Aug. 17, 1948. H. W. HUFFMAN 2,447,071

CONCRETE MIXER

Filed June 28, 1945

Fig. 1

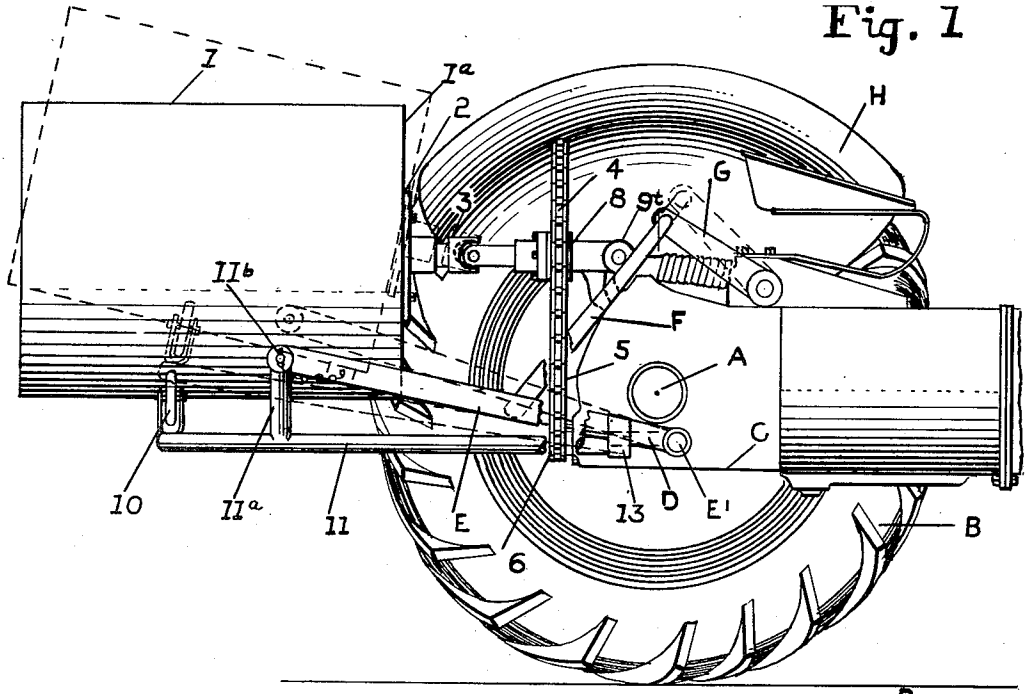
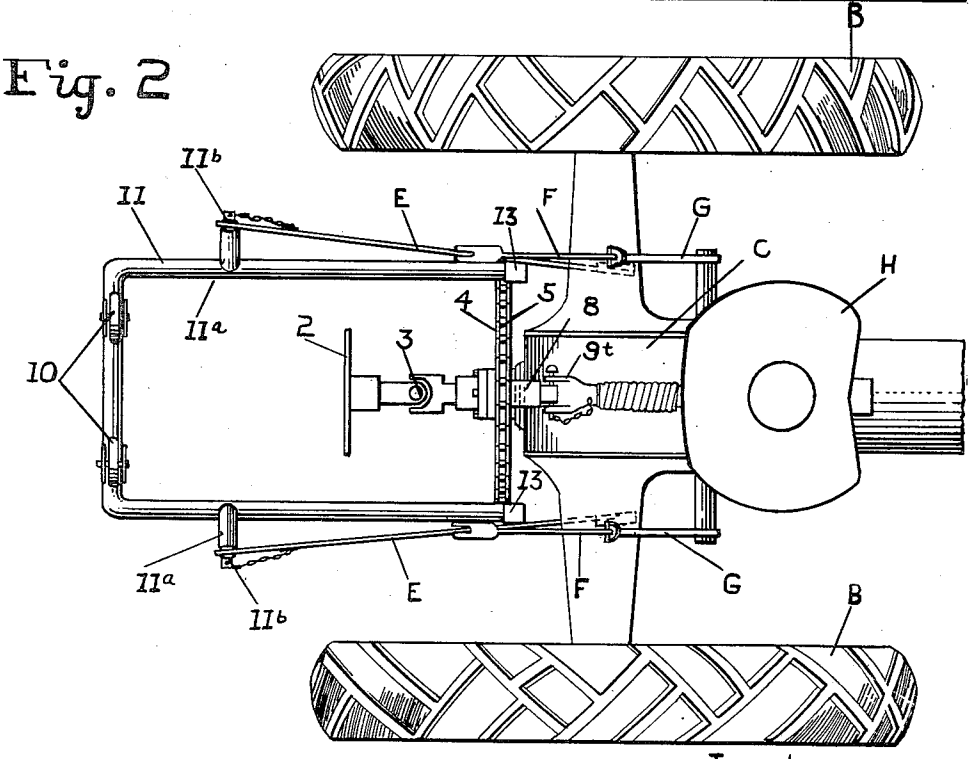


Fig. 2



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CONCRETE MIXER

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2 Claims. (Cl. 259—177)

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My invention is a new and useful concrete mixer adapted for attachment to the Ferguson system or linkage of Ford tractors or similar systems, or any other desired wheeled tractors or vehicles, my invention providing for the mixing and pouring of concrete in one single operation utilizing a concrete container attached to the Ferguson or other similar elevating linkage on Ford or other tractors, whereby the concrete container may be revolved by power transmitted from a power take-off emerging from the differential housing of the tractor, the concrete container being elevated and lowered from a horizontal position by a finger tip control lever actuating the links of the Ferguson or other systems.

According to my invention, the power take-off is utilized to rotate the concrete container and the container may be revolved while the tractor is in motion towards a given location, a feature that saves much time over ordinary methods of handling concrete wherein the concrete is first mixed in a stationary mixer and then hauled to the desired location by wheelbarrows, trucks, or other means.

Another object of the invention is to provide a mixer of the above type in which the container, during the mixing phase of the operation, is inclined upwardly at an angle of approximately 15 degrees, to prevent the concrete in the mixer from spilling out; it being only necessary in order to dump the concrete from the container to lower the tension links of the Ferguson or other system, in which lowered position the container is then disposed at an angle of approximately 15 degrees below the horizontal, thus enabling the contents of the container to be gravitally discharged.

I will explain the invention with reference to the accompanying drawing, to enable others to adopt and use the same; and will summarize in the claims the novel features of construction, and novel combinations of parts, for which protection is desired.

In said drawings:

Figure 1 is a partial side view of a Ford tractor, with the near rear wheel removed to better expose the working parts, and the near tension link of the Ferguson system removed to provide an unobstructed view of other parts, the dotted outline of the container showing the same in an inclined mixing position.

Fig. 2 is a top plan view of the tractor shown in Fig. 1, with the concrete container removed.

In Figs. 1 and 2 the rear portion of a Ford

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tractor is illustrated, same having a rear axle A carrying rear wheels B, and a differential housing C for the rear wheels B through the rear end of which extends an axially disposed horizontal power take-off shaft D, shown in dotted lines in Fig. 1, driven from the motor shaft in the usual manner. The tractor is further equipped with the so-called "Ferguson" linkage or system which is well known and needs no detailed description herein; however, the linkage or system includes tension links E pivoted as at E' at the sides of differential housing C, and extending rearwardly of the tractor in spaced parallel relation, said links E being raised and lowered by means of links F connecting tension links E with rocker arms G extending from the upper portion of differential housing C, said rocker arms G being controlled by a manually operated lever (not shown) adjacent the driver's seat H adapted to be operated by the finger tips of the operator, to raise or lower the tension arms E. The above mentioned parts are now in common use and therefore well known.

My invention comprises a U-shaped frame 11 connected by offset arms 11*a* to the outer ends of tension links E and having sliding brackets 13 embracing the inner ends of links E, as clearly shown in Fig. 1. The outer end of frame 11 carries a pair of transversely spaced wheels 10 for the purpose hereinafter described, preferably journaled in anti-friction bearings.

The concrete drum or container 1 is rotatably supported on the spaced wheels 10 and is open at its outer end to permit the entry of cement, water, and gravel or sand before mixing, and to permit discharge of the mixed constituents of the concrete. The opposite or inner end of container or drum 1 is provided with a water-tight head 1*a* (Fig. 1) welded to the inner end of container 1 and on head 1*a* is mounted, by means of bolts or the like, a shaft member 2. In the center of member 2 is a flexible or universal joint 3 preferably having needle bearings or the like, said joint 3 being axially attached to a sprocket 4. Joint 3 permits container 1 to swing up or down with tension links E of the Ferguson system, which latter are controlled from the operator's seat H.

Sprocket 4, which is connected to flexible joint 3, is driven by a chain 5 running over said sprocket 4 and over a sprocket 6 (Fig. 1) mounted on the power take-off shaft D (Fig. 1) furnished as standard equipment at the rear end of differential housing C of the Ford tractor. The relatively high speed of the power take-off shaft D

of the tractor is reduced to a workable speed for the concrete container 1 by utilizing a relatively large sprocket 4 and a small sprocket 6 on the power take-off shaft D.

Sprocket 4 is rotatably held in a spaced position with respect to sprocket 6 by means of a bracket 8 which is secured to the tractor frame above differential housing C by means of clamp 9t, which clamp is also furnished as standard equipment of a Ford tractor.

The elevating and lowering of the container 1 may be achieved while being revolved as above described, since the container may be elevated approximately 15 degrees above the horizontal, or lowered to the same degree below the horizontal, the container 1 resting on the framework 11 which is pivoted as at 11b by arms 11a to the outer ends of the two tension links E of the Ferguson system, the inner ends of the frame 11 being connected near the pivots E' to the tension links E of the Ferguson system by slip brackets 13. The container 1 may revolve freely at all times on the frame 11 seated upon the spaced wheels 10 attached to the outer end of frame 11.

The complete mixer unit can be attached to or removed from the tractor by attaching or loosening the bolt at clamp 9t holding the bracket 8, by engaging or removing the chain 5 from sprockets 4 and 6, and by attaching or removing the pins 11b which hold frame 11 to the tension links E of the Ferguson system.

While I have illustrated my concrete mixer as an attachment to the Ferguson system of a Ford tractor, obviously same may be attached to any similar system on any other type wheeled tractor or vehicle.

Due to the finger tip contact of the Ferguson system a boy can handle my mixer as well as a man. In a very short time my mixer can be mounted on the tractor and be ready for mixing. On any job which is accessible to tractors, wheelbarrows for transporting the concrete may be dispensed with since the tractor may be backed into desired dumping point or position at the job, and the linkage lowered to gravitally discharge the contents of the container 1, the contents being mixed in transit to the dumping point.

I do not limit my invention to the exact form shown in the drawing for obviously changes may be made therein within the scope of the claims.

I claim:

1. A concrete mixing attachment for a tractor having operator controlled Ferguson links at its rear end swingable on a horizontal axis and having a power take-off shaft adjacent said links, comprising a frame carried by said links for swinging movement therewith; an axially disposed rotatable drum open at its outer end and closed at its inner end supported upon said frame; a second shaft disposed parallel with the power take-off shaft and driven thereby; and a flexible element in the second shaft adjacent the closed end of the drum to permit the drum to swing upwardly or downwardly with the links while maintaining a fixed parallel relation between the remaining portions of said shafts.

2. In an attachment as set forth in claim 1, said second shaft being rotatably mounted in a removable bracket mounted on the rear end of the tractor.

HARRY WAYNE HUFFMAN.

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