April 19, 1932. R. WOODS 1,855,081

GRAIN SHOCKER

Filed Oct. 16, 1930 2 Sheets-Sheet 1

Fig. 1.

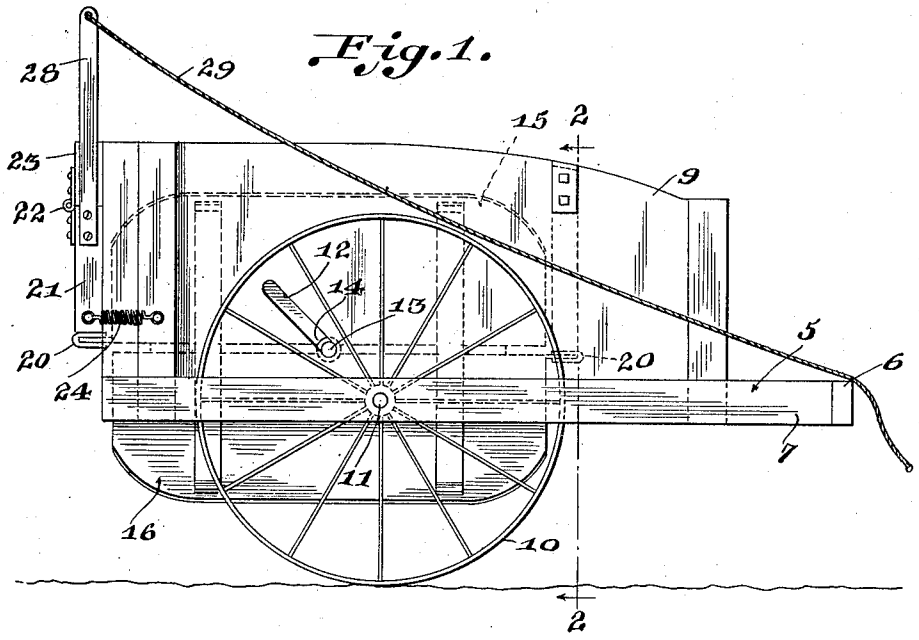
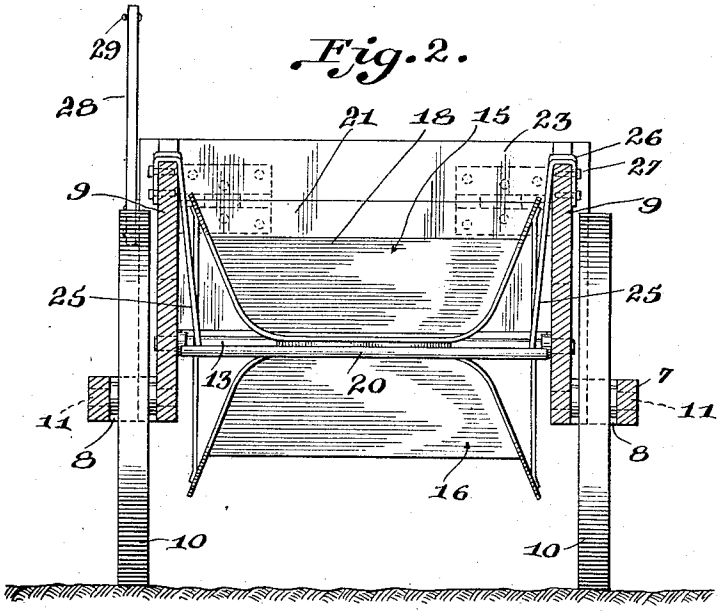


Fig. 2.



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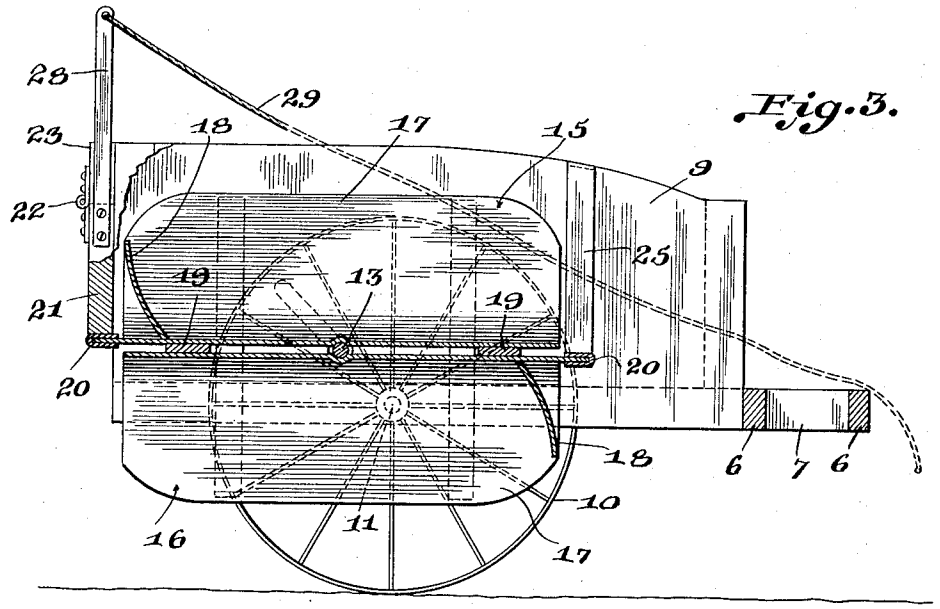

Fig. 3.

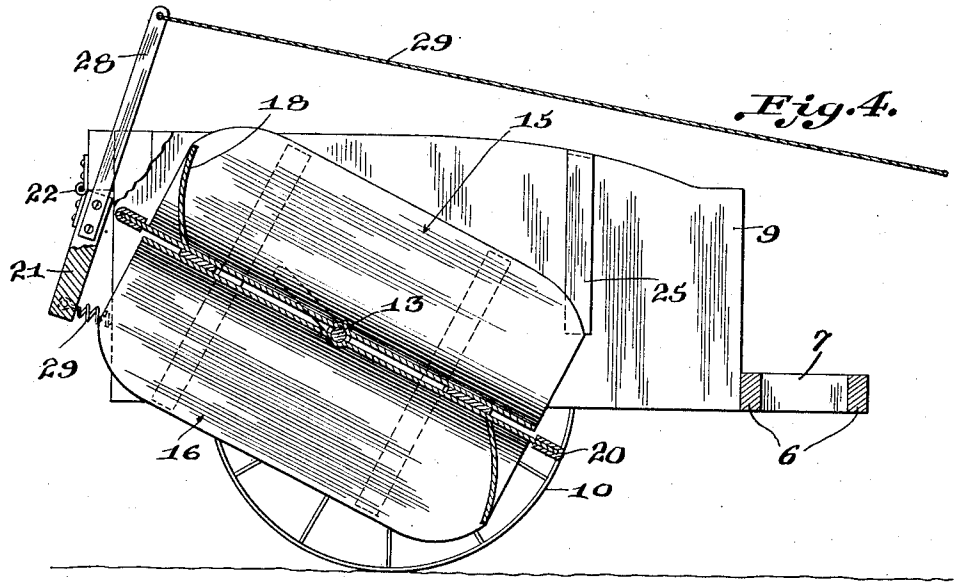

Fig. 4.

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UNITED STATES PATENT OFFICE

ROBERT WOODS, OF GRAND FORKS, NORTH DAKOTA

GRAIN SHOCKER

Application filed October 16, 1930. Serial No. 489,191.

This invention pertains to improvements in grain shockers for use in connection with harvesting machines.

Such shockers are so constructed that the shocks, after having been assembled, will be so discharged that they will stand firmly upon the ground.

These shockers usually comprise duplex dumping trays swiveled on a horizontal axle so that the uppermost one after being loaded with a shock from the harvesting machine, may dump the shock and set the same upright on the ground, in such manner that the lower dumping tray will come uppermost to receive the sheaves which are to form the next shock.

One of the objects of the present invention is to provide improved means for holding the duplex trays in a horizontal position relatively to the frame during the filling operation.

A further object is to furnish a mechanism of this character, comprising novel means for releasing the trays to allow dumping of one tray and the bringing of the other tray into uppermost position.

A further object is to provide the machine frame with rearwardly and upwardly inclined slots to accommodate the tray axle, so that the trays will ride up and over a deposited shock, while the machine is moving forward, without liability of toppling the shock over.

With the foregoing objects outlined and with other objects in view which will appear as the description proceeds, the invention consists in the novel features hereinafter described in detail, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the drawings,

Fig. 1 is a side elevation of my improved shocker.

Fig. 2 is a transverse vertical sectional view of the same on the line 2—2 of Fig. 1.

Fig. 3 is a longitudinal vertical sectional view with the dumping trays in horizontal position.

Fig. 4 is a similar view but showing the releasing mechanism actuated and the uppermost tray in the process of dumping.

Referring to the drawings, 5 designates a horizontally disposed U-shaped frame consisting of front cross bars 6 and side bars 7.

Suitable spacing blocks 8 join the side bars to the vertical side walls 9, and between these side walls and the side bars, supporting wheels 10 are arranged to rotate on stub axles 11.

Each side wall has an upwardly and rearwardly inclined slot 12, in which are journaled the ends of the dumping tray axle 13, and a suitable abutment collar 14 is fixed to each of the end portions of the axle to bear against the sides 9 and limit the lengthwise movement of said axle.

The dumping tray assembly consists of an upper tray 15 and a lower tray 16, each having side walls 17 and a rear wall 18, the front of each tray being open when it is uppermost.

The bottoms of the trays are rigidly connected to the shaft 13 and are spaced apart by blocks 19.

As best shown in Figs. 1, 3 and 4, the bottom of each tray projects outwardly beyond the wall 18, and its edge is reinforced by a U-shaped metal strip 20. The rear end of the uppermost tray 15 is prevented from rising by a gate 21 which extends between the side walls 9, and is hinged at 22 to a bar 23 which has its ends rigidly connected to the rear ends of the side walls.

A spring 24 normally holds the gate 21 in contact with the rear ends of the walls 9 to form a movable abutment against which the rear end of the uppermost tray bears.

The front end of the tray assembly is prevented from rising by means of strap or leaf springs 25. As shown in Fig. 2, there is one of these leaf springs at each side of the machine, and its upper end is hooked over an upper edge of the wall 9, as at 26, and secured to the wall by screws or the like 27.

These springs 25 converge downwardly, but their lower ends can move toward the walls 9 when they are forced to do so by either one of the projecting ends of the tray assembly.

To permit the gate 21 to be opened from a remote point, one edge of the gate is provided with an upstanding lever 28 that is

connected to a rope 29 leading to the point where the operator is located.

In operation, we will assume that the tray assembly is in the position shown in Figs. 1 to 3 inclusive, and that the device is hooked up with a harvester in the known manner. As the device moves forwardly over the field, with the harvester, the grain sheaves will be deposited in the uppermost tray 15, and when a sufficient number of sheaves has been deposited to form a shock, the operator pulls the rope 29 to open the gate 21. As this releases the rear end of the uppermost tray, the tray assembly will move forwardly and downwardly, as shown in Fig. 4, and the shock will be deposited on the ground. Now, as the machine moves forward, the tray assembly will of course be obstructed by the deposited shock, so that the tray assembly tends to swing in a clock-wise direction to bring the lowermost tray to the uppermost position, but in order to prevent the shock from being knocked over, the axle 13 will ride up the slots 12, whereby the tray assembly will rise and clear the deposited shock, and at the same time, the rear edge of the tray which was originally uppermost, will have its ends come in contact with the leaf springs 25, so as to compress the latter and force them towards the walls 9, until the tray end passes beneath the lower edges of the springs 25. In the meantime, the operator will have released the cord 29, and the gate 21 will be in the position shown in Fig. 3, with the result that the projecting end 20 of the tray, which was originally lowermost, will come in contact with the lower edge of the gate and be halted thereby. The original lowermost tray is now in the proper position to receive the sheaves to form the next shock.

The various parts of the device may be made of any suitable material, but I prefer to make the tray assembly of sheet metal.

From the foregoing it is believed that the construction, operation and advantages of the invention may be readily understood, and I am aware that changes may be made in the details disclosed, without departing from the spirit of the invention, as expressed in the claims.

What I claim and desire to secure by Letters Patent is:

1. A grain shocker comprising a wheel supported body provided with upwardly and rearwardly inclined guideways, a tray assembly having an axle rotatable and slidable in said guideways, and releasable means for normally holding the tray assembly in a horizontal position.

2. A grain shocker comprising a wheel supported body, a tray assembly pivotally mounted in the body and consisting of upper and lower trays, each tray having a projecting end portion, a hinged gate on the body forming a movable abutment cooperating with the projecting ends of the trays to limit the upward movement of the tray assembly, and means for normally holding the gate in closed position.

3. A grain shocker comprising a wheel supported body, a tray assembly pivotally mounted in the body and consisting of upper and lower trays, each tray having a projecting end portion, a hinged gate on the body forming a movable abutment cooperating with the projecting ends of the trays to limit the upward movement of the tray assembly, and means for normally holding the gate in closed position, the last mentioned means comprising an elastic element having one of its ends connected to the gate and its other end connected to the body.

4. A grain shocker comprising a wheel supported body, a dumping tray assembly rotatably mounted in the body and comprising upper and lower trays, each tray being provided with a projecting end, and resilient means on the body forming abutments automatically engageable with either of said projecting ends when it is at the front of the tray assembly for preventing counter-clockwise rotation of the tray assembly in a direction toward the rear end of the body.

5. A grain shocker comprising a wheel supported body, a dumping tray assembly rotatably mounted in the body and comprising upper and lower trays, each tray being provided with a projecting end, and yielding means on the body forming abutments engageable with either of said projecting ends when it is at the front of the tray assembly for preventing counterclock-wise rotation of the tray assembly in a direction toward the rear end of the body, said yielding means comprising leaf springs secured to the sides of the body.

6. A grain shocker comprising a horizontally disposed U-shaped frame having a cross bar at its front end, a U-shaped body rigidly connected to the frame and having a cross bar at its rear end, wheels supporting said frame and body, a rotatable shaft carried by the body, a dumping tray assembly mounted on said shaft and including upper and lower trays provided with front and rear extensions, a spring closed gate normally engaging the rear extension and preventing upward movement of the rear end of the tray assembly, and yielding straps supported by the sides of the body and engaging the front extension for preventing upward movement of the front end of the tray assembly.

In testimony whereof I have signed this specification.

ROBERT WOODS.