United States Patent

Gartner

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[54] **FENCE POST DRIVER**

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[52] **U.S. Cl.** **173/124**

[51] **Int. Cl.** **E02d 7/00**

[58] **Field of Search** 173/53, 54, 124

[56] **References Cited**

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[57] **ABSTRACT**

A fence post driver for driving fence posts, including replacement posts for an existing fence having a plurality of parallel strands, has a lifting mechanism which repeatedly elevates a hammer which when released, falls by gravity to hammer the fence post into the ground to the desired depth. The driver includes a post guiding member which is stationary with respect to the ground during the driving operation and formed with a vertically upstanding back portion and a pair of side portions secured to the back portion. Notches formed in the side portions align with the individual strands of the fence which are positioned between the post and the back portion of the post guiding member, so that the driver may operate on the opposite side of the fence with respect to the post being driven. Of course, the driver may be used on the same side of the fence as the post being driven.

6 Claims, 3 Drawing Figures

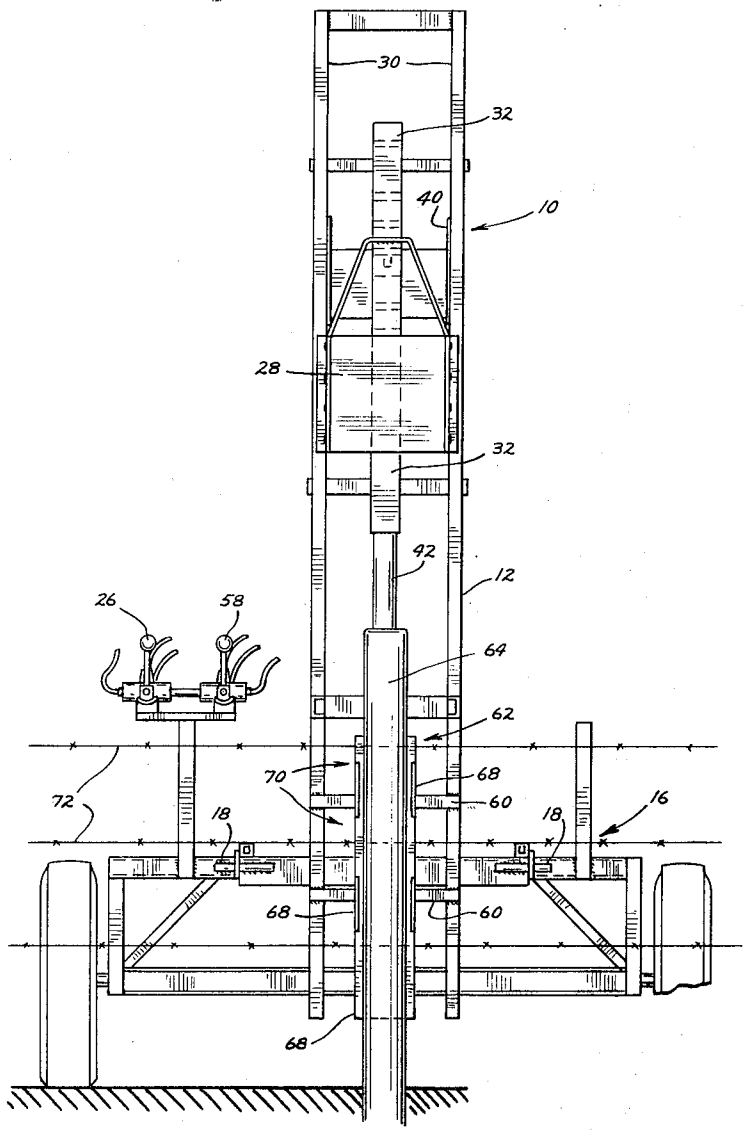
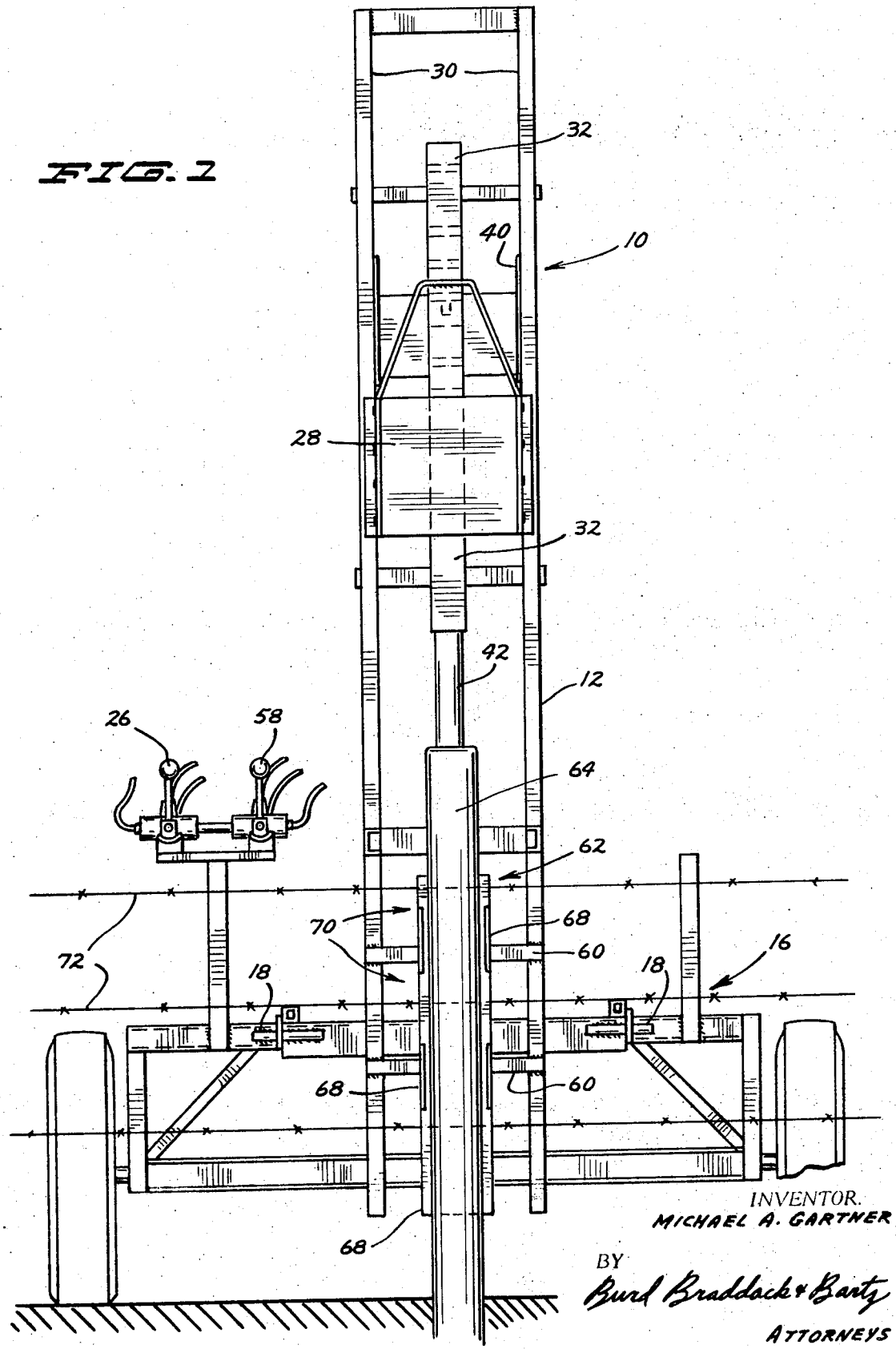


FIG. 1



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FIG. 2

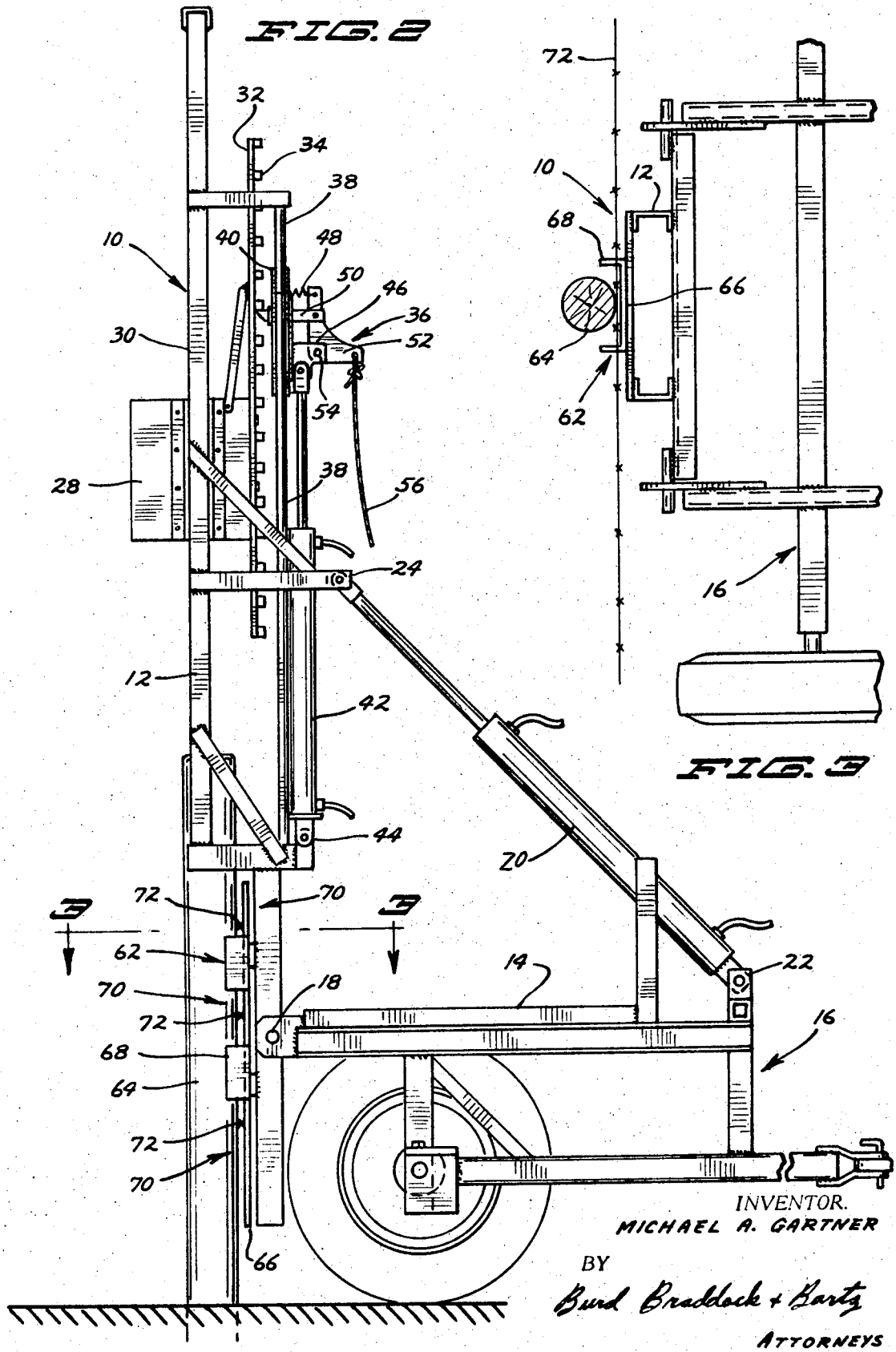


FIG. 3

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FENCE POST DRIVER

BACKGROUND OF THE INVENTION

This invention relates to an impact fence post driver having a stationary post guiding member, formed like a channel, for guiding the post being driven and designed so that the driver may operate from either side of an existing wire strand fence while driving the post.

Some very early inventions showing methods and apparatus for driving a fence post are known. U.S. Pat. Nos. 485,051; 553,002; 886,376; and 819,764 all show mechanisms which are relatively large and cumbersome by today's standards and which were designed for use in establishing a new fence rather than repairing an old fence.

Other patents, such as U.S. Pat. No. 2,940,267 and No. 3,156,308 represent modern adaptations of the post driver, but which are still suitable for establishing only a new fence or for working only from the same side of the fence as the post to be driven.

U.S. Pat. No. 3,207,236 shows the feature of using a channel iron to guide a fence post in an impact driver, but the channel iron **66**, as shown in FIGS. **2** and **3**, actually moves up and down and would not allow the presence of a fence between the post and the driver. Consequently, the driver shown in this patent may only be used on the same side of an existing fence as the post is to be driven.

Similarly, U.S. Pat. Nos. 3,026,949; 2,348,820; and 2,378,131 show fence post drivers which may be used from only one side of an existing fence to install a replacement fence post.

It may be appreciated that for someone desiring to repair an existing fence, it would be desirable to have a fence post driver for driving the replacement post which may be capable of working from either side of the fence with respect to the replacement post to be installed. For example, it may be easy to gain access to a fence from a highway adjacent the fence to install a replacement post, but may not be as easy to gain access to the fence from the field side thereof. Similarly, features of irregular ground or a fence bordering on a woods would make it inconvenient to approach a fence from the side on which it is desired to place the replacement post but no problem would be presented where a fence post driver is capable of placing a replacement post on the opposite side of the fence from the driver.

SUMMARY OF THE INVENTION

A fence post driver which may drive a post on the opposite side of the individual strands of a wire fence from the driver, as well as on the same side, is provided. The particular form of the invention shown is an impact type fence post driver having a driving head which is repeatedly elevated by a hydraulic motor to an adjustable predetermined height where it is released to fall by gravity and impact with the fence post being driven. As shown in the accompanying drawings, the driving head is a hammer slidably mounted on a frame, also supporting the hydraulic motor, all of which is mounted on the bed of a small two-wheel trailer adapted to be towed by a tractor or a truck. If, for example, a tractor is used, the double acting hydraulic system of the tractor may be used as the power source to drive the hydraulic motor on the fence post driver, or alternatively, a separate motor and pump on the trailer may be provided as a source of driving power for the hydraulic motor.

In the form of the invention shown, a second hydraulic motor, constituted as a cylinder with a piston, is mounted between the bed of the trailer and the frame assembly, which, in turn, is pivotally mounted to the bed of the trailer so that the driver may be moved from a vertical operative position to a tilted transportation and storage position. This is to move the depending structure of the driver further away from the ground and to provide better overhead clearance for transportation.

To facilitate the driving of the fence post from either side of the strands of the fence with respect to the driver, the form of the invention shown includes a vertically positioned post guiding member, formed like a channel, to support the fence post as it is being driven into the ground. This member is positioned relatively near the ground and rigidly secured to the frame. The member is formed with a back portion extending vertically upwardly and has a pair of side portions so that the post is guided from three sides. Each side portion of the member has a plurality of relatively wide notches therein to accommodate the strands of a wire fence. These notches will allow the strands to be fixedly tensioned against the back portion of the member and away from the fence post as it is being driven, thereby allowing the fence post driver to drive a fence post on the opposite side of the strands of an existing fence from which the trailer supporting the driver is positioned.

IN THE DRAWINGS:

FIG. **1** is a rear view of a fence post driver according to the present invention;

FIG. **2** is a side view of the driver shown in FIG. **1**; and

FIG. **3** is a top sectional view of the driver shown along line **3—3** of FIG. **2**.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the figures, a fence post driver **10**, according to the present invention, has a rigid frame **12** which is pivotally mounted to the bed **14** of a two wheel trailer **16** at a pair of pivotal mounting points **18**, **18**. The bed of the trailer may be used for carrying tools and fence posts. A hydraulic motor **20**, in the form of a hydraulic cylinder and piston, is pivotally mounted at a pivotal mounting point **22** at the forward end of the trailer and extends inclinedly upwardly to be secured to a second pivotal mounting point **24** at an upper front portion of the frame **12** of the fence post driver. An operator controlled hydraulic control valve **26** is mounted to the bed **14** of the trailer and controls the two way operation of the hydraulic motor **20** between a position where the fence post driver is in an operative vertical orientation with respect to the ground and an inoperative transportation position with the driver tilted forwardly over the bed of the trailer, thereby reducing its height and increasing its clearance with the ground.

A fence post driving hammer **28** is slidably mounted to a pair of slides **30**, **30** included as part of the frame **12** of the fence post driver. The slides **30**, **30**, as shown

in the figures, extend vertically upwardly to a maximum height which represents the maximum height from which the hammer is to be dropped when starting to drive a fence post which has not yet penetrated the ground. The slides also extend to a minimum height which represents the approximate height above the ground below which the top of a fence post would not be driven. Secured to the hammer **28** is an arm **32** which extends vertically above and below the hammer **28**. Mounted on the arm **32** are a plurality of latching bars **34** which extend outwardly forwardly therefrom and run horizontally with respect to the ground. A catch mechanism **36** is slidably mounted to a pair of tubular guide members **38, 38** included as part of the frame **12** of the fence post driver. A pair of U-shaped sleeves **40, 40** partially encompass the guide members **38, 38**, one to each, respectively, and form the sliding contact therewith. A hydraulic motor **42**, constituted as a hydraulic piston and cylinder, is rigidly mounted to the frame **12** at **44** and extends vertically upwardly to be secured to a support block **46** included as part of the catch mechanism **36** and in turn mounted on the sleeves **40, 40**. A finger **50** is slidably mounted on and supported by the support block **46** for movement into and out of engagement with the latching bars **34** on the upstanding arm **32**. A spring **48** is mounted between the bracing on the sleeves **40, 40** and a lever **52** which is pivotally mounted at **54** to the support block **46**, so as to hold the lever and the finger **50**, which is also secured to the lever, in a normally engaged position with respect to the latching bars **34**. A flexible connection **56**, such as a rope or chain, is provided to the lever **52** for tripping the catch mechanism and releasing the hammer to fall and impact with the fence post being driven. The operator of the fence post driver may, for example, secure the connection **56** at a predetermined length to some portion of the frame **12** so that when the hydraulic cylinder has been raised to a certain height, as determined by the length of the connection **56**, the catch mechanism **36** will automatically trip and release the hammer. An operator controlled hydraulic control valve **58** is provided adjacent valve **26** so that the operator may control the raising and lowering of the two way hydraulic motor **42**.

A pair of horizontal bars **60, 60** running horizontally with respect to the ground and secured to the frame **12** support a post guiding member **62**, formed like a channel, and which is shown in the figures in relation to a fence post **64** which is being driven into the ground. The post guiding member **62** has a back portion **66** having a flat surface running parallel to the fence and secured to the bars **60, 60**. A pair of side portions **68, 68** extend outwardly around the fence post from either side of the vertically extending back portion **66**. A plurality of notches **70** are formed in the side portions **68, 68** in symmetrical horizontal relationship to one another and extending to the back portion **66** so that the strands **72** of the fence will lie against the back portion **66** of the post guiding member in parallel relation while the fence post driver is stationed on the opposite side of the fence wires with respect to the fence post **64** being driven into the ground.

In operation it may be seen that the trailer **16** will be pulled by any suitable vehicle to the location in which a fence post is to be driven. It is assumed that a source of hydraulic fluid power will be provided either by the towing vehicle or by a separate mechanism mounted on the trailer itself and properly connected with the hydraulic valves **26** and **58**. Normally, the fence post driver can be transported in a tilted relationship with respect to the trailer to reduce overhead clearance and to provide a clearing relationship between the frame, the fence post guiding member thereon and the ground. Once tilted to the vertical operative position, the fence post driver will have a fence post **64** stationed in the post guiding member **62** and surrounded on three sides by the back portion **66** and the pair of side portions **68, 68** thereof. The operator of the driver will adjust the flexible trip connection **56** for the predetermined height to which the hammer **28** is to be raised before each impact with the fence post. The driver will then operate the two way hydraulic valve **58** causing the hammer **28** to be repeatedly lifted and dropped to impact with the fence post, thereby driving it into the ground. It will be appreciated that as the fence post is driven into the ground and the hammer comes to rest at a relatively lower position on top of the fence post after each impact, that the finger **50** of the catch mechanism will engage with a different latching bar **34** from time to time during the repeated cycles of operation of the driver. It can be appreciated that this fence post driver may be used in construction of a new fence or for replacement of posts in an existing fence when the driver is on either side of the fence with respect to the post to be driven. It will also be appreciated that the fence post guiding member will allow the strands of the fence to be accommodated against the back portion thereof and within the notches **70** formed in the respective side portions when the fence post driver is on the opposite side of the fence with respect to the post being driven.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A fence post driver for driving a fence post in relation to an existing fence of substantially parallel horizontal strands, said driver comprising:

a rigid frame,

means for movably supporting and carrying said frame from place to place,

a post guiding member vertically oriented with respect to the fence post to be driven and secured to said frame, said member in guiding relation with said post and including a back portion having a surface in parallel relation to said fence and a pair of side portions extending outwardly from said back portion to surround a fence post on three sides, said side portions each having a plurality of notches therein for accommodating the strands of said fence, and

means secured to said frame for repeatedly impacting the post guided by said post guiding member to drive the post into the ground.

2. The structure of claim **1** wherein said means for impacting is comprised of:

a hammer slidably mounted to said frame and having an upstanding arm with a plurality of latching bars vertically disposed thereon,

a catch mechanism slidably mounted on said frame for selective engagement with one of the latching

bars on said hammer arm, said catch mechanism being releasable from engagement with said hammer arm latching bar to allow said hammer to fall and impact a post being driven, when said hammer is in an elevated condition, and

means for elevating said catch mechanism when said hammer is engaged therewith.

3. The structure of claim 2 wherein said means for elevating said catch is a hydraulic motor secured at one end to said frame and running vertically upwardly to be secured at the other end to said catch.

4. The structure of claim 3 wherein said catch includes a support block mounted to said frame for vertical sliding movement relative thereto, a sliding finger slidably mounted for horizontal movement in relation to said vertically sliding support block, biasing means for causing said finger to normally engage one of said latching bars, and means for moving said finger from the normally engaged position with respect to one of said latching bars to a release position, said means operable by the operator of said machine.

5. The structure of claim 1 and further comprising means for tilting said frame from a vertical, operative position to a position away from the vertical, thereby lifting said post guiding member substantially away from the ground for transport of the post driver.

6. The structure of claim 1 wherein said means for movably supporting and carrying includes a trailer having a bed and a pair of wheels and means for securing same to a towing vehicle, wherein said frame is pivotally mounted to a back portion of the bed of said trailer, and further comprising a hydraulic motor extending between the bed of said trailer and a portion of said frame above the pivotal mounting point of said frame to said bed for pivotally moving said frame from the vertical operative position to a tilted transport position.

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