No. 832,334. PATENTED OCT. 2, 1906.

W. C. McCONNELL.

PROCESS OF APPLYING TIE PLATES TO TIES.

APPLICATION FILED FEB. 23, 1906.

2 SHEETS—SHEET 1.

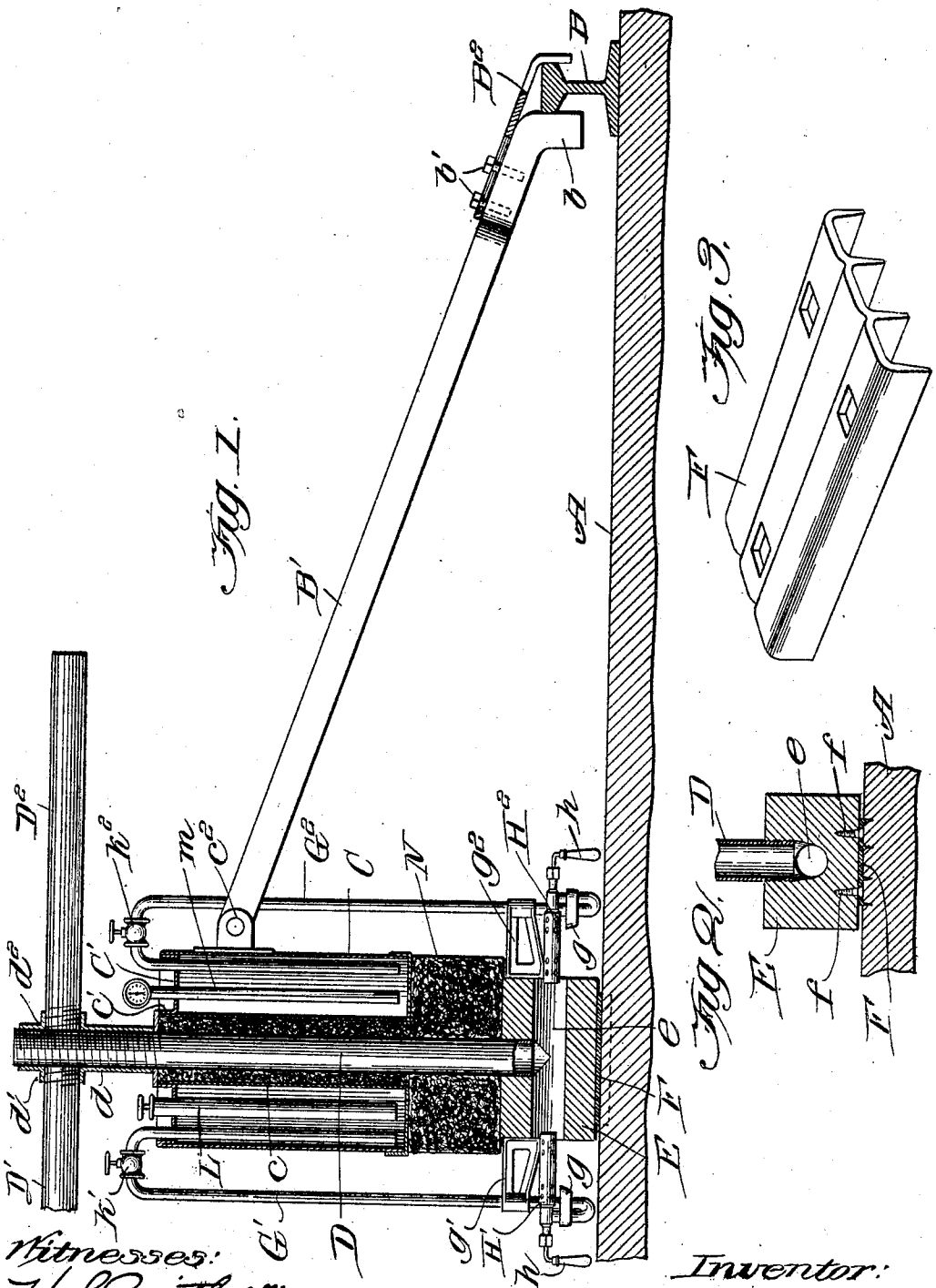


Fig. 1.

Fig. 3.

Fig. 2.

Witnesses:
H. S. Gaither
C. A. Mullen

Inventor:
William C. McConnell
by Hazard & Wilkinson
Attys

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

No. 832,334. PATENTED OCT. 2. 1906.

W. C. McCONNELL.

PROCESS OF APPLYING TIE PLATES TO TIES.

APPLICATION FILED FEB. 23, 1906.

2 SHEETS—SHEET 2.

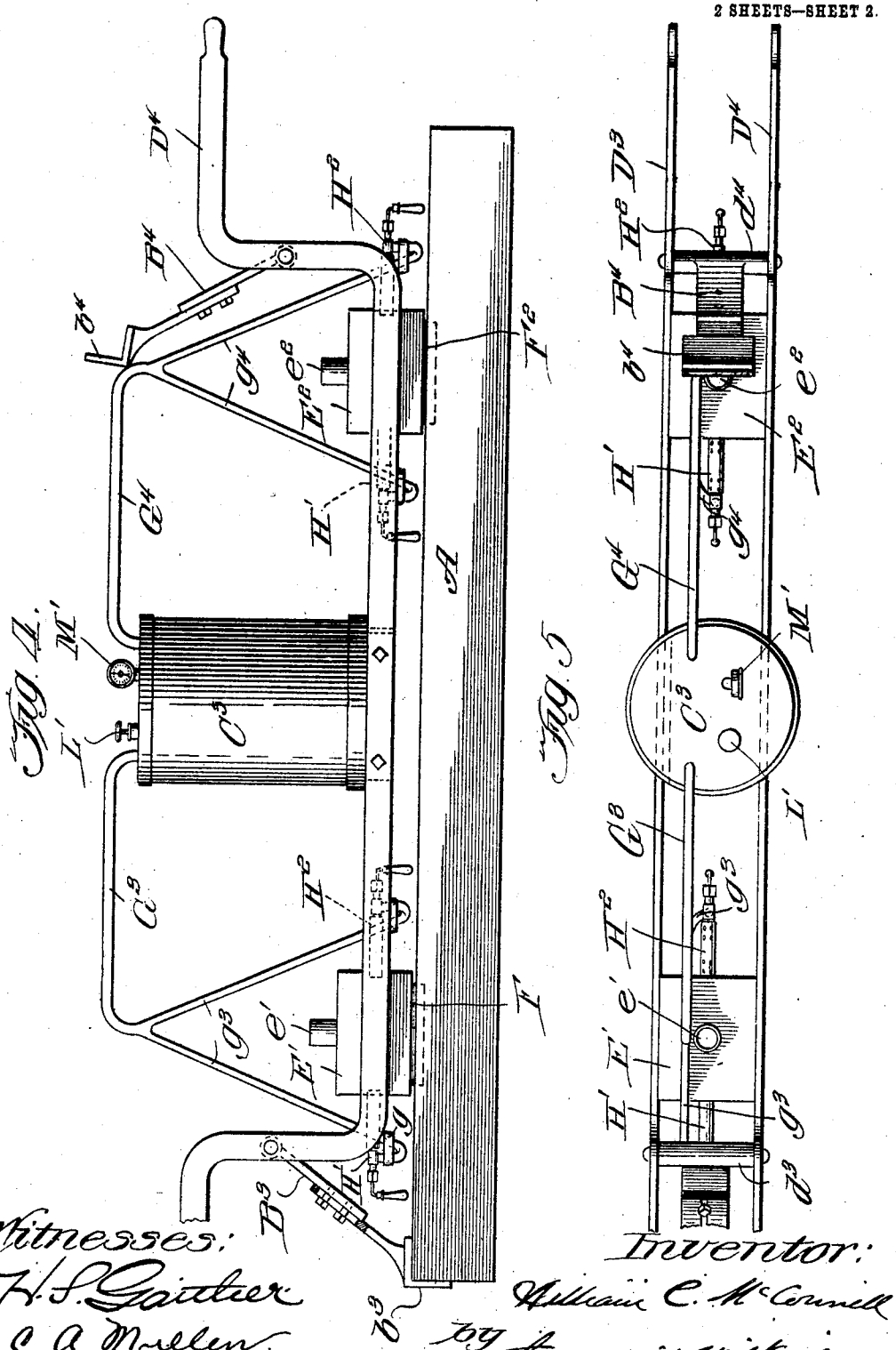


Fig. 4.

Fig. 5.

Witnesses:
H. S. Gaither
C. A. Mullen

Inventor:
William C. McConnell
by Lamborn & Wilkinson
Attys.

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

UNITED STATES PATENT OFFICE.

WILLIAM C. McCONNELL, OF CHICAGO, ILLINOIS.

PROCESS OF APPLYING TIE-PLATES TO TIES.

No. 832,334. Specification of Letters Patent. Patented Oct. 2, 1906.

Application filed February 23, 1906. Serial No. 302,511.

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 Processes of 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 a process of securing tie-plates to ties.

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 a process for seating tie-plates upon ties, by the practice 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 a process of seating tie-plates upon ties which will protect the wood from moisture and prevent the rotting of the ties beneath the plates.

A still further object of my invention is to provide a process of securing tie-plates to ties which will be simple and inexpensive in practice, which will protect the ties from rotting, and which will result in securely connecting the rails to the ties.

My invention, generally described, consists of the process of burning seats for the tie-plates in the ties conforming to the under surfaces of the plates and at the exact locations for the desired gage of track, thereby charring the wood beneath the plates and protecting the ties from rotting.

My invention will be more fully described hereinafter with reference to the accompanying drawings, in which I have illustrated two convenient and practical forms of apparatus for practicing the invention, 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; Fig. 4, a side elevational view of a different apparatus for practicing my invention, and Fig. 5 a plan view of the apparatus shown in Fig. 4.

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

My improved process may be practiced by the use of any suitable apparatus; but in order that it may be fully disclosed I have illustrated herein two machines either one of which may be conveniently used in practicing the process. It will be understood, however, that my invention is not limited to any particular form of apparatus and that the two forms herein shown are disclosed merely for the purpose of rendering the practice of the invention clear to those skilled in the art.

Referring more particularly to Figs. 1, 2, and 3, 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 gasolene 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^2, within which are secured the inner ends of handles D' D^2, which may be conveniently made of pipe.

Interposed between the upper surface 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 and cylinder *c*.

G' and G^2 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 through the top wall C' and thence downwardly, terminating adjacent the opposite ends of the heating-block E. Brackets *g'* and g^2 are secured to the heating-block and support the conduits G' G^2. H' and H^2 indicate gaseous fuel-burners of any desired type, the inner ends of which aline 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.

h h indicate valves for regulating the supply of gaseous fuel through the burners H' H^2.

Beneath each burner is located a preheating-cup *g*, as is customary in such 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.

The conduits G' and G^2 are provided with valves *k' k²* for controlling the flow therethrough of the liquid fuel.

In order that the heating-block may be 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^2. The end of the arm B' farthest from the tank is provided with a depending lug *b*, adapted to engage the inner edge of the head of the rail B. A keeper B^2 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 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 desired pressure is created in the tank by means of the pump L and the liquid fuel supplied through the conduits G' G^2 to the burners H' H^2 by opening the valves *k' k²*. A small quantity of the liquid fuel is placed in the 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 communicated 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 a position above the tie by means of the handles D' D^2 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 moved to another tie, and the tie-plate may then be readily secured in the seat so formed to the tie.

In Figs. 4 and 5 I have illustrated an apparatus for practicing my process in which two seats for tie-plates may be simultaneously formed upon a tie.

C^3 indicates the tank for the liquid fuel, which is mounted upon parallel bars D^3 and D^4. The ends of the bars D^3 and D^4 extend upwardly and thence outwardly to form handles by, means of which the apparatus may be carried from one tie to another.

E' and E^2 indicate heating-blocks, which are supported between the parallel bars D^3 and D^4 and are located a distance apart conforming to the desired gage of the track.

F' F^2 indicate dies secured beneath the heating-blocks.

G^3 and G^4 indicate conduits for supplying the liquid fuel from the tank to the heating-blocks. Each conduit is divided, so as to convey the fuel to the burners at each side of each heating-block. The branches g^3 of the conduit G^3 lead to the burners H' and H^2 on the opposite sides of the heating-block E', while the branches g^4 of the conduit G^4 lead to the burners H' H^2 on the opposite sides of the heating-block E^2. The heating-blocks are constructed the same as the heating-block E above described and are provided with passage-ways, through which the burning gases pass.

e' e² indicate short flues above the heating-blocks, through which the products of combustion are discharged.

In order that the heating-blocks may be located the desired distance from one end of the track A, extensible arms B^3 and B^4 are pivotally supported between the bars D^3 and D^4. The two portions of such arms may be conveniently connected by providing a slot in one part through which screws extend into engagement with the other part. The portions of the arms which are pivoted between the bars are provided with sleeves d^3 and d^4, which are interposed between the bars and through which bolts extend. The adjustable portion of the arm B^3 is provided with an angular bracket b^3, while a similar angular

bracket b^4 is provided on the extensible portion of the arm B^4.

When the tie-plates are to be located a fixed distance from the left end of the tie, the arm B^3 is swung into a position shown in Fig. 4, so that the bracket b^3 engages the end of the tie. When it is desired to locate the tie-plates with reference to the right end of the tie, the arm B^3 is swung upwardly and the arm B^4 swung downwardly, so that the bracket b^4 thereon will engage the end of the tie, thereby locating the heating-blocks at the desired distances from such end of the tie.

It is customary in laying tracks running north and south to have their west ends aline, while in tracks running east and west the north ends of the ties aline. By providing the extensible arms B^3 and B^4 the apparatus may consequently be located upon the ties with the heating-blocks the desired distance from the end of the tie which alines with the other ties.

L′ indicates a pump for creating a pressure in the tank C^3, while M′ designates a gage for indicating the pressure in the tank.

From the foregoing description it will be observed that I have invented an improved process of providing seats for 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 protected from rotting owing to the charring of the wood beneath the plates.

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

1. In the art of securing tie-plates to ties, the process of burning tie-plate seats in the ties.

2. In the art of securing tie-plates to ties, the process of burning tie-plate seats in the ties conforming to the under surface of the tie-plates.

3. In the art of securing tie-plates to ties, the process of heating a die conforming to the under surface of the tie-plate, and subjecting the tie to said heated die thereby burning a seat for the tie-plate in the tie.

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

WILLIAM C. McCONNELL.

Witnesses:

GEO. L. WILKINSON,

C. A. MULLEN.