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POST DRIVING MACHINE

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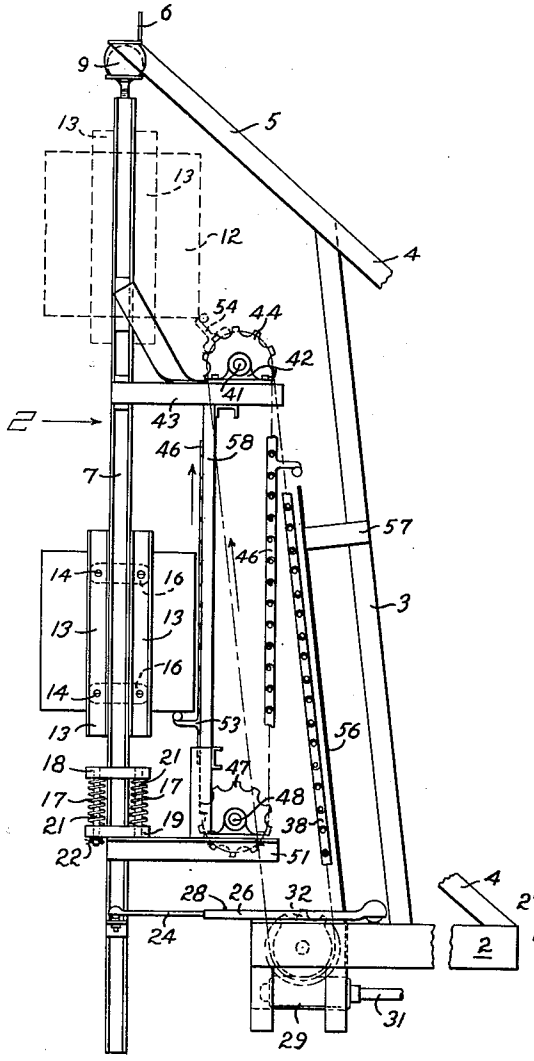


Fig. 1

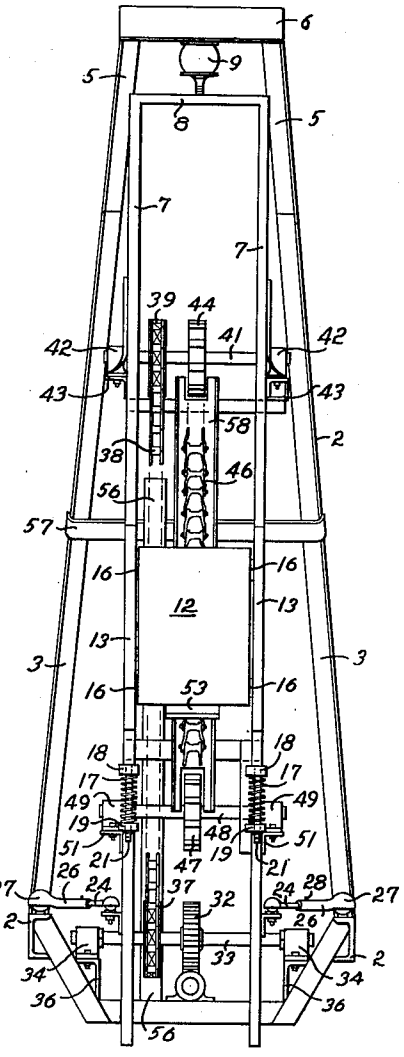


Fig. 2

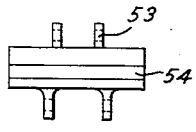


Fig. 3

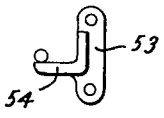


Fig. 4

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POST DRIVING MACHINE

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3 Claims. (Cl. 61—74)

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Our invention relates to a post driving machine; and one of the objects of the invention is to provide such a machine of simple construction for driving posts into the ground quickly and easily.

A further object of the invention is the provision of such a machine, capable of being controlled to insure the verticality of the driven post, in spite of the unevenness of the surrounding terrain.

The invention possesses other objects and features of value, some of which, with the foregoing, will be pointed out in the following description of that form of the invention illustrated in the accompanying drawings and forming part of the specification. It is not intended to limit the invention to the embodiment shown by the said drawings and description, as variations may be adopted within the scope of the appended claims.

Referring to the drawings: Figure 1 is a side elevation of our machine, portions of the figure being omitted to reduce its size.

Figure 2 is a front elevation taken in the direction indicated by arrow 2 of Figure 1. Figure 3 is an elevation of the special link that engages the hammer; and Figure 4 is a side elevation thereof. The two figures are drawn to a scale about three times that of Figures 1 and 2.

In terms of broad inclusion, our invention comprises a main frame that can be conveniently erected on the frame of a suitable driving mechanism such as a tractor or jeep, a secondary frame, including a slideway and pivotally suspended from the main frame, a hammer slideably arranged in the slideway, means on the secondary frame for mounting an endless chain on a pair of sprockets, means on the chain for lifting the hammer, means for driving one of the sprockets to activate the endless chain, stop means adjacent the frame to limit the drop of the hammer, and braces for controlling the verticality of the slideway.

In greater detail, our invention comprises a main frame mounted on the vehicle frame 2, and similar to a tipped A-frame. The main frame comprises a pair of compression legs 3 and tension legs 4 conveniently made of angle iron. The latter extending as cantilever arms 5 above the rear end of the vehicle frame.

The free ends of the cantilever arms are connected by a short piece 6 of angle iron, from which hangs the secondary frame including a slideway. The secondary frame comprises a generally rectangular frame with sides 7 and top 8, the lower end being left open. In order to provide vertical adjustability in the structure, a universal joint 9 is arranged between the upper ends 6 and 8 of both frames.

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The two sides of the secondary frame are preferably made of channel section structural iron, the web sides of the channels facing each other so that a slideway is provided within which a hammer block 12 may move up and down. In order to retain the hammer block within the slideway, guide bars 13 are secured to the block on each side of each frame member 7 by threaded studs 14, which also hold cross pieces 16, acting as spacers between the block and frame.

Stop means are provided for the hammer comprising coil springs 17, the ends of which are enclosed in shallow boxes 18 and 19. Studs 21 extend into and through the springs and are rigidly fixed at their upper ends to the upper box 18. The studs extend below the lower box 19, and are held in place by cotter pins 22. Thus, in operation, the downwardly moving guides strike the top box, compressing the springs and thereby checking the downward movement of the hammer.

To provide adjustment of the slideway frame, braces comprising rods 24 and tubes 26 are arranged with universal ball and socket joints 27 at their ends. Releasing set screws 28 and applying force laterally to the slideway frame causes the brace rods to lengthen or shorten, depending on the direction of the applied force.

Driving means for our machine comprises a worm reduction in housing 29, driven by the power take-off shaft 31 of the vehicle. Gear 32 is rigidly arranged on the shaft 33 which is journaled in suitable bearings 34, demountably arranged on bases 36 which form a part of the vehicle frame.

Sprocket 37 is rigidly fixed on shaft 33, and is linked by endless chain 38 to sprocket 39, rigidly fixed on shaft 41. Shaft 41 is journaled in suitable bearings 42 which are arranged on arms 43 extending forwardly from the side members of the secondary frame. Sprocket 44 is also rigidly fixed to shaft 41, and is linked by the endless chain 46 to sprocket 47, lying in the same vertical plane. The sprocket 47 is fixed to shaft 48, journaled in bearings 49, arranged on arms 51, extending forwardly from the side members of the secondary frame.

To provide lifting means for the hammer, brackets comprising the link 53 and the integral lifting arm 54 are evenly spaced on the endless chain 46. Thus when the hammer reaches its uppermost position, shown in dotted lines in Fig-

ure 1, the bracket releases the hammer as the chain passes around the sprocket. The hammer drops, striking the post, and is again lifted to its uppermost position by the next succeeding bracket.

To provide a measure of protection for the operator of our machine, whose seat is not far in front of the compression legs, a shield 56 is positioned forwardly of the endless chain 38. The shield is held in position at its upper end by a rigid fastening to bracket 57, the lower end being secured to the vehicle frame.

To prevent disengagement of the lifting arm from the hammer as it travels upward, a length of channel section structural iron 58 is fixed to the secondary frame immediately behind the upwardly moving reach of the chain, so that displacement of the chain out of its straight line of travel is prevented.

We claim:

1. In a post driving machine, a main frame, a power driven shaft journaled on the main frame, a second frame including a slideway and pivotally connected at its upper end for universal movement on the main frame, a pair of adjustable length brace rods connecting the second frame at its lower portion to the main frame, a pair of sprockets journaled on the second frame, an endless chain on said sprockets, a hammer disposed in the slideway, a bracket on the chain extending laterally therefrom for engaging the post engaging end of the hammer body on the upwardly moving reach of the chain, guide means confining the chain to straight line movement during lifting of the hammer, and means connecting the power driven shaft to one of the sprockets.

2. In a post driving machine, a main frame, a power driven shaft journaled on the main frame, a second frame including a slideway and pivotally connected at its upper end for universal movement on the main frame, an adjustable length brace rod connecting each side of the second frame at its lower portion to the main frame, a pair of sprockets journaled on the second frame, an endless chain on said sprockets, a hammer disposed in the slideway, a bracket on the chain extending laterally therefrom for engaging the post engaging end of the hammer body on the upwardly moving reach of the chain, guide means confining the chain to straight line movement during lifting of the hammer, means connecting the power driven shaft to one of the sprockets, and means including a spring arranged on the second frame for limiting the drop of the hammer.

3. In a post driving machine, a main frame, a power driven sprocket on the main frame, a second frame including a slideway mounted for universal movement on the main frame, a hammer in the slideway, a pair of sprockets rotatably mounted on the second frame, an endless chain connecting one sprocket of said pair to the power driven sprocket on the main frame, a fourth sprocket rotatably mounted on the second frame in spaced vertical relation to the other sprocket of said pair, an endless chain disposed on said vertically spaced sprockets, a plurality of brackets on the chain extending laterally therefrom for engaging the post engaging end of the hammer body on the upwardly moving reach of the chain, guide means for confining the upwardly moving reach of the chain to straightline movement during lifting of the hammer, spring stop means fixed to the second frame for limiting the downward movement of the hammer, and adjustable length brace rods connecting the lower portion of the second frame to the main frame for adjusting the verticality of the second frame.

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