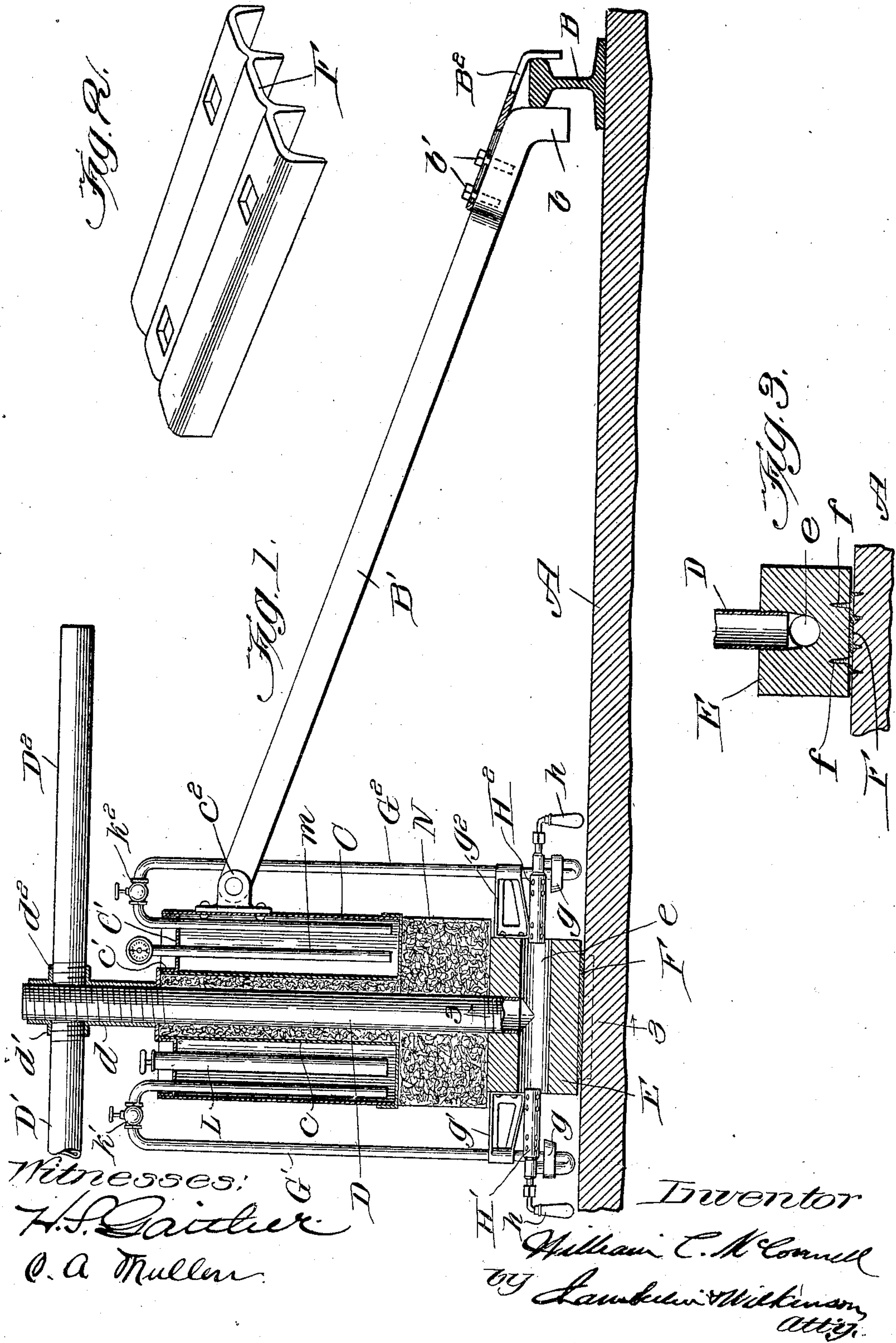


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PATENTED OCT. 2, 1906.

W. C. McCONNELL.  
APPARATUS FOR APPLYING TIE PLATES TO TIES.  
APPLICATION FILED FEB. 23, 1906.





# UNITED STATES PATENT OFFICE.

WILLIAM C. McCONNELL, OF CHICAGO, ILLINOIS.

## APPARATUS FOR APPLYING TIE-PLATES TO TIES.

No. 832,332.

Specification of Letters Patent.

Patented Oct. 2, 1906.

Application filed February 23, 1906. Serial No. 302,509.

*To all whom it may concern:*

Be it known that I, WILLIAM C. McCONNELL, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Apparatus for Applying Tie-Plates to Ties; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates in general to the construction of railroad-tracks, and more particularly to an apparatus for forming seats in the ties for tie-plates.

It is customary to interpose metallic plates between railroad-rails and the supporting-ties in order to prevent the wearing away of the ties by the rails and in order to more firmly secure the rails to the ties, and thereby prevent both longitudinal creeping and lateral spreading of the rails with respect to the ties.

It is desirable that tie-plates should have ribs or projections on their under surfaces to prevent movement of the plates upon the ties. Such projections, however, render it difficult to seat the plates in the desired positions upon the ties, owing to knots and other irregularities in the grain of the wood. It has been found in practice that ties frequently rot beneath the tie-plates, owing to water accumulating and soaking into the grain of the wood around the projections on the under surface of the plates.

The primary object of my invention is to provide an apparatus for forming seats in railroad-ties for the tie-plates by means of which the plates may be located in the exact positions desired and a perfect gage thereby effected.

A further object of my invention is to provide an apparatus for forming seats in ties for tie-plates which will char the portions of the ties over which the plates are secured, thereby preventing the ties rotting beneath the plates.

A still further object of my invention is to provide an apparatus of the character described which will be simple in construction, comparatively inexpensive in operation, and efficient in use.

My invention generally described comprises a heating-block, a die secured beneath

the block and conforming to the under surface of a tie-plate of desired form, means mounted upon the block for heating the same, means for locating the block at the desired position upon a tie according to the gage of the track, and means for carrying the block from one tie to another.

My invention will be more fully described hereinafter with reference to the accompanying drawings, in which I have illustrated the same as embodied in a convenient and practical form, and in which—

Figure 1 is a vertical sectional view; Fig. 2, a perspective view of a die corresponding to a tie-plate; Fig. 3, a detail sectional view on line 3 3, Fig. 1.

Similar reference characters are used to designate similar parts in the several figures of the drawings.

Reference-letter A indicates a wooden tie, and B a rail supported thereon adjacent one end thereof.

E indicates a heating-block formed of suitable size and shape and of a material capable of being heated and of communicating the heat to a die F beneath the same. The die F conforms to the shape of the tie-plate which it is desired to secure to the tie. The die may, in fact, consist in a tie-plate secured beneath the heating-block by suitable means—such, for instance, as screws *f*.

Supported above the heating-block E is a tank C for containing gasoline or other liquid fuel. The tank C may be constructed of sheet metal and is provided with a lower end wall, above which projects a cylinder *c*, concentrically within the tank. The top wall C' closes the upper end of the tank and is provided with a flange *c'*, surrounding and secured to the upper end of the cylinder *c*. Extending concentrically through the cylinder *c* is a hollow post D, which may be in the form of a tube. The lower end of the post D is exteriorly screw-threaded and engages a screw-threaded socket in the heating-block E. The portion of the post projecting above the cylinder *c* is also screw-threaded and is surrounded by a sleeve *d*, the lower end of the latter having a laterally-projecting flange which overlies and engages the upper end of the cylinder *c*. The sleeve *d* is provided with circular interiorly-screw-threaded flanges *d'* *d''*, within which are secured the inner ends of handles D' D'', which may be conveniently made of pipe. Interposed between the upper surfaces of the heating-block and the



lower wall of the tank C is a non-heat-conducting material N—such, for instance, as asbestos. The non-heat-conducting material N also extends upwardly between the post D  
5 and cylinder c.

G' and G<sup>2</sup> indicate conduits through which the liquid fuel is delivered from the tank C. These conduits extend from within the tank adjacent the bottom thereof upwardly  
10 through the top wall C' and thence downwardly, terminating adjacent the opposite ends of the heating-block E. Brackets g' and g<sup>2</sup> are secured to the heating-block and support the conduits G' G<sup>2</sup>.

H' and H<sup>2</sup> indicate gaseous-fuel burners of any desired type, the inner ends of which align with and preferably extend into the passage-way e in the heating-block. The passage-way e communicates with the opening through the post D.  
20

h h indicate valves for regulating the supply of gaseous fuel through the burners H' H<sup>2</sup>. Beneath each burner is located a preheating-cup g, as is customary in such  
25 burners.

L indicates a pump of any desired construction for creating the desired pressure within the tank.

m indicates a gage for indicating the pressure in the tank.  
30

The conduits G' and G<sup>2</sup> are provided with valves k' k<sup>2</sup> for controlling the flow there-through of the liquid fuel.

In order that the heating-block may be  
35 located at the desired position above the tie, an arm B' is pivotally connected at one end to the tank C in any suitable manner, as by means of a bracket c<sup>2</sup>. The end of the arm B' farthest from the tank is provided with a  
40 depending lug b, adapted to engage the inner edge of the head of rail B. A keeper B<sup>2</sup> is adjustably secured to the arm B' by any suitable means—such, for instance, as screws b', extending through a slot in the keeper into  
45 engagement with the arm. The end of the keeper is bent downwardly and engages the outer surface of the head of the rail. The operation and manner of using the apparatus above described are as follows: The de-  
50 sired pressure is created in the tank by means of the pump L and the liquid fuel supplied through the conduits G' G<sup>2</sup> to the burners H' H<sup>2</sup> by opening the valves k' k<sup>2</sup>. A small quantity of the liquid fuel is placed in the  
55 preheating-cups g and ignited to initially vaporize the liquid fuel. The vapor passes from the burners to the passage-way e within the block and is ignited, so as to impart heat to the block, such heat being communi-  
60 cated to the die F. The opening through the center of the post D serves as a flue for the upward passage of the products of combustion. The apparatus may be carried to  
65 a position above the tie by means of the handles D' D<sup>2</sup> and the die located at the desired

distance from the rail B by means of the arm B'. The weight of the apparatus causes the hot die to burn into the wood of the tie, thereby forming a seat to receive the tie-plate. After the seat is formed the apparatus is  
70 moved to another tie, and the tie-plate may then be readily secured in the seat so formed to the tie.

From the foregoing description it will be observed that I have invented an improved  
75 apparatus for forming seats in ties for the tie-plates by means of which the tie-plates may be accurately located in the desired positions upon the ties and by means of which the wood of which the ties are formed is  
80 charred beneath the plates, thereby protecting the same from rotting.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—  
85

1. In an apparatus for forming tie-plate seats in railroad-ties, the combination with a die, of means for heating said die.

2. In an apparatus for forming tie-plate seats in railroad-ties, the combination with a  
90 die, of means for heating said die, and means whereby the portion of the tie where the plate is to be located is subjected to action of said die.

3. In an apparatus for forming tie-plate  
95 seats in railroad-ties, the combination with a die, of means for heating said die, and means for locating said die at the desired point above the tie.

4. In an apparatus for forming tie-plate  
100 seats in railroad-ties, the combination with a die, of means for heating said die, and means for engaging a rail to locate the die at the desired point above the tie.

5. In an apparatus for forming tie-plate  
105 seats in railroad-ties, the combination with a die conforming to the under surface of the tie-plate, of means for heating said die.

6. In an apparatus for forming tie-plate  
110 seats in railroad-ties, the combination with a heating-block, of a die secured beneath said block, and means for imparting heat to said block.

7. In an apparatus for forming tie-plate  
115 seats in railroad-ties, the combination with a heating-block, of a die secured beneath said block, and a gaseous-fuel burner supported upon said block for heating the same.

8. In an apparatus for forming tie-plate  
120 seats in railroad-ties, the combination with a heating-block, of a die secured to said block, a gaseous-fuel burner secured to said block for heating the same, a tank for liquid fuel mounted upon said block, and a conduit leading from said tank to said burner.  
125

9. In an apparatus for forming tie-plate  
130 seats in railroad-ties, the combination with a heating-block, of a die secured to said block, a gaseous-fuel burner secured to said block for heating the same, a tank for liquid fuel



mounted upon said block, a conduit leading from said tank to said burner, and a non-heat-conducting material interposed between said tank and said block.

5 10. In an apparatus for forming tie-plate seats in railroad-ties, the combination with a heating-block having a passage therein, a die secured beneath said block, and a gaseous-fuel burner supported adjacent said block  
10 for directing products of combustion into the passage therein.

11. In an apparatus for forming tie-plate seats in railroad-ties, the combination with a heating-block having a passage therein, a  
15 die secured beneath said block, a gaseous-fuel burner supported adjacent said block for directing products of combustion in the passage therein, and a hollow post secured to said block and communicating with the pas-  
20 sage-way therein.

12. In an apparatus for forming tie-plate seats in railroad-ties, the combination with a heating-block, of a die secured to said block,

a gaseous-fuel burner supported adjacent said block but directing products of combus- 25 tion into a passage-way in the block, a hollow post secured to said block and communicating with the passage therein, and laterally-projecting handles secured to said post.

13. In an apparatus for forming tie-plate 30 seats in railroad-ties, the combination with a heating-block, of a die secured to said block, a tank for liquid fuel mounted upon said block, a gaseous-fuel burner secured to said block for heating the same, a conduit leading 35 from said tank to said burner, an arm pivotally connected to said tank, and means on said arm for engaging a rail and thereby locating said die at the desired point above the tie. 40

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

WILLIAM C. McCONNELL.

Witnesses:

GEO. L. WILKINSON,  
C. A. MULLEN.