

Aug. 24, 1965

R. C. FISCHER

3,202,000

SLEWING MECHANISM

Original Filed Oct. 2, 1961

FIG. 1

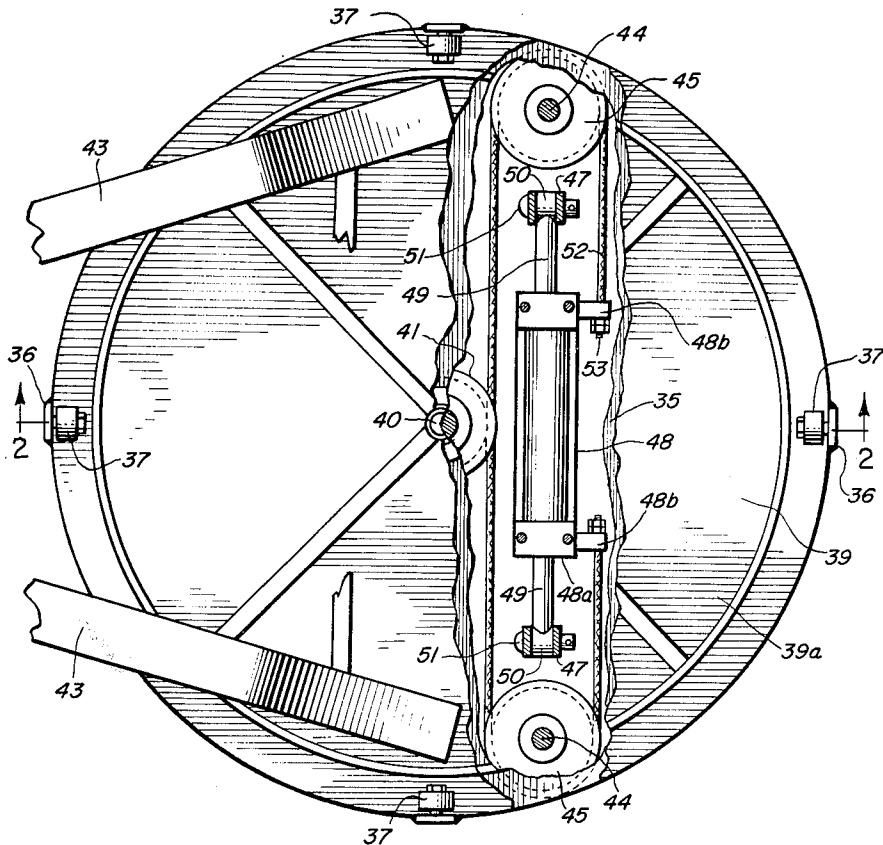
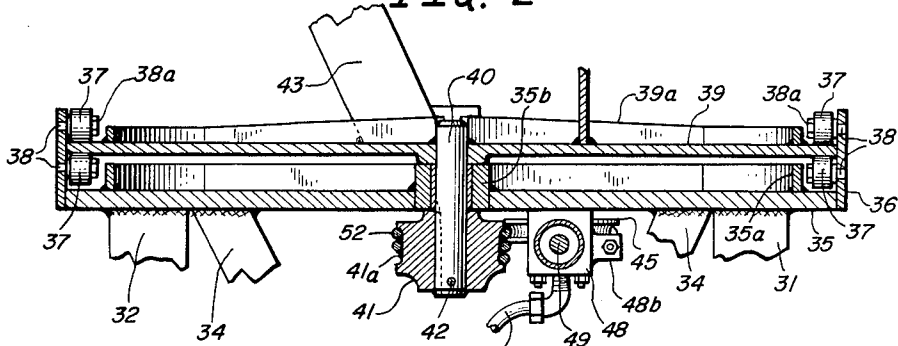


FIG. 2



INVENTOR
Raymond C. Fischer

W. E. ...

ATTORNEY

1

2

3,202,000

SLEWING MECHANISM

Raymond C. Fischer, Hinsdale, Ill., assignor to International Harvester Company, Chicago, Ill., a corporation of New Jersey

Original application Oct. 2, 1961, Ser. No. 142,151.

Divided and this application Dec. 5, 1962, Ser. No. 251,454

3 Claims. (Cl. 74-95)

This application is a division of applicant's copending application Serial No. 142,151, filed October 2, 1961.

This invention concerns mounting means for tractor-supported implement attachments. More particularly, it concerns a mounting allowing full 360° rotation of tractor implement attachments, such as shovels or backhoes, while at the same time providing a supporting base which allows the attachment to be mounted in a high loading position.

Conventional tractor-mounted backhoes are generally limited in the amount of swing permitted the implement boom to a maximum of approximately 200°. For certain operations, such as, for example, digging parallel to the line of travel of the tractor, a greater boom swing would provide for a greater dumping area relative to the digging position and would provide versatility in loading operations. Furthermore, it often happens that booms mounted low to the ground do not provide sufficient clearance in the raised position to facilitate dumping directly into a truck. Conventional tractor-mounted units are not so adapted. They generally dump material on the ground, thus requiring a subsequent loading operation.

Accordingly, it is an object of this invention to provide mounting means for a tractor-mounted implement which will allow for full 360° swing relative to the tractor.

An additional object of this invention is the provision of a tractor-mounted implement having mounting means comprising a lower plate rigidly supported relative to the tractor and an upper boom-carrying plate rotatably mounted relative to the lower plate. Unique hydraulically operated power means are provided for facilitating rotation of the upper plate relative to the lower plate such that a complete 360° swing is available.

With the foregoing objects in view and such other objects and advantages as will become apparent to those skilled in the art to which this invention relates as specification proceeds, the invention consists essentially in the arrangement and construction of parts all as hereinafter and more particularly described, reference being had to the accompanying drawings in which:

FIGURE 1 is a top-elevational view showing the unique hydraulically operated turntable; and

FIGURE 2 is a sectional view taken along the lines 2-2 of FIGURE 1.

Turning now more particular to the drawings, a fixed lower support plate 35 has the reinforcements 35a to provide rigidity thereto. Extending upwardly from the ends of plate 35 is the flange member 36, which may be a single annular element or a plurality of upright elements. To member 36 are secured the shafts 38 having four pairs of upper and lower bearing rollers 37 mounted thereon by means of the nuts 38a. Upper and lower roller elements 37 serve to support the entire boom structure for the implement attachment and are designed to take thrust and torque resulting from its operation. The upper support plate 39 including the reinforcement 39a is mounted between the bearing support rollers for free rotation relative thereto and to lower plate 35. Upper plate 39 has centrally thereof a depending shaft 40 which extends through bearing surface 35b

of lower plate 35 and downwardly therefrom affixed to the lower end portion of shaft 40 is the power-receiving pulley 41 by means of the pin 42 and a key (not shown). Pulley 41 has thereon the helical cable-receiving groove 41a.

Affixed to the upper plate 39 are the boom support members 43. The entire plate 39 rotates a full 360° or more in order to give maximum field flexibility to the boom and the implement. The power mechanism for causing rotation of the plate 39 is clearly shown in FIGURE 1. From lower plate 35 depend the shafts 44 upon which are rotatably secured the cable pulleys 45 as by nuts 46. It is to be understood that cable pulleys 45 are axially floating pulleys rotatable relative to the lower plate 35. Also depending from lower plate 35 are the flanges 47. Intermediate flanges 47 is mounted the double-acting hydraulic cylinder 48 having end elements 48a and protruding eyes 48b. The piston shafts 49 extend outwardly through both end elements 48a of hydraulic cylinder 48 and have at the ends thereof eye elements 50 which, in turn, are pivotally mounted between flanges 47 by means of the pins 51, pistons 49 thus being fixed relative to lower plate 35. It will be seen that actuation of the hydraulic power means results in the entire cylinder 48 sliding along piston shafts 49. To each eye 48b is secured one end of the cable 52 by means of the nuts 53. Cable 52 extends over cable pulleys 45 and is wrapped two or three times around helical groove 41a of pulley 41 rigidly secured to upper plate 39.

In use, it will be seen that the operator, by controlling hydraulic cylinder 48, causes movement thereof relative to pistons 49. This results in movement of cable 52 around pulley 41 imparting by means of frictional engagement a rotary motion to pulley 41 and its associated upper plate 39. The size of hydraulic cylinder 48 relative to pistons 49 and to the diameter of pulley 41 is such that a full 360° rotation of the entire upper plate and associated boom assembly may be effected in either direction so that versatility in digging and loading is assured.

Although one embodiment pertains to backhoe-type attachments for use with tractors, it is to be understood that other implements, such as shovels or diggers of other types, could also be employed without deviating from the scope of the invention.

Terms used herein, such as ground, upper, lower, etc., are meant to be construed as relative and not in their literal sense.

Various modifications can be made in the invention hereinabove described and many apparently widely different embodiments of same made within the spirit and scope of the claims without departing from such spirit and scope. It is intended that all matter contained in this specification shall be interpreted as illustrative only and not in a limiting sense.

I claim:

1. A power driven turntable comprising fixed horizontal plate means having vertically extending bearing means centrally thereof, and a plurality of bearing rollers spaced from said bearing means, rotatable horizontal plate means supported by said fixed plate means and said bearing rollers and having an axial shaft extending through said bearing means, a power-receiving pulley having a helical groove thereon mounted on said central shaft, double-acting hydraulic power means including a cylinder and a pair of pistons extending axially therefrom, the end portions of said pistons being secured to said fixed plate means, a pair of cable pulleys mounted on said fixed plate means, and a cable having ends fixed to respective ends of said cylinder extending about said cable pulleys and engaging said power-receiving pulley whereby actuation of said power means causes the cylin-

3

der to slide upon the pistons and the cable to drive the power-receiving means thus rotating the rotatable plate means.

2. The power driven turntable according to claim 1, said fixed plate means having a vertically extending flange portion spaced from said bearing means, said flange portion including a plurality of horizontally extending supporting shafts, one of said bearing rollers being rotatably mounted on each of said supporting shafts.

3. The power driven turntable according to claim 1, said fixed plate means having a plurality of vertically extending flange portions spaced from said bearing means, each of said flange portions including a pair of vertically spaced horizontally extending supporting shafts, a pair of said bearing rollers being rotatably mounted on re-

4

spective pairs of said supporting shafts, said rotatable plate means being supported between respective pairs of said bearing rollers.

References Cited by the Examiner

UNITED STATES PATENTS

1,171,521	2/16	Huttelmaier	-----	212-67 R
2,404,639	7/46	Lane.		
2,559,733	7/51	Pitman et al.	-----	212-67
3,033,380	5/62	Dorkins	-----	212-67

BROUGHTON G. DURHAM, *Primary Examiner.*

MILTON KAUFMAN, *Examiner.*