W. A. HERMENS.

MACHINE FOR SOWING LAND PLASTER.

APPLICATION FILED FEB. 17, 1914.

1,103,768.

Patented July 14, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

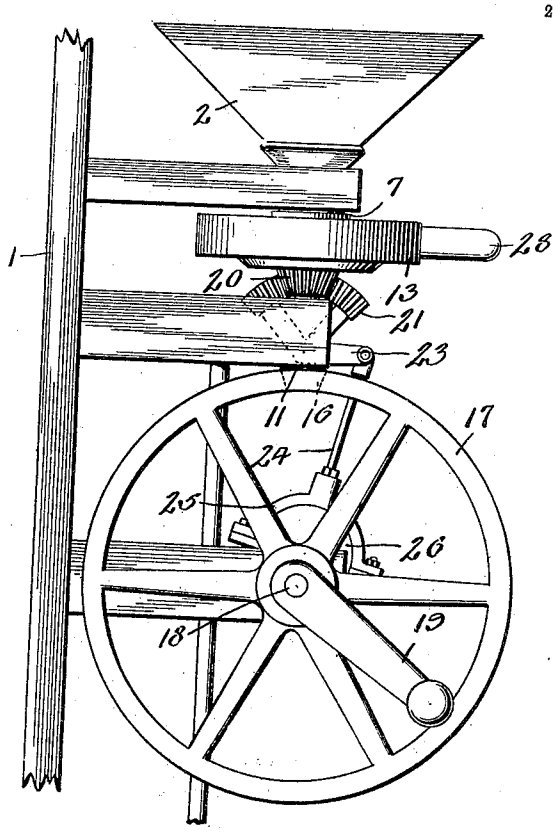
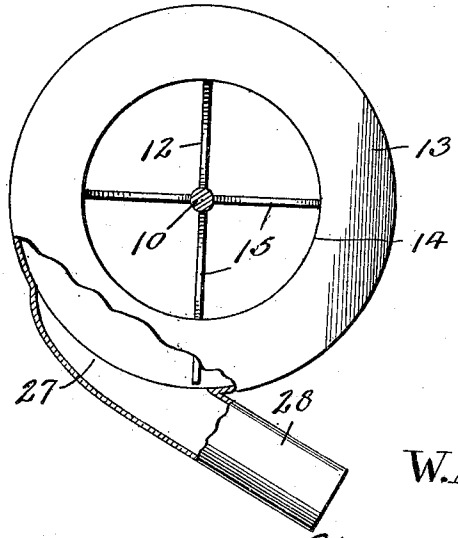


Fig. 4.



Witnesses

E. Ardeser Jr.

C. C. Kines

Inventor

W. A. Hermens,

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

W. A. HERMENS.

MACHINE FOR SOWING LAND PLASTER.

APPLICATION FILED FEB. 17, 1914.

1,103,768.

Patented July 14, 1914.

2 SHEETS—SHEET 2.

Fig. 3.

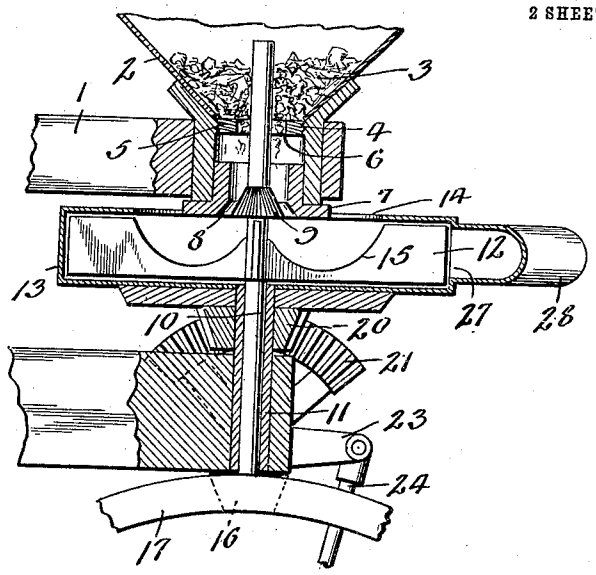
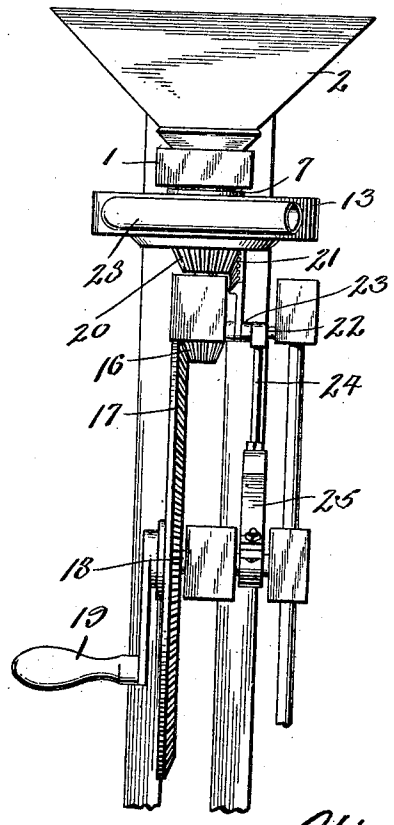


Fig. 2.



Witnesses

C. Andrews Jr.

J. C. Hines

Inventor

W. A. Hermens,

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM A. HERMENS, OF FOREST GROVE, OREGON.

MACHINE FOR SOWING LAND-PLASTER.

1,103,768. Specification of Letters Patent. Patented July 14, 1914.

Application filed February 17, 1914. Serial No. 819,269.

To all whom it may concern:

Be it known that I, WILLIAM A. HERMENS, a citizen of the United States, residing at Forest Grove, in the county of Washington and State of Oregon, have invented new and useful Improvements in Machines for Sowing Land-Plaster, of which the following is a specification.

This invention relates to a machine for sowing land plaster, the object of the invention being to provide a simple type of mechanism which may be mounted upon any suitable vehicle which will operate to sow and spread the plaster in a reliable and efficient manner.

A further object of the invention is to provide a sowing device of the character defined which may be operated by hand or power, and whereby the material, taken from a hopper, will be reduced to a properly ground condition, and then delivered through the oscillatory motion of a delivery device over a predetermined area of ground.

A still further object of the invention is to provide a sowing apparatus of the character defined in which the material will be drawn into an oscillatory discharge chamber, by the action of a fan disposed therein, and which will also operate to effect the discharge of the material, combined with mechanism for simultaneously operating the grinding means and fan and oscillating the discharge device.

The invention consists of the features of construction, combination and arrangement of parts herein fully described and claimed, reference being had to the accompanying drawings in which:—

Figure 1 is a side elevation of a land plaster machine embodying my invention. Fig. 2 is an end elevation of the same. Fig. 3 is a vertical section through the grinding and delivery mechanism. Fig. 4 is a plan view of the discharge casing and fan, the casing and discharge pipe being partly broken away to show the outlet.

In carrying my invention into practice, I provide a suitable frame structure 1, which may be mounted upon any preferred type of vehicle for transportation across a field. Upon this frame structure is supported a hopper 2 to receive the plaster or material 3, and which is provided at its base with an outlet 4, in the upper portion of which is arranged a ring or annular member 5 providing a contracting discharge passage 6, and in the lower portion of which is mounted, preferably in an adjustable manner, a bushing 7 having a beveled surface 8 and constituting a grinding member for cooperation with a grinding cone 9, whereby the plaster or material feeding downward is controlled in its flow and any lumps or hard particles reduced to a properly comminuted condition. The grinding cone 9 is mounted upon the upper end of a shaft 10, the lower portion of which extends through a hollow shaft 11, in which said shaft 10 is journaled, the hollow shaft being journaled in any suitable manner up on the machine frame.

Fixed to the shaft 10 below the cone 9 is a fan 12 arranged to rotate within a discharge casing 13, provided in its top with an opening 14 for the inlet of the comminuted material discharging from the hopper and for the admission of air under action of the fan blade, the latter being provided with cut away portions 15 to permit the material to have free entrance to the casing.

The lower end of the shaft 10 carries a beveled pinion 16 meshing with a beveled drive gear 17 carried by a horizontal shaft 18 suitably journaled upon the frame 1, and which may be provided with a hand crank 19 or other suitable means for operation by hand or power, it being apparent that in the rotation of the gear 17 the shaft 10 will be revolved to simultaneously rotate the grinding cone 9 and the fan 12.

The casing 13 is suitably fixed to the upper end of the hollow shaft 11, to which is attached a beveled gear 20 meshing with a gear segment 21, which is carried by a shaft 22 mounted to oscillate upon the frame, said shaft being provided with a crank arm 23 connected by a rod 24 with the strap 25 of an eccentric 26 mounted upon the drive shaft 18, whereby in the rotation of said shaft

motion will be communicated through the eccentric 26 to the crank arm 23 to oscillate the gear 21, which motion is transmitted through the gear 20 to oscillate the casing 13 through a prescribed arc of motion, which may be varied according to the extent of ground sought to be covered in the delivery of the material. The casing 13 is provided at one side with an outlet 27 with which communicates one end of a discharge pipe 28, said pipe being of arcuate form and extending partially around the casing and tangentially with relation thereto.

In the operation of the machine, the hopper 2 is filled with the material and the shaft 18 set in motion, thereby rotating the gear 17, by which motion will be communicated to the shaft 10, which rotates continuously in one direction, to operate the grinding cone 14, which in conjunction with the surface 8 of the grinding member 7, effects a reduction of all lumps and hard particles of the plaster, and at the same time effects the operation of the fan 12, the fan in action forms a partial vacuum in the casing, whereby the material discharging from the hopper is prevented from scattering and is caused by the induced suction and the action of gravity to fall into the casing 13 between the fan blades, which in operation sweep the material in the casing in a direction toward the outlet 27. The rotation of the shaft 18 also transmits motion to the eccentric 26, which actuates the crank arm 23, thereby alternately operating the segment 21 in opposite directions, to oscillate the fan casing 13, by which said casing will be moved from a normal position through a desired arc of motion and then returned to normal position. On the first-named motion of the casing the material delivered into the casing will be forced by the action of the blades of the fan as well as the blast produced by the fan out through the discharge pipe 28 and spread by the sweep of the latter over a prescribed area of ground. On the backward motion of the casing the same action ensues, there being consequently the constant discharge of the material through the casing, so that in the travel of the vehicle across the field the material will be spread evenly and uniformly over the same.

It will be evident that by the construction described a reliable and efficient feeding action is secured, while at the same time the material on its passage to the spreader or discharge device will be placed in proper condition by the grinding mechanism for the sowing action.

I claim:—

1. A land plaster sowing machine comprising a hopper, a pair of concentric shafts, means for continuously rotating one of said shafts in one direction, means for oscillating the other shaft, a casing mounted upon the oscillatory shaft and provided with an inlet disposed in a line with the outlet of the hopper, and with an outlet for the discharge of the material supplied thereto, a fan disposed within said casing and operated by the continuously rotating shaft.

2. A machine for sowing land plaster comprising a pair of concentric shafts, a hopper, a casing mounted upon one of the shafts and provided with an outlet and with an inlet to receive the material from the hopper, coöperating grinding devices, one mounted upon the other shaft to act upon the material feeding from the casing, means for oscillating the first-named shaft, means for rotating the second-named shaft constantly in one direction, and a fan carried by the second-named shaft and arranged to rotate within the casing.

3. A machine for sowing land plaster comprising a hopper having a discharge outlet, a casing disposed below said outlet and provided with an outlet and with an inlet to receive the material from the hopper, a discharge pipe communicating with the outlet of the casing and extending partially around the casing and tangentially thereto, a shaft carrying the casing, a second shaft concentric with the aforesaid shaft and extending through the casing, a fan mounted upon the second-named shaft operating in the casing, means for oscillating the first-named shaft, and means for continuously rotating the second-named shaft.

4. A machine for sowing land plaster comprising a hopper having a discharge outlet, a casing disposed below the outlet, said casing being provided with an outlet and with an inlet to receive the material from the hopper, a discharge pipe connected with the outlet of the casing and extending partially around the casing and tangentially with relation thereto, a shaft carrying the casing, a second shaft concentric with the first-named shaft and extending through the casing into the outlet of the hopper, a grinding element within the hopper outlet, a coacting grinding element upon the second-named shaft, means for oscillating the first-named shaft, means for continuously rotating the second-named shaft, and a fan carried by the second-named shaft working within the casing.

5. A machine for sowing land plaster comprising a hopper having a discharge outlet, a hollow shaft, a casing carried by said shaft, said casing being provided with an inlet disposed to receive the material from the hopper and an outlet for the discharge of the material therefrom, a discharge pipe communicating with the outlet of the casing and extending partially around the casing and tangentially with relation thereto, and a second shaft journaled within the first-

named shaft, a fan carried by the second-named shaft and operating in the casing, a gear upon the hollow shaft, a gear segment meshing therewith, a gear upon the second-named shaft, a drive shaft, a drive gear upon the drive shaft meshing with the gear upon the second-named shaft, an eccentric upon the drive shaft, and a connection between said eccentric and the gear segment for oscillating the latter.

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

WILLIAM A. HERMENS.

Witnesses:
J. S. BUXTON,
MANCHE LANGLEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."