July 3, 1962 J. S. PILCH 3,042,236

TRENCHER TURRET ROTATING APPARATUS

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Fig. 2.

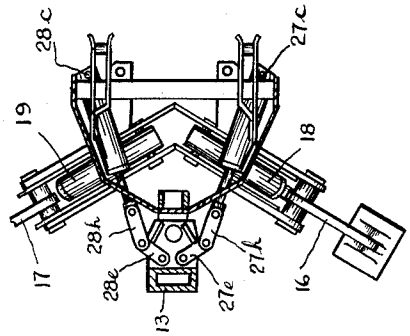


Fig. 1.

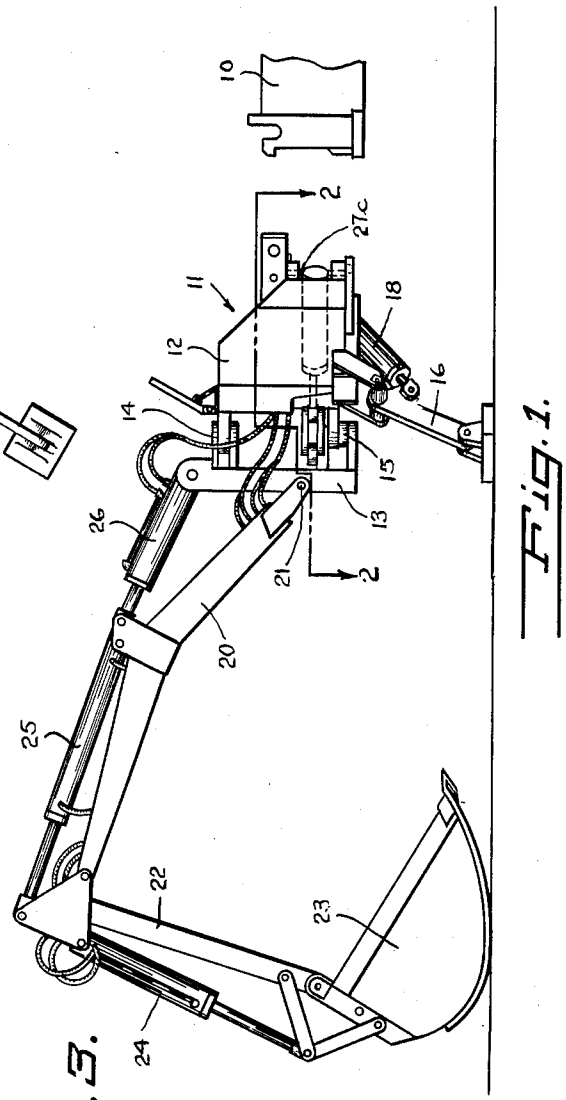
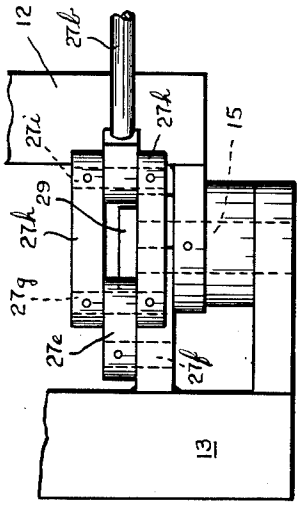


Fig. 3.



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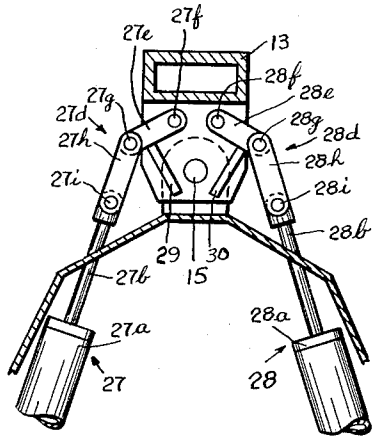


Fig. 4.

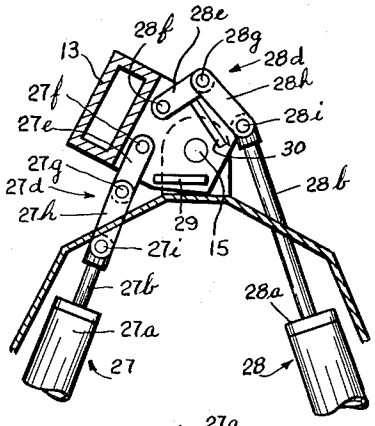


Fig. 5.

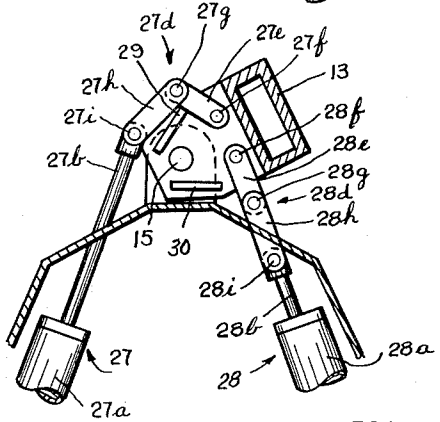


Fig. 6.

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TRENCHER TURRET ROTATING APPARATUS

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Filed Dec. 14, 1959, Ser. No. 859,436
4 Claims. (Cl. 214—151)

This invention relates to a new and improved trencher or backhoe and has particular reference to such a device which is a simpler and more economical construction.

In the construction of tractor mounted backhoes or trenchers or the like, in order to provide a simpler and more economical construction it is essential that the backhoe or trencher unit be kept as close to the tractor as possible, and the length of the unit is controlled by the point of connection of the swing cylinder to the base of the trencher, that is, the pivotal connection of the boom support to the support for the trencher.

In prior construction where a lengthy chain was employed by effecting pivotal movement of the boom support relative to the tractor mounted support with the chain mounted on a sprocket, the pivot rod or piston rod of the hydraulic pivoting means could not move beyond the center of pivot of the boom support which, therefore, required that in order to obtain a greater degree of pivotal movement of the boom support relative to the tractor mounted support, that a lengthier construction be employed.

I have found that by pivoting a chain of only two links between the hydraulic boom support pivoting means and the boom support that a simpler, more economical and shorter trencher can be provided, and also that with these chains of such short length, that there is less wear and tear due to less moving parts.

Other objects and advantages of the invention will be apparent from the following description taken in connection with the accompanying drawings, wherein the preferred form of the invention has been given by way of illustration only.

Referring to the drawings:

FIG. 1 is a side elevational view of a trencher embodying the invention;

FIG. 2 is a sectional view taken on line 2—2 of FIG. 1, looking in the direction of the arrows;

FIG. 3 is a fragmentary side view similar to FIG. 1, but on an enlarged scale, of the boom support pivoting means; and

FIGS. 4, 5 and 6 are fragmentary views generally similar to FIG. 2, but on an enlarged scale, illustrating the invention.

Referring more particularly to the drawings wherein similar reference character designate corresponding parts throughout, there is shown in FIG. 1 the tractor mounting or platform **10** on which the trencher support, indicated generally at **11**, is detachably connected whereby the trencher or backhoe may be attached to or detached from the tractor.

The trencher **11** comprises a support **12** to which is pivotally connected the boom support **13**, by the vertical pivots **14** and **15**.

The support **12** is supported on the ground, when not in use, or for stabilization during use, by the stabilizers **16** and **17** which are actuated by stabilizer hydraulic jacks **18** and **19** respectively.

On the boom support **13** is pivotally mounted the boom **20** by the horizontal pivot **21** and adjacent the free end of boom **20** is pivotally connected dipper stick **22** which carries bucket **23**, which bucket is adapted to be pivoted about dipper stick **22** by hydraulic jack **24**.

Dipper stick **22** is adapted to be rotated relative to boom **20** by means of hydraulic jack **25** which has its opposite ends connected to dipper stick **22** and to a support on boom **20**, and boom **20** is adapted to be raised and lowered by means of hydraulic jack **26** which has its opposite ends connected to boom support **13** and boom **20**.

For pivoting boom support **13** relative to support **12**, there are provided two hydraulic jacks **27** and **28** each connected at one end to support **12** and having their opposite ends connected to boom support **13**.

As shown in the drawings, the hydraulic jacks **27** and **28** comprise cylinders **27***a* and **28***a*, respectively, in which extend the piston rods or pivot rods **27***b* and **28***b*, respectively.

The cylinders **27***a* and **28***a* are pivotally connected at **27***c* and **28***c* to support **12**, as will be seen from FIGS. 1 and 2.

The piston rods **27***b* and **28***b* are each connected to boom support **13** by a two link chain indicated generally at **27***d* and **28***d*, respectively. Chain **27***d* comprises link **27***e* which is pivotally connected at **27***f* to boom support **13** and by pivot connection **27***g* to link **27***h* which, in turn, is pivotally connected at its opposite end at **27***i* to the end of piston rod **27***b*.

Chain **28***d* likewise comprises link **28***e* pivotally connected at **28***f* to boom support **13** and at **28***g* to link **28***h*, which is pivotally connected at its opposite end at **28***i* to the end of piston rod **28***b*.

Adjacent the opposite edges of boom support **13** are provided the stops **29** and **30** for links **27***d* and **28***d*, respectively.

In FIG. 4 the boom support **13** is shown in its center position whereby the axis of the boom is substantially parallel with the axis of the tractor and support **12**.

In FIG. 5 the boom support **13** is shown pivoted to the left and in FIG. 6 the boom support **13** is shown pivoted to the right.

It will be seen that in the center position of FIG. 4 that the links **27***e* and **28***e* engage stops **29** and **30**, respectively, and that to pivot the boom support **13** to the left, as shown in FIG. 5, it is merely necessary for the cylinder **27***a* to pull the piston rod **27***b* into the cylinder which effects movement of piston rod **28***b* outwardly from cylinder **28***a*, and for the movement of boom support **13** to the right, as shown in FIG. 6, the action of the respective cylinders and piston rods is reversed.

It will be seen that with the use of the chain of only two links that it is possible to move the trencher or backhoe support closer to the tractor and, therefore, provide a simpler and more economical construction and also that because each of the chains only has two links that there are less parts for possible wear and tear.

It will be seen that with only two links on each side that the piston rods can move outwardly from the cylinder to position the connection of the chain and that it is possible for the piston rod to move to a point beyond the axis of the vertical pivot of the boom support, as will be seen from FIGS. 5 and 6.

From the foregoing, it will be seen that I have provided a new and improved construction which is simpler and more economical and, yet, efficient in operation.

I claim:

1. In a device of the character described, a support, a boom support pivotally connected to said support for pivotal movement about a vertical axis and means for pivoting said boom support relative to said support, said means comprising a pair of hydraulic jacks each connected at one end to said support and each connected to said boom support by a separate chain consisting of only two links, said chains each being connected only adjacent their opposite ends to one of said hydraulic jacks and to said boom support and stop means on said boom support for controlling the movement of said chains.

2. In a device of the character described, a support, a boom support pivotally connected to said support for pivotal movement relative thereto about a vertical axis, a pair of hydraulic means for pivoting said boom support relative to said support, said hydraulic means each being connected to said boom support by a separate chain consisting of two links only, said chains each being connected only adjacent their opposite ends to one of said hydraulic jacks and to said boom support and stop means on said boom support for controlling the pivotal movement of said chains.

3. In a device of the character described, a support, a boom support pivotally connected to said support for pivotal movement relative thereto about a vertical axis, a pair of hydraulic means for pivoting said boom support relative to said support, said hydraulic means each being connected to said boom support by a separate chain consisting of two links only, said chains each being connected only adjacent their opposite ends to one of said hydraulic jacks and to said boom support, said chain being pivotally connected to said hydraulic means and

stop means on said boom support for controlling the pivotal movement of said chains.

4. In a device of the character described, a support, a boom support pivotally connected to said support for pivotal movement relative thereto about a vertical axis, a pair of hydraulic means for pivoting said boom support relative to said support, said hydraulic means each being connected to said boom support by a separate chain consisting of two links only, said chains each being connected only adjacent their opposite ends to one of said hydraulic jacks and to said boom support, said chain being pivotally connected to said hydraulic means and to said boom support and stop means on said boom support for controlling the pivotal movement of said chains.

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