

Aug. 25, 1925.

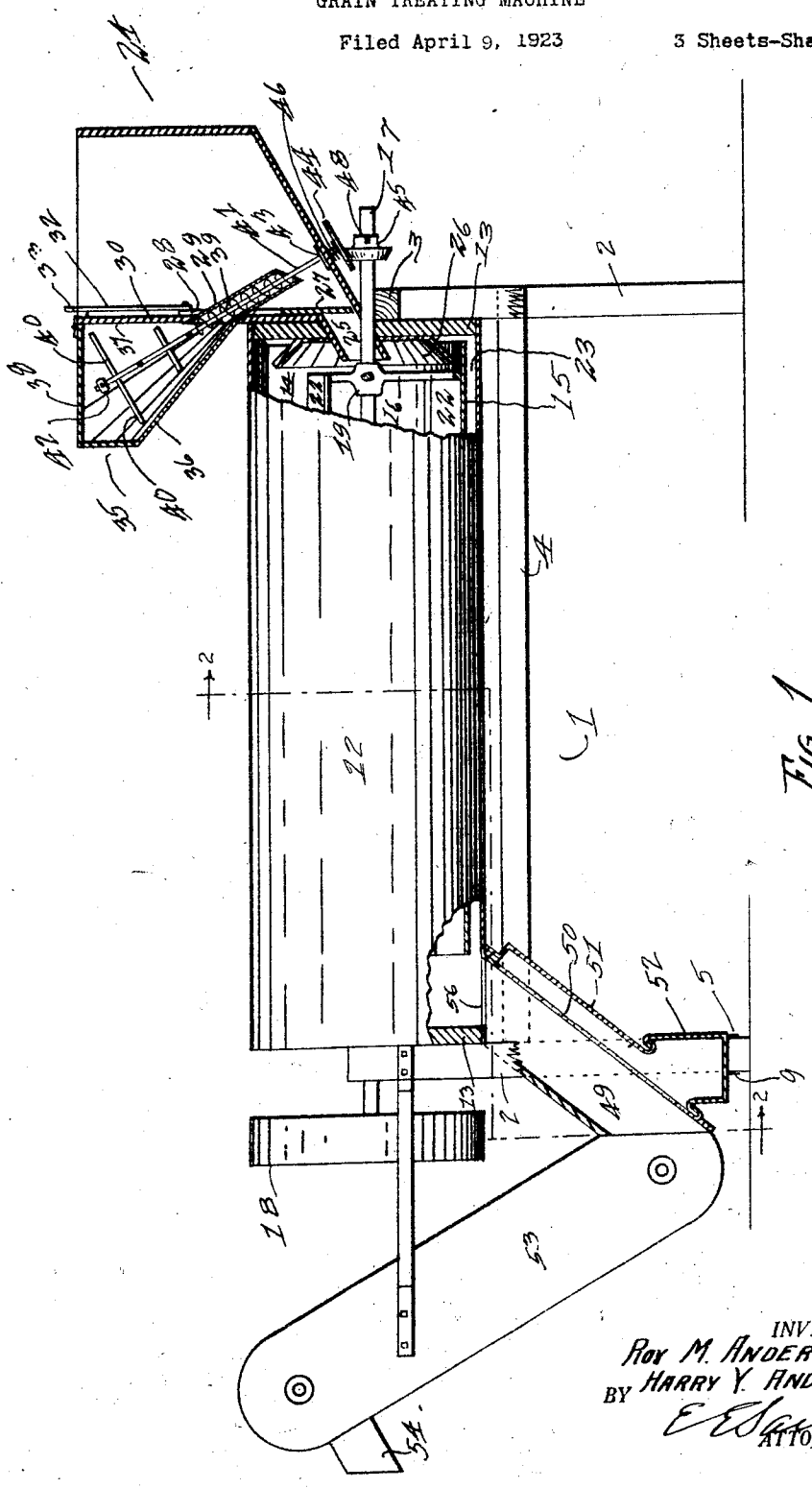
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GRAIN TREATING MACHINE

Filed April 9, 1923

3 Sheets-Sheet 1



INVENTOR.
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GRAIN TREATING MACHINE

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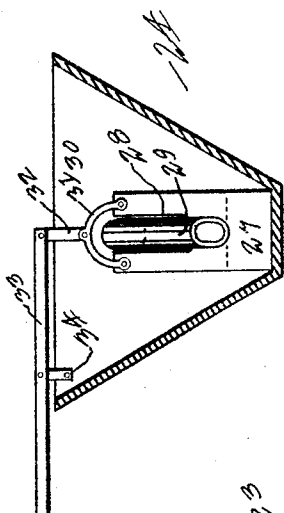


Fig. 4

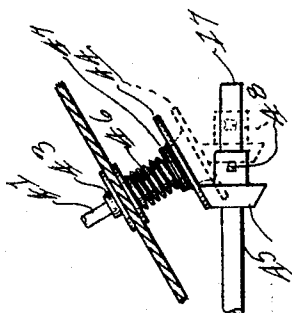


Fig. 5

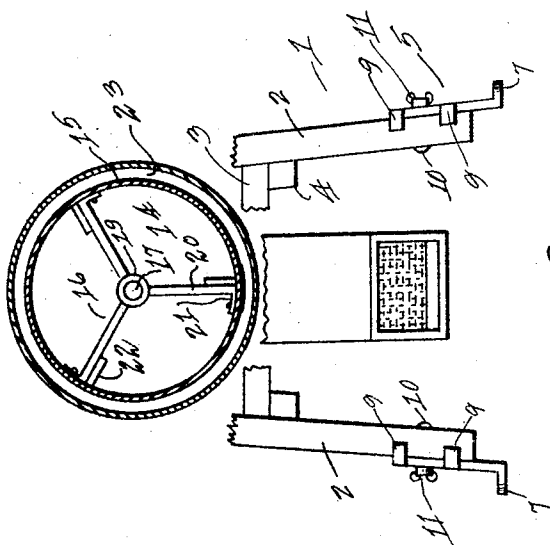


Fig. 6

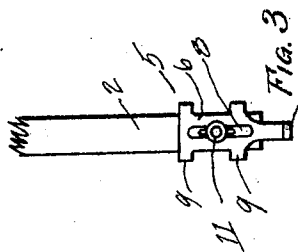


Fig. 7

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GRAIN TREATING MACHINE

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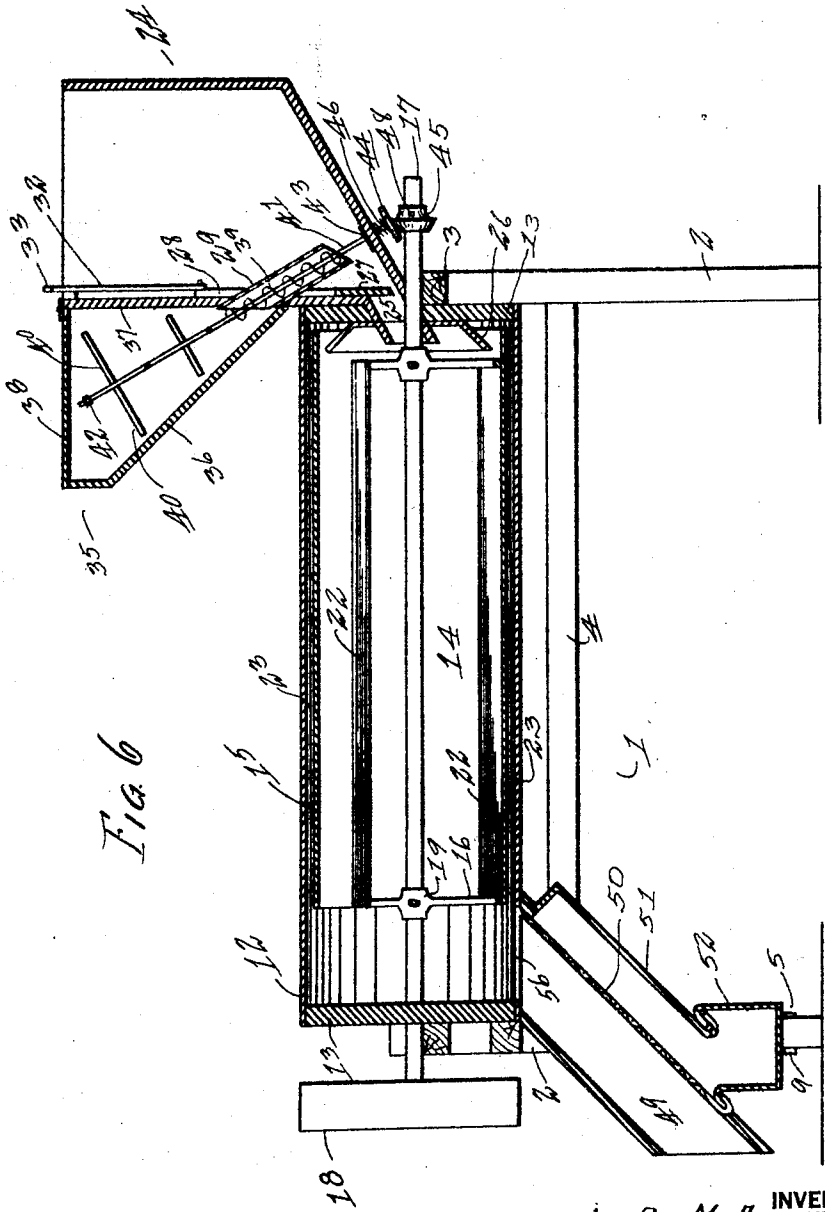


Fig. 6

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UNITED STATES PATENT OFFICE.

ROY M. ANDERSON AND HARRY Y. ANDERSON, OF WALLA WALLA, WASHINGTON.

GRAIN-TREATING MACHINE.

Application filed April 9, 1923. Serial No. 630,762.

To all whom it may concern:

Be it known that we, ROY M. ANDERSON and HARRY Y. ANDERSON, citizens of the United States, residing at Walla Walla, in the county of Walla Walla and State of Washington, have invented certain new and useful Improvements in Grain-Treating Machines, of which the following is a specification.

This invention relates to smut treating machines and has as one of its objects to provide a means for treating wheat and other grains to prevent disease.

Another object of the invention is to provide a means for treating grains that is applicable to the use of a dry powdered fungicide.

A further object of the invention is to provide a means for treating grains with a dry powdered fungicide that will prevent the escape of dust that arises from the powder.

A further object of the invention is to provide a means for treating grains that is continuous in operation.

A further object of the invention is to provide a means for treating grains that will agitate the fungicide in the fungicide feeder to prevent packing and thus insure a uniform flow thereof.

A further object of the invention is to provide a means for treating grains that will maintain a constant flow of the fungicide in synchronism with the machine, and that will separate and preserve any surplus of the fungicide.

With these and other objects in view reference is had to the accompanying drawings, in which—

Fig. 1 is a side elevation of the machine with part cut away to show its interior;

Fig. 2 is a sectional view of the device on the line 2—2 of Fig. 1;

Fig. 3 shows a front elevation of means for adjusting the legs of the machine;

Fig. 4 shows part of the grain hopper and its gate;

Fig. 5 is a side elevation of the adjusting means for the fungicide feeder, and Fig. 6 is a sectional elevation of the machine.

Having reference to the drawings like numerals refer to like parts throughout the several views, and the numeral 1 refers to a frame work designed to properly support the machine and comprises legs 2, cross members 3, and bracing members 4. The

frame is adjustable as to inclination by means of adjustable legs 5, each consisting of a plate 6 extended to form a foot 7 and provided with a slot 8, with guide pieces 9 slidably engaging the legs 2 of the frame. A bolt 10 passes through the leg 2 and slot 8 and is held secure by a thumb nut 11 to provide means to regulate the height of the legs and thus the inclination of the machine, which is rigidly attached thereto.

Fixedly attached to the frame is a cylindrical dust proof casing 12 provided with heads 13 which maintain the rotundity of the casing and which afford a substantial means for fastening the casing to the frame, the fastening being accomplished in any suitable manner.

Operably positioned within the casing 12 is a rotatably mounted drum 14 consisting of an outer shell 15 open at each end and supported by spiders 16 which in turn are mounted on an axle 17. The drum terminates short of the casing and the axle passes through the entire length of the drum and through the head 13 of the casing and is supported by the cross members 3 of the frame. The axle is extended at both ends and carries at one end a driving pulley 18 wherewith to operate the machine, and at the other end a bevel friction pinion which will be presently explained.

The spiders 16 consist of a hub 19, legs 20 and feet 21, the latter being offset to supply a substantial means for attaching the spiders to the shell 15, while the legs afford a substantial means to carry paddles 22 which are thus mounted within and will obviously rotate with the drum.

The spiders likewise maintain the rotundity of the shell of the drum so that this shell and the casing, which are positioned concentric to each other, may operate without interference with a minimum of space 23 between the two.

At one end of the machine is a grain hopper 24, which is fixedly attached to the frame 1 in any suitable manner and to one head 13 of the casing, and is in communication with the drum 14 by means of the spout 25 which passes through the head to discharge thereinto. The hopper is of the usual form of hoppers, having the usual inclined bottom, and needs no description as it is old in the art.

A shield 26 is attached to the head 13 to prevent the grain from passing out the open

end of the drum during the operation of the machine, to become lodged between the rotating drum and the stationary casing there to cause undue frictional resistance between the two. The shield is of the shape of a frustrum of a cone and is positioned with its base toward the drum and with its smaller end against the end 13, by which means the grain, falling against the sloping side of the shield, is directed away from the open end of the drum.

The hopper is provided with a means to manually regulate the flow of the grain through the spout 25, which means consists of a gate 27, slotted, as at 28, to straddle a tube 29 positioned centrally in the end 30 of the hopper, and is operated by means of a yoke 31, a connecting link 32, a lever 33, and a fulcrum piece 34 attached to the end 30 of the hopper.

Attached to the end 30 of the hopper and in communication with the hopper 24 is a dust proof fungicide feeder 35 consisting of a funnel shaped hopper 36 with one side 37 flattened, if desired, to attach to the hopper 24. The hopper is provided with a closure 38 on its top side to prevent the escape of dust, and is provided with a discharge tube 29 on its lower side, which tube passes through the end 30 of the hopper 24 and provides a passageway for the fungicide so that the fungicide will be deposited directly into the grain to be treated and at a point that the grain as it moves down the inclined bottom will carry the fungicide with it into the drum 14.

This feeder comprises, in addition to the hopper 36 and tube 29, an auger conveyor 39 operable in the tube 29, with an extended portion forming, with cross bars 40, an agitator. Both the agitator and the auger 39 are mounted on one rotatable shaft 41 which is supported by a bearing 42 at its upper end, and the bearing 43 at its lower end, through the latter of which it passes to accommodate a friction disc 44 engageable with the bevel friction pinion 45 above mentioned.

Between the disc 44 and the bearing 43, and mounted on the shaft 41, is a coiled spring 46 which bears at one end against the bearing 43 and at the other end against a thrust bearing 47 placed against the disc to prevent undue friction between the movable disc and the stationary spring.

The spring is provided to afford proper frictional contact between the disc 44, and the pinion 45, and the pinion is slidably mounted on the shaft 41 so that it may assume the positions shown in Fig. 5 by the dotted and solid lines. The pinion 45 may be moved to either of the above or the intermediate positions by releasing the set screw 48, moving the pinion to the desired position, then fastening the set screw, by which means a simple variable speed mechanism is

provided whereby the action of the agitator 40 and the auger conveyor 39 may be synchronized with the action of the axle 17.

Attached to the lower or discharge side of the casing is a discharge spout 49 in the bottom of which is a screen 50, over which the treated grain travels in its passage out of the machine.

Beneath the screen is a second spout or chute 51 with a removable receptacle 52 at the lower end of this chute.

The chute and receptacle are both likewise dust proof so that as the grain passes over the screen in its exit the surplus fungicide sifts through the screen to be recovered in the receptacle 52 without any of the dust escaping to the outside of the machine.

An elevator 53 may be attached to the discharge spout 49 if desired, and when used may be further provided with a sacker head 54 to support the sack positioned there to receive the treated grain.

In use grain is poured into the hopper 24; the machine is then started by means of any prime mover (not shown) attached to the pulley 18. The speed of the agitator and the auger conveyor is then properly regulated by the pinion 45 when the fungicide feeder 35 is filled with the proper fungicide, and the gate 27 to the spout 25 opened, when, the flow of grain now starting, the fungicide is carried along with the grain into the drum where the two are thoroughly mixed by being lifted to the top of the drum 14 by the paddles 22, from which they slide, and falling, produce a continual agitation that thoroughly coats the grain.

The treated grain now travels throughout the length of the drum, and, the drum terminating short of the casing, as above mentioned, the grain discharges directly into the discharge spout 49 through an outlet 56 provided in the casing.

Now as the grain passes over the screen 50 the surplus fungicide falls through the screen to be caught by the receptacle 52 and the grain passes to the sack through the elevator 53, or other means.

It will now be noted that the fungicide feeder is made dust proof by the closure 38; the outlet from the tube 29 is covered by the grain making this part dust proof; agitation of the grain is carried on in a dust proof casing 12; the treated grain is separated from the surplus fungicide in a dust proof discharge spout 49; and the grain is finally deposited in the sack.

Having thus described our invention we claim—

1. In a grain treating machine, the combination with feeding means, of a frame, means attached to the legs of said frame to adjust its inclination, a cylindrical casing fixed to said frame, a cylindrical drum ro-

5 tatably mounted in said casing, paddles carried by said drum, a discharge spout attached to said casing and positioned to receive the treated grain from said drum, a screening means attached to said spout, and means to rotate said drum.

10 2. In a grain treating machine, the combination with feeding means, of a frame, adjustable means attached to the legs of said frame to adjust the inclination of said frame, a dust proof casing fixed to said frame, a cylindrical drum rotatably mounted in said casing and terminating with its discharge end short of said casing, paddles
15 mounted within and rotatable with said drum, a discharge spout attached to said casing and positioned to receive the treated grain from said drum, a screening means attached to said spout and provided with a

removable receptacle to recover the screened fungicide, and means to rotate said drum.

3. In a grain treating machine, the combination with feeding means, of a frame, a cylindrical dust proof casing fixed to said frame, a drum rotatably mounted in said casing, paddles mounted within and rotatable with said drum, means to synchronize the action of the feeding means with the axle of said drum, said last mentioned means comprising a variable speed mechanism, a discharge spout and screening means
25 attached to said casing and provided with a removable receptacle to recover the screened fungicide, and means to operate said drum.

In testimony whereof we affix our signatures.

ROY M. ANDERSON.
HARRY Y. ANDERSON.