April 3, 1951 R. M. SELBY 2,547,500

CONCRETE MIXER

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Fig. 1

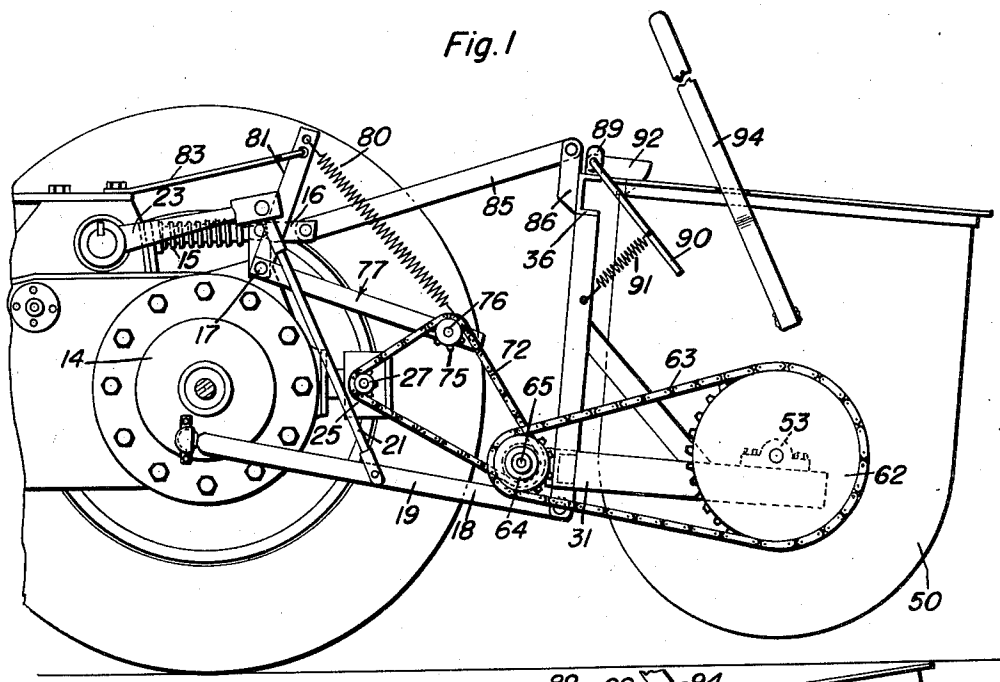
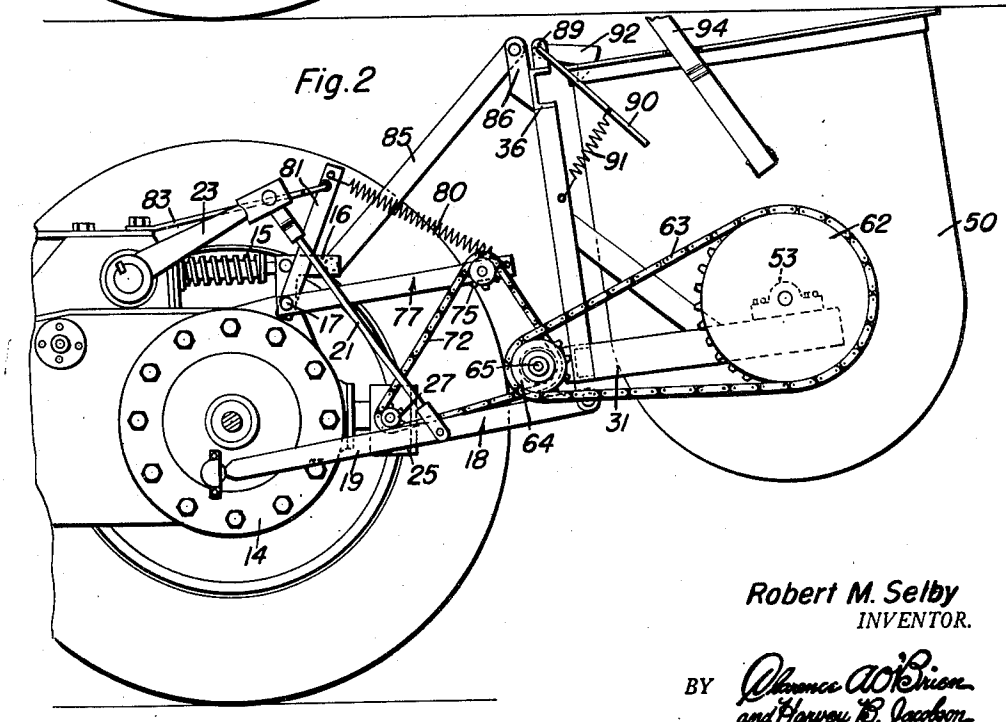


Fig. 2



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Fig.3

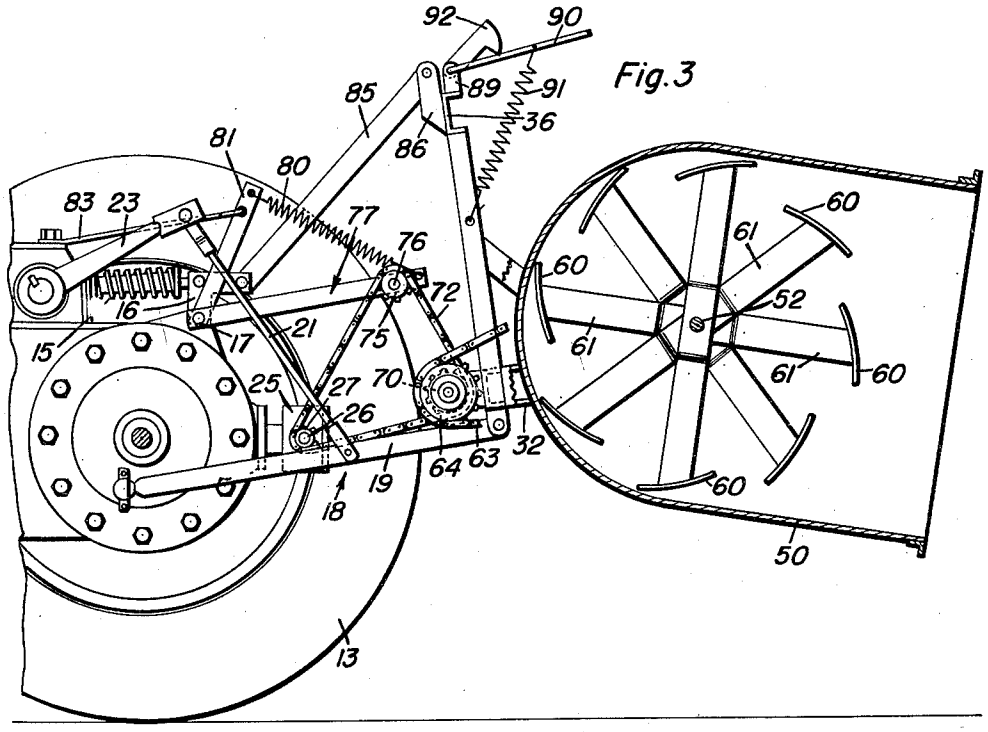


Fig.7

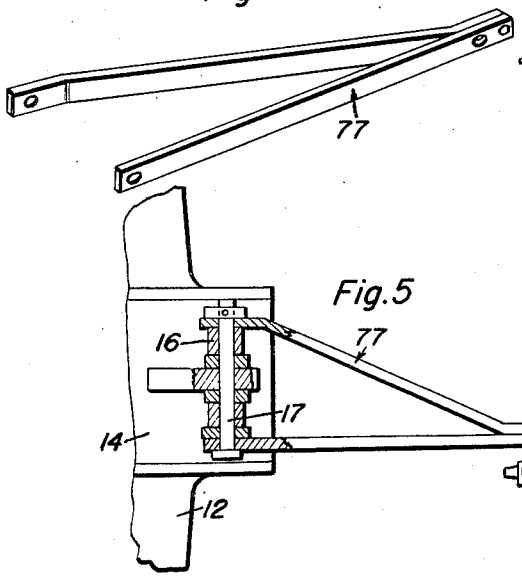
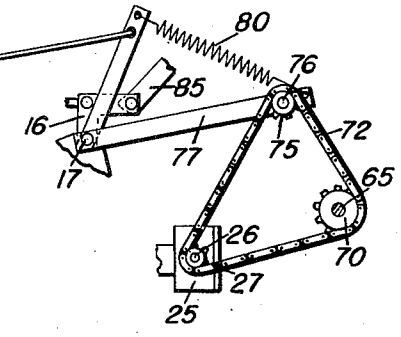


Fig.5

Fig.6



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Fig. 4

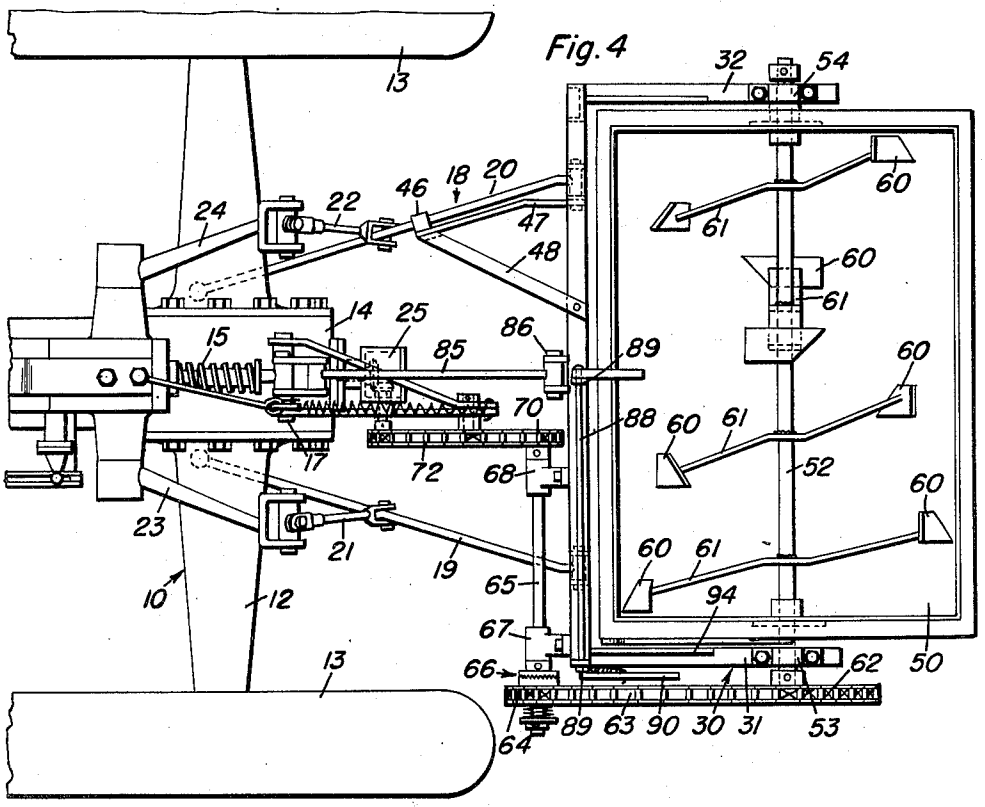


Fig. 8

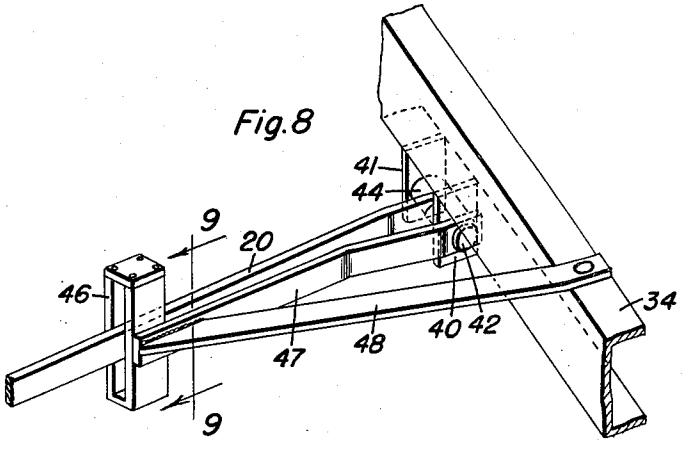
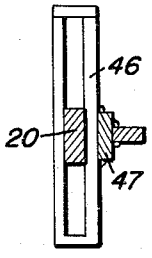


Fig. 9



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CONCRETE MIXER

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Application November 16, 1950, Serial No. 195,947

3 Claims. (Cl. 259—171)

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This invention relates to improvements in attachments for tractors.

An object of this invention is to provide a concrete mixer attachment for a standard tractor, said attachment being provided with a frame which is specially designed to accommodate a container whereby the container is capable of rotating about a horizontal axis to empty the container, the frame being so constructed that it is capable of being raised and lowered by the standard tractor draw bar while the agitator is being operated by means of an improved drive connection.

Other objects and features of importance will become apparent in following the description of the illustrated form of the invention.

Figure 1 is a fragmentary sectional view of a standard tractor having the attachment thereon in one position;

Figure 2 is a view somewhat similar to that of Figure 1 but showing the attachment in a second position;

Figure 3 is a sectional view similar to the views of Figures 1 and 2 but showing the attachment in a further adjusted position;

Figure 4 is a plan view of the structure of Figure 1;

Figure 5 is an enlarged plan view of the tightener used in the device and showing in section the means of attaching it to a tractor;

Figure 6 is a fragmentary perspective view of a part of the drive mechanism and the tightener for it;

Figure 7 is a perspective view of a part of the tightener mechanism;

Figure 8 is a fragmentary perspective view showing the side sway preventing device, and;

Figure 9 is a sectional view taken on the line 9—9 of Figure 8 and in the direction of the arrows.

The illustrated attachment is applied to a tractor 10 which is fragmentarily shown and which is of purely standard construction. Among the standard equipment of the tractor is the rear axle housing 12, the wheels 13, the differential case 14, control spring 15 together with the rocker 16, which is used to transmit movement in opposition to the spring 15, and a pivot pin 17 mounting the rocker 16 for movement. A draw bar 18 is mounted at the rear of the tractor and the draw bar comprises a pair of arms 19 and 20 which are connected at their inner ends to the tractor for swivel movement and which are arranged to be raised and lowered

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by means of the links 21 and 22. These links are connected to the lift arms 23 and 24, this arrangement being standard.

There is a gear box 25 operatively connected with the power take off of the tractor and a shaft 26 extends from the gear box, this shaft having a sprocket 27 secured to it. The concrete or cement mixing attachment is adapted and arranged to derive its operating force from the power take off of the tractor through the gear box 25.

There is a frame 30 which is operatively connected to the arms 19 and 20. The frame includes sides 31 and 32 which are connected to a back channel member 34 by standard means, as by welding. A vertical section is secured to the ends of the chanel member 34 and includes a pair of sides with an upper cross member 36.

In order to attach the frame to the arms 19 and 20 two identical assemblies are provided. Each assembly (Figure 8) consists of a pair of plates 40 and 41 which are spaced slightly from each other and which are fixed to the channel 34. The plates depend from the channel and support a pivot pin 42 which passes through the bearing 44 at the outer end of the bar 20, there being an identical assembly provided for the arm 19.

In order to prevent excessive side sway of the frame, the sway preventing device disclosed in Figure 8 is used. This device consists of a substantially rectangular open ended casing 46 which is slidably disposed on the bar 20 and which has a rod 47 welded or otherwise rigidly fixed to it. This bar is also secured to the pivot pin 42. A lateral thrust member 48 is welded or otherwise rigidly fixed to the bar 47 near the bar 47 junction with the case 46. The other end of the member 48 is riveted or otherwise rigidly secured to the channel 34. Accordingly by this assembly the lateral thrust or side sway of the device is transmitted to one of the pivot assemblies for holding the frame connected to the draw bar.

There is a container 50 having an open top. This container has an agitator shaft 52 passed through the side walls thereof and mounted in bearings 53 and 54 which are secured to the sides 31 and 32 of the frame 30. Accordingly by this construction the container 50 is carried by the frame in such a way that it is capable of being rotated for the purpose of emptying the container.

A plurality of agitator blades are disposed in the container and are fixed to the agitator shaft.

Each blade 60 is staggered with respect to the next adjacent one. The blades are in pairs, one being at one end of a blade support arm 61 and the other being at the opposite end of the blade support arm. These arms are welded to the shaft 52 and are spaced from each other. They are not in longitudinal alignment but are rotated a slight amount with respect to the next adjacent one. By this arrangement greater agitation takes place within the container 50.

A sprocket 62 is fixed to one outer end of the shaft 52 and has a chain 63 entrained thereabout. This chain also extends around a sprocket 64 which is connected with a lay shaft 65 by means of a standard slip clutch 66. The clutch, sprockets 62 and 64 and chain 63 constitute a means of transferring rotation of the lay shaft 65 to rotation of the agitators on the agitator shaft 52.

The lay shaft 65 is disposed in standard bearings 67 and 68 which are carried by the channel 34 of the frame 30. At the end of the shaft 65 opposite from the sprocket 64 there is another sprocket 70 which has a chain 72 extending therearound. This chain constitutes a flexible element for actuating the shaft 65 inasmuch as it is also engaged with the teeth of the sprocket 27.

Means for holding the chain 72 tightly enmeshed with the teeth of the sprockets 27 and 70 is provided. Preferable means consists of an idler sprocket 75 mounted on a spindle 76, this spindle being carried by a lever 77. The inner end of the lever is pivoted to the pivot pin 17 and accordingly the lever 77 is capable of being raised or lowered depending upon the necessities.

Means yieldingly opposing the operation of the lever 77 in one direction is provided and is preferably in the form of a standard spring 80 which has one end secured to the outer end of the lever 77 and the opposite end is secured to a support 81. The lower end of the support is mounted on the pivot pin 17 and the support is held in a fixed position by means of the arm 83 which is bolted or otherwise rigidly fixed to a part of the tractor.

Attention is invited to Figures 1–3 wherein the action of the tightening device is illustrated. When the lift bars 19 and 20 are lowered, as when the container is to be filled, the lever 77 swings downwardly, as it is pulled by the chain 72. This downward movement is opposed yieldingly by the spring 80.

When it is desired to move the tractor from one place to another the container is elevated by upward movement of the draw bar. At this time the spring 80 pulls the lever 77 upwardly to thereby retain the chain 72 in the tight condition. The raised condition of the container 50 being the emptying position (Figure 3); the action of the belt tightener is not changed when transporting the concrete from one place to the other or when emptying the concrete.

There is a compression link 85 pivoted at one end to the rocker 16 and pivoted in a bearing 86 at the other end to the top part of the cross member 36 of the frame construction. This compression link 85 serves its conventional function.

In order to hold the container in the latched condition a rod 88 is mounted in brackets 89 on the top cross member 36 of the frame and has an end portion bent to constitute a handle. A spring 91, secured at one end to the handle 90 and at the other end to one of the sides of the vertically extending part of the frame opposes the movement of the rod 88 and constantly retains the latch keeper 92 in engagement with the reinforced upper edge of the container 50.

When the handle 90 is rotated against the yielding opposition of the spring 91, the latch keeper is lifted from engagement with the reinforced open upper edge of the container 50 and the container may be swung downwardly manually by using the handle 94, which is welded or otherwise rigidly fixed to one side of the container 50.

In operation, the container 50 is loaded to the proper capacity. Thereafter the agitator shaft 52 is operated through the power take off by the described structure.

After the concrete is mixed the draw bar may be lifted by the standard tractor elements and the container 50 emptied.

In transit, it makes no difference as to the roughness of the terrain, inasmuch as the drive mechanism between the agitator shaft 52 and the power take off is flexible to the extent indicated previously. When the container is emptied, raised or lowered the agitator need not be disturbed in its operation.

Having described the invention, what is claimed as new is:

1. In combination with a tractor which has a power take off, a draw bar and a pivot pin mounting a rocker, a mixer comprising a frame pivotally connected to the draw bar, a container having an agitator shaft mounted in bearings on said frame, a lay shaft having a drive element at one end and means drivingly connecting the other end to said agitator shaft, a flexible drive member engaged with said drive element and driven by the power take off, a tightener operatively connected with said flexible drive member and pivoted to said pivot pin, a compression link connected to said rocker and said frame, and a brace secured to said frame and slidably connected to the drawbar to impede side sway of said frame.

2. In combination with a tractor which has a power take off, a draw bar and a pivot pin mounting a rocker, a mixer comprising a frame pivotally connected to the draw bar, a container having an agitator shaft mounted in bearings on said frame, a lay shaft having a drive element at one end and means drivingly connecting the other end to said agitator shaft, a flexible drive member engaged with said drive element and driven by the power take off, a tightener operatively connected with said flexible drive member and pivoted to said pivot pin, a compression link connected to said rocker and said frame, and yielding means opposing the pivotal movement of said tightener in one direction and retaining said flexible drive member tight.

3. In combination with a tractor which has a power take off, a draw bar and a pivot pin mounting a rocker, a mixer comprising a frame pivotally connected to the draw bar, a container having an agitator shaft mounted in bearings on said frame, a lay shaft having a drive element at one end and means drivingly connecting the other end to said agitator shaft, a flexible drive member engaged with said drive element and driven by the power take off, a tightener operatively connected with said flexible drive member and pivoted to said pivot pin, a compression link connected to said rocker and said frame, yielding means opposing the pivotal movement

of said tightener in one direction and retaining said flexible drive member tight, and a latch connected with said frame and arranged to hold said container in a predetermined position.

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