

T. H. KANE.
 ARMOR PLATE SETTING DEVICE.
 APPLICATION FILED JAN. 7, 1915.

Patented Feb. 1, 1916.
 2 SHEETS—SHEET 1.

1,169,834.

FIG. 1

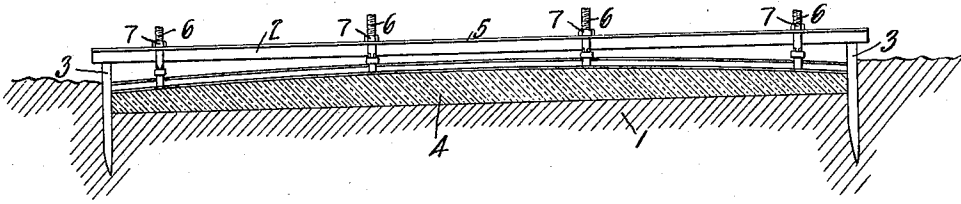


FIG. 2

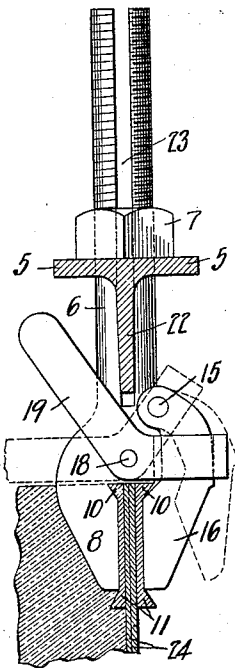


FIG. 3

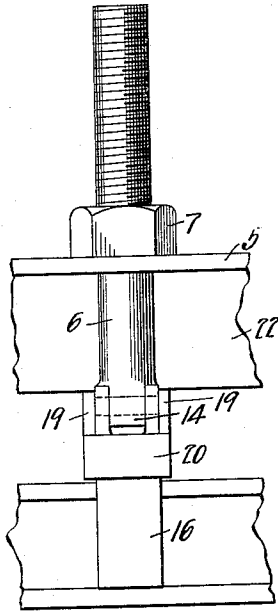


FIG. 4

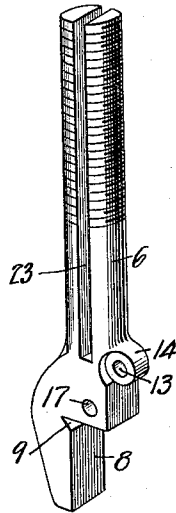


FIG. 5

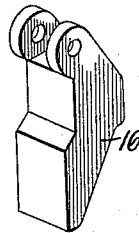
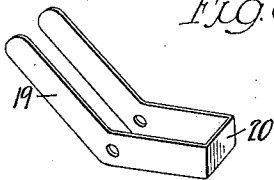


FIG. 6



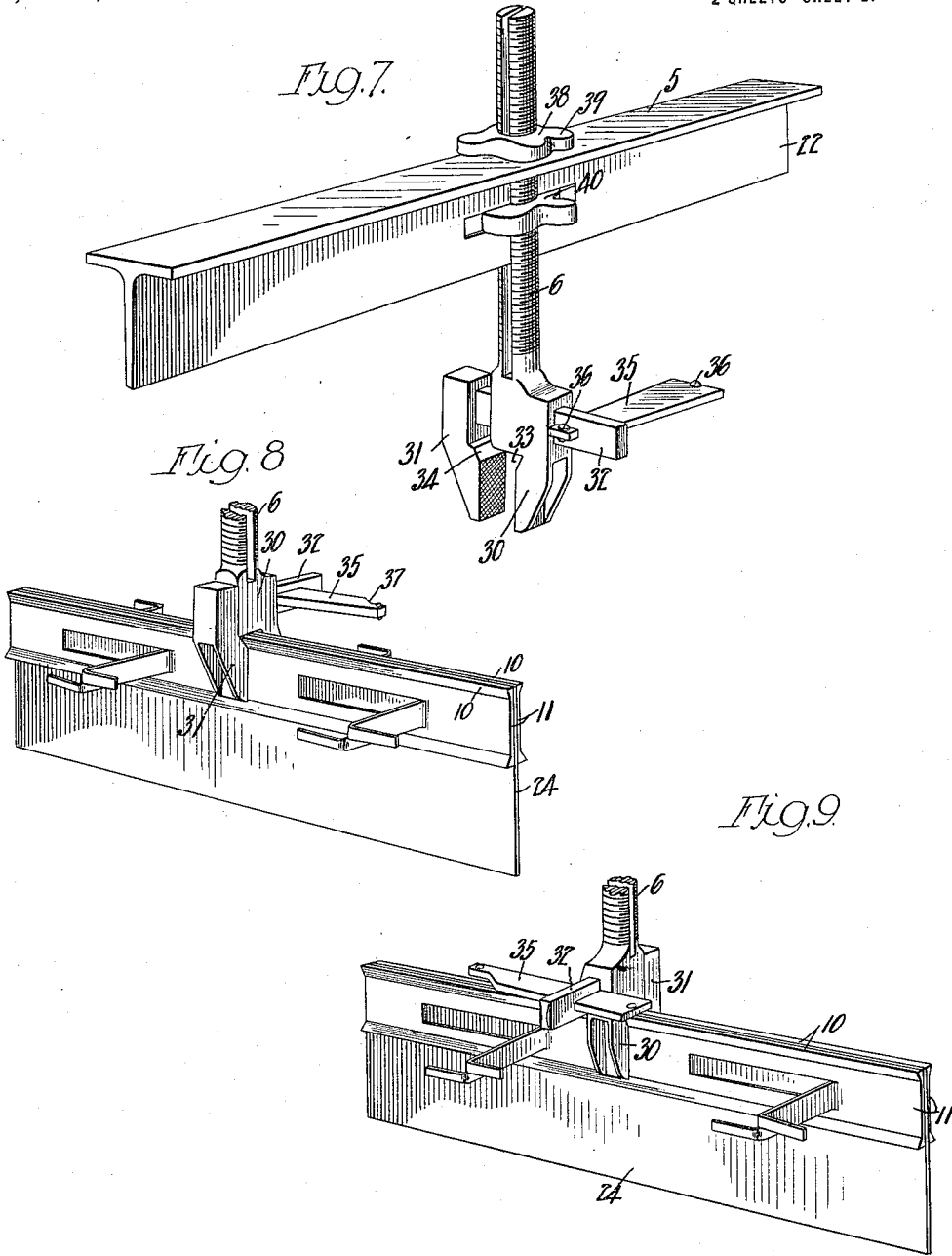
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UNITED STATES PATENT OFFICE.

THOMAS HENRY KANE, OF YOUNGSTOWN, OHIO, ASSIGNOR TO TRUSSED CONCRETE STEEL COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

ARMOR-PLATE-SETTING DEVICE.

1,169,834.

Specification of Letters Patent.

Patented Feb. 1, 1916.

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To all whom it may concern:

Be it known that I, THOMAS H. KANE, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented a new and useful Armor-Plate-Setting Device, of which the following is a specification.

This invention relates to a device for setting armor plates for the expansion joints between the sections of a concrete roadway; and its object is to provide a device of this nature whereby the armor plates may be accurately and conveniently set with their upper edges in the crown of the roadway. This object is accomplished by a beam adapted to be supported a sufficient distance above the finished level of the roadway to permit the workmen to finish the surface of the roadway beneath this beam, together with clamps mounted on this beam for holding the arm plates at the exact height desired, and means for vertically adjusting the clamps.

This invention consists in the novel details of construction shown in the accompanying drawings, described in the following specification and particularly pointed out in the claims.

In the drawings Figure 1 is a cross section of a road showing one embodiment of my armor-plate supporting device in position. Fig. 2 is a cross section of the main supporting beam on a larger scale, showing one of the clamping devices in engagement with a pair of armor-plates. Fig. 3 is an elevation of the supporting device at right angles to Fig. 2. Fig. 4 is a perspective view of the main portion of this supporting device. Fig. 5 is a perspective view of the pivoted jaw portion of this supporting device. Fig. 6 is a perspective view of the locking member for the pivoted jaw. Fig. 7 is a perspective view of a preferred embodiment of my invention. Fig. 8 is a perspective view (taken from the side opposite to that shown in Fig. 7) showing the armor-plates and spacing strips in position. Fig. 9 is a view similar to Fig. 8 but taken from the opposite side.

Similar reference characters refer to like parts throughout the several views.

Referring especially to Figs. 1 to 6, inclusive, the armor-plate supporting device is positioned above the road-bed 1 by supporting the main T beam 2 on stakes 3 or other rigid members, at such a height that trowels or other tools can freely pass below this beam to finish the surface of the concrete constituting the roadway 4. At intervals along the beam, its flanges 5 are perforated to permit the halves of the shank 6 to pass through. A nut 7 on each shank determines the distance of the jaws below the beam 1. At the lower end of the shank is a jaw 8 having a groove 9 to receive the flange 10 at the upper edge of the armor-plate 11. A hole 13 through the ear 14 receives a pin 15 which supports the pivoted jaw 16. A second hole 17 receives a pin 18 on which the locking member is supported, which consists of the side arms 19 and the cross bar 20. The armor-plates are bent, if necessary, to the exact curve to be given the surface of the roadway. The shanks 6 are inserted in the holes in the flanges 5 of the beam, the lower flange or portion 22 of the beam extending through the slots 23 in the shanks and preventing turning of the supporting devices which are positioned by means of the nuts 7. The armor-plates 11 are then paired with proper spacing strips 24, preferably of felt or tar-paper, between them, and then placed between the jaws 8 and 16. The locking members are then swung to the position shown in solid lines in Fig. 2, resulting in the cross bars 20 forcing the pivoted jaws 16 against the armor-plates and locking them in position. The beam 2 and the armor-plates are then placed on the supports 3 and concrete is filled in on both sides of the arm-plates. After the concrete has set sufficiently to support the plates, which occurs in a very short time, the clamps are swung to the position shown in dotted lines in Fig. 2, which permits the beam and clamps to be removed. If desired, the roadway may be finished before or after the supporting device is removed, the distance the beam 2 is above the roadway permitting tools to pass beneath it.

The construction thus far specifically de-

scribed comprises a clamping member having a pivoted jaw; the same objects may, however, be more satisfactorily attained by using a sliding jaw clamp. As indicated in
 5 Figs. 7, 8 and 9, the latter may consist of a fixed jaw 30 and a movable jaw 31, said movable jaw being preferably provided with a shank 32 rigid therewith and slidable
 10 transversely through an opening in the fixed jaw. It will be understood that the fixed jaw may be notched at 33 and the movable jaw at 34 to receive the flanges 10 of the armor-plate 11 as before. The shank 32 may
 15 be slotted to receive the cross-sliding wedge 35 which, in one position, allows the armor-plates 11 and spacing strip 24 to be inserted, and, in another position, clamps them
 20 tightly together. Projections 36 may be formed on the wedge to prevent it from being lost, and its smaller end may be inclined abruptly at 37 to allow the clamp to be
 25 fully opened quickly and to save material. The adjustment of the shank 6 in respect to the supporting bar 5 may be secured as before by a nut 38, that is shown provided with
 30 ears 39 that may be struck by a hammer or other tool; and the bar 5 in this case is slotted below the upper flange to receive a lock-nut 40, similar to nut 38, whereby the
 35 threaded shank 6 may be readily secured in any position of adjustment. It will be clear that the same feature may be applied to the construction shown in Figs. 1 to 6, inclusive.

35 In practice, the device shown in Figs. 7, 8 and 9 has proven more satisfactory than that first described, as concrete is less apt to get into the parts. The manner of using
 40 the device is, of course, substantially the same as previously pointed out.

Many changes may be made in the proportions and details of this supporting device without departing from the spirit of my invention.

45 I claim:—

1. Apparatus for constructing armor pavement joints comprising a supporting member arranged crosswise of the road-bed, clamping members depending from the
 50 supporting member at intervals and adapted to suspend and clamp a pair of joint armor-plates together, and means for adjusting some of the clamping members vertically in respect to the supporting bar, whereby they may be made to conform to the contour of the roadway.

2. Apparatus for constructing armor pavement joints comprising a supporting member arranged crosswise of the road-bed, clamping members depending from the
 60 supporting member at intervals and adapted to suspend and clamp a pair of joint armor-plates together, and means for separately adjusting some of the clamping mem-

bers vertically in respect to the supporting member, whereby they may be made to conform to the crown of the roadway.

3. Apparatus for constructing armor pavement joints comprising a rigid straight beam arranged crosswise of the road-bed, clamping members depending from the
 70 beam at intervals and adapted to suspend and clamp a pair of joint armor-plates together, and means for separately adjusting some of the clamping members vertically in
 75 respect to the supporting beam, whereby they may be made to conform to the crown of the roadway.

4. Apparatus for constructing armor pavement joints comprising a supporting member arranged crosswise of the road-bed, clamping members depending from the supporting member at intervals and adapted to
 80 suspend and clamp a pair of joint armor-plates together, and screw-threaded means for separately adjusting some of the clamping members vertically in respect to the supporting member, whereby they may be made
 85 to conform to the curvature of the roadway.

5. Apparatus for constructing armor pavement joints comprising a supporting member arranged crosswise of the road-bed, clamping members depending from the supporting member at intervals and adapted to
 90 suspend and clamp a pair of joint armor-plates together, screw-threaded means for separately adjusting some of the clamping members vertically in respect to the supporting member, whereby they may be made
 95 to conform to the curvature of the roadway, and means for locking the clamping members in adjusted position.

6. Apparatus for constructing armor pavement joints comprising a supporting member arranged cross-wise of the road bed, said member including a portion arranged in a vertical plane, a plurality of split shanks embracing said portion, the upper ends of the shanks being threaded and the lower ends having rigid therewith clamp jaws, other clamp jaws movable toward and from the first-mentioned jaws, nuts carried by the supporting member for adjusting the shanks and jaws vertically in respect to the member, whereby the jaws may be made to
 105 conform to the crown of the roadway, and means for causing the movable jaws to approach the fixed jaws to thereby clamp the joint armor-plate rigidly together.

7. Apparatus for constructing armor pavement joints comprising a supporting member arranged cross-wise of the road bed, said member including a flange arranged in a vertical plane, a plurality of split shanks embracing said flange, the upper ends of the shanks being threaded and the lower ends having rigid therewith clamp jaws, other clamp jaws movable toward and
 120
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from the first-mentioned jaws, nuts carried by the supporting member for adjusting the shanks and jaws vertically in respect to the member, whereby the jaws may be made to conform to the crown of the roadway, other nuts for locking the shanks in adjusted position, and means for causing the movable jaws to approach the fixed jaws to thereby clamp the joint armor-plates rigidly together.

8. Apparatus for constructing armor pavement joints comprising a supporting member arranged cross-wise of the road bed, said member including a flange arranged in a vertical plane, a plurality of split shanks embracing said flange, the upper ends of the shanks being threaded and the lower ends having rigid therewith clamp jaws, other clamp jaws slidable toward and from the first-mentioned jaws, nuts carried by the supporting member for adjusting the shanks and jaws vertically in respect to the member, whereby the jaws may be made to conform to the crown of the roadway, and means for causing the slidable jaws to approach the fixed jaws to thereby clamp the joint armor-plates rigidly together.

9. Apparatus for constructing armor pavement joints comprising a supporting member arranged cross-wise of the road bed, said member including a flange arranged in a vertical plane, a plurality of split shanks embracing said flange, the upper ends of the shanks being threaded and the lower ends having rigid therewith clamp jaws, other clamp jaws slidable toward and from the first-mentioned jaws, nuts carried by the supporting member for adjusting the shanks and jaws vertically in respect to the member, whereby the jaws may be made to conform to the crown of the roadway, and a series of wedges slidable in a direction transverse to the slidable jaws and cooperating with the fixed jaws for causing the slidable jaws to approach the corresponding fixed jaws.

10. Apparatus for constructing armor pavement joints comprising a supporting member arranged cross-wise of the road bed, a series of clamps carried by the supporting members, means for independently adjusting the several clamps vertically in respect to the supporting member whereby they may be made to conform to the crown of the roadway, each of said clamps including a fixed jaw, and a movable jaw slidable toward and from the fixed jaw, and a wedge slidable across the line of movement of the movable jaw for causing the latter to approach the fixed jaw, whereby a pair of joint armor-plates may be rigidly clamped together.

11. Apparatus for constructing armor

pavement joints comprising a supporting member arranged cross-wise of the road bed, a series of clamps carried by the supporting members, means for independently adjusting the several clamps vertically in respect to the supporting member whereby they may be made to conform to the crown of the roadway, each of said clamps including a perforated fixed jaw, a second jaw having a guide portion slidable through the perforation in the fixed jaw, and a wedge slidable cross-wise of the guide portion for causing the slidable jaw to approach the fixed jaw, whereby a pair of joint armor-plates may be rigidly clamped together.

12. Apparatus for constructing armor pavement joints comprising a supporting member arranged crosswise of the road-bed, clamping members depending from the supporting member at intervals and adapted to suspend and clamp a pair of joint armor-plates together, means for separately adjusting some of the clamping members vertically in respect to the supporting member, whereby they may be made to conform to the crown of the roadway, each of the clamping members including a clamp jaw, a second clamp jaw supported by the first named jaw and movable toward it, and wedge means for causing the second clamp jaw to approach the first jaw.

13. Apparatus for constructing armor pavement joints comprising a supporting member arranged crosswise of the road-bed, clamping members depending from the supporting member at intervals and adapted to suspend and clamp a pair of joint armor-plates together, means for separately adjusting some of the clamping members vertically in respect to the supporting member, whereby they may be made to conform to the crown of the roadway, each of the clamping members including a shank, a clamp jaw fixed to the shank, a second clamp jaw supported by and slidable toward and from the first named jaw, and means for forcing the second jaw toward the first named jaw.

14. Apparatus for constructing armor pavement joints comprising a supporting member arranged crosswise of the road-bed, clamping members depending from the supporting member at intervals and adapted to suspend and clamp a pair of joint armor-plates together, means for separately adjusting some of the clamping members vertically in respect to the supporting member, whereby they may be made to conform to the crown of the roadway, each of the clamping members including a shank, a clamp jaw fixed to the shank, a second clamp jaw supported by and slidable toward and from the first named jaw, and means for forcing the second jaw toward

the first named jaw, said last named means including a wedge having a tapered body portion, and a tapered end portion, the taper of the end portion being considerably more abrupt than that of the body portion, whereby the second jaw may first be allowed to move gradually and afterward more rapidly away from the fixed jaw.

In testimony whereof I sign this specification in the presence of two subscribing witnesses. 10

THOMAS HENRY KANE.

Witnesses:

W. MERLE SMITH,
GEO. F. SPARKS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."