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J. A. STENSURUD.
SMUT MACHINE.
APPLICATION FILED JUNE 15, 1910.

Patented Feb. 21, 1911.

3 SHEETS—SHEET 1.

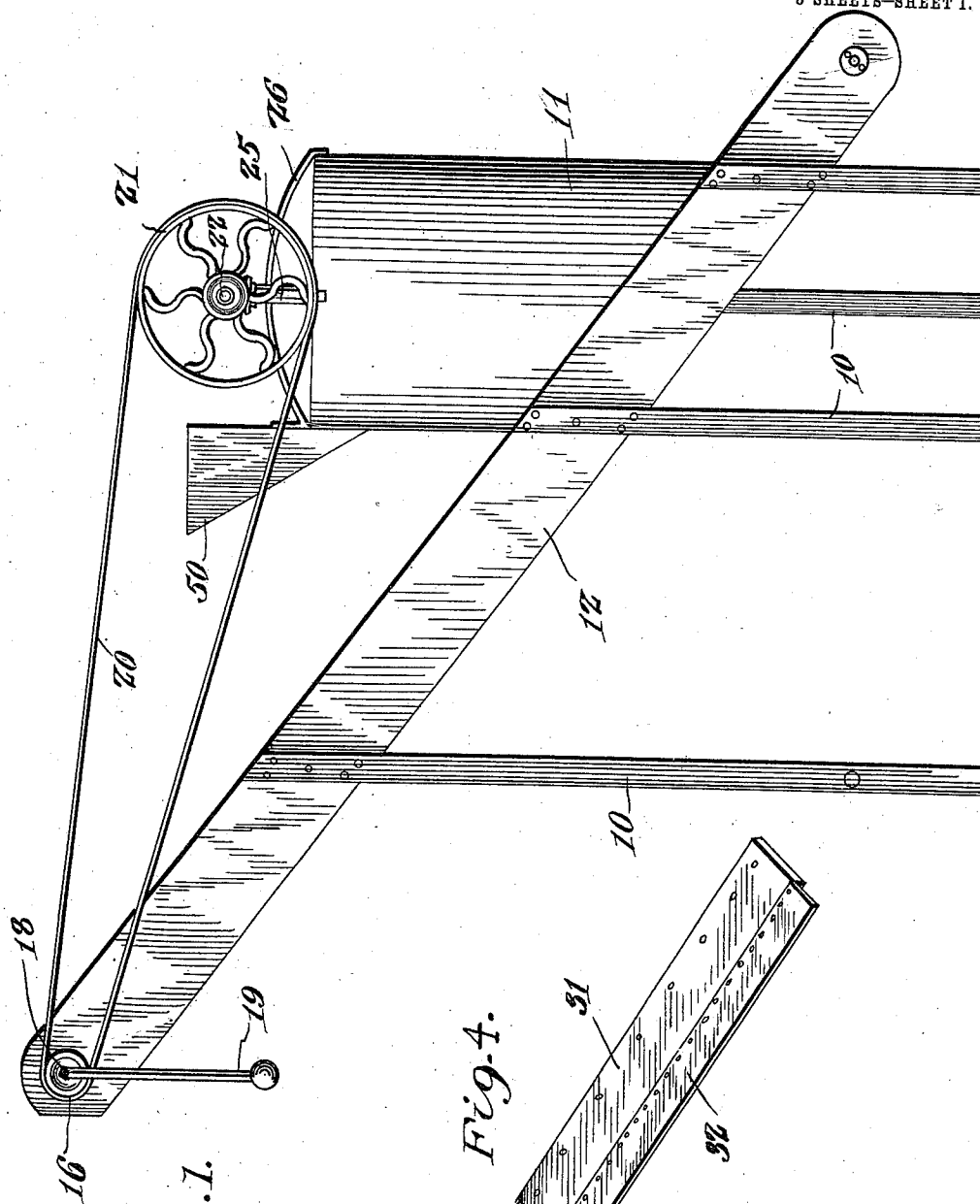


Fig. 1.

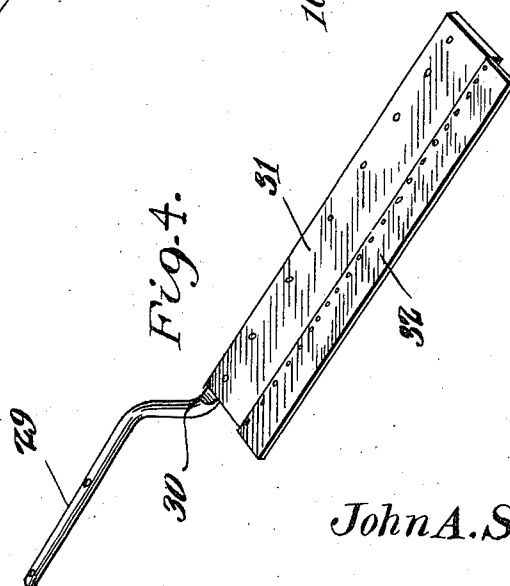


Fig. 4.

Witnesses:
Joe. P. Mahler.
M. L. Low.

Inventor.
John A. Stensrud.

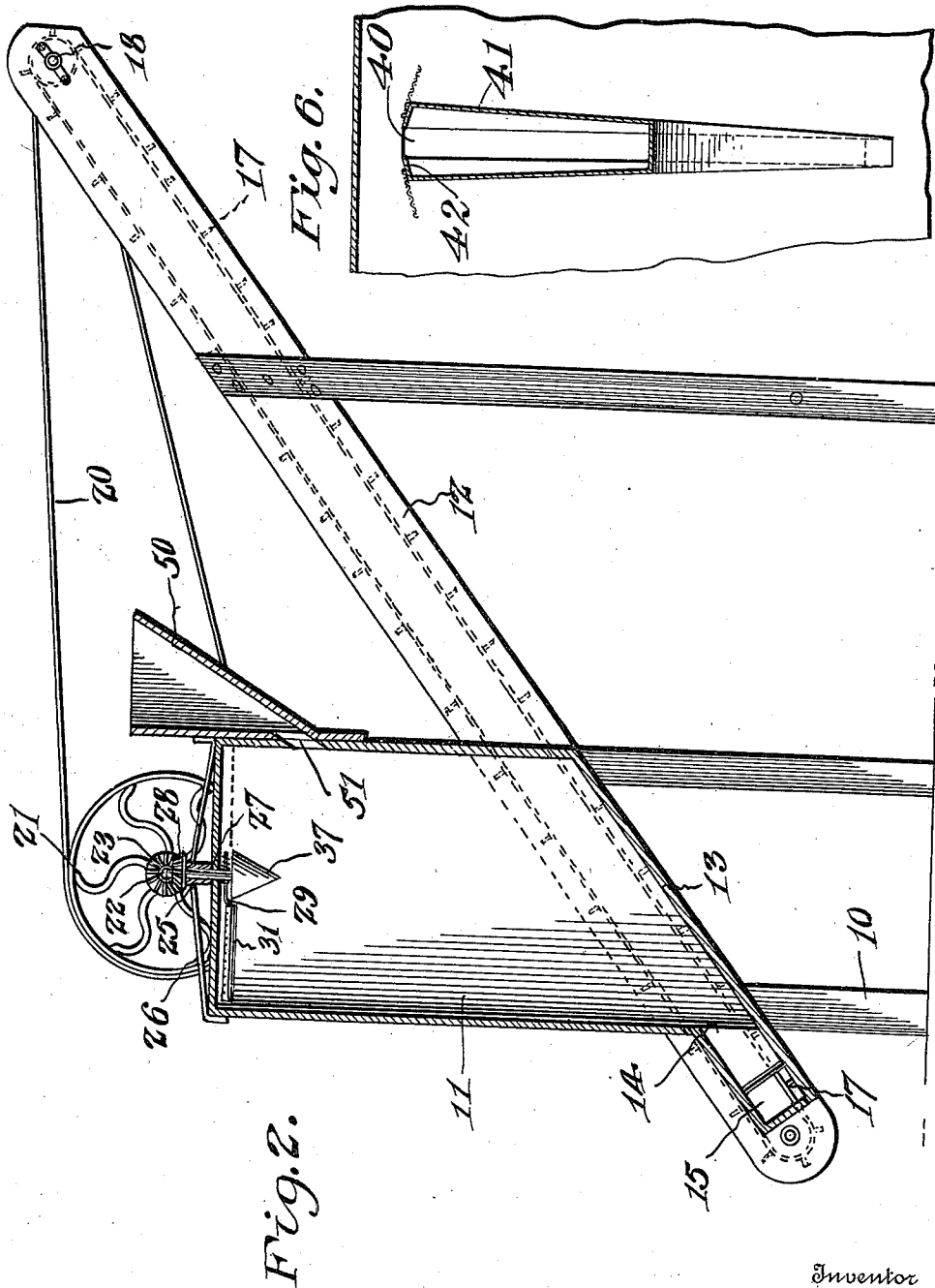
By Woodward & Chandler.
Attorneys

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3 SHEETS-SHEET 2.



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By Howard & Chandler

Attorneys

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3 SHEETS-SHEET 3.

Fig. 5.

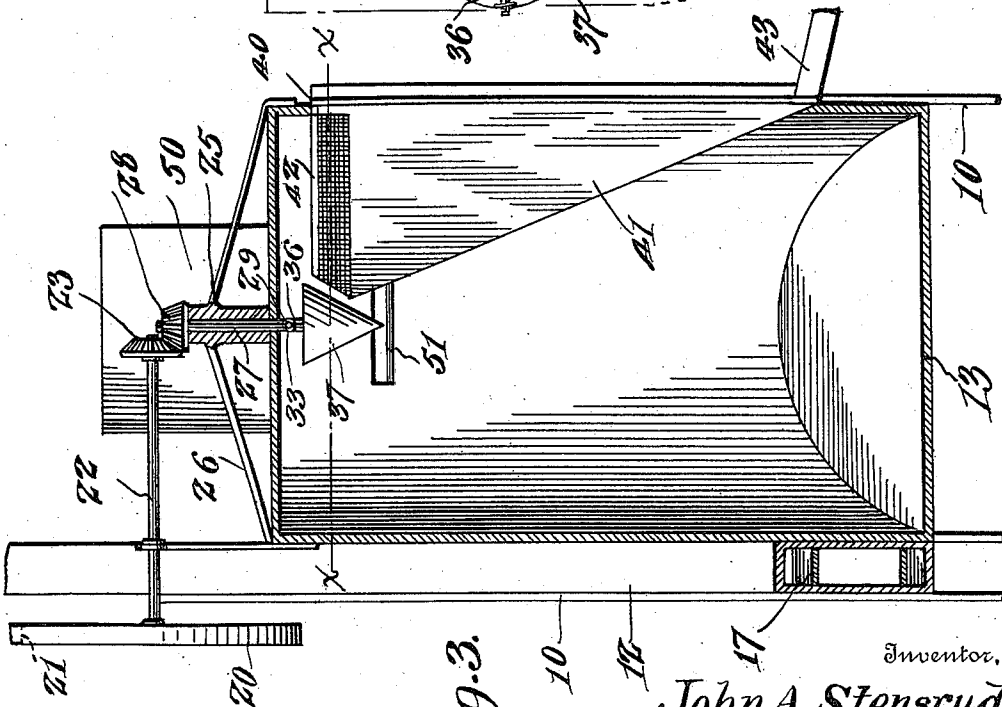
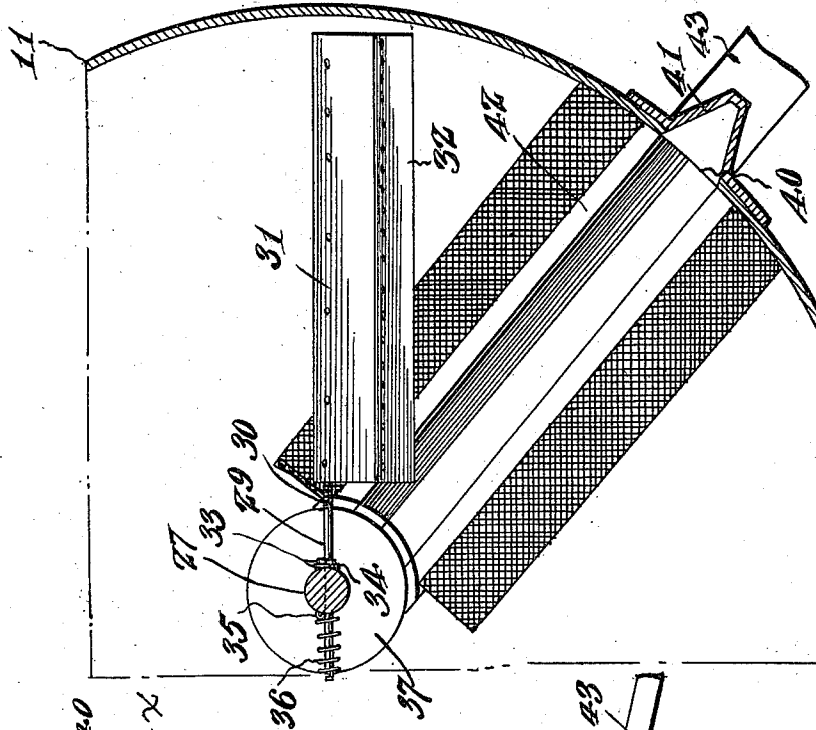


Fig. 3.

Inventor,
John A. Stensrud.

By *Howard & Chandler*
Attorneys

Witnesses:-
Joe. P. Wahler.
M. L. Lorr.

UNITED STATES PATENT OFFICE.

JOHN A. STENSRUD, OF GULL LAKE, SASKATCHEWAN, CANADA.

SMUT-MACHINE.

984,613.

Specification of Letters Patent.

Patented Feb. 21, 1911.

Application filed June 15, 1910. Serial No. 567,001.

To all whom it may concern:

Be it known that I, JOHN A. STENSRUD, a subject of the King of England, residing at Gull Lake, in the Province of Saskatchewan and Dominion of Canada, have invented certain new and useful Improvements in Smut-Machines, of which the following is a specification.

This invention relates to means for treating grain with germ destroying liquid, and more particularly to the process of immersing grain in a solution of formaldehyde for making it immune to "smut", in combination with a mechanism for removing these affected grains.

A particular object of the invention is to provide a novel form of tank for carrying the liquid and grain during treatment.

Another object is to provide a novel means for removing grain affected by "smut" or other diseases destroying the solidity of the grain.

Other objects and advantages will be apparent from the following description, and it will be understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings: Figure 1 is a side view of the device, Fig. 2 is a vertical sectional view, Fig. 3 is a similar view at right angles to Fig. 2, Fig. 4 is a detail perspective view of the skimmer, Fig. 5 is a detail sectional view showing the operation of the skimmer for ejection of faulty grain. Fig. 6 is a vertical section through the V shaped trough.

Referring to the drawings, there is shown a smut machine comprising the supporting framework 10, carrying the vertically disposed cylindrical receptacle 11 and the upwardly inclined elevator casing 12 having a suitable elevator therein of the endless type and arranged to discharge at an elevated point, as shown.

The receptacle 11 is provided with an inclined bottom 13, the lower portion of which is disposed toward the elevator, a suitable escape opening 14 being formed there-through from which leads a suitable spout 15 entering the lower end of the casing 12 to act as a duct for the passage of material from the receptacle to the elevator. Suitable pulley members 16 are revolvably mounted at opposite ends of the casing 12, upon

which there is suitably mounted the endless conveyer 17. The upper sprocket 16 is mounted upon a revoluble shaft 18 projected through one side of the casing, and carrying a suitable crank 19 for operation of the device. A sprocket or pulley is carried upon the outwardly projected portion of the shaft from which extends a chain or belt 20 engaged over the large wheel 21 carried upon a suitable axial shaft 22 supported upon the top of the receptacle 11 and provided with a bevel gear 23 at its inner end. The lower end of the casing 12 is sealed, and the connections between the tank 11, the spout 15 and the casing are water-tight, so that liquid introduced into the tank will enter and be partly held in the casing 12.

Supported upon the top of the receptacle there is a spider frame 25, having radial arms 26, and supporting centrally thereof a vertical shaft 27 upon the upper end of which there is a bevel gear 28 meshed with the gear 23. Carried revolvably adjacent the lower end of the shaft 27 there is a radially extending shaft 29 offset immediately outward of the shaft 27 to provide a crank portion 30 carrying a suitable skimmer vane 31, the lower edge of which is provided with a flexible strip 32, as shown. The shaft 29 is secured in a suitable manner against longitudinal movement, and this means as shown comprises cotter pins 33, engaged through suitable perforations through the shaft, inwardly of which there are disposed washers 34. Carried upon the side of the shaft 27, there is a suitable lug 35, arranged to engage against one side of the adjacent cotter pin 33, and secured to this lug there is a spring 36 engaged oppositely with the shaft 29 to hold it yieldably against rotation with the adjacent cotter pin pressed against the lug 35. The lower end of the shaft 27 projects some distance below the shaft 29 and carries an inverted cone member 36 projecting some distance below the vane and attached strip 32, as shown.

The receptacle 11 is provided with an exit opening 40, adjacent its upper edge, approximately V-shaped in form and inwardly from which there extends a V-shaped trough 41 secured to the edges of the opening 40 and having inwardly inclined shelf portions 42 along its upper edges, the function of which will be subsequently described. Lead-

ing from over the opening 40, there is a downwardly extending spout 43. The inner end of the trough 40 is disposed closely adjacent the cone member 37.

5 In use the receptacle 11 is filled with a suitable liquid, until its level in the casing 12 and the receptacle 11 reaches the point indicated by the dotted line $x-x$ in Fig. 3, that is, with the surface of the fluid dis-
 10 posed intermediately of the width of the shevles 42. The grain to be treated is then introduced through the hopper 50 to the receptacle 11 from which it passes through the slot 51 in the side of the receptacle disposed
 15 some distance below the surface of the liquid as shown. The perfect grain will gradually sink to the base of the receptacle, escaping through the spout 15 to the elevator, while the mal-affected grain will float upon
 20 the surface as will be readily understood. During the introduction of grain the crank 19 is operated, whereby the skimmer comprising the shaft 29 and vane 31 is rotated engaging all of the grains floating upon the
 25 surface of the fluid, and carrying such grains before it until the shelf 42 is encountered, when the vane will rise thereover, carrying the gathered grain before it over the inner edge of the shelf, from whence
 30 it will fall into the trough 40, the bottom of which is inclined downwardly toward its outer end, whereby the grain will be directed into the spout 43 for discharge at a suitable point.

35 The provision of the cone member 37 obviates the liability of gathering of bad grain at the center of the receptacle upon the surface of the fluid or liquid. Meanwhile, the perfect grain gradually sinks through the
 40 liquid to the elevator, by which it is engaged and discharged through the upper end of the casing 12.

It should be noted that a particular object of this invention is to provide for a
 45 maximum depth of fluid for the grain to

sink through without requiring too great a quantity thereof.

What is claimed is:

1. A machine of the class described comprising a cylindrical receptacle having a transversely inclined bottom and a discharge opening at its lower portion, a vertical revoluble shaft centrally of the casing, a horizontal radial skimmer vane carried thereby and a receptacle member having an inwardly
 55 inclined shelf portion at its side arranged to receive material engaged by the skimmer vane, means for introducing grain into the receptacle beneath the level of the skimmer
 60 vane, means for rotating the shaft, and means for conveying material discharged from said escape opening.

2. In a machine of the class described, the combination with a cylindrical receptacle having a V-shaped opening in its side adjacent its upper end, a radially disposed
 65 trough leading inward from said opening and having its lower portion inclined upwardly, said trough having an inwardly inclined upper side portion forming an inclined shelf, said receptacle being adapted
 70 to be filled with liquid up to a point intermediately of the width of the shelf, a vertical revoluble shaft carried centrally of the casing, a radial horizontal skimmer valve carried thereby and arranged
 75 to engage material upon the surface of liquid in the receptacle for projection thereof over the shelf and into the trough, said receptacle having an escape opening at
 80 its lower end, means for introducing grain into the receptacle beneath the surface of liquid therein, and means for rotating the shaft.

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN A. STENSRUD.

Witnesses:

ALFRED P. GILCHRIST,
 H. HASLULABEN.