement illustrated in Figure 1.

It will of course be understood that various details of construction may be varied through a wide range without departing from the principles of this invention, and it is therefore not proposed to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

I claim as my invention:

1. A contraction joint stake comprising a channel cross sectioned body cut to afford a tapered tip at one end and having the opposite end bent over upon itself and offset with a portion of the bent over section pro-

jecting beyond one side of the body portion of the stake to afford a wing member.

2. A contraction joint center strip retaining stake comprising a body portion of substantially straight channel cross section, said body portion tapered at one end to afford a tip, and a reinforcing member integrally formed on the upper end of the body portion of the stake and having one corner thereof projecting beyond one side of the body portion of the stake to form a tapered wing adapted to seat against a portion of a center strip to hold the center strip locked in position on a road sub-grade to obviate floating of the center strip when concrete is poured.

3. A contraction joint center strip retaining stake comprising a channel cross sectioned substantially straight body section having the upper end thereof bent over and pressed into seating contact with the upper end of the body section with one portion of the bent over section protruding beyond one side of the body portion of the stake to afford a stop wing.

4. A contraction joint center strip retaining stake comprising a body portion having a tapered tip formed on one end thereof and having the opposite end bent over and tightly pressed upon itself at an angle with respect to the body section to form a reinforcing head for the stake and a stop member for limiting the distance of travel of the stake into a road sub-grade.

5. A contraction joint stake comprising a substantially straight grooved body portion, a pointed tip integrally formed on one end thereof, and a reinforcing means formed on the other end of the body portion with a portion of the reinforcing means projecting beyond one side of the stake to form a stop member.

6. A contraction joint stake comprising a grooved body portion bent over at an angle upon itself at one end with a tapered portion of the bent over section projecting beyond one side of the stake to afford a lock member.

7. A contraction joint stake of the class described comprising a substantially straight grooved body portion having one end thereof bent over upon itself at an angle to afford a reinforcing member and a laterally projecting wing member.

8. A contraction joint stake comprising a channel cross sectioned body having one end thereof bent over upon itself to form a reinforced head for the stake.

9. A contraction joint stake comprising a substantially straight channel cross sectioned body having one end thereof bent over upon itself to form a reinforced head for the stake and also provide a projecting stop member on one side of the reinforced head of said stake.

10. A contraction joint stake comprising a channel body portion having one end thereof bent over upon itself and disposed at an angle to permit one corner portion of the bent over section to project beyond one side of the stake to afford a tapered wing member for coaction with a contraction center strip to hold the same locked in a seated position upon a road sub-grade.

11. A contraction joint stake comprising a grooved body portion having one end thereof bent over upon itself at an angle with one portion of the bent over section projecting beyond one side of the stake and tapered to afford a wedge stop member.

12. A contraction joint stake comprising a channel cross sectioned body portion having one end thereof bent over upon itself to form a reinforced head for the stake, and a wedge member projecting from one side of the reinforced head section of said stake.

13. A contraction joint stake comprising a grooved body portion, and a tapered stop member integral with the body portion and and projecting from one side near one end thereof.

14. A contraction joint stake of the class described comprising a channel body portion having a tapered wing member projecting from one side near one end thereof and formed by bending over the material forming one end of said stake.

15. A contraction joint stake comprising a strip having the longitudinal margins bent over to afford flanges, and a stop wing projecting over one of said flanges and beyond one side of said stake, said stop wing formed by bending over a portion of said flange upon itself and then again bending the bent over portion of the flange to form the projecting stop wing.

16. A contraction joint stake comprising a flanged body portion having a wedge member formed on one side near one end thereof.

17. A contraction joint stake comprising a body portion having a wedge flange projecting from the side thereof.

In testimony whereof I have hereunto subscribed my name at Chicago, Cook County, Illinois.

ROBERT R. ROBERTSON.