

PATENTED JAN. 28, 1908.

APPLICATION FILED FEB. 13, 1907.

2 SHEETS—SHEET 1.



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No. 877,669.

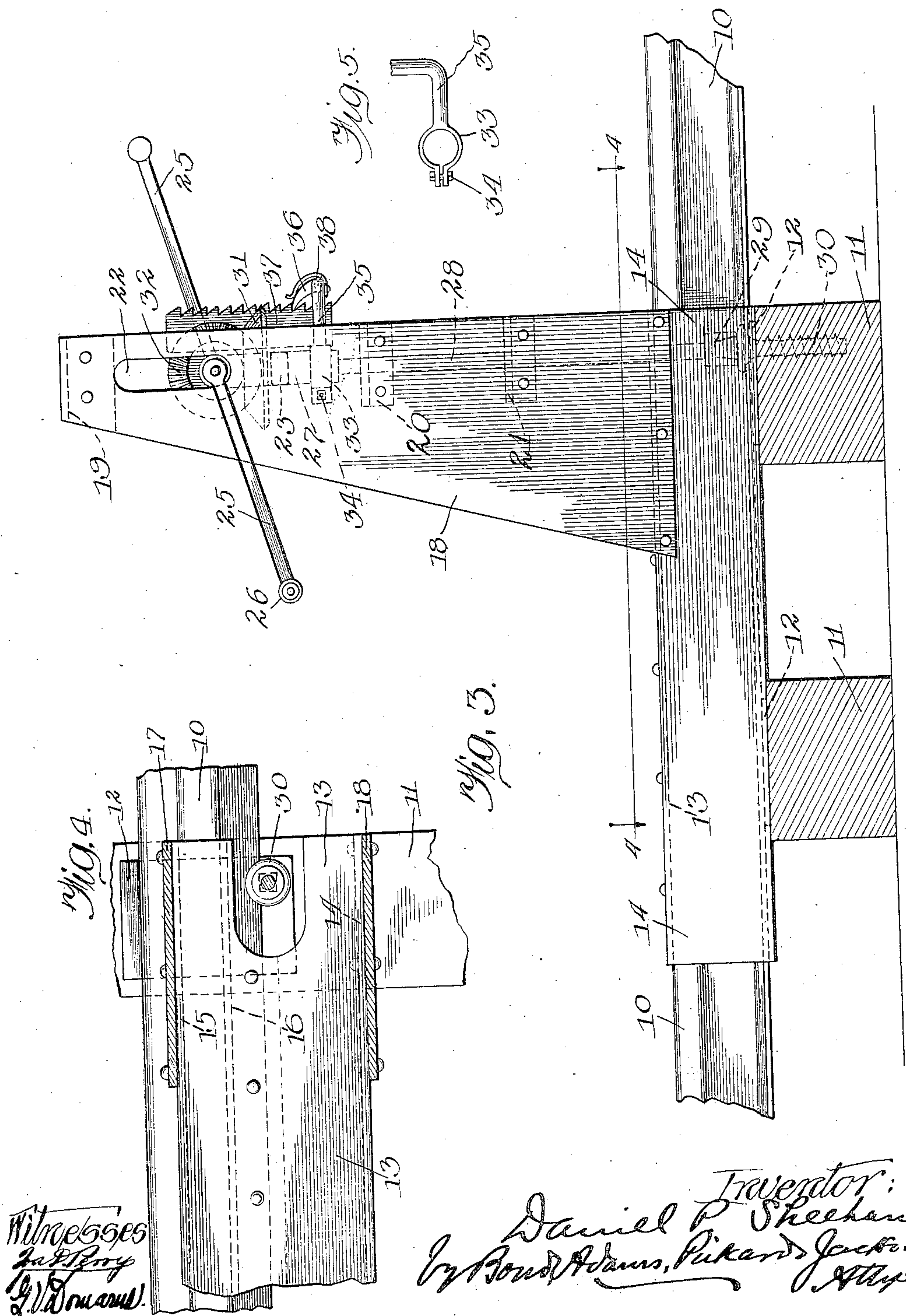
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MACHINE FOR DRIVING RAILWAY SCREW SPIKES.

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



# UNITED STATES PATENT OFFICE.

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## MACHINE FOR DRIVING RAILWAY SCREW-SPIKES.

No. 877,669.

Specification of Letters Patent.

Patented Jan. 28, 1908.

Application filed February 13, 1907. Serial No. 357,182.

*To all whom it may concern:*

Be it known that I, DANIEL P. SHEEHAN, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Machines for Driving Railway Screw-Spikes, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to machines for driving screws, and is designed particularly for use in connection with screw-spikes.

One of the objects of the invention is to provide a machine which may be readily and efficiently operated by one workman or by two or more workmen as desired, which machine shall be so constructed that it can be easily and quickly moved to the point where it is to be used and will be then immediately ready for use.

A further object is to provide such a machine with means for maintaining the proper engagement between the rotating driving rod and the head of the screw being driven, and for securing the closest engagement between such parts at any given point desired.

I accomplish these objects by the means shown in the drawings and hereinafter described.

That which I believe to be new is set forth in the claims.

In the drawings:—Figure 1 is a front elevation of my device shown in position on one of the rails of a track. Fig. 2 is a view, partly in section, taken at line 2 2 of Fig. 1. Fig. 3 is a side view of the parts shown in Fig. 1. Fig. 4 is a view, partly in section, taken at line 4 4 of Fig. 3. Fig. 5 is a detail showing the means for adjusting the pawl up and down.

Referring to the drawings, in which corresponding parts are indicated by like reference characters, 10 indicates one of the rails of an ordinary railway track in position on ties 11, tie plates 12 being inserted between the rail and the ties. Resting at one of its sides on this rail is a base-plate 13, which is provided at its opposite side with a depending flange 14 which is of sufficient width to hold the base-plate in an approximately horizontal position. The side of the base-

plate resting upon the rail is also provided with a depending flange 15, between which and a channel-iron 16, suitably secured to the under side of the base-plate, the rail is adapted to fit. It is evident that the base-plate 13 together with the mechanism which it may carry is thus adapted to be slid along the rail 10 to any point where it is desired to use the machine. It will be understood that the base plate 13 shall be of such width that the flange 14 may rest upon the ties between the ends of ties and the rail as well as between the rails. It will also be understood that the form of base may be varied to meet the special requirements of any particular track.

Rising from the forward end of the base-plate are two side-plates 17 18, secured to the flanges 15 14, respectively, by rivets or otherwise. In the construction shown, these side-plates are connected by cross-pieces 19 20 21, which, in the construction shown, are riveted at their ends to the said side-plates. In each side-plate near its upper end is a slot 22, which slots serve as guides for a yoke 23 whose out-turned ends pass through the slots, said out-turned ends forming bearings for a shaft 24 journaled therein. On the ends of said shaft are non-rotatably secured crank arms 25, each of which is provided with a suitable handle 26.

From the under face of the yoke 23, at a point directly over the point where a spike should be inserted in the tie to hold the rail in place, depends a sleeve 27, preferably integral with the yoke, in which sleeve and in a corresponding opening through the yoke is journaled a shaft or driving rod 28 which passes through suitable openings in the cross pieces 20 21 and to facilitate the management and control of which the base-plate 13 is cut away at its front end, as shown in Figs. 1 and 4. In the construction shown, the lower end of the rod 28 is provided with a socket 29 which fits the squared head of an ordinary railway screw-spike. It will be understood, of course, that any other suitable form of device may be used whereby the spike may be turned by the rotation of the driving rod. Keyed or otherwise non-rotatably secured upon the upper end of



this driving rod 28 is a bevel gear 31, which meshes with another bevel gear 31 which is non-rotatably secured upon the shaft 24.

Upon the sleeve 27 is provided a split-sleeve 33 adjustable up or down thereon by tightening or loosening the bolt 34, and connected with said sleeve 33, and preferably integral therewith is an arm 35 extending toward the front of the machine and then curved toward the side-plate 17, as shown in Figs. 3 and 5, on the end of which is journaled a pawl 36 which engages with a rack-bar 37 suitably secured to said side-plate 17. Said pawl is held in engagement with said rack-bar by means of a spring 38 suitably secured to said arm 35.

The operation of the machine will be readily understood. Having been placed on the track with the track rail between the parts 15 16, it is slipped along the rail until the operating rod 28 and socket 29 are directly over the opening through the tie-plate 12 and the hole that has been bored in the tie to receive the screw-spike. The pawl 36 is then held out of engagement with the rack-bar 37 and the yoke 23 and all the parts connected therewith are raised, the slots 22 being provided for this purpose. A screw-spike is then inserted through the opening in the plate 12 and the socket 29 of the driving rod 28 is brought down upon the head of such screw-spike. The shaft 24 is then turned by means of the cranks 25 by one or more workmen, the rotary motion being transmitted to the rod 28 through the gears 31 and 32, as will be understood, and thence to the screw, and, as the screw advances into the tie, the yoke 23 and rod 28 advance with it, maintaining the engagement between the socket 29 and the head of the screw.

As will be readily understood, as the position of the yoke is gradually lowered, the pawl 36 engages one after another of the teeth of the rack-bar 37, thus preventing the socket 29 from slipping off of the head of the screw. It will be seen that the pawl and rack-bar will not prevent the socket having more or less play up and down on the screw-head after the pawl has passed one tooth on the rack-bar and before it engages the next, and a limited up and down play will be present, especially when but one of the cranks is being used for turning the shaft 24. The socket also has a tendency to slip off of the screw head on account of the great strain brought to bear upon it, and owing to the slight taper sometimes given to the screw-head. The distance between the successive teeth on the rack-bar, however, is to be such that this up and down play shall be small and shall not in any case permit the socket to rise sufficiently to become disengaged from the screw-head or to slip thereon.

Since the greatest strain upon the parts comes at the time when the screw is being tightened on the flange of the rail, and since at that time there is the greatest necessity of perfect action without slipping, I have provided means for adjusting the pawl 36 up and down, so that it may be adjusted to engage tightly at just this point of the operation one or another of the teeth of the rack-bar.

After a screw has been properly tightened in one tie, the machine is to be slid along the rail to the proper point for putting in the next screw to be inserted on the same side of the same rail. When all the screws to be inserted on one side of one rail or a succession of rails have been put in, the machine may be turned about on the same rail to put in the screws to be inserted on the other side, or it may be applied to the other rail, as will be readily understood.

By my invention I have provided a machine which can be readily and easily handled, and by means of which the work of inserting screw-spikes can be expedited to a high degree, at the same time providing against the tendency of the driving rod to slip off of the screw-head and insuring the greatest efficiency at the time it is most required.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a machine for driving railway screw-spikes, the combination of a frame, the base-plate of which has on its under face at one side two depending flanges adapted to engage one of the rails of a railway track and at its other side a depending flange adapted to rest upon the ties of the track and to maintain the base-plate in a substantially horizontal position, a rotatable driving rod movable up and down in said frame and adapted to engage and turn the head of a screw-spike that is in position to be turned into place in a tie, and means for rotating said driving rod.

2. In a machine for driving railway screw-spikes, the combination of a base-plate which is adapted to be moved along one of the rails of a railway track, a side-plate rising from each side of said base-plate, each of said side-plates having a vertical slot in its upper end, a yoke whose out-turned ends project through said slots, said out-turned ends forming bearings for a shaft journaled therein, cranks on the outer ends of said shaft, a sleeve depending from said yoke and communicating with an opening through the yoke, a rod rotatably mounted in said sleeve and opening, a bevel gear on said rod, a bevel gear on said shaft meshing with said first-mentioned gear, a rack-bar mounted on one of said side-plates, a split sleeve adjustable

up and down on the sleeve that forms the bearing for the rotatable rod, an arm carried by said split sleeve, a spring-actuated pawl pivoted on the end of said arm and adapted  
5 normally to engage the teeth of said rack-bar and thus prevent the upward movement of the rotatable rod, and a socket on the

lower end of said rod adapted to engage and turn the head of a screw-spike that is in position to be turned into place in a tie.

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Witnesses:

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