No. 885,539. PATENTED APR. 21, 1908.

R. A. SMITH.

CEMENT TIE MOLD.

APPLICATION FILED JUNE 27, 1907.

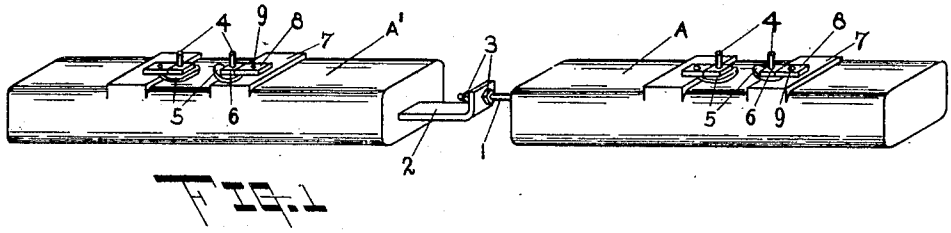


FIG. 1.

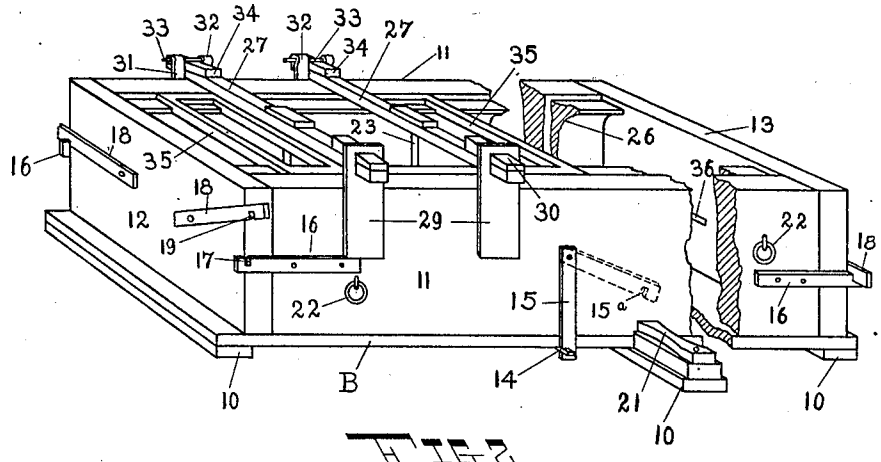


FIG. 2.

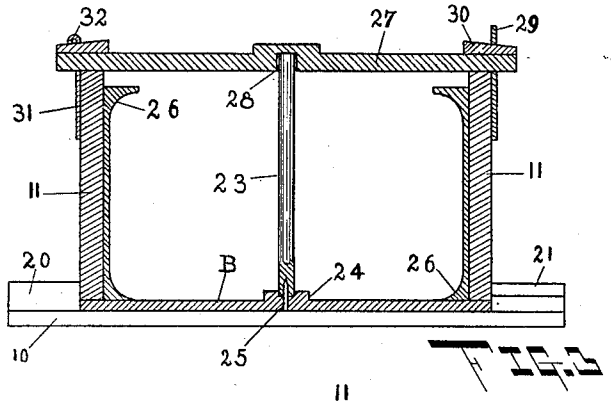


FIG. 3.

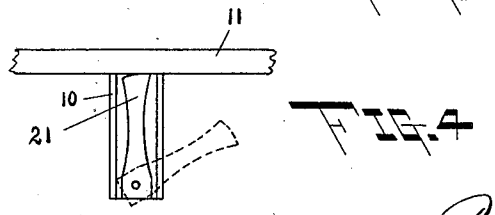


FIG. 4.

WITNESSES:

J. Ray Abbey

Ralph S. Warfield.

INVENTOR

Richard A. Smith

BY

Geo. B. Willcox

ATTORNEY

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

RICHARD A. SMITH, OF BAY CITY, MICHIGAN.

CEMENT-TIE MOLD.

No. 885,539. Specification of Letters Patent. Patented April 21, 1908.

Application filed June 27, 1907. Serial No. 381,186.

To all whom it may concern:

Be it known that I, RICHARD A. SMITH, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Cement-Tie Molds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to molds for cement ties.

One object is the provision of a simple, neat and inexpensive mold which can be easily set up and taken down.

Another object is the provision of a mold having a locking means for retaining the parts in assembled position during the molding operation.

Still another object is the provision of a pattern used in connection with the mold for forming an integral raised portion thereon.

A still further object is the provision of a mold for manufacturing a tie comprising two members, the members being molded separately and adjustably connected to each other to permit the tie to accommodate itself to any gage of track as well as permitting the track to be straightened from time to time as required.

To these and other ends, my invention consists in certain novel features and combinations such as will be more fully disclosed hereinafter and particularly set forth in the claims.

In the accompanying drawings, Figure 1 is a perspective view of the tie; Fig. 2 is a perspective view of the mold; Fig. 3 is a vertical section through the mold; and Fig. 4 is a detail view of an abutment.

(A) (A') indicate the male and female tie members, each being preferably of rectangular shape like the usual wooden tie. The inner end of the male tie member (A) is provided with a bolt (1) projecting from one end thereof, the end of the bolt passing through the upturned end of a strap (2) projecting from the inner end of the female member, nuts (3) (3) serving to adjust the tie members relative to each other. These tie members are practically indestructible and will last for years and the adjustable connection adapts the tie for use under any conditions. The tie members are of any suitable length as is the adjustable connection.

Near the outer ends of each tie member are located a pair of bolts (4) (4) spaced apart from each other to receive the rail therebetween, beveled washers (5) (5) being carried by the bolts and engaging the rail flanges, nuts (6) (6) serving to hold the washers and rails in place.

Adjacent each bolt I provide a raised portion (7) which may have a block of lead (not shown) sunk thereinto and upon these raised portions I mount nut locks (8) each consisting of a rectangular metal plate, one edge of which abuts against one face of the nut (6) to prevent rotation of the nut. The plates are held in place by screws (9) passing into the block of lead sunk in the raised portion. Thus I provide for the removal of the nut lock to permit the release of the nuts when desired.

The mold comprises a bottom plate or pallet board (B) which may be supported in any suitable manner and is preferably strengthened by the cross pieces (10) which also prevent warping.

Mounted on this pallet board are the side pieces (11) (11) and the end pieces (12) and (13), the side pieces being received between the end pieces and releasably locked in position both to the pallet board and to the end pieces.

As one means for locking the side pieces to the pallet board, I provide the latter with a rigid tongue (14) protruding from opposite sides thereof, and latches (15) pivoted to the respective side pieces, the latches provided with recesses (15^a) adapted to receive the tongue when the latches are in the full line position shown in Fig. 2, thus securing the side pieces to the pallet board.

As a means for removably securing the end pieces to the side pieces, I provide the latter with rigid bars (16) projecting beyond the ends of the side pieces and having notches (17) formed therein to receive the hooks (18) pivotally secured to the end pieces and having notches (19) adapted to mesh with the notches (17) of the bars (16) to hold the end pieces in position. The rigid bars also form guides to enable the end pieces to be properly positioned relative to the side pieces. The intermeshing notches prevent end-wise movement of the end pieces and side pieces, holding the latter snugly in position on the

pallet board while the material is being tamped into the mold.

In order to provide guides or abutments for the side pieces to prevent them from moving outward laterally under the pressure caused by tamping the material, I preferably extend one of the cross pieces (10) beyond the sides of the pallet board and to one of such ends I rigidly secure a block (20), against which one of the side pieces bears and is prevented from outward movement, while on the opposite end of the cross piece, I pivotally mount a button (21), the free end of which is curved in an arc eccentric to that described by the button in its movement about the pivot. The free end of the button engages and releasably retains the opposite side piece against outward movement. Thus the side and end pieces are releasably held immovable on the pallet board.

Any suitable means, as the rings (22), may be provided for moving the side pieces away from the molded article after the fastening means is released.

It is, of course, impossible to bore holes through a cement tie for receiving the rail holding bolts (4) (4), for which reason I provide the cylindrical pins (23) (23), the lower ends of which are set inside annular rosettes (24) carried by the upper face of the pallet board (B). These rosettes operate to form countersinks in the tie to receive the heads of the rail-securing bolts (4) (4) and also assist in retaining the pins in position against lateral movement. These pins may have apertures formed therein to receive the ends of studs or nails (25) projecting upward within the rosettes, or the nails may be omitted, the object being to retain the lower ends of the pins in position during the tamping of the material in the mold. These pins are made of dry wood and before they are to be used they are immersed in water to enable them to absorb the water and swell, after which they are placed in position in the mold and the material tamped around them. Then, as the material sets and dries out so do the pins, which shrink as they dry and are thus easily removed from the completed article, leaving the bolt-holes clean and round. Of course, the pins can be driven out if desired.

The longitudinal corners of the mold are preferably though not necessarily rounded, as shown at (26).

In order to retain the upper ends of the pins in position so that the pins remain upright and perpendicular to the pallet board (B), I provide the cross-bars (27) which extend across the open top of the mold and rest upon the upper edges of the side pieces. These cross-bars are provided with apertures (28) intermediate their ends to receive the upper ends of the pins (23).

One end of each cross-bar is received in an apertured ear (29) projecting upward from one of the side pieces (11), a wedge (30) being inserted in the aperture in the ear to retain the cross-bar tightly in position. The remaining ends of the cross-bars are received between lugs (31) carried by the opposite side piece and having alined open eyes (32) at their upper ends, such eyes adapted to removably receive the rods (33), and wedges (34) may be inserted between the rods and the ends of the cross-bars if necessary to retain the latter in position. It is preferable to provide these lugs spaced apart from each other instead of the ears as the cross-bar after receiving the upper end of the pin (23) can not very well be moved endwise, as would be necessary if the apertured ears alone were used.

In order to form the integral raised portions on the upper face of the tie, I provide the removable patterns or frames (35) which consist of shallow rectangular frames open at top and bottom. These frames are placed in the positions shown in Fig. 2 after the material is placed therein and before it has set and are then filled with neat cement and sand which will easily and quickly join itself to and form an integral part of the tie member, a block of lead being embedded in the raised portion adjacent the pin to form a holding means into which the screws holding the nut locks may take.

The operation of my device is very simple and requires but little labor. The mold is first set up and the material tamped thereinto to half fill the mold, say, then either a bolt (1) or a strap (2) is inserted through an aperture (36) in the end piece (13) after which the remainder of the material is tamped in and the pattern frames placed in position, whereupon they are filled with a mixture of neat cement, sand and water, preferably, the body of the tie being composed of gravel or crushed stone, cement and water. A holding block (not shown) is then forced downward into the material in each of the pattern frames and the tie allowed to take its initial set in the mold, after which the button (21) is released as well as the latches (15) and the hooks (18) to permit the side and end pieces to be removed and the article conveyed on its pallet board (B) to any suitable seasoning shed.

Many changes might be made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention.

Having thus fully disclosed my invention, what I claim as new is—

1. A mold comprising a pallet board, side and end pieces mounted on the pallet board, a tongue projecting from the pallet board, latches pivotally mounted on the side pieces and adapted to releasably engage the tongue, notched bars carried by the side pieces and projecting beyond the ends thereof, notched

hooks pivoted to the end pieces and adapted to intermesh their notches with the notches in the bars, a rigid abutment against which the outer face of one side piece contacts, a pivotally-supported button, the free end of which engages the outer face of the opposite side piece, annular rosettes carried by the pallet board, pins, the lower ends of which are receivable in the rosettes, apertured cross-bars extending between the side pieces, the upper ends of the pins receivable in the apertures in the cross-bars, apertured ears in which one end of each cross-bar is received, wedges receivable in the apertures in the ears, spaced lugs between which the remaining ends of the respective cross-bars are received, hollow alined eyes carried by the lugs, rods receivable in the eyes and extending across the ends of the cross-bars, one of the end pieces having an aperture therethrough, and an adjustable connecting part passing through the aperture.

2. A mold comprising a pallet board, side and end pieces, annular rosettes carried by the pallet board, pins, the lower ends of which are received in the rosettes, cross-bars extending across the mold, suitably supported apertured ears in which one end of each cross-bar is received, spaced lugs between which the remaining ends of the cross-bars are received, hollow alined eyes carried by the lugs and rods received in the eyes and extending above the ends of the cross-bars, the cross-bars provided with recesses to receive the upper ends of the pins.

3. A mold comprising a pallet board, side and end pieces, annular rosettes carried by the pallet board, pins, the lower ends of which are received in the rosettes, cross-bars extending across the mold, suitably-supported apertured ears in which one end of each cross-bar is received, wedging members received in the apertures in the ears, spaced lugs between which the remaining ends of the cross-bars are received, hollow alined eyes carried by the lugs, and rods received in the eyes and extending above the ends of the cross-bars, the cross-bars provided with recesses to receive the upper ends of the pins.

4. A mold comprising a pallet board, side and end pieces, annular rosettes carried by the pallet board and adapted to form countersinks in the article molded, studs extending upward in the space inclosed by the rosettes, pins, the lower ends of which are received on the studs and within the rosettes, and means for releasably engaging the upper ends of the pins, to retain them in vertical position during the molding process.

5. A mold comprising side and end pieces, a pallet board, and a pattern frame removably placed in the mold after the latter has received its material, the pattern frame being open at top and bottom and adapted to receive and contain material, a raised portion on the tie, the ends of the frame engaging the side pieces of the mold, the bottom of the frame resting upon the material previously deposited in the mold.

6. A mold comprising a pallet board, side and end pieces, shrinkable pins receivable in the mold and means engaging the upper and lower ends of the pins for retaining them against movement.

In testimony whereof, I affix my signature in presence of two witnesses.

RICHARD A. SMITH.

Witnesses:
PAUL MATTERN,
JOSEPH T. LOVE.