W. C. MAXWELL.

RAILWAY TRACK TAMPING MACHINE.

APPLICATION FILED AUG. 17, 1909.

939,847. Patented Nov. 9, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

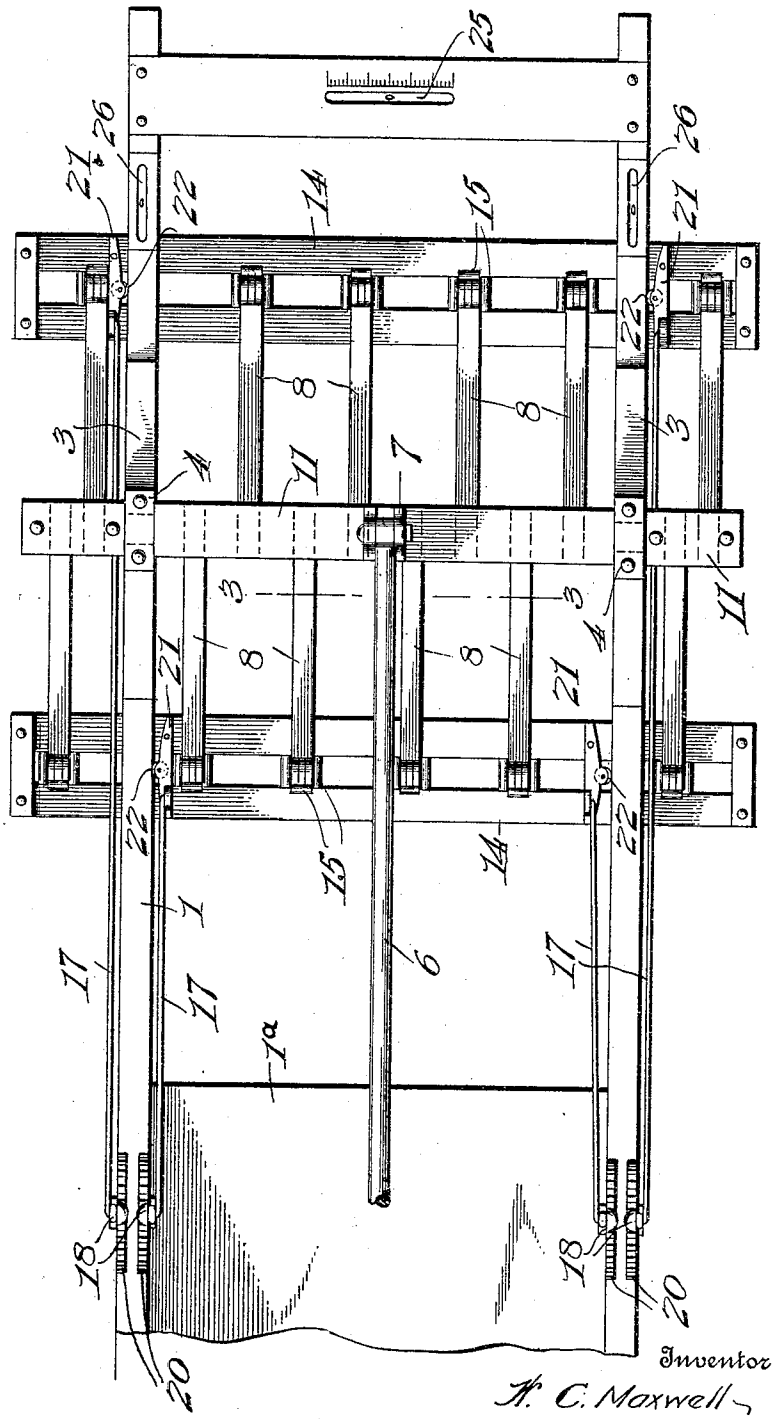
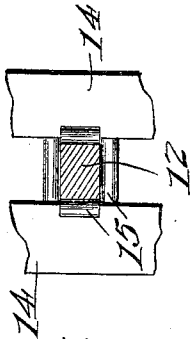


Fig. 5.



Witnesses

T. L. Macdonald

Wm. D. Henry

Inventor

W. C. Maxwell

By H. S. Hill

Attorney

W. C. MAXWELL.

RAILWAY TRACK TAMPING MACHINE.

APPLICATION FILED AUG. 17, 1909.

939,847.

Patented Nov. 9, 1909.

2 SHEETS—SHEET 2.

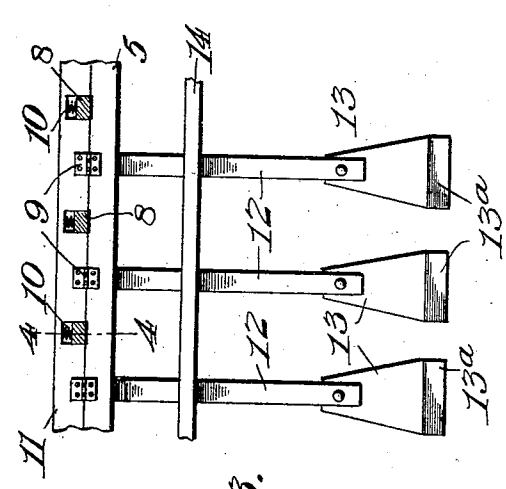


Fig. 3.

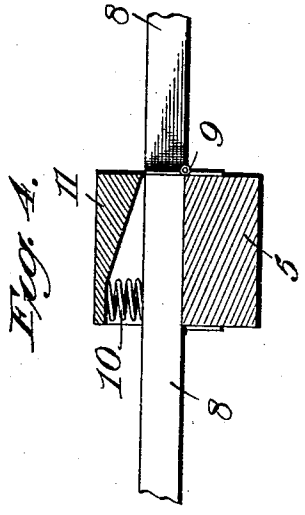


Fig. 4.

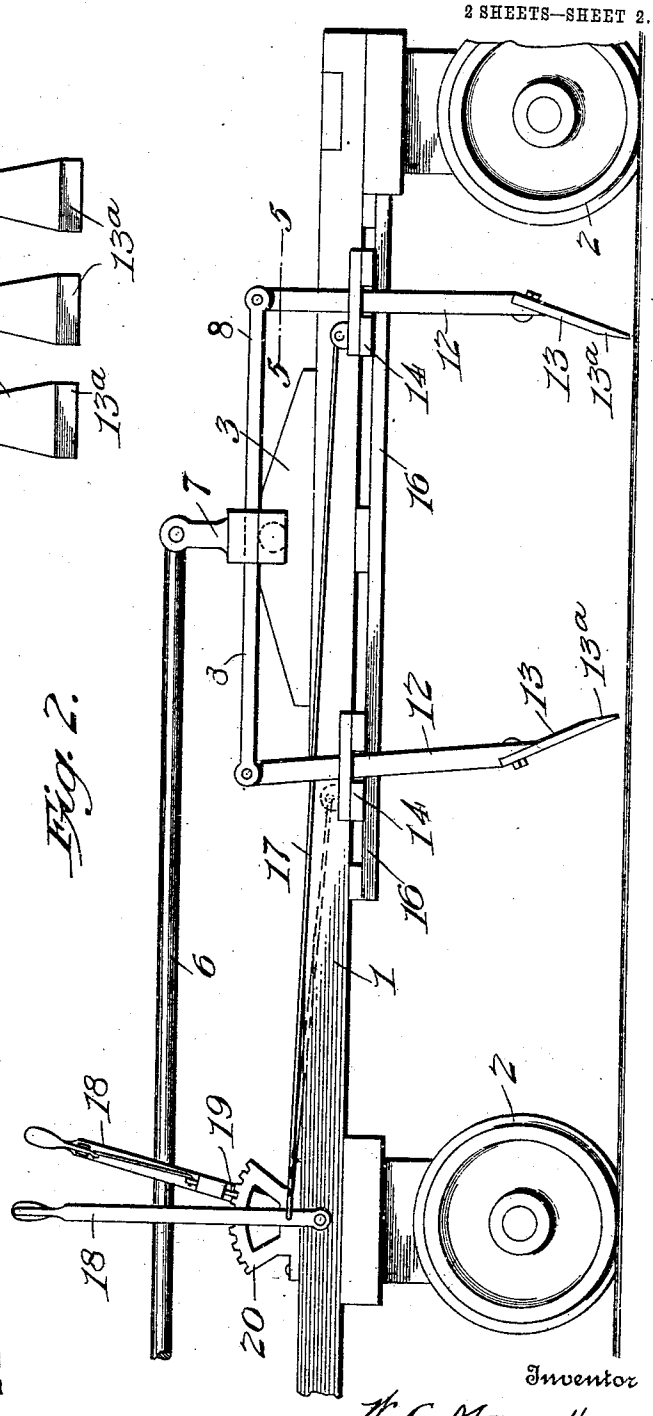


Fig. 2.

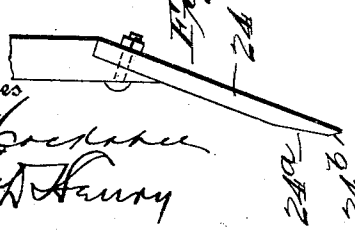


Fig. 6.

Witnesses

T. L. Macdonald

Wm. D. Henry

Inventor

W. C. Maxwell

By H. B. Hill

Attorney

UNITED STATES PATENT OFFICE.

WILLIAM C. MAXWELL, OF OCALA, FLORIDA.

RAILWAY-TRACK-TAMPING MACHINE.

939,847. Specification of Letters Patent. Patented Nov. 9, 1909.

Application filed August 17, 1909. Serial No. 513,243.

To all whom it may concern:

Be it known that I, WILLIAM C. MAXWELL, a citizen of the United States, residing at Ocala, in the county of Marion and State of Florida, have invented certain new and useful Improvements in Railway-Track-Tamping Machines, of which the following is a specification.

The present invention relates to railway track tamping machines, and has for its primary object to construct a machine of this character by means of which sand, gravel, rock, clinker, or other track ballast can be, with but a slight expenditure of labor, quickly and thoroughly tamped around and under the ties so that the ties will obtain a firm bearing thereon.

The invention further contemplates a track tamping machine which is simple and inexpensive in its construction, which can be readily propelled along the track, and which will tamp the road bed uniformly on both sides of and underneath the ties, a result which is very desirable but which is seldom attained where hand labor is employed.

With these and other objects in view the invention consists in certain arrangements and combinations of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claims.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a top plan view of a track tamping machine constructed in accordance with the invention, Fig. 2 is a side elevation of the same, Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 1, Fig. 4 is an enlarged sectional view on the line 4—4 of Fig. 3, Fig. 5 is an enlarged sectional view on the line 5—5 of Fig. 2, showing the roller bearings for the shanks of the tamping elements, and Fig. 6 is a detail view of the modified form of tamping element.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Specifically describing the present embodiment of the invention, the numeral 1 designates the main frame which is supported upon wheels 2 so as to travel upon a railway track, any suitable means being provided for operating the tamping mechanism and for propelling the machine along the track as required. A platform 1^a is provided at a convenient place upon the frame 1 and serves both as a stand for the operator and also to receive any tool boxes or the like which it may be desired to carry.

Standards 3 project upwardly from opposite sides of the frame 1 and are provided with the bearings 4 within which a rock shaft 5 is journaled, the said rock shaft being designed to receive motion from the before mentioned engine through the medium of a connecting rod 6 one end of which is pivotally connected to an arm 7 which extends upwardly from the middle of the rock shaft. A series of tamper arms 8 project laterally from each side of the rock shaft, the outer ends of the said arms carrying the tamping elements while the inner ends of the arms are loosely connected to the rock shaft by means of the hinge joints 9 which permit them to swing up and down but hold them against lateral movement. Springs 10, the strength of which may be varied for different kinds of road beds and ballast, bear against the hinged ends of the tamper arms and hold the said arms rigid with the rock shaft until the pressure upon the tamping elements exceeds a predetermined amount, when the spring will yield and permit the rock shaft to move independently of the arm. These various springs 10 are shown in the present instance as held in position by the spring retaining strips 11 which are applied to the top of the rock shaft and are notched at suitable intervals to receive both the tamper arms 8 and the springs 10.

The tamping elements each comprise a shank 12 and a tamping blade 13 which is detachably applied to the lower end of the shank, the upper end of the shank being pivotally connected to the respective tamper arm 8. It will thus be apparent that as the rock shaft 5 is operated the tamping elements on opposite sides thereof are alternately reciprocated up and down so as to tamp the road bed, one set of the tampers operating on one side of a tie while the other set operates on the opposite side of the tie. Should one of the tampers strike a tie, a large rock or other obstruction, the spring 10 would yield as soon as the predetermined pressure had been reached, thereby preventing injury to the tamper striking the obstruction without in any manner interfering with the action of the other tampers.

The shanks 12 of the two sets of tamping elements pass loosely through the respective guide members 14, 14, which direct the tampers in their up and down movement, the said guide members being provided with the anti-friction rollers 15 which surround the shanks of the tamping elements and prevent any binding action. These guide members 14 are slidably mounted within guide ways 16 located under the frame on opposite sides thereof, and are each of them connected at both ends by means of the rods 17 to the respective adjusting levers 18, the said levers carrying pawls 19 for engaging the racks 20 to lock them in position. As illustrated on the drawings the rods 17 are connected to blocks 21 upon the guide members 14, the said blocks carrying the rollers 22 which engage the sides of the frame to reduce the friction as the guide members are moved backward and forward, the blocks 21 on one of the guide members being arranged on the outside of the frame while the blocks on the other guide member are arranged on the inside of the frame.

As previously mentioned, the tamping elements are designed to operate alternately on opposite sides of the railway ties, and where the ties are not exactly normal to the track but are disposed at a slight angle thereto as is frequently the case, the operator by suitably manipulating the various levers 18 can move the two guide members 14 until they assume an angle corresponding to that of the tie, in which position they will direct the tampers in the required manner. Particular attention is also directed to the fact that the provision of the guide members 14 and the levers 18 enable the two sets of tampers to be moved toward or away from each other, thereby permitting the tamping blades 13 to be shifted toward and away from the ties so as to work the ballast toward the ties where such is necessary.

More specifically describing the tamping elements, it will be observed that the tamping blades 13, which may be of any preferred form according to the nature of the ballast and the individual ideas of the operator, are detachably secured to the stems 12 so as to be readily replaced when worn or broken. In the more usual form of tamping blade, as shown in the first five figures of the drawings, the lower edge thereof is beveled as indicated at 13^a, the angle of the bevel as well as the inclination of the tamping blades with respect to the shanks varying with different operators and for different kinds of ballast. A modified form of tamping blade 24 is shown in Fig. 6, the said blade being formed with the two bevels 24^a and 24^b.

If desired a level 25 may be provided upon the main frame 1 for indicating to the operator the elevation of the outer rail on a curve so as to guide him in the work, and levels 26 on the sides of the frame for indicating the grade of the track.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is,

1. In a railway track tamping machine, the combination of a frame, a rock shaft journaled upon the frame, a tamper arm projecting from the rock shaft and having a yielding connection therewith, and a tamping element carried by the said tamper arm.

2. In a railway track tamping machine, the combination of a frame, a rock shaft journaled upon the frame, a tamper arm having an end thereof hinged to the rock shaft, a spring bearing against the tamper arm to hold it rigid with the rock shaft until a predetermined pressure is exceeded, and a tamping element carried by the outer end of the said tamper arm.

3. In a railway track tamping machine, the combination of a frame, a rock shaft journaled upon the frame, a tamper arm having one end thereof hinged to the rock shaft, a tamping element carried by the other end of the tamper arm, a spring retaining strip applied to the rock shaft and notched to receive the tamper arm, and a spring fitted within the said notch and engaging the tamper arm to hold it rigid with the rock shaft until a predetermined pressure is exceeded.

4. In a railway track tamping machine, the combination of a frame, a series of reciprocating tamping elements mounted upon the frame and arranged in a row, a guide member engaging the tamping elements to direct them in their movements, and means for swinging the guide member into various angles with respect to the track.

5. In a railway track tamping machine, the combination of a frame, two sets of reciprocating tamping members mounted upon the frame and arranged in rows, guide members engaging the tamping members of the respective rows to direct the same in their movements, and means for moving the guide members toward and away from each other and turning them to various angles with respect to the track.

6. In a railway track tamping machine, the combination of a frame, a rock shaft journaled upon the frame, tamper arms projecting from the rock shaft, tamping elements applied to the tamper arms so as to have a swinging movement, a guide member mounted upon the frame and engaging the tamping elements to direct them in their movements, and means for moving the guide member back and forth and turning it into various angles with respect to the track.

7. In a railway track tamping machine, the combination of a frame, a rock shaft journaled upon the frame, tamper arms pro-

jecting laterally upon opposite sides of the rock shaft, tamping elements carried by the tamper arms and loosely connected thereto, a guide member mounted upon the frame and engaging the tamping elements on each side of the rock shaft to direct the movements of the same, and means for moving the two guide members independently of each other.

8. In a railway track tamping machine, the combination of a frame, a rock shaft journaled upon the frame, tamper arms hinged to the rock shaft and projecting laterally upon opposite sides thereof, springs bearing against the tamper arms to hold them rigid with the rock shaft until a predetermined pressure has been reached, a guide member mounted upon the frame and engaging the tamping elements upon each side of the rock shaft to direct the movements of the same, and means for moving the two guide members toward and away from each other and turning them into various angles with respect to the track.

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

WILLIAM C. MAXWELL.

Witnesses:

W. C. BALDERSTON,

WM. D. HENRY.