May 13, 1958 D. F. PRZYBYLSKI 2,834,480

TURN POST AND HYDRAULIC MEANS FOR SWINGING THE SAME

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FIG. 1

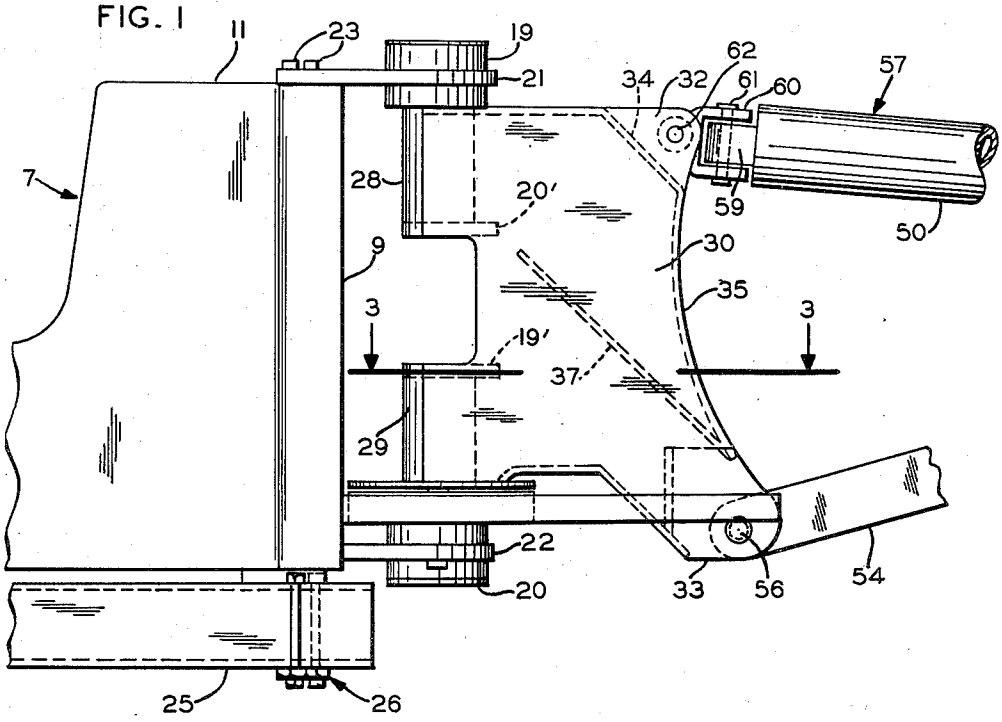


FIG. 2

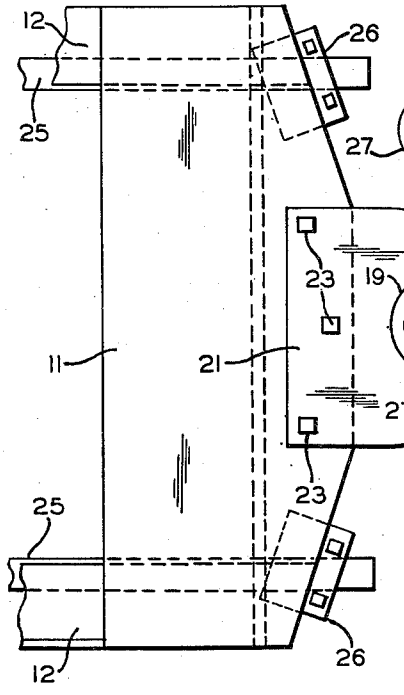
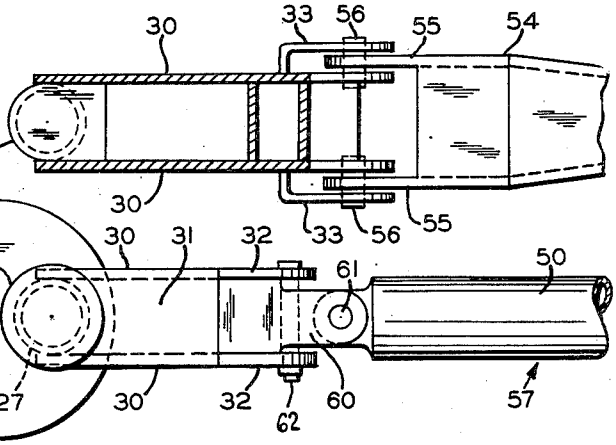


FIG. 3



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TURN POST AND HYDRAULIC MEANS FOR SWINGING THE SAME

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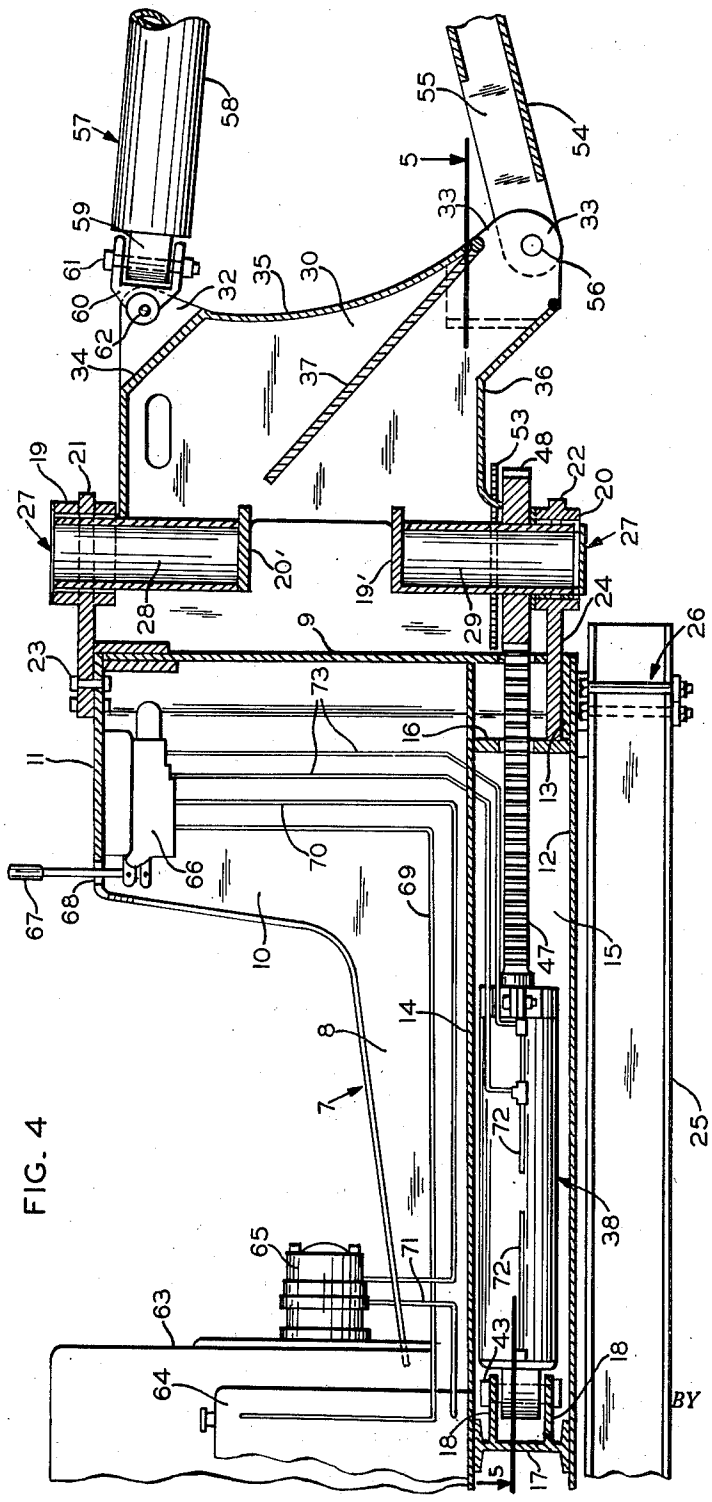


FIG. 4

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TURN POST AND HYDRAULIC MEANS FOR SWINGING THE SAME

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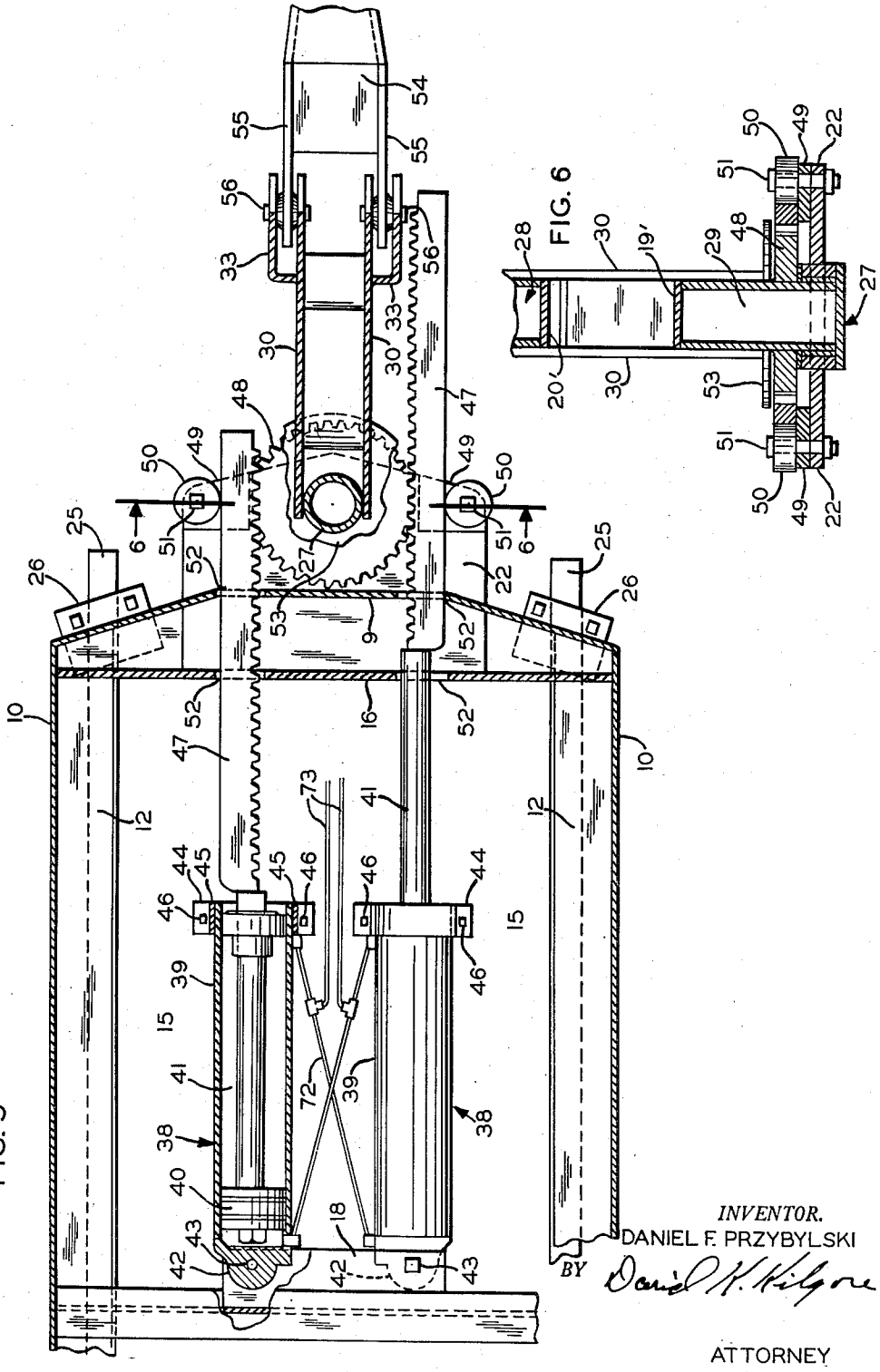


FIG. 5

FIG. 6

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United States Patent Office 2,834,480 Patented May 13, 1958

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TURN POST AND HYDRAULIC MEANS FOR SWINGING THE SAME

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Application September 7, 1954, Serial No. 454,404

1 Claim. (Cl. 212—66)

My present invention relates to improvements in turn posts and provides a novel hydraulic system for swinging the same. This invention, while intended for general use, is especially well adapted for use in digging machines.

The object of this invention is to provide a novel turn post and a hydraulic system for swinging the same.

This and other objects will be apparent from the following description, reference being had to the drawings.

To the above end, the invention consists of the novel devices and combination of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate one embodiment of the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a fragmentary side elevational view of the invention;

Fig. 2 is a plan view of the same;

Fig. 3 is a detail view partly in plan and partly in horizontal section taken on the line 3—3 of Fig. 1;

Fig. 4 is a view in central longitudinal vertical section;

Fig. 5 is a view in horizontal section taken substantially on the line 5—5 of Fig. 4; and

Fig. 6 is a detail view principally in transverse vertical section taken on the line 6—6 of Fig. 5.

The numeral 7 indicates the body of a digging machine which, as shown, is a rectangular structure and made of sheet metal. Only the side members 8 and the front end member 9 of the body 7 are shown and the latter is in the form of a bay. At their front end portions, the side members 8 each have an upper extension 10 and a flat bed 11 rests on the upper edges of the front end member 9 and the extensions 10 to which it is fixed. The side members 8 each has on its lower longitudinal edge an inturned flange 12 and the front end member 9 also has on its lower edge an inturned flange 13 that overlaps the flanges 12. Except for the flanges 12 and 13, the bottom of the body 7 is open.

Within the body 7 is a platform 14 spaced above the bottom thereof, and fixed to said body and below said platform is a compartment 15. Extending transversely through the compartment 15 is a flat bar 16 set vertically edgewise and an I-bar 17, the former being relatively close to the front end member 9 and the latter being rearwardly thereof. Integral with the web of the I-bar 17, at its longitudinal center, is a pair of wide forwardly projecting ears 18 that project forwardly thereof and spaced the one above the other. The bars 16 and 17 are fixed to the side members 8, the flanges 12 and the platform 14 that rests thereon.

Forwardly of the body 7, at its transverse center, is an upper sleeve bearing 19 and a lower sleeve bearing 20 axially aligned and axially spaced apart. These bearings 19 and 20 extend through holes in two horizontal flat plates 21 and 22 and are fixed thereto at their longitudinal centers. The plate 21 rests on the bed 11 and is secured thereto by bolts 23 and the plate 22 extends through

a slot 24 in the front end member 9 with its rear end impinging the bar 16 to which and the front end member 9 it is fixed. The bearings 19 and 20 are for a turn post as will presently appear. A closure plate 19' is applied to the upper end of the bearing 19 and a like plate 20' is applied to the lower end of the bearing 20.

The body 7 is removably mounted on the two longitudinal channel sills 25 of a motor propelled truck with the flanges 12 extending longitudinally of the sills 25 and resting thereon. The body 7 is reversely positioned from the truck, or in other words, the front end of the body 7 is at the rear end of the truck. The body 7, at its four corner portions, is secured to the sills 25 by clamps 26, only the front ones being shown.

The parts thus far described are the subject matter of a co-pending application entitled "Body for Digging Machines," Serial No. 454,401, filed September 7, 1957.

A short turn post 27 includes an upper tubular section 28 and a lower tubular section 29 axially spaced apart and journaled, respectively, in the bearings 19 and 20. A pair of upright flat side plates 30 that are parallel and laterally spaced apart are fixed to opposite sides of the turn post sections 28 and 29 between the bearings 19 and 20, and project radially therefrom. Fixed to the inner end of each turn post section 19 and 20 is a flat plate 31 that extends between the side plates 30 and fixed thereto. The upper outer corner portions of the side plates 30 afford a pair of ears 32. Each lower front corner portion of the side plates 30 and a member fixed to the outer side thereof afford a pair of ears 33. The purpose of the ears 32 and 33 will presently appear.

The side plates 30 are connected by a top member 34, a front member 35 and a bottom member 36. These side plates 30 are further connected by an oblique intermediate member 37.

The turn post 27 is swung about the vertical axis of its sections 28 and 29, on either side of an intermediate position in which it is aligned with the body 7, by a pair of reversely-acting hydraulic rams 38. These rams 38 are parallel in a horizontal plane and extend longitudinally in the compartment 15 at its transverse center between the bars 16 and 17. Each ram 38 includes a cylinder 39 and a cooperating piston 40 having a piston rod 41. Fixed to the outer end of each cylinder 39 is a lug 42 that extends between the ears 18 and attached thereto by a vertical pivot 43. The cylinders 39 are connected at their inner end portions by a pair of collars 44 encircling said cylinders and a cross-tie member 45 connecting said collars. Each collar 44 comprises two sections connected by nut-equipped bolts 46.

Integral with each piston rod 41, at its outer end, is a toothed rack 47 that forms an extension thereof. The racks 47 mesh with a spur gear 48 at diametrically opposed sides thereof and said gear is secured to the lower post section 29 in axial alignment therewith and just above the lower bearing 20. The racks 47 slidably rest on bearing blocks 49 fixed to the plate 22. A pair of guide rollers 50 are journaled on upright pivots 51 that extend through aligned holes in the plate 22 and the bearing blocks 49. These rollers 50 engage the backs of the racks 47 and hold the same in mesh with the gear 48.

The piston rods 41 and the racks 47 work through apertures 52 in the front end member 9 and the bar 16. A cover plate 53, in the form of a disk, is fixed to the lower turn post section 29 in axial alignment therewith just above the gear 48 and prevent dirt from getting between the meshing teeth of said gear and the racks 47.

A boom 54 that is rectangular in cross-section has its side members 55, at their rear end portions, extended and spread apart and extended between the members of the ears 33 and attached thereto by horizontal pivots 56. The boom 54 is raised and lowered by a hydraulic ram

57 that includes a cylinder 58 having a lug 59 integral with its rear end attached to a swivel 60 by a vertical pivot 61. This swivel 60 extends between the ears 32 and is attached thereto by a horizontal pivot 62. The boom 54 and ram 57 are only fragmentarily shown.

A hydraulic system for operating the rams 38 includes an internal combustion engine 63 and a fluid supply tank 64, both of which are mounted on the platform 14, a pump 65 attached to the engine 63 and a valve mechanism 66 attached to the under side of the bed 11 and held suspended threefrom and having an operating handle 67 that extends above the bed 11 and works in a slot 68 in said bed.

A fluid pipe 69 leads from the tank 64 to the pump valve 65 and a fluid pipe 70 leads to the valve mechanism 66 from the pump 65. A fluid return pipe 71 leads from the valve 66 to the tank 64. Two cross fluid pipes 72 lead one from the front end portion of each cylinder 58 into the rear end portion of the other cylinder 58. A fluid pipe 73 leads from each pipe 72 to the valve mechanism 66.

While there are herein disclosed but a limited number of embodiments of the structure, process and product of the invention herein presented, it is possible to produce still other embodiments without departing from the inventive concept herein disclosed, and it is desired, therefore, that only such limitations be imposed on the appended claim as are stated herein, or required by the prior art.

What I claim is:

A support, upper and lower bearings fixed to the support, a frame, including a pair of laterally spaced forwardly projecting side plates the rear end portions thereof extending between the said bearings, a turnpost including an upper section and a lower section axially aligned and axially spaced, said upper and lower turnpost sections being journaled in said uper and lower bearings respectively, said turnpost sections being interposed between the said side plates at their rear end portions and fixed thereto, the upper and front portions of said side plates being extended to form a pair of ears having means for attaching a hydraulic ram thereto, the front and lower portion of said side plates being extended to form a pair of ears having means for attaching a boom thereto, and means for turning the lower turnpost sections and thus swing the frame about the axis of the lower turnpost sections.

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