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J. L. MILLER  
EARTH TAMPER  
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3,091,159

FIG. 1

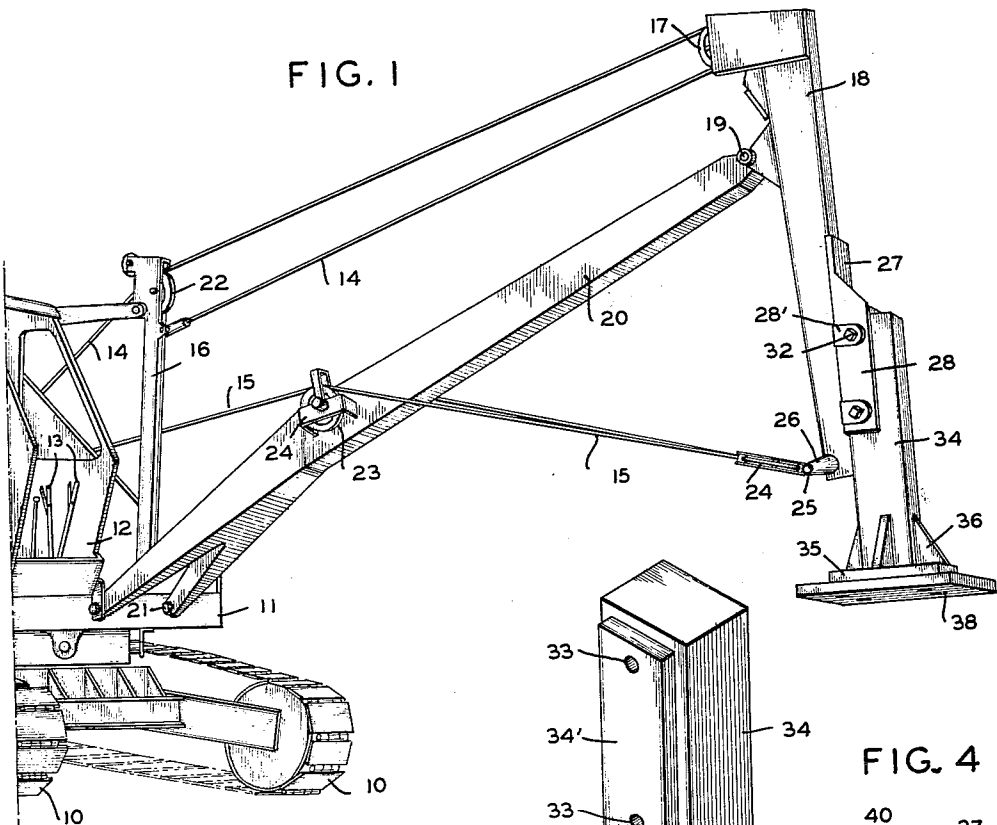
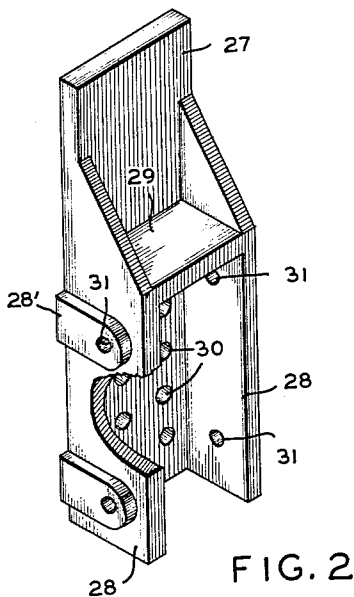


FIG. 3

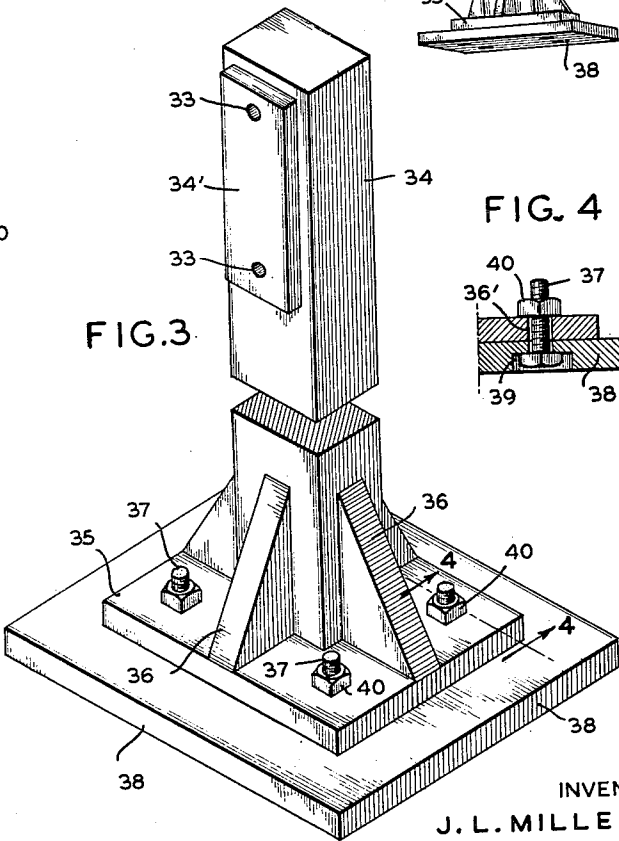
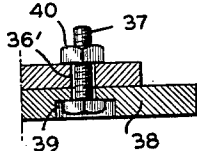


FIG. 4



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## EARTH TAMPER

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1 Claim. (Cl. 94-49)

This invention relates to earth working and equipment employed in the various operations involving the excavating, filling and otherwise moving of earth and including the application of force in an effort to restore the original compactness and solidarity sufficient to sustain a predetermined weight in a particular location without the delay which would be necessary for the forces of nature to accomplish such result.

The invention relates specifically to heavy duty machinery employed in earth working including motorized vehicles on the order of steam shovels and kindred devices by which earth is moved, replaced and tamped down so that it will have the desired density.

Devices of various kinds have been applied to vehicles having endless earth engaging treads and swingable booms in order to excavate, fill or otherwise move earth and to tamp the same. However, these devices have been cumbersome and expensive as well as difficult to apply and use and did not readily and efficiently perform the function for which they were designed.

It is an object of the invention to provide a motorized vehicle having endless traction or earth engaging members by which it may be driven along the surface of the earth, and having a body, a swingable boom with a depending tamper at its forward end and which boom is adapted to be raised and allowed to drop all operating conjointly in the manner of a hammer to perform the tamping action as well as having guiding means for the tamper.

Another object of the invention is to provide a vehicle of the character described in which a tamper is provided which includes a bar with its longitudinal axis in a generally upright position and attached centrally at its lower end to a base plate to which is attached a tamper shoe and with angle plates or buttresses between the post and the base plate to provide a solid head.

Another object of the invention is to provide a relatively heavy tamper with an enlarged detachable tamper shoe or work surface carrying plate and with a center post, reinforcing gussets or angle plates about the same and connected to the work plate, such post being detachably carried in and attached by bolts to a U-shaped channel forming saddle.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawing, in which:

FIG. 1 is a perspective illustrating one application of the invention;

FIG. 2, an enlarged perspective of the saddle with one side broken away for purposes of illustration;

FIG. 3, an enlarged perspective of the tamper head; and

FIG. 4, a section on the line 4-4 of FIG. 3.

Briefly stated the invention is an earth tamper including a base plate attached centrally to a weight providing mounting post and with a tamper shoe attached to said base plate and providing an enlarged tamping surface, the post of said tamper being fixed to an elongated dip stick or operating member having its intermediate portion attached to a pivoted boom so that the cooperative action of these several parts simulates the wielding of a hammer to provide a controlled compacting force.

With continued reference to the drawing, a vehicle is provided generally similar to that of a conventional steam shovel, such vehicle having endless earth engaging treads or traction members 10, a body 11, and an operator's cabin 12 which contains suitable controls 13 by which certain cables 14 and 15 are caused to be lengthened or

shortened, such cable 14 having one end anchored to a post 16 and extended about a pulley 17 carried by an operating member or dip stick 18 connected by a pivot 19 to the end of a swingable boom 20, the lower extremities of which are mounted on pivots 21 attached to the body 11.

After the cable 14 is extended around the pulley 17 it is extended reversely over a pulley 22 on the upper end of the post 16 and then downwardly around a windlass or the like (not shown). When the cable 14 is wound around the windlass it will cause the pulley 17 to pull or swing the member 18 and the outer end of the boom upwardly and when it is unwound from the windlass will permit it to move in the opposite direction.

A coordinated control is provided for the member 18 which includes a windlass (not shown) about which the cable 15 is wound, such cable extending over a pulley 23 carried by a bracket 24 on the boom 20 from which the cable 15 extends to another pulley or sheave wheel 24 attached by a pivot 25 to a bracket 26 connected to the lower end of the member 18, the remaining end of the cable being fixed to the boom 20. Thus the cables 14, 15 attached to the member 18 on opposite sides of the pivot 19 at the end of the boom 20 operate cooperatively to swing the member 18 with regard to the end of the boom.

FIG. 1 shows the boom and dip stick in the elevated position, held there by the joint action of cables 14 and 15. When the cables are permitted to unwind, the boom and dip stick carrying the tamper will drop to create a compacting force on the earth. To elevate the boom, cable 14 is wound on its windlass, the effect of which is, first, to swing the dip stick 18 on its pivot 19 to the extent, if any, permitted by cable 15 and, second, to raise the dip stick and boom together to the position of FIG. 1. As shown, boom 20 is upwardly inclined even in its lowered position so that it can be raised by the joint action of cables 14 and 15.

To the front of the member 18 is welded or otherwise secured an elongated saddle composed of an elongated plate 27 having right angular sides 28 connected by a cross bar 29. Reinforcing members 28' may be provided for each angular side 28. The plate 27 is provided with openings 30 for the application of welding tools to fasten the saddle to the member 18. The side members 28 of the saddle are provided with spaced openings 31 for the reception of mounting bolts 32 as illustrated in FIG. 1 which mounting bolts are adapted to extend through openings 33 in a post 34 having a pad 34' on each side thereof. Such post is of a thickness or transverse dimension corresponding to the spacing between the plates 28 in order that such post may be disposed between such plates and in engagement with the cross-bar 29. The lower end of the post is in a position to provide a tamping surface and when the member 28 is raised and allowed to drop suddenly to produce a tamping action similar to that of a welded hammer.

In order to enlarge the lower tamping end of the post a base plate 35 is welded or otherwise attached to the end of the post 34, angle plates or gussets 36 being provided to buttress or reinforce the marginal portion of the base plate 35, such angle plates being disposed centrally of each side of the post. The base plate 35 is provided with openings 36 for bolts 37 by which a tamping plate or shoe 38 may be attached to such base plate 35 and with such tamping plate or shoe having openings 39 for the receipt of the bolts 37, nuts 40 being provided for fastening the parts in assembled relation.

It will be apparent from the foregoing that a tamper is provided composed of a central upright post snugly fitted and fastened within a U-shaped bracket or saddle carried by the generally upright member 18 adapted to be raised and allowed to drop by gravity, such posts having a squared end with an enlarged plate welded centrally

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thereto and with angular brackets or gussets providing stiffness for the marginal portion of the base plate and with a detachable face plate or tamper shoe bolted or otherwise secured to the base plate to provide an enlarged tamping surface and which face plate or tamper shoe may be of selective size and thickness when a particular type of face plate is preferred and can be readily replaced when worn.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is illustrated in the drawing and described in the specification, but only as indicated in the accompanying claim.

What is claimed is:

An earth tamping machine comprising a vehicle, a boom pivoted at one end to said vehicle to extend outwardly therefrom, a substantially upright dip stick pivoted on the outer end of said boom at a point on said dip stick above its center portion to provide a short portion of said dip stick above said pivot point and a longer portion of said dip stick below said pivot point, a saddle mounted on the forward side of said longer portion of the dip stick, a post detachably secured in said saddle, a transverse tamping plate on the lower end of said post, a first windlass driven cable extending from said vehicle to the upper end of said short portion of the dip stick, a second windlass driven

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cable extending from said vehicle to the longer portion of said dip stick, so that when the first cable is wound on the windlass it will swing the dip stick on its pivot so far as permitted by the second cable and then raise the boom and the dip stick together and when the cables are unwound they will permit the boom and dip stick with the tamping plate to drop by gravity, the combined weight of the tamping plate, dip stick and boom creating a compacting force similar to that of a wielded hammer.

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