United States Patent

[11] 3,602,316

[72] Inventors **Ralph J. McNicholas**
5807 Gibson Place, Roseville, Calif. 95678;
John H. Wicks, P.O. Box 868, Loomis, Calif. 95650

[21] Appl. No. **844,550**
[22] Filed **July 24, 1969**
[45] Patented **Aug. 31, 1971**

[54] **POST DRIVER MOUNTING ASSEMBLY**
1 Claim, 4 Drawing Figs.

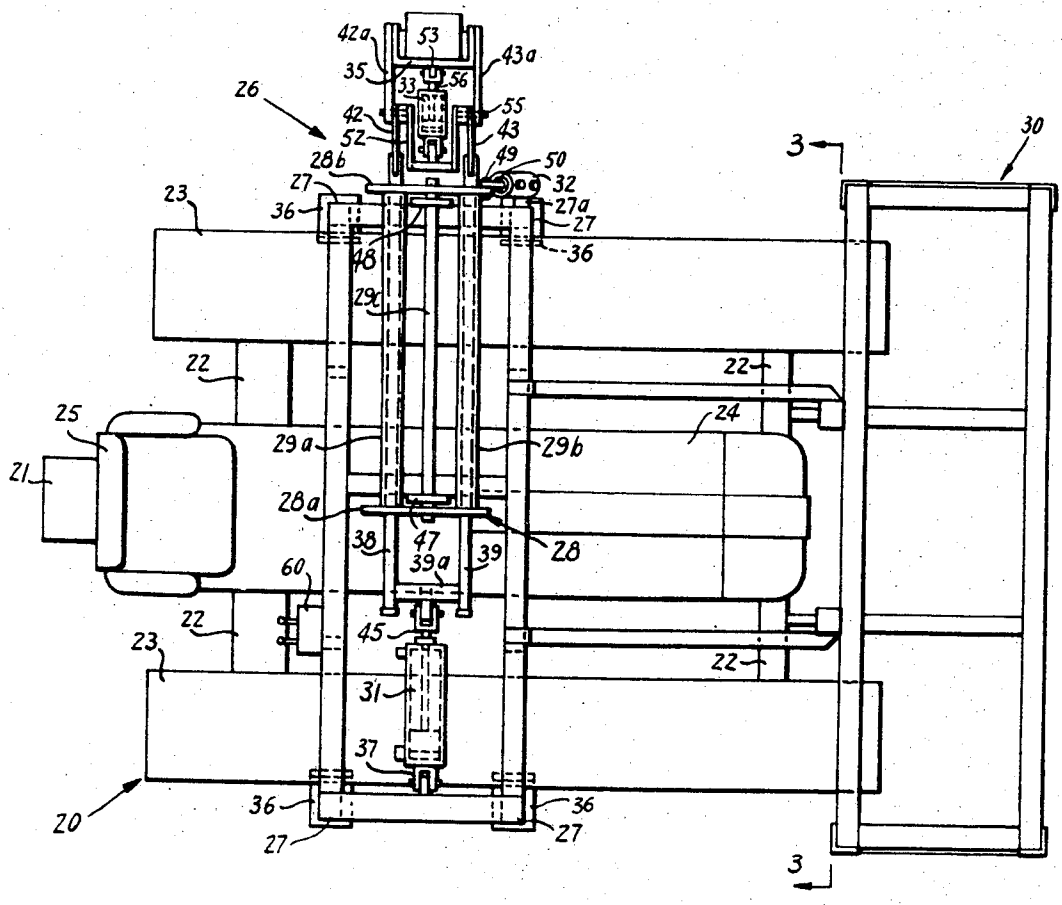
[52] **U.S. Cl.** **173/28, 173/43**
[51] **Int. Cl.** **E21c 11/02**
[50] **Field of Search** 173/28, 43

[56] **References Cited**
UNITED STATES PATENTS

2,655,006	10/1953	Hoen et al.	173/43 X
3,395,766	8/1968	Granville	173/43 X
3,447,613	6/1969	Lisenby	173/43 X

Primary Examiner—Ernest R. Purser
Attorney—Alexander B. Blair

ABSTRACT: A fixed support and pivotally mounted cradle assembly extending crosswise over a vehicle for attachment, positioning, and two-way rotation of a post driver by means of sliding rods and pivotally mounted linkage.



PATENTED AUG 31 1971

3,602,316

SHEET 1 OF 3

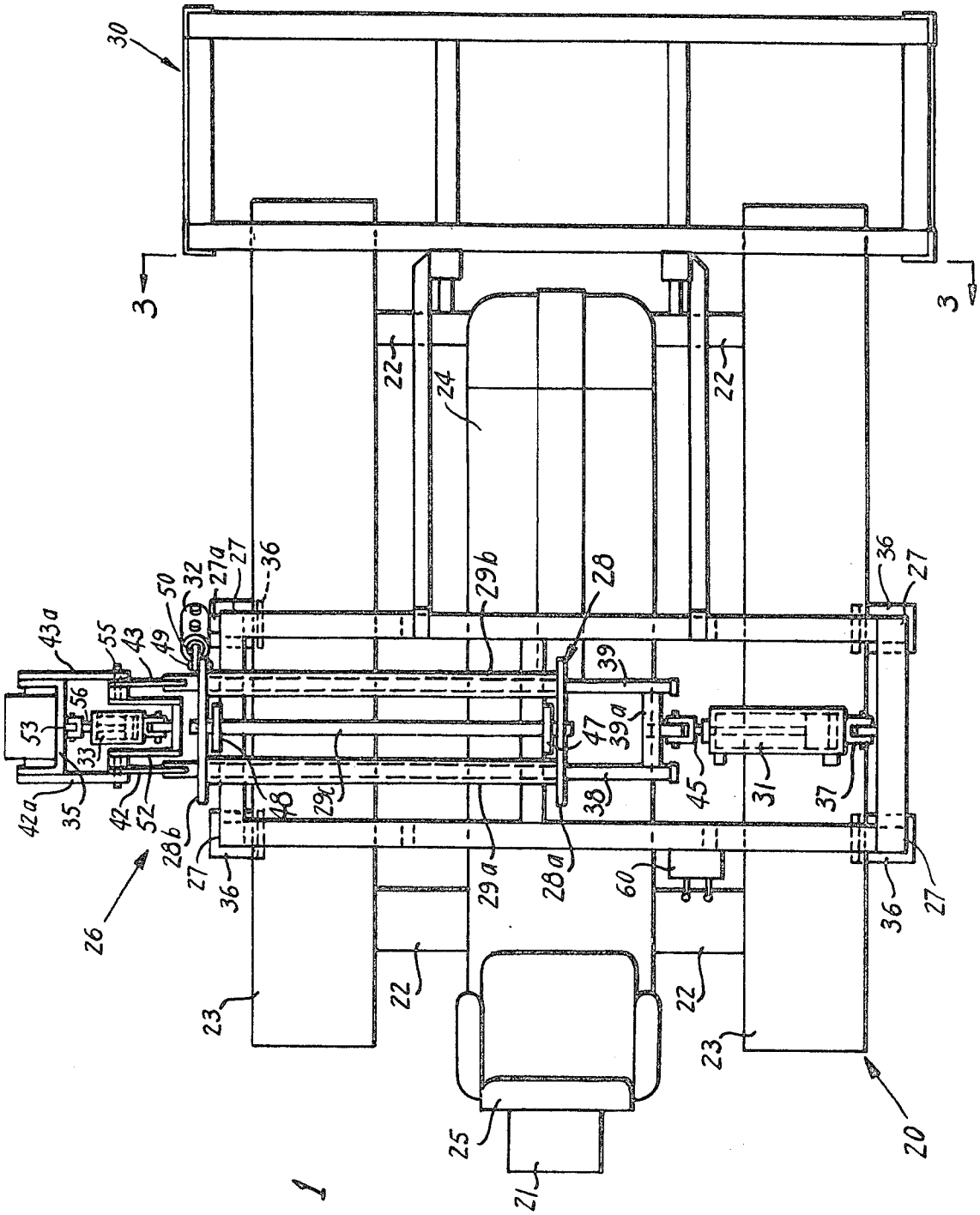


FIG. 1

INVENTORS.
RALPH J. McNICHOLAS
JOHN H. WICKS
BY
Alexander B. Blair
ATTORNEY.

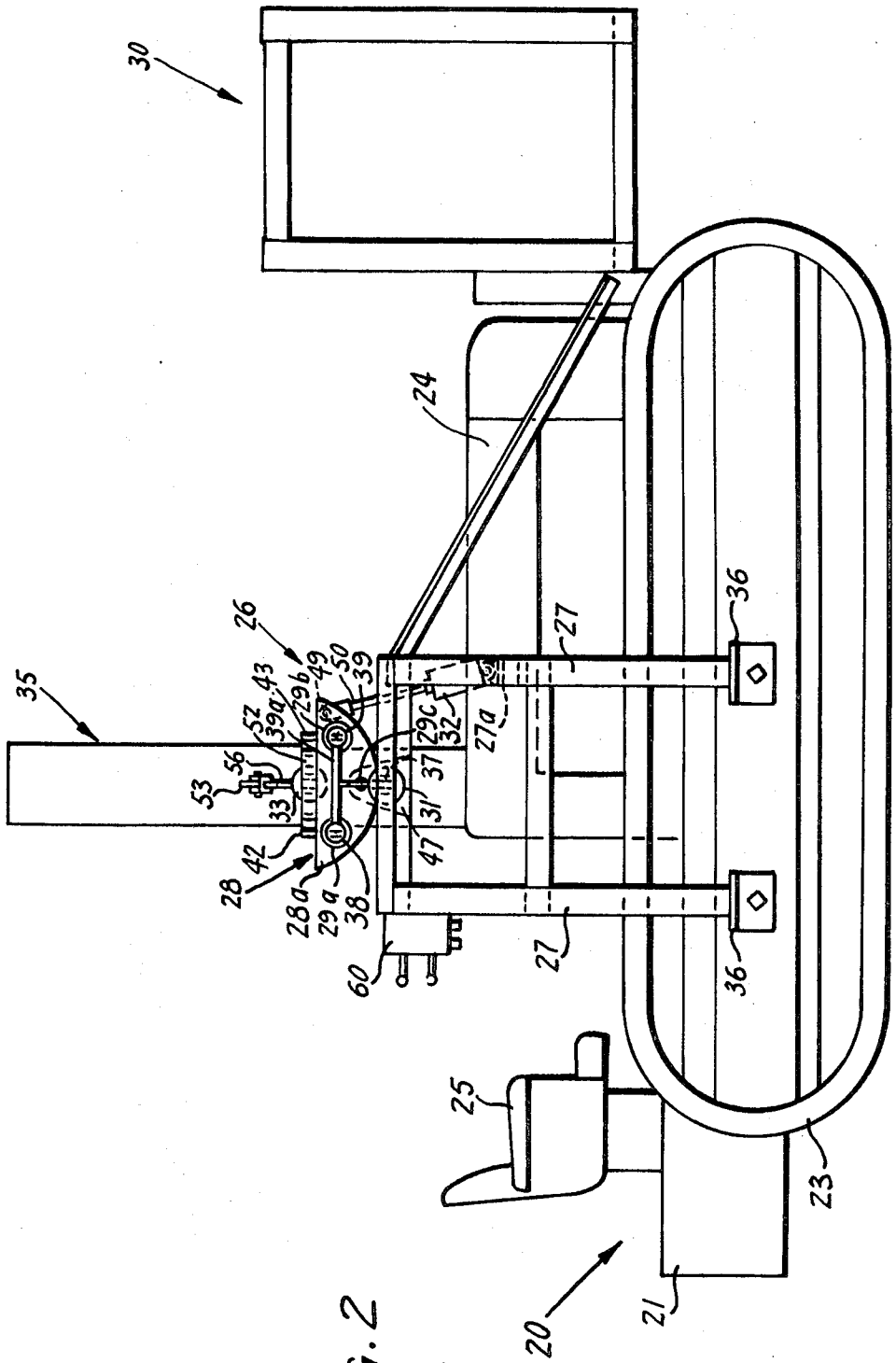
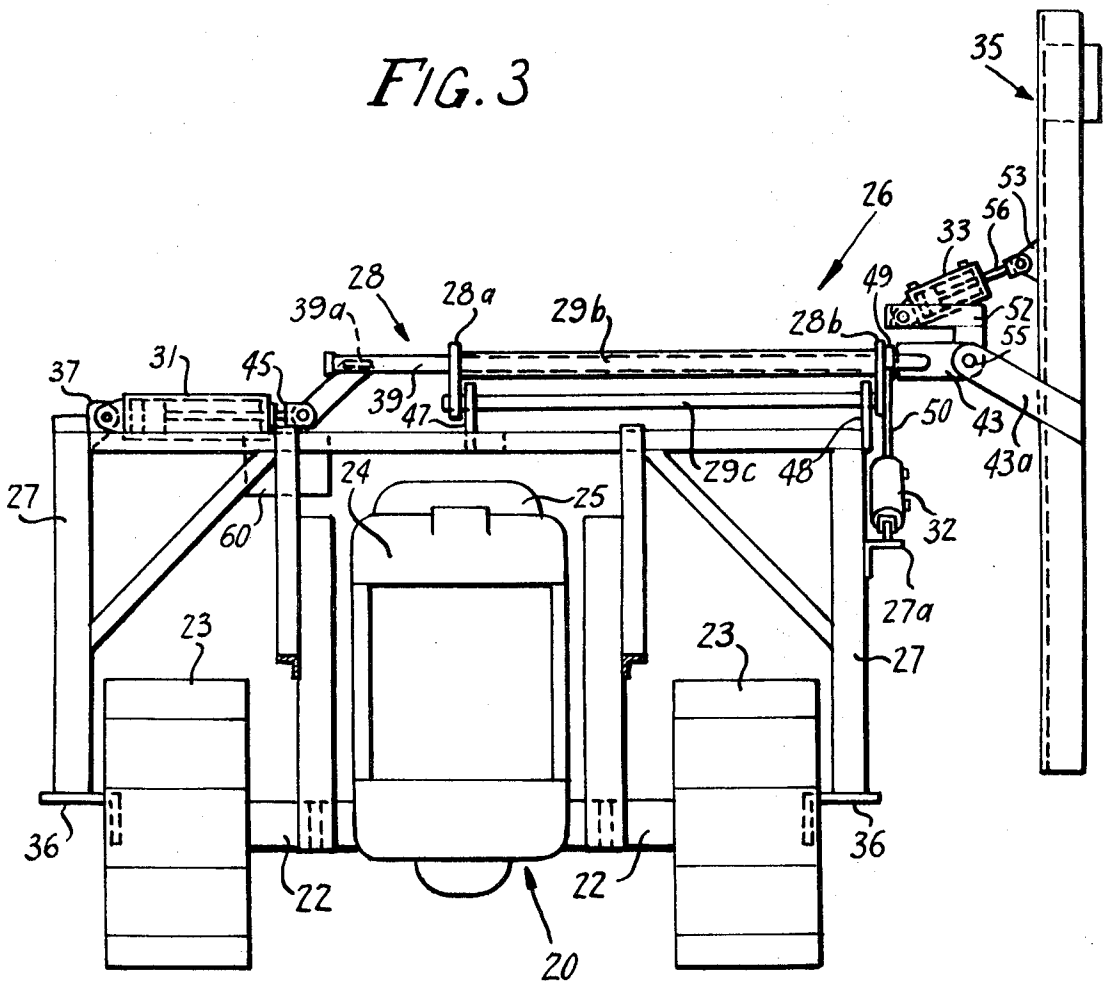


FIG. 2

INVENTORS.
RALPH J. McNICHOLAS
BY JOHN H. WICKS
Alexander B. Blair
ATTORNEY.

FIG. 3



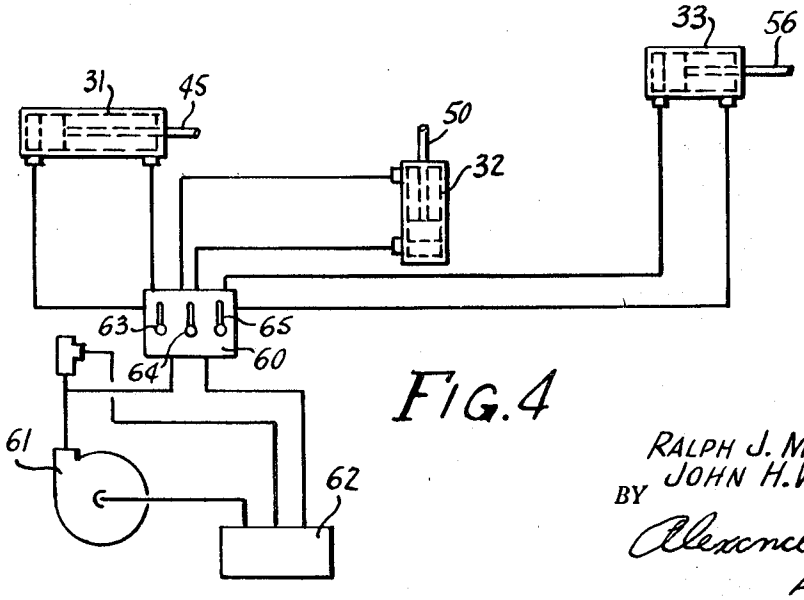


FIG. 4

INVENTORS.
RALPH J. McNICHOLAS
JOHN H. WICKS
BY
Alexander B. Blair
ATTORNEY.

POST DRIVER MOUNTING ASSEMBLY

This invention relates to a novel frame assembly mounted on a vehicle for the support and hydraulic control of a post driver.

Vehicular mounted post drivers have hitherto been subject to difficulty in keeping the post driver vertical while the vehicle is on uneven ground, and lining up the post driver with the exact spot where the post is to be driven without moving the vehicle. When the vehicle is subjected to pitch, as when the front is either higher or lower than the rear, or when the vehicle is subjected to roll, as when the left side of the vehicle is either higher or lower than the right side, there must be compensating movements so that the post is not driven into the ground at an angle.

Accordingly, a primary object of this invention is to provide a novel apparatus for maintaining the post driver in a vertical position regardless of the pitch or roll of the vehicle.

It is another object of this invention to provide a novel apparatus for positioning the post driver at a desired point along a path which is orthogonal to the direction of travel of the vehicle.

The above and other objects of this invention will become apparent to those skilled in the art after a consideration of the following detailed description of a preferred form of this invention taken with the accompanying drawings, in which:

FIG. 1 is a plan view of the frame assembly mounted over the vehicle;

FIG. 2 is a side view of the vehicle and the frame assembly mounted thereon;

FIG. 3 is a sectional view taken on line 3—3 of FIG. 1; and

FIG. 4 is a schematic view of a preferred form of hydraulic control circuit for actuating the frame assembly in positioning the post driver. Referring in detail to the drawings, there is illustrated in FIGS. 1 and 2 a vehicle which may be a tractor, truck, or other similar type of vehicle.

For the purpose of the instant invention a tractor is illustrated which is generally indicated at **20**, including a frame **21** having front and rear axles **22** and tracks **23**, with the conventional drive mechanism, not shown.

The vehicle includes a suitably housed engine **24**, a driver's seat **25**, and suitable controls for the vehicle, not shown.

The device of the instant invention is generally indicated at **26**, and consists essentially of a mounting frame assembly comprising a fixed support **27** and a movable cradle assembly **28** including cradle plates **28*a*** and **28*b*** connected by tubular members **29*a*** and **29*b*** the assembly being pivotally mounted on a pivot pin **29*c***. A suitable conventional post bin is generally indicated at **30** and mounted on the vehicle in any desired conventional manner.

Hydraulic rams **31**, **32** and **33** are provided connected between fixed support **27**, cradle assembly **28**, and the post driver, generally indicated at **35** as illustrated in FIGS. **1** to **3**. Fixed support **27** extends transversely over the vehicle and is attached thereto by means of brackets **36**. Hydraulic ram **31** is secured to fixed support **27** by means of a bracket **37**. The ram end is in turn secured to the free ends of rods **38** and **39** by means of brackets **39*a***. The other ends of rods **38** and **39** are slidably mounted in tubular members **29*a*** and **29*b*** which extend transversely over the vehicle and are secured to post driver **35** by means of brackets **42** and **43**. As pressure is introduced into the hydraulic ram **31** in a manner to be described hereinafter, a ram **45** is pushed outwardly, exerting

a horizontal force against rods **38** and **39**, which slide transversely through members **29*a*** and **29*b*** extending post driver **35** outwardly beyond the side of the vehicle. The post driver may be positioned at any desired point beyond the side of the vehicle in a path orthogonal to the direction of travel of the vehicle by means of suitable controls, to be described hereinafter.

The cradle assembly **28** and its associated cradle plates are pivotally mounted on a pivot **29*c*** secured to support **27** by means of brackets **47** and **48**, the cradle plates having corresponding apertures for free passage of rods **38** and **39**. Hydraulic ram **32** is secured to support **27** by means of bracket **27*a***, the ram end being secured to cradle plate **28*b*** by means of a pin **49**. As hydraulic pressure is provided in ram **32**, ram **50** is extended outwardly rotating cradle plate **28*b*** and the associated tubular members about pin **29*c***, correspondingly rotating rods **38** and **39**. As the rods are rotated, the post driver obviously rotates in a vertical plane about a horizontal axis in alignment with pin **29*c*** in order to compensate for vehicular pitch. Ram **33** is pivotally attached to arm structure **52**, which in turn is secured to brackets **42** and **43** at the ends of rods **38** and **39** respectively. The ram end is pivotally attached to the post driver by means of a bracket **53**. The post driver assembly is also pivoted to brackets **42** and **43** by means of brackets **42*a*** and **43*a*** and pivot **55**. As ram **56** is extended by means of ram **33**, the top of the post driver assembly is tilted away from the vehicle, while the return of the ram reverses the tilting process so that the post driver may be tilted in a vertical plane in order to compensate for vehicular roll.

A control box **60** is provided attached to fixed support **27** in a location for convenient manual operation. Actuation of the suitable control energizes a pump **61** in conjunction with a source of fluid **62**, and by means of control levers **63**, **64** and **65** fluid may be directed through appropriate lines as shown in FIG. **4** to a selected one of rams **31**, **32** and **33** to achieve the actuation heretofore described.

It will thus be seen that there is herein provided an improved structure which accomplishes all of the objects of this invention, and others, including many advantages of great practical utility and commercial importance.

We claim:

1. A vehicular frame assembly for attaching a post driver comprising:

a fixed support extending transversely over the vehicle and connected to the sides thereof;

a cradle assembly comprising a pin secured to said fixed support and two parallel guides in the same horizontal plane equidistant from and pivotal about said pin mounted on said fixed support for pivotal movement only;

longitudinal elements slidably engaged with said guides for pivoting therewith and moving the post driver along a path orthogonal to the direction of vehicular travel;

means connected between said frame and said cradle causing rotation of the post driver in a vertical plane parallel to the direction of vehicular travel as said cradle assembly pivots; and

linkage extending from said slidable longitudinal elements pivotally attached to the post driver in a first location and secured thereto in another location below the first location and including means for tilting the top of the post driver in one direction while the bottom moves in the other direction in a vertical plane orthogonal to the direction of vehicular travel.