June 28, 1932. R. HRONEK 1,864,691

AUTOMATIC HILL DROP FOR PLANTERS AND LISTERS

Filed May 27, 1929 2 Sheets-Sheet 1

Fig. 1.

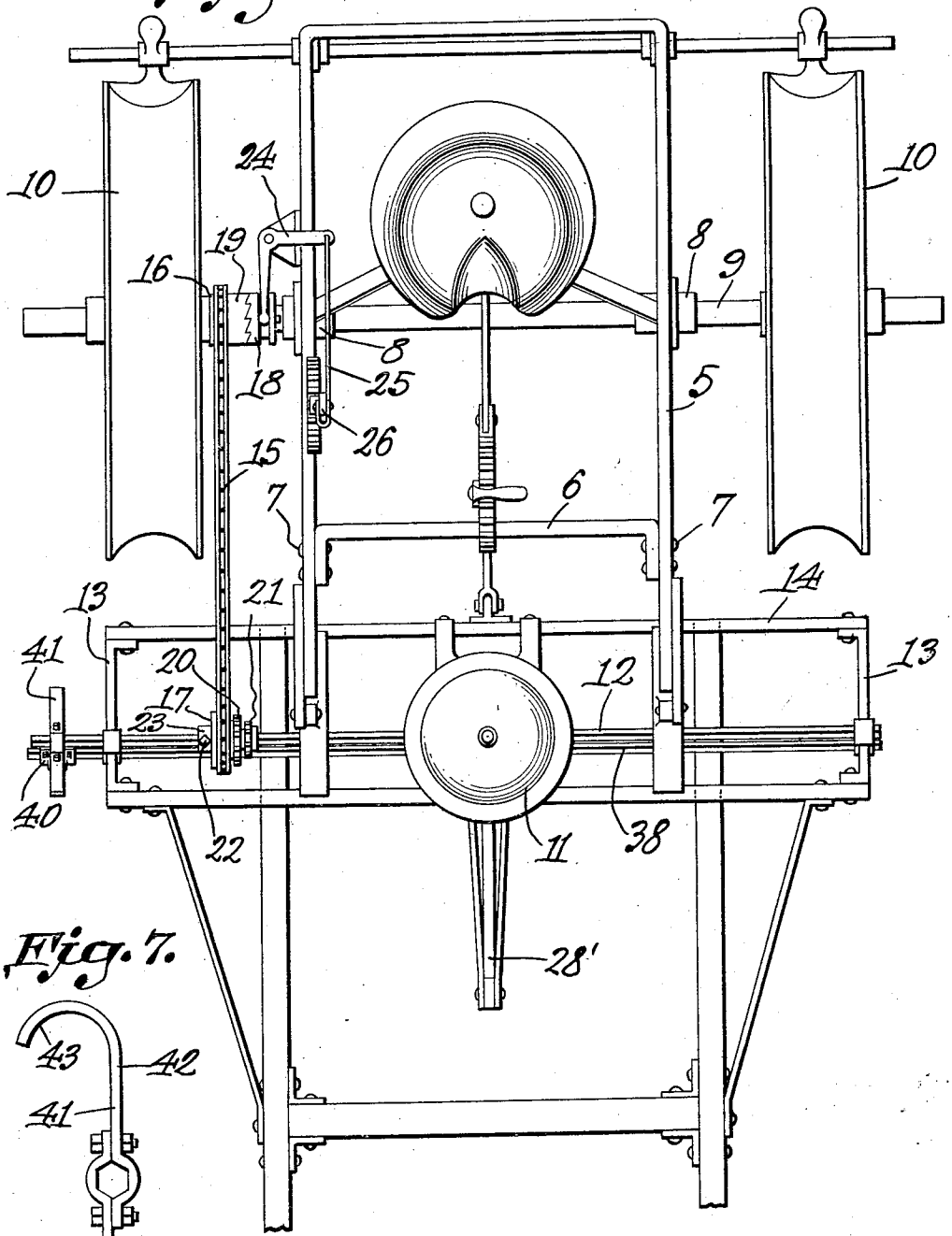


Fig. 7.

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Fig. 2.

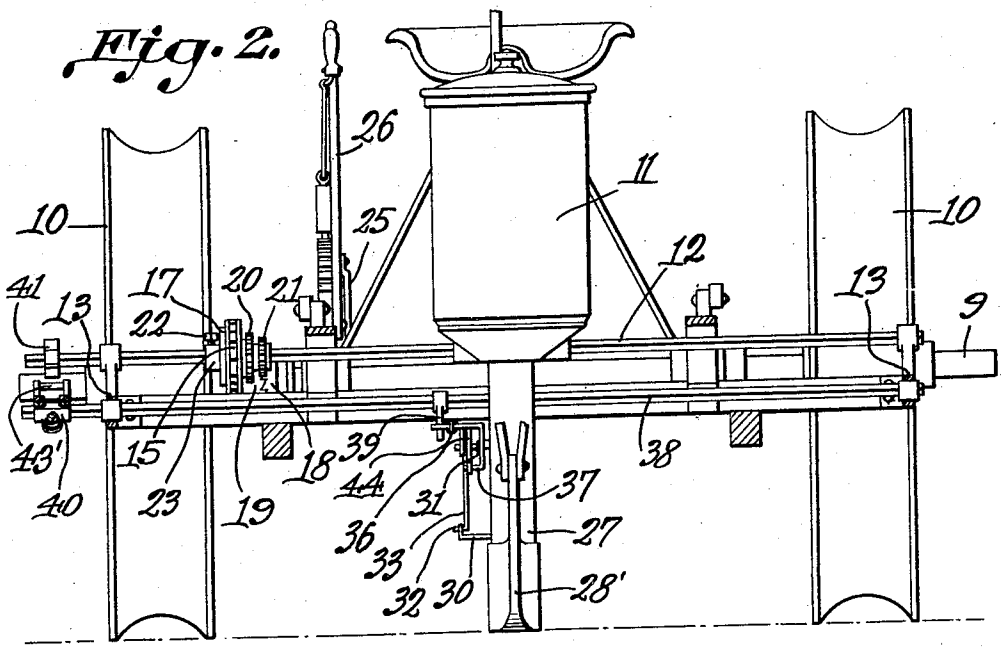


Fig. 5.

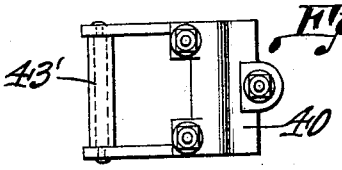


Fig. 3.

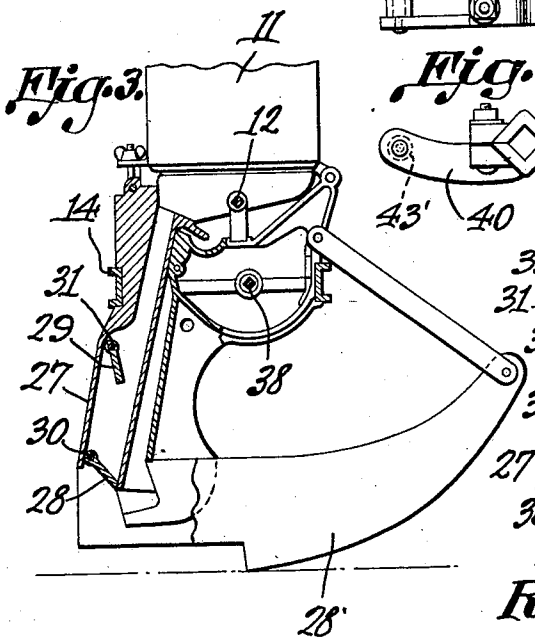
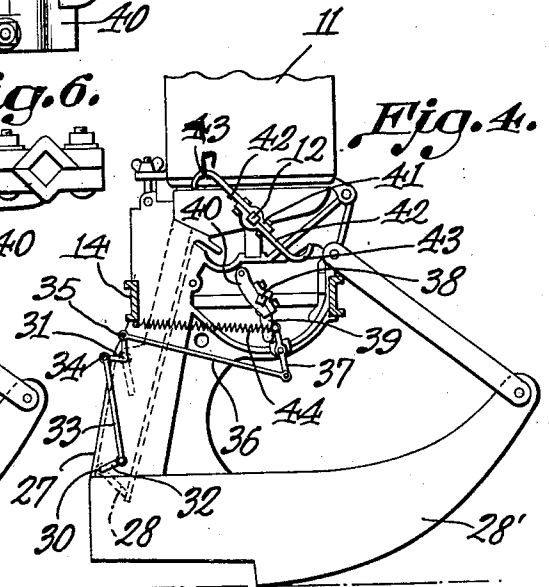


Fig. 6.

Fig. 4.



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UNITED STATES PATENT OFFICE

RUDOLPH HRONEK, OF DODGE, NEBRASKA

AUTOMATIC HILL DROP FOR PLANTERS AND LISTERS

Application filed May 27, 1929. Serial No. 366,436.

This invention relates to corn planters or drills, and aims to provide means for automatically dropping a number of seeds at predetermined intervals, eliminating the use of the usual check line.

An important object of the invention is to provide a drill of this character which will not only be automatic in its operation, but one which may be adjusted to drill seed at various distances apart, thereby adapting the drill for various uses.

A further object of the invention is to provide an attachment in the form of a square shaft to be secured to the planter in proximity to the main shaft of the drill so that the attachment will not in any way interfere with the operation of the main shaft.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawings:

Figure 1 is a plan view of a drill equipped with an attachment constructed in accordance with the invention.

Figure 2 is a front elevational view thereof.

Figure 3 is a vertical sectional view through the seed delivering spout.

Figure 4 is a side elevational view thereof.

Figure 5 is a plan view of the shaft trip.

Figure 6 is a side elevational view thereof.

Figure 7 is a side elevational view of the trip actuating arm secured to the main shaft of the planter.

Referring to the drawings in detail, the frame of the machine is indicated generally by the reference character 5 and includes side rails connected by the cross bar 6 which has its ends extended at right angles and bolted to the side bars of the frame at 7.

The frame is wheel supported and is provided with bearings 8 in which the axle 9 operates on which axle the wheels 10 are mounted. The grain container of the planter is indicated by the reference character 11, and is of the usual and well known construction, the same being provided with the usual accumulator not shown, which is actuated by the shaft 12 which has its ends mounted in bearings positioned in the end bars 13 of the transversely disposed frame 14. This shaft 12 receives motion from the axle 9, through the medium of the chain 15 that operates over the sprocket 16 mounted on the axle 9, as well as over the sprocket 17 mounted on the shaft 12.

A clutch member 18 is splined on the axle 9 and moves to engage the clutch member 19 of the sprocket 16 so that the sprocket 17 may be thrown into and out of operation at the will of the attendant. Sprockets 20 and 21 are also mounted on the shaft 12 and as shown are of various sizes so that by shortening the chain 15, the speed of operation may be increased. Set screws 22 are provided on the hub 23 and clutch member 19 so that the hub 23 and clutch member may be adjusted on their supports.

The clutch member 18 is operated by means of the bell crank lever 24 and rod 25, the rod 25 being operated by the lever 26 located adjacent to the driver's seat. The reference character 27 designates the delivery spout of the planter leading from the grain container, and through which grain is delivered to the furrow formed by the blade 28.

Mounted within the delivery spout 27 are pivoted valves 28 and 29 respectively, the valve 28 being mounted on the shaft 30, while the valve 29 is mounted on the shaft 31. One end of the shaft 30 extends laterally as at 32 at a point exteriorly of the delivery spout where it has connection with the link 33 that also connects with the arm 34 formed at one end of the shaft 31. An arm 35 also extends from the shaft 31 and is disposed at right angles to the arm 34, the arm 35 being connected with the arm 36 which in turn has pivotal connection with the arm 37 which is pivotally supported on the frame of the machine.

As clearly shown by Figure 4 of the drawings the valves 28 and 29 are so positioned on

their shafts that when one blade is moved to its closed position, the other blade swings to its open position to the end that seeds dropped onto the upper valve 29, which occurs when the valve 29 is in its closed position, will be dropped onto the valve 28, which moves to its closed position when the valve 29 moves to its open position. The seed drops into the furrow formed by the blade 28′, when the valve 28 moves to its open position.

Disposed above the arm 37, is a shaft 38 on which the trip 39 is secured, the trip 39 extending downwardly from the shaft 38 to be engaged by the upper end of the arm 37 so that movement of the trip 39 will operate to move the arm 37 to indirectly operate the valves 28 and 29.

A trip shown at 40 extends upwardly from the shaft 38, the trip 40 being disposed in the path of travel of the member 41 which is mounted on the shaft 12, and includes arms 42 that have curved extremities 43 adapted to contact with the roller 43′ of the trip 40 to move the shaft 38 and trip 39.

A coiled spring 44 connects with the upper end of the arm 37 and has connection with the side bar of the frame so that when the arm 37 and trips 39 and 40 have been moved by the member 41, the spring will act to return the arm 37 and trips 39 and 40 to their normal positions.

In the operation of the machine, it will be seen that as the shaft 12 rotates and the curved ends of the arms 43 strike the trip 40, the shaft 38 and trip 39 will be operated. As the trip 39 moves, the arm 37 will be moved and the arm 36 will operate to swing the valve 29 to its closed position which action moves the valve 28 to its open position dropping the seeds resting on valve 28.

The coiled spring 44 will now act to return the valves to their initial positions whereupon the accumulator will operate to drop seed onto the valve 29, and the operation as described will be repeated, depositing seeds at predetermined intervals to insure an even planting.

While I have shown and described the invention as applied to a planter, it is to be understood that it is within the scope of the invention to employ the device forming the subject matter of this invention, in connection with listers.

I claim:

The combination with a planter having a discharge spout and having a rotary shaft mounted thereabove, of a grain delivering device including an upper swinging valve and a lower swinging valve mounted within the spout, arms connected with the swinging valves, a rod connected with the arms, a rod connected with one of the arms and extending forwardly therefrom, a pivoted arm mounted on the frame and to which the last mentioned rod is connected, a trip mounted above the pivoted arm and adapted to engage the arm to move the rod and valves, a coiled spring for tensioning the movements of the valves, said spring adapted to normally hold the upper valve open and the lower valve closed, an operating member mounted on the rotary shaft and comprising arms having curved ends engaging the trip, and said operating member adapted to operate the trip to move the valve to release seed.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

RUDOLPH HRONEK.