

Mar. 13, 1923.

1,448,264

J. H. DOAK

SPIKE DRIVING MACHINE

Filed Apr. 18, 1922

2 sheets-sheet 1

Fig. 1.

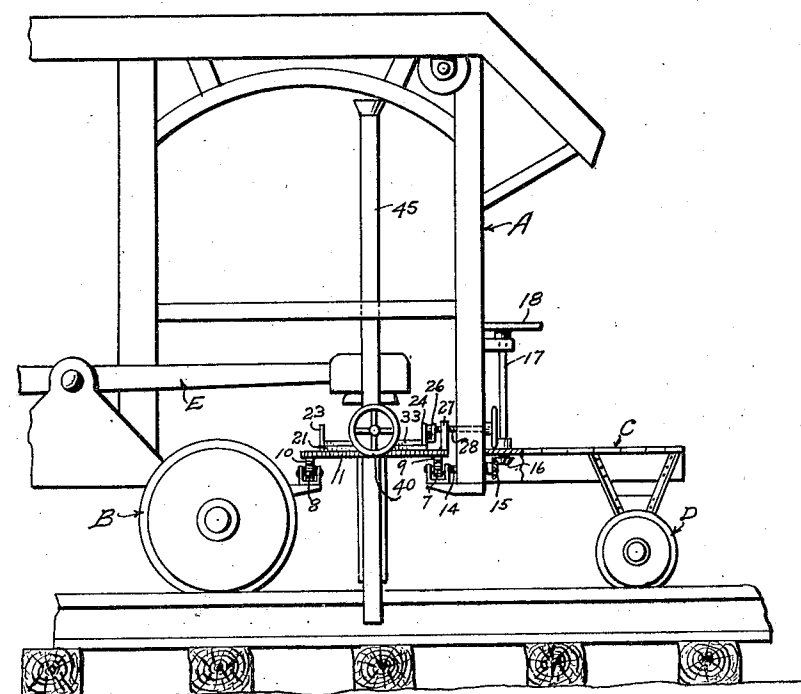


Fig. 2.

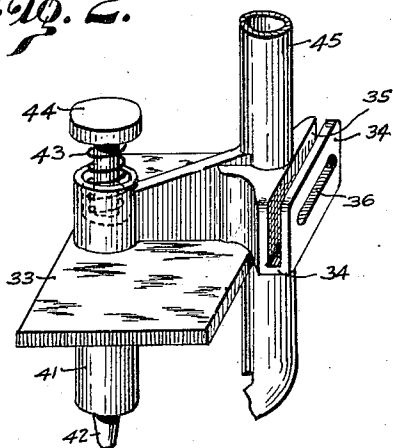
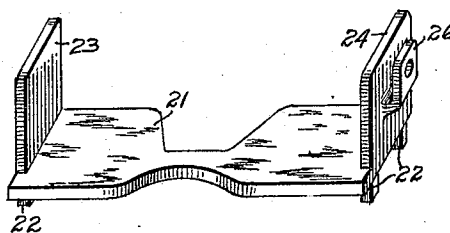


Fig. 3.



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2 sheets-sheet 2

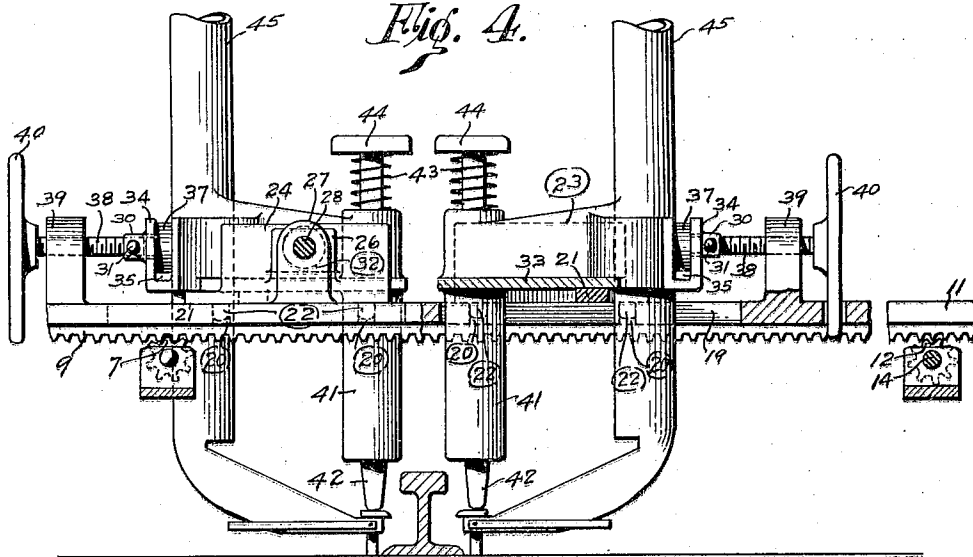


Fig. 5.

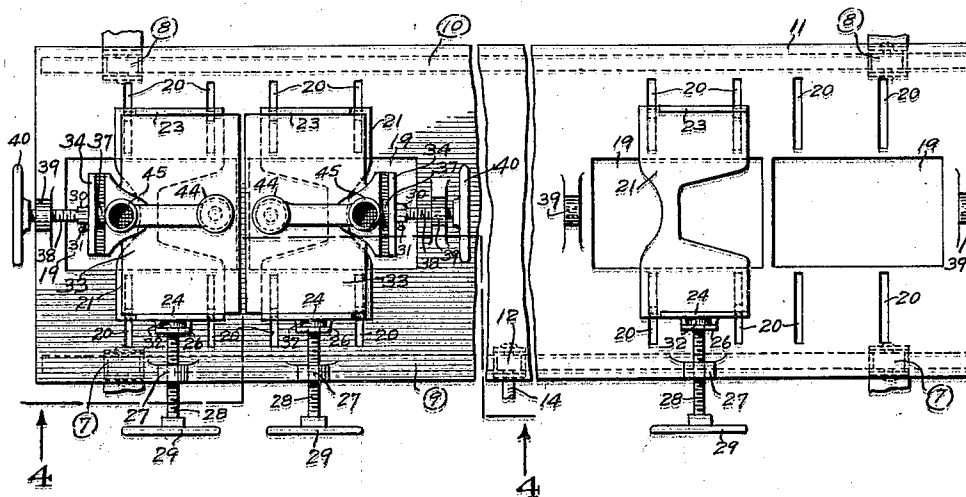
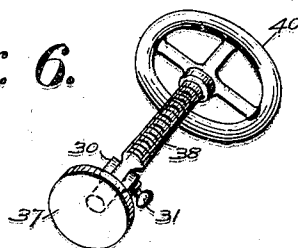


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN H. DOAK, OF LOS ANGELES, CALIFORNIA.

SPIKE-DRIVING MACHINE.

Application filed April 18, 1922. Serial No. 555,148.

To all whom it may concern:

Be it known that I, JOHN H. DOAK, a citizen of the United States, and resident of Los Angeles, in the county of Los Angeles, State of California, have invented new and useful Improvements in a Spike-Driving Machine, of which the following is a specification.

This invention relates to a machine for driving spikes in railroad ties, and pertains particularly to improvements in the type of spike-driving machines shown in United States Letters Patent 1,404,841, granted to me January 31, 1922.

In machines of the character referred to, a driver engages the head of a spike and receives the blow of a hammer transferring it to the spike. To efficiently operate, four drivers are employed, one for each of the spikes being driven in a single tie. For most convenient operation of a machine of the character referred to, it is advantageous to have the drivers for the spikes adjustable as to their position with respect to one another and with respect to the frame of the machine. This permits the machine to be accommodated to curves in the track and variations in the position of the ties. It is the primary object of this invention to provide a machine of the character described, which will have adjustable drivers. In addition to the broader features of my invention, there are certain details of construction, whereby a strong, durable structure is secured, and one which is easy to operate.

These objects will be more fully understood, as will also other objects and corresponding accomplishments of my invention from the following detailed description of a preferred embodiment thereof. For the purpose of this description, reference is had to the accompanying drawings, in which:

Fig. 1 is a side elevation of a fragment of a spike driving machine, only a portion thereof which is material to the present invention being shown; Fig. 2 is a perspective view of a driver unit; Fig. 3 is a perspective view of an adjustment plate; Fig. 4 is a fragmentary front elevation showing details of structure for one pair of the drivers as seen on the line 4—4 of Fig. 5; Fig. 5 is a plan view of the driver structure, a portion of the supporting plate being broken

out at the center for convenience in illustration, and Fig. 6 is a perspective view showing the detachable connection for the adjusting shafts.

Referring more particularly to Fig. 1, a frame for the machine is indicated generally by A. This frame may consist of beams, posts, and braces, being of the same general character as that shown in my Patent 1,404,841 referred to above. As the details thereof form no part of the present invention, it will not be further shown or described. The frame is supported upon a running gear comprising wheels B so that it may be moved along the rails. At the front end of the machine is a platform C upon which the operator of the machine may stand. This platform is conveniently supported by wheels D. A pivoted hammer is indicated generally by E and may be operated by the means disclosed in my patent before referred to. As the hammer structure forms no part of the present invention, the details and operating mechanism therefor are not shown. The invention resides particularly in the means for adjusting the drivers.

Extending transversely across the frame at the front end adjacent the operator's platform is an opening bordered by the ends of beams carrying pinions 7 and 8. The pinions are journaled upon the ends of the beams. Riding upon the pinions 7 is a rack 9, and riding upon pinions 8 is a rack 10. Racks 9 and 10 are secured to the underface of a supporting plate 11. Engaging rack 10 at the center of the frame is a pinion 12, which constitutes a drive pinion for the supporting plate. Pinion 12 is fixed to a shaft 14 having a bevel pinion 15 at the other end, see Fig. 1. Meshing with bevel pinion 15 is a bevel pinion 16 which is fixed to a vertical shaft 17 having a hand wheel 18 at the top thereof disposed convenient for manipulation by the operator when standing upon platform C. By turning hand wheel 18, the supporting plate 11 may be moved transversely to either side. Supporting plate 11 has four openings, the openings being indicated by 19. Extending longitudinally of the frame are slots 20, there being four slots for each opening 19. Disposed over each opening 19 is a longi-

tudinal adjusting plate 21. The adjusting plate has lugs 22 extending from the bottom thereof so as to ride in the slots 20. The sides of the supporting plate at the front and back are provided with ribs 23 and 24. The rib 24 has a bracket extension 26 with a hole therein to receive a shaft. At the center, the supporting plate is reduced in width by being cut away. Formed on the supporting plate 11 in registration with the bracket extensions 26 on each of the adjusting plates are brackets 27 having threaded openings therein to receive shafts 28. The shafts are threaded and are provided with hand wheels 29 at the front adjacent the operator's platform. The shafts have collars 32 disposed in bracket 26, so that longitudinal movement of the shafts will cause the adjusting plates to be moved forwardly and backwardly. The adjusting plates are maintained against deviating from a straight line movement by reason of the lugs 22 riding in slots 20.

Slidably mounted between ribs 23 and 24 and resting upon the longitudinal adjustment plates 21 are the driver units. Each driver unit comprises a transverse adjustment plate 33 arranged to rest upon an adjusting plate 21 and slidably fit between the ribs. An extension 34 is provided with a channel 35 having a slot 36 in its face. Disposed in slot channels 35 are collars 37 secured to a threaded shaft 38 by means of a clevis 30 detachably locked thereto by a pin 31. The shaft 38 extends through the slot 36 in the side of the extension 34. Brackets 30 are formed on plate 11 and have threaded openings therein in which the threaded sections of shafts 38 are disposed. Fixed to the end of each shaft 38 is a hand wheel 40 for adjusting the shaft. Extending through the driver plate 33 and preferably formed integral therewith is a shell 41 carrying a striker pin 42 mounted for longitudinal movement therein. A spring 43 engages the head 44 of the driver pin and normally maintains it in its upper position. Mounted in the plate adjacent the driver is a spike chute 45 for feeding spikes to position under the driver pin. The spike chute is made of the character disclosed in Patent 1,404,841 above referred to. The details thereof are not pertinent to the present invention, and are not shown or described in detail herein.

It is obvious that by operating a hand wheel 40, the position of the corresponding driver transversely of the frame may be adjusted. Each driver can be adjusted independently of the others. The driver units may be lifted bodily upwardly and removed from the supporting plate 11 so that the driver and the bottom of the spike machine will clear the ground. When it is desired to lift the drivers upwardly, shafts

38 should be detached from the collars 27 by removing the pins 31 from the clevises 30. The driver units may then be lifted clear of the ground, so that the machine may travel at a reasonable rate of speed from place to place. The driver units are lifted from the adjustment plates 21. It is obvious that by manipulating hand wheels 29 and 40, the drivers may be adjusted individually without regard to one another. By turning the hand wheel 18 the set of drivers as a unit may be moved to one side or the other. Thus a maximum of adjustments is obtained.

What I claim is:

1. In a spike driving machine of the character described having a frame supported upon a running gear, the combination of a supporting plate, a set of drivers movably mounted on said plate, means for each driver to independently adjust it transversely of said frame, and means for each driver to independently adjust it longitudinally of said frame.

2. In a spike driving machine of the character described having a frame, the combination of a set of drivers mounted in said frame, means for each driver to independently adjust it longitudinally of said frame, means for each driver to independently adjust it transversely of said frame, and means to adjust the position of the set of drivers as a whole on said frame.

3. In a spike-driving machine of the character described having a frame supported upon a running gear, the combination of a supporting plate, a set of longitudinal adjusting plates slidably mounted on said supporting plate, a transverse adjusting plate slidably mounted on each of said longitudinal adjusting plates, a driver secured to each longitudinal and transverse adjusting plate to form a set of drivers, and means to independently move each of said adjusting plates longitudinally and transversely of the frame.

4. In a spike-driving machine of the character described having a frame supported upon a running gear, the combination of a supporting plate, a set of longitudinal adjusting plates slidably mounted on said supporting plate, a transverse adjusting plate slidably mounted on each of said longitudinal adjusting plates, a driver secured to each longitudinal and transverse adjusting plate to form a set of drivers, means to independently move each of said adjusting plates longitudinally and transversely of the frame, and means to adjust the position of the set of drivers as a whole on said frame.

5. In a spike-driving machine of the character described having a frame supported upon a running gear, the combination of a supporting plate, a set of longitudinal adjusting plates slidably mounted on said sup-

porting plate, a transverse adjusting plate slidably mounted on each of said longitudinal adjusting plates, a driver secured to each longitudinal and transverse adjusting plate to form a set of drivers, means to independently move each of said adjusting plates longitudinally and transversely of the frame, and means to adjust said supporting plate transversely of the frame.

In witness that I claim the foregoing I 10
have hereunto subscribed my name this 5th
day of April, 1922.

JOHN H. DOAK.