

N. EKBERG.
RAIL SPIKING DEVICE FOR RAILWAYS.
APPLICATION FILED JUNE 15, 1921.

1,395,703.

Patented Nov. 1, 1921.

2 SHEETS—SHEET 1.

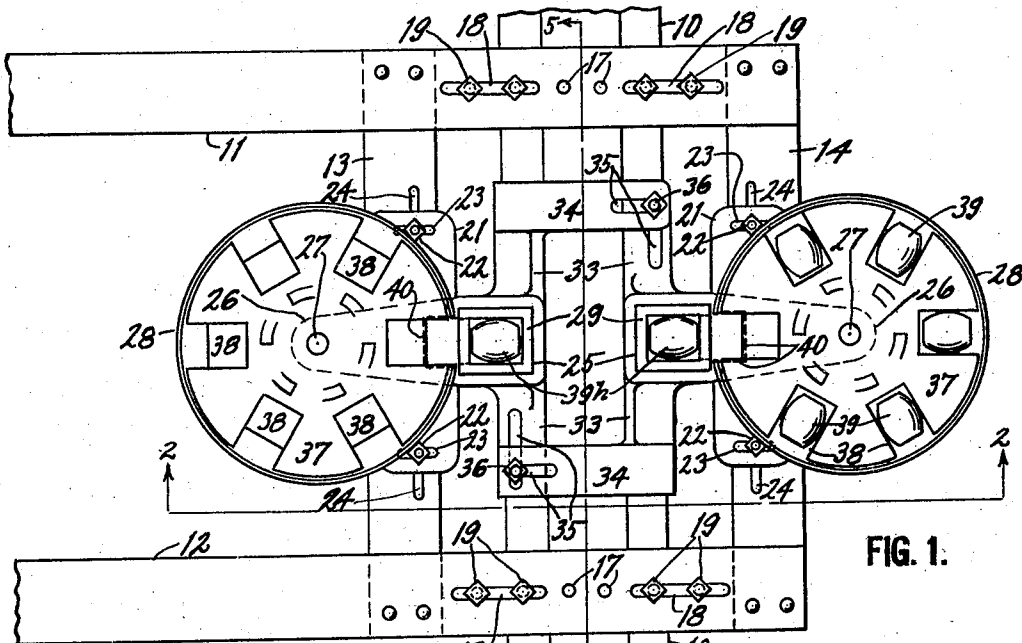


FIG. 1.

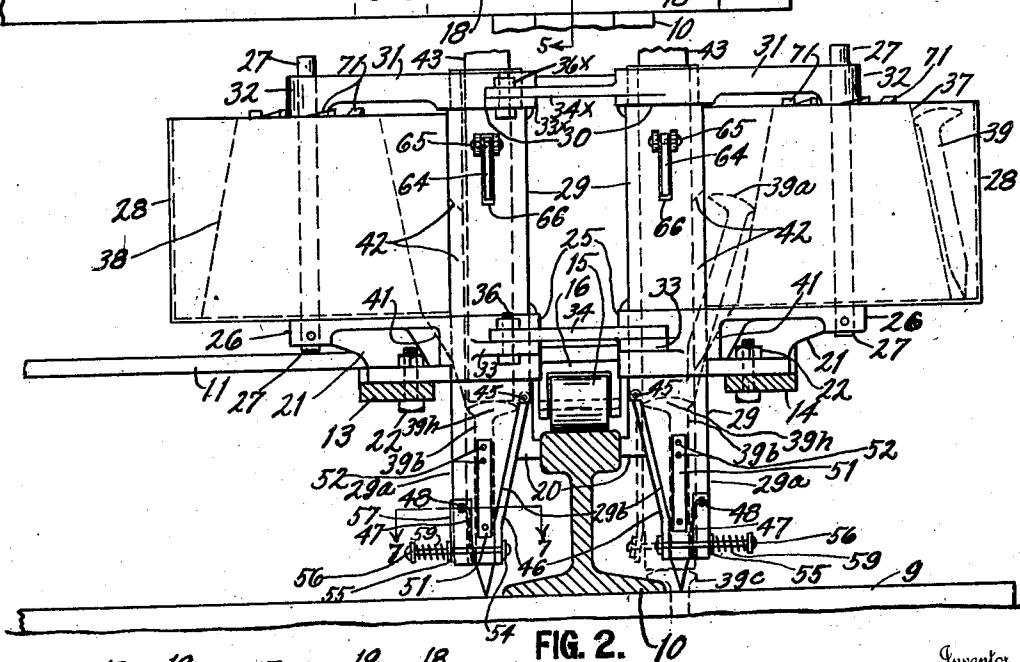


FIG. 2.

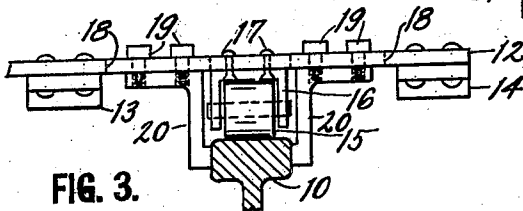


FIG. 3.

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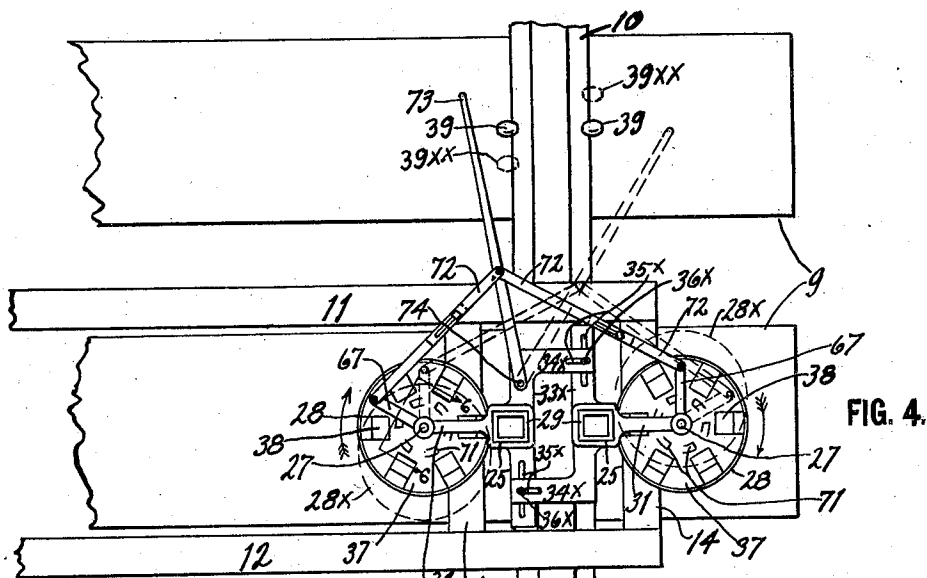


FIG. 4.

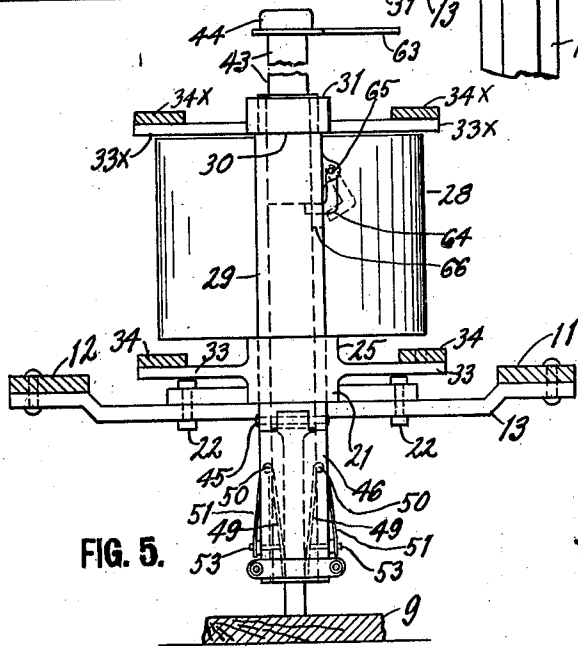


FIG. 5.

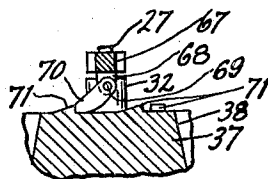


FIG. 6.

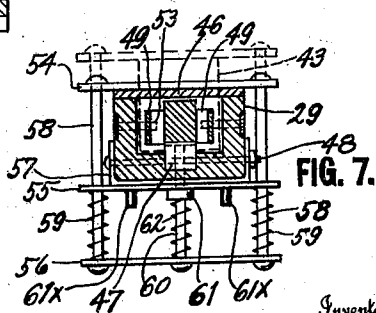


FIG. 7.

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FIG. 8.

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NELS EKBERG, OF ST. PAUL, MINNESOTA.

RAIL-SPIKING DEVICE FOR RAILWAYS.

1,395,703.

Specification of Letters Patent.

Patented Nov. 1, 1921.

Application filed June 15, 1921. Serial No. 477,714.

To all whom it may concern:

Be it known that I, NELS EKBERG, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Rail-Spiking Device for Railways, of which the following is a specification.

My invention relates to railway track laying devices and more particularly to devices for spiking the rails of a track to the ties. The object is to provide a device by means of which spikes can be driven more accurately and rapidly into the ties than has hitherto been possible by merely driving the spikes with a spiking sledge and by which method spikes are often driven into the ties crooked and must be withdrawn and the driving repeated.

In the drawing:

Figure 1 is a top view of one end of my spike driving devices and the frame or truck of same, with some minor parts omitted, straddling a rail to be spiked.

Fig. 2 is a vertical elevation showing frame bars and rail in section as on line 2—2 of Fig. 1.

Fig. 3 is an edge view of the lower part of the frame in Fig. 1, showing the rail gaging and riding means.

Fig. 4 is a top view on a reduced scale showing a portion of track and the details omitted in Fig. 1.

Fig. 5 is a sectional elevation on line 5—5 in Fig. 1.

Fig. 6 is an enlarged fragmentary view on line 6—6 of Fig. 4.

Fig. 7 is an enlarged detail view on line 7—7 of Fig. 2.

Fig. 8 is a detail of the lifting means used on spike driving plungers.

Referring to the drawing by reference numerals, 9 are the ties, 10 the rails of an ordinary railway track. I have shown my device as applied to one rail only, it being readily understood that the device rides on both rails and the mechanism illustrated is merely duplicated at the opposite rail (not shown).

My device is mounted on a rectangular frame consisting of transverse bars 11, 12 across the track and bars 13 and 14 arranged laterally with relation to each rail.

The frame moves along the rails on rollers 15 in brackets 16, which are secured at 17 in Fig. 3 to frame bars 11 and 12, the latter having also slots 18 (see Fig. 1) ad-

jacent each bracket 16, cap screws 19 being inserted in them and engaging threaded holes in inverted L-shaped guides 20 (see Fig. 3) engaging the sides of the rail bead and acting as a rail gage, the slots 18 of course, permitting adjustment according to width of rail bead.

On the frame bars 13, 14 I mount two oppositely arranged brackets 21 held in place by bolts 22 passing through slots 23 in said brackets and slots 24 in the frame bars permitting longitudinal and transverse adjustment of the brackets as desired. Each bracket 21 has a rectangular vertical socket 25 with an outwardly extending arm 26 in the outer end of which is secured a vertical shaft 27 of a stationary drum 28. The socket 25 holds a vertical rectangular tube 29 the upper end of which is reduced forming a shoulder 30 on which an upper bracket 31 rests and embraces the reduced top portion of the tube. Said bracket has a bearing 32 for the upper end of the shaft 27.

Each socket 25 is provided with a horizontal bar 33 having a lateral arm 34 overlapping upon the bar 33 of the opposite bracket. Said bars and arms have crossing slots 35 with bolts 36 therein to permit considerable variation in adjustment of the brackets for a purpose presently to be described. The upper brackets are correspondingly constructed with lateral arms 33^x, transverse arms 34^x, slots 35^x and bolts 36^x (see Figs. 2 and 4).

Within each drum 28 I provide a rotary magazine 37 for railway spikes, rotating on shaft 27 and having a number of radially arranged pockets 38 tapered downwardly. Standard railway spikes 39 are placed one in each of said pockets point downward as shown in Figs. 1 and 2, the points resting on the bottom of drum 28. The drum is rotated until one of the sockets 38 with its spike 39 is adjacent the tube 29 at which point the bottom of drums 28 is notched out as at 40 (in Fig. 2) leaving no support for the spike which immediately drops downward following the slanting face 41 of socket 25 and through a vertical slot 42 in tube 29 (see spike 39^a in Fig. 2) thence continuing down within tube 29 to position 39^b the point of the spike stopping against surface of tie 9 adjacent the rail 10. A plunger rod 43 is inserted into the tube 29 its lower end in contact with the head of the spike, the upper end having a head 44 (see Fig. 5),

A few sledge hammer blows on head 44 of the plunger drives the spike straight and accurately into the tie to position 39^c (Fig. 2) holding the rail 10 in the proper manner.

5 It is obvious that when the spikes are to be driven opposite each other the magazines are oppositely arranged as shown in full lines in Figs. 1 and 2, but if the spikes are to be staggered as 39^x in Fig. 4 it is merely
10 necessary to loosen bolts 22, 36 and 36^x and slide the magazines to position desired as 28^x in Fig. 4 and then tightening the nuts of said bolts. The transverse slots 23 in brackets 21, and slots 35, 35^x permit the magazines 28 with tubes 29 to be spread so that
15 spikes can be driven into ties in proper relation to rail flanges according to the width of the latter.

To drive a spike into a tie properly I provide the following construction:

20 The hollow core of tube 29 is of a shape to readily permit the head 39^a of a railway spike to slide in but to start the point of the spike right an opening at the bottom of the tube must be only large enough for the
25 shank of the spike 39 to go through and this I provide for by leaving outer wall 29^a intact, tapering the side walls downwardly as at 29^b to the approximate width of the
30 spike shank, the fourth wall terminating at the upper end of the tapered portion where a hinge pin 45 is inserted for a spring pressed apron 46 normally pressed against the edges of the tapered walls and guiding
35 that side of the spike shank nearest the rail. The opposite or outer side of the spike shank is guided by a depending tongue 47 hinged at 48 in the outer wall of the tube 29 and the other two sides of the spike shank are
40 guided by similar depending tongues 49 hinged at 50 in the opposite tapered walls. The latter are spring pressed inwardly by flat springs 51 on outside of tube, secured at 52 and the lower end of each having a pin
45 53 projecting inwardly through an aperture and its inner end pressing against tongue 49. The lower end of tube and apron 46 are engaged by two flat bars 54, 55 projecting beyond the tube with their ends, and
50 another similar bar 56 is spaced some distance therefrom. Bar 55 is attached to a channel shaped member 57 straddling the tube and said channel is held in place by a pin 48 which is also a fulcrum for tongue
55 47. Near the outer ends of bars 54, 55, 56 are apertures through which are passed bolts 58 with a compression coil spring 59 on each, between bars 55 and 56 tending to clamp apron 46 against the tapered portion of the
60 tube. A shorter central pin 60 passes through apertures in bars 55 and 56 and in tube 29, its inner end pressing tongue 47 against the spike. A collar 61 on said pin 60 limits the action of a spring 62 and stops
65 61^x limit the compression of springs 58. Re-

ferring to Figs. 2 and 7 it will be readily seen that when a spike is in position 39^b and plunger 43 is driven down with a sledge, against the spike head, the overhanging portion of said head adjacent the hinged side 70 46 gradually forces said side out against the pressure of springs 59 and 62 (Fig. 7); plunger 43 finally projecting through bottom of tube 29, at which time the spike is in its place. Plunger 43 is then pulled up by 75 means of a handle 63 under its head, and may be held up in the tube by means of an L-shaped pawl 64 (see Figs. 2 and 6) pivoted at 65 on one side of the tube and swinging under the lower end of plunger through 80 a slot 66 when so desired.

To turn magazines around for feeding the spikes into the tubes I provide an arm 67 with one end pivoted on the upper end of shaft 27, a lug 68 projecting downward 85 from its under side, a ratchet pawl 70 pivotally engaging said lug at 69 (see Fig. 6) and its lower end engaging teeth or other projections 71 of which there is one for each spike pocket 38 on the magazine and arranged in a circle concentric with said 90 pockets.

The outer ends of said levers 67 are each pivotally connected to the extremities of extensible connecting rods 72 the inner ends 95 of which are connected to a hand lever 73 pivoted as at 74 (Fig. 4) to any suitable part of the device. By pulling on lever 73, the two magazines adjacent one rail can be turned simultaneously (after the frame 100 has been moved along on the track to the next tie to be spiked) until two more spikes drop into position. The pawls 64 are then pulled out from under the plungers which are then ready to drive the spikes down. 105

In addition to the operation of this device already disclosed it might be added that for rapid track laying a supply of spikes can be kept on the frame between the spiking mechanisms for the two rails of a 110 track, one man feeding spikes into the magazines and operating the hand levers 73 as fast as two men can drive the spikes.

Another advantage of the device is that it is unnecessary for the men who drive the 115 spikes to stoop forward while making the blows, since the plunger heads come considerably higher up than the spike heads.

The device reaching across a pair of rails and having the guiding means 20 straddling each rail, it is evident that the two rails forming a track are automatically arranged in parallel position and spread to the desired gage as fast as they are spiked down. 125

What I claim is:

1. In a spiking device for railway tracks, a frame movable on the track rails, means carried by the frame for guiding spikes down to driving position, said guiding 130

means comprising for each rail a vertically disposed guiding tube at each side of the rail, said tubes having each a side opening into which to feed the spikes one at a time, means
5 for carrying the spikes into said openings, a spike driving plunger slidable in each tube and projecting always above the same; said spike feeding means consisting of a non-rotatable hopper near the side opening of
10 each tube and having a bottom opening leading into the side opening of the tube, a rotary cylindrical magazine inside each hopper and provided with peripherically arranged spike pockets, and means for rotating the two magazines at each rail simultaneously by steps each of which brings a
15 filled spike pocket to register with the adjacent spike guiding tube.

2. The structure specified in claim 1, said
20 spike guiding means consisting of rectangular vertical tubes having each a contractable lower portion with spring pressed yieldable side members contacting with the spike and its head as the spike is being
25 driven down, and means in each tube for driving the spike.

3. The structure specified in claim 2 and means automatically limiting the yielding movement of the spring pressed parts.

4. The structure specified in claim 1 and
30 means for adjusting the hoppers and the spike dropping tubes so as to bring the driven spikes into staggered position in longitudinal direction of the rail.

5. In a device of the kind described one
35 or more spike dropping tubes, a spike driving plunger slidable in each tube, said plunger having near its top a lateral handle, and said tube having a lateral aperture with a pivoted hook adapted to engage the bottom
40 end of the plunger and hold the latter in a partly raised position, and means for feeding one spike at a time into the tube below the raised plunger.

6. The structure specified in claim 4, the
45 rotating means of the magazines having adjustable sliding joints to make it adjustable to said moving of the magazines and tubes.

In testimony whereof I affix my signature. 50

NELS EKBERG.