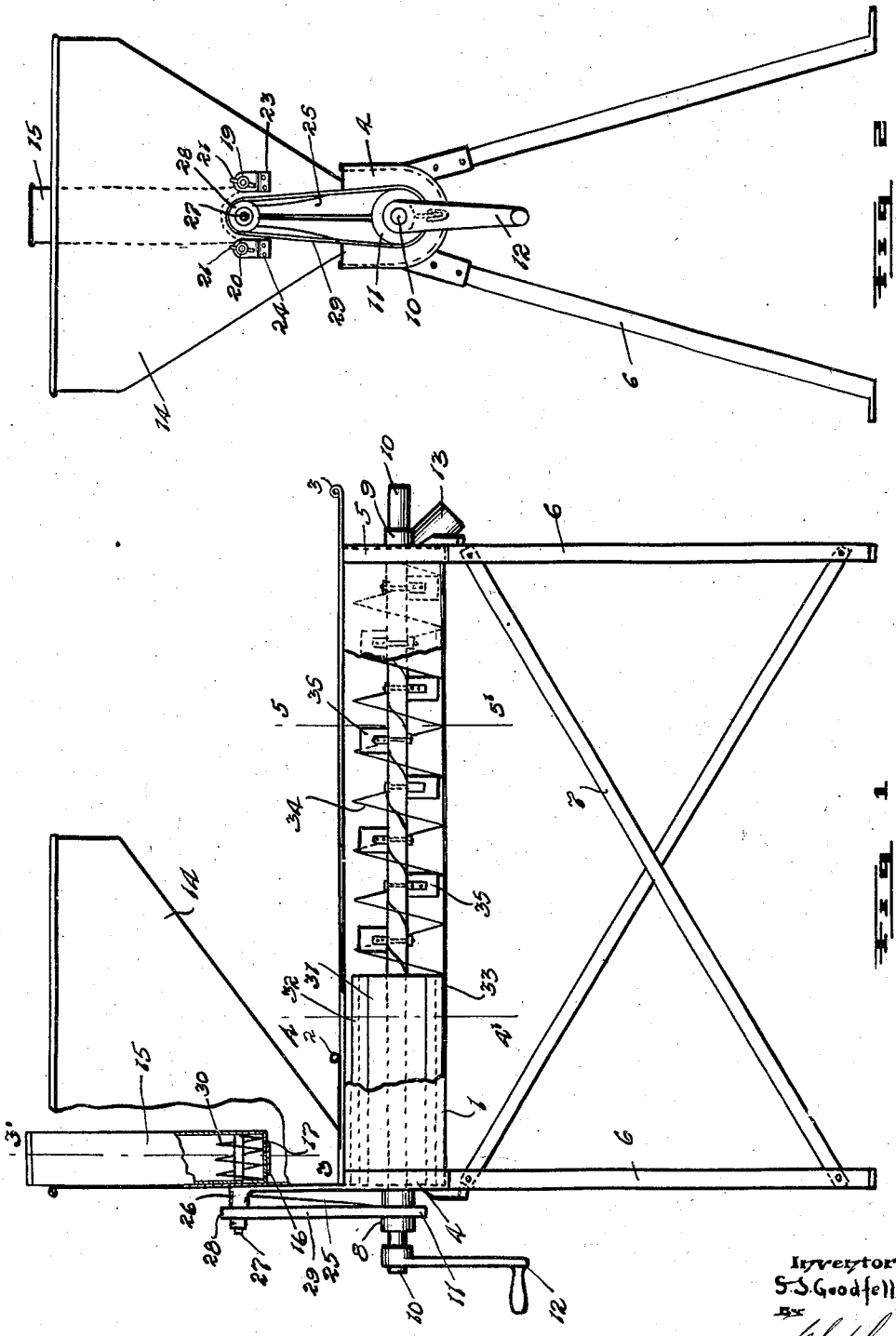
June 17, 1930. S. J. GOODFELLOW 1,764,510

GRAIN TESTING MACHINE

Filed Feb. 17, 1927 2 Sheets-Sheet 1



Inventor
S. J. Goodfellow
By
Attorneys

June 17, 1930. S. J. GOODFELLOW 1,764,510

GRAIN-TESTING MACHINE

Filed Feb. 17, 1927 2 Sheets-Sheet 2

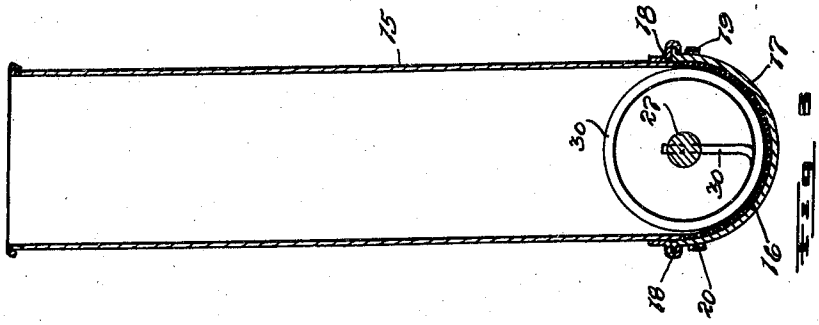


Fig. 6

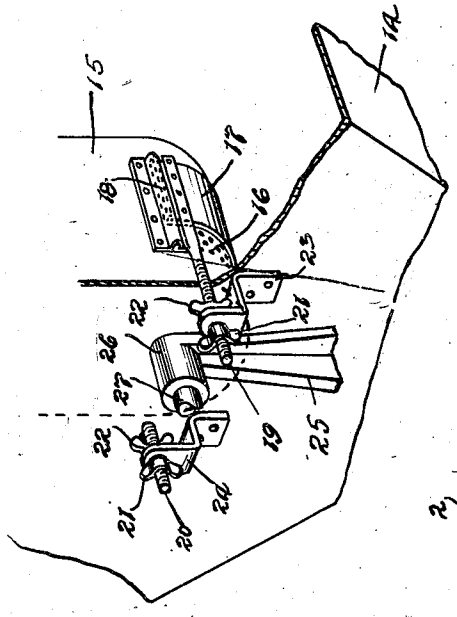


Fig. 4

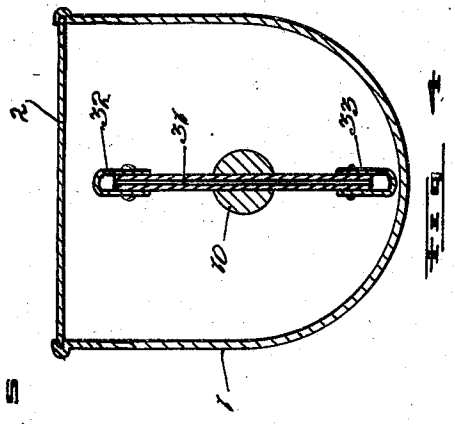


Fig. 7

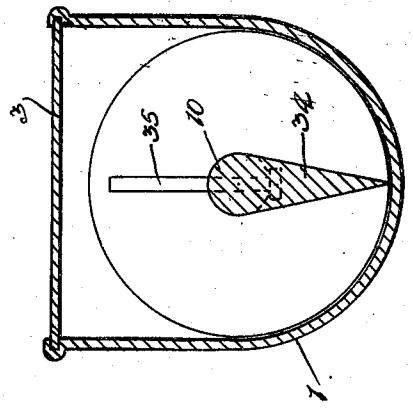


Fig. 5

Inventor
S. J. Goodfellow
By
Fitzpatrick & Co.
Atty

Patented June 17, 1930 1,764,510

UNITED STATES PATENT OFFICE

SAMPSON J. GOODFELLOW, OF REGINA, SASKATCHEWAN, CANADA, ASSIGNOR TO WESTERN IMPLEMENTS LIMITED, OF REGINA, CANADA

GRAIN-TREATING MACHINE

Application filed February 17, 1927. Serial No. 169,054.

The invention relates to improvements in grain treating machines and particularly to a machine for treating grain with copper carbonate and an object of the invention is to provide a simply constructed, inexpensive and durable machine by the use of which the grain can be effectively treated, the design of the machine being such that the copper carbonate powder is given every opportunity to contact with the grain in its passage through the machine thereby insuring of the effective treating of the individual kernels.

A further object of the invention is to provide a machine having considerable capacity and to arrange the feed of the copper carbonate so that it is continuously dusted through a fine screen and initially mixed with the grain in the form of a dust, such insuring of a primarily good mixing of the treating powder with the grain kernels.

A further object is to provide a machine wherein the primarily mixed grain and powder is subsequently thoroughly intermixed as the grain is passed through the machine and further to provide a chamber above the moving grain wherein the powder, suspended or floating as a dust, is brought in contact with the passing grain prior to discharging.

A further object of the invention is to construct a machine wherein the quantity of treating powder fed, can be readily controlled by the attendant.

With the above more important objects in view, the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described, reference being had to the accompanying drawings, in which:—

Fig. 1 is a side elevation of the machine, parts being shown in vertical section.

Fig. 2 is a front end view of the machine.

Fig. 3 is an enlarged detailed vertical sectional view at 3—3′ Figure 1.

Fig. 4 is an enlarged detailed vertical sectional view at 4—4′ Figure 1.

Fig. 5 is an enlarged detailed vertical sectional view at 5—5′ Figure 1.

Fig. 6 is a perspective view showing the adjustable gate and parts associated therewith.

In the drawings like characters of reference indicate corresponding parts in the several figures.

The body of the machine is in the form of a substantially D-shaped horizontally disposed trough 1 provided at the top or flat side with an adjustable grain controlling gate 2 and an inspection gate 3, these being slidably mounted in suitable guides permitting of the ready opening or closing of the same. Suitable heads 4 and 5 are provided to carry the ends of the body and the heads are supported by pairs of diverging end legs 6, the legs being reinforced by suitable braces 7.

The heads 4 and 5 are fitted with centrally located aligned bearings 8 and 9 which receive rotatably the main shaft 10 which is provided at one end with a chain wheel 11 and an operating handle or crank 12. The head 8 is supplied with a discharge spout 13 through which the grain passed through the body, in a manner later described, is discharged.

The grain hopper 14 is mounted on the forward end of the machine and is positioned such that the grain fed into the forward end of the body member 1 is under the control of the gate 2. Within the hopper, I locate a further hopper 15 which receives the treating powder such as copper carbonate. This latter hopper is securely fastened to the forward end of the hopper 14 and overlies the discharge from the hopper 14 which is controlled by the gate. The lower end of the hopper 15 is semicircular and carries a perforated zinc plate 16 through which the powder is continuously dusted to mix with the underlying grain.

Means is provided for controlling the feed of the powder, such being herein shown as a semicircular gate 17 slidably attached by suitable guides 18 to the end of such hopper, the gate being designed when closed to fully cover the perforated plate. The gate is adjusted by means of rods 19 and 20 having their rear ends permanently fastened to the gate and their forward ends passing slid-

ably through the hopper walls and screw threaded to receive pairs of winged lock nuts 21 and 22 which operate on opposite sides of stationary brackets 23 and 24 permanently fastened to the front wall of the hopper 14. Obviously one can set the gate as desired by manipulating the nuts and can lock it in such adjusted position.

The front head carries an upstanding integral arm 25 which has the upper end terminating in a horizontally disposed bearing 26 axially aligned with the central axis of the lower semicircular end of the hopper 15 and this bearing receives retatably a counter shaft 27, the outer end of which is provided with a chain wheel 28, the chain wheel being connected by a chain 29 with the chain wheel 11 hereinbefore described. The inner end of the shaft 27 extends into the hopper 15 and is provided with a spiralling coil or spring 30 operating in the lower end of the hopper and adapted to continuously stir and feed the powder through the perforated plate and also to maintain the perforated plate clean.

Within the forward end of the body 1 and on the shaft 10, I mount a revolving blade 31 which has the outer edges thereof provided with canvas or such like flexible tips 32 and 33 which are designed in the rotation of the shaft to sweep the semicircular under side of the body member 1 and mix the treating powder and the grain. Rearwardly of the blade, the shaft carries an auger 34 which is adapted to feed the grain rearwardly to the discharge spout. To the shaft 10 I also secure mixing paddles 35 which are positioned parallel to the worm and are alternated in the manner best shown in Figure 1.

It will be observed that these paddles are substantially rectangular and are not as wide as the distance between the spirals of the auger so that there is ample room between the paddles and the auger spirals for the grain to move past. I wish it also to be noticed that by making the body member 1 of a D-shape, I provide a considerable area above the worm in which the treating powder will float when the machine is in operation and this floating powder also insures a good even coating of dust on the grain.

When the machine is in use, one places the grain, such as wheat, to be treated in the hopper 14 and the treating powder in the hopper 15. He then sets the gate 17 as experience dictates and turns the crank 12. The powder is initially dusted into the grain through the perforated plate and then the initially treated grain passes down through the discharge opening of the hopper 14 into the forward end of the body member 1. The coil 30 insures of a positive and even feed of the powder and maintains the plate clean.

The blade in the forward end of the body 1 acts to further mix the grain and the powder and the canvas tips act to sweep all dust that may be deposited on the bottom of the member 1 around with the grain. The auger and the paddles 35 subsequently continue the mixing of the grain and powder until it is discharged rearwardly through the spout 13 with the result that the grain when finally discharged is very effectively dusted or coated with the treating powder.

What I claim as my invention is:—

1. In a grain treating machine, in combination, a stationary horizontally disposed and closed trough-shaped member having a discharge spout at one end thereof, a main shaft extending lengthwise of the member and rotatably mounted in the ends thereof, a grain hopper feeding into the end of the trough member remote from the spout, a powder hopper mounted within the grain hopper and having a perforated bottom, a gate adjustably controlling the discharge of the powder into the grain hopper, means for rotating the shaft, an agitator contained within the lower end of the powder hopper and driven by the shaft, a mixing blade secured to the shaft at the end thereof remote from the discharge spout and within the trough member and a worm secured to the shaft between the blade and the discharge spout and operating within the trough member.

2. In a grain treating machine, in combination, a stationary horizontally disposed and closed trough-shaped member having a discharge spout at one end thereof, a main shaft extending lengthwise of the member and rotatably mounted in the ends thereof, a grain hopper feeding into the end of the trough member remote from the spout, a powder hopper mounted within the grain hopper and having a perforated bottom, a gate adjustably controlling the discharge of the powder into the grain hopper, means for rotating the shaft, an agitator contained within the lower end of the powder hopper and driven by the shaft, a mixing blade secured to the shaft at the end thereof remote from the discharge spout and within the trough member, a worm secured to the shaft between the blade and the discharge spout and operating within the trough member and agitating paddles secured to the shaft and positioned between the spiralling coils of the worm.

3. A grain treating machine comprising a stationary, closed, trough-shaped, horizontally disposed body having a discharge spout at one end thereof, a grain hopper mounted in the end of the body remote from the spout, an adjustable gate controlling the discharge of the grain into the trough member, a powder hopper mounted

within the grain hopper and overlying the gate and having the bottom thereof semicircular and perforated, a semicircular gate slidably attached to the lower end of the powder hopper and underlying the perforated bottom thereof, exteriorally operated means for controlling the position of the gate, a main shaft extending centrally through the trough-shaped body and rotatably mounted in the ends thereof, a rotatably mounted counter shaft entering the lower end of the powder hopper, a driving connection between the main shaft and the counter shaft, means for rotating the main shaft, a spiralling coil secured to the counter shaft and engaging the bottom of the powder hopper, a mixing blade secured to the forward end of the main shaft and underlying the gate from the main hopper, a worm secured to the shaft and extending between the blade and the discharge spout and mixing paddles secured to the shaft and located between the spiralling coils of the auger.

4. In a grain treating machine, a horizontally disposed closed body member forming a mixing chamber, said body member being substantially D-shaped in vertical section and having the flat side up turned, a rotating blade in the forward end of the chamber, a discharge spout at the rear end of the chamber, a rotating worm in the chamber between the blade and the spout and mixing paddles rotating with the worm, said mixing blade and worm operating over the semicircular under side of the mixing chamber.

5. In a grain treating machine, a mixing chamber having a discharge spout at one end thereof and an entrance opening at the other end thereof for initially mixed grain and powder, a rotating mixing blade in the latter end of the chamber, a rotating worm for delivering the grain and powder towards the discharge chute and mixing paddles secured to and rotating with the worm.

6. In a grain treating machine, a horizontally disposed, closed body member forming a mixing chamber, said body member being substantially D-shaped in vertical section and having the flat side uppermost, a driven shaft extending longitudinally within said chamber, mixing blades radiating from and parallel to the shaft and flexible tips formed at the outer edges of the mixing blades and adapted to sweep the semi-circular under side of the mixing chamber in the rotation of the shaft.

Signed at Regina this 8th day of February, 1927.

SAMPSON J. GOODFELLOW.