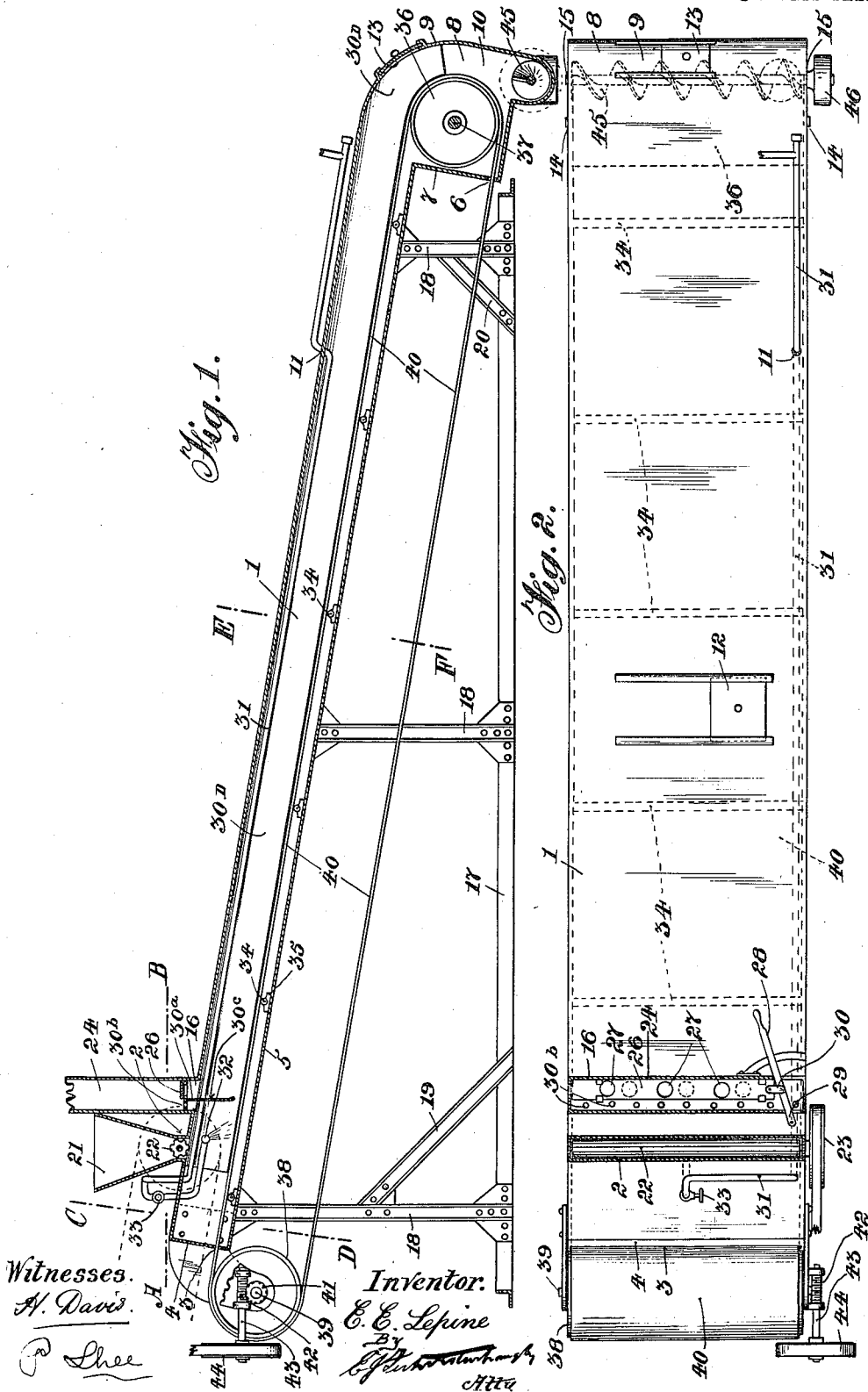


E. E. LEPINE.
LIME HYDRATING MACHINE.
APPLICATION FILED APR. 8, 1910.

982,148.

Patented Jan. 17, 1911.

2 SHEETS—SHEET 1.

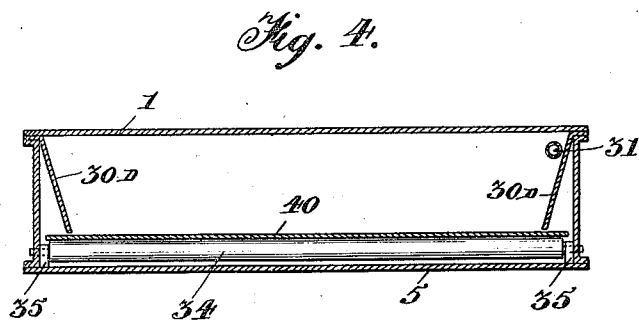
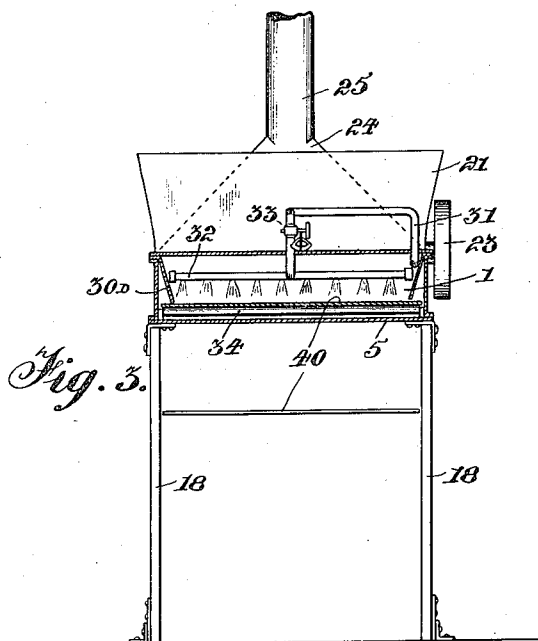


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Witnesses.

H. Davis

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Att'y.

UNITED STATES PATENT OFFICE.

EUCLIDE EUGENE LEPINE, OF JOLIETTE, QUEBEC, CANADA.

LIME-HYDRATING MACHINE.

982,148.

Specification of Letters Patent. Patented Jan. 17, 1911.

Application filed April 8, 1910. Serial No. 554,310.

To all whom it may concern:

Be it known that I, EUCLIDE EUGENE LEPINE, resident of the town of Joliette, in the Province of Quebec, in the Dominion of Canada, a subject of the King of Great Britain, have invented certain new and useful Improvements in Lime-Hydrating Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

The invention relates to improvements in lime hydrating machines, as described in the present specification and illustrated in the accompanying drawings that form part of the same.

The invention consists essentially in the novel arrangement and construction of parts whereby the lime, deposited on a moving platform, receives a definite quantity of water and the continuity of the process maintained during the operation of the machine.

The objects of the invention are to provide a machine, which will much facilitate the operation of slaking lime and minimize crystallization, to devise a structure wherein the parts and the arrangement are very simple, therefore easy to maintain and cheap to manufacture, as well as being of durable form, and generally to furnish a means of increasing the value of the product at a minimum expense of production.

In the drawings, Figure 1 is a sectional side elevation of the machine. Fig. 2 is a plan view of the machine partly in section on the line A—B in Fig. 1. Fig. 3 is a cross sectional view of the machine on the line C—D in Fig. 1. Fig. 4 is a cross sectional view on the line E—F in Fig. 1.

Referring to the drawings, 1 is the main casing of the machine, of a box like form having the feed opening 2 adjacent to its upper end and the slot 3 extending across the upper end wall 4 adjacent to the bottom of said casing and the slot 6 extending across and through the inner wall 7 of the enlarged end 8 of the casing, said enlarged end preferably having the curved wall 9 extending downwardly below said enlarged end to the conveyer chamber 10, said casing also has the pipe opening 11 intermediate of its length, the arm holes 12 and 13 and the bearings 14 in the sides thereof at the said enlarged end, the extension from said enlarged end of the chamber, viz.,—the con-

veyer chamber 10 having also bearings 15 in the side walls thereof.

The casing 1 is preferably of rectangular form, of considerable length and breadth and comparatively shallow and adjacent to the feed opening 2 has a steam exhaust opening 16 extending completely thereacross.

17 is the base of a frame. 18 are the uprights of said frame shown as suitably braced from said base by the braces 19 and 20, said frame supports the casing 1 in an inclined position, the uprights 18 intermediate of the length of said casing and at the feed portion of said casing being of greater height than the uprights at the discharge end of the casing.

21 is a hopper extending completely across the top of the casing 1 over the feed opening 2.

22 is a shaft longitudinally grooved to form channels and journaled in the hopper walls at the entrance from said hopper to the main casing 1, in other words at the feed opening 2, said shaft extends slightly beyond one side of said casing. 23 is a pulley mounted on the shaft 22 outside of said casing and suitably driven.

24 is an exhaust chamber over the opening 16 leading to the steam exhaust pipe 25.

26 is a slide valve having the ports 27 and operated by the lever 28, said lever being pivoted at 29 and connected by the link 30 to the sliding member of said valve.

30^a is a partition extending across the machine in the chamber 24 between the wall of said chamber and the slide valve.

30^b are free openings in the partition 30^a through which steam may constantly exhaust. 30^c is a wall or shield extending downwardly across the machine from the edge of said partition 30^a adjoining the slide valve, consequently forming a dividing wall between the openings 30^b and the slide valve, said wall 30^c terminating intermediate of the depth of the interior of the casing.

30^d are inclined walls longitudinally arranged within the casing 1 extending from end to end thereof.

31 is a water pipe suitably connected to a water supply and extending along above the lower end of the main casing 1 and leading into said casing through the pipe opening 11 and along under the top of said casing and through a second pipe opening above

said feed hopper and again through said casing to the spraying pipe 32, said pipe 32 extending across the casing between the openings 2 and 16, so that the lime will receive its charge of water at once before starting on its travel through said casing.

33 is a valve or cock in the water pipe extending above the casing at the upper end thereof for regulating the supply.

34 are rollers journaled in suitable bearing blocks 35 secured to the bottom of the casing 1 in the interior thereof at intervals throughout the length of said casing.

36 is a roll supported by the shaft 37, the latter being journaled in the bearings 14.

38 is a roll supported on the shaft 39, the latter being journaled in suitable bearings suitably supported just beyond the upper end of the casing 1.

40 is a sheet of suitable material, such as sheet iron extending through the slots 3 and 6 and around the rolls 36 and 38 in the form of a belt or moving platform, so that a portion of said platform is always within the casing 1, in order that it may carry the lime from the feed opening and the water from the water opening thereinto.

41 is a worm wheel mounted on the shaft 39.

42 is a worm extending from or formed on the shaft 43.

44 is a pulley mounted on the shaft 43 and suitably driven, consequently it will be seen that the worm 42, coacting with the worm wheel 41, operates the moving platform 40.

45 is a screw conveyer journaled in the bearings 15 in conveyer chamber 10.

46 is a pulley mounted on the extending end of the shaft of the screw conveyer 45 and suitably driven.

In the operation of this machine, the lime is fed into the hopper 21 and the water turned on, so that a predetermined quantity will only flow into the spraying pipe 32. The machine is set in motion and the shaft 22 deposits from one of its pockets a certain quantity of lime on to the moving platform 40, the water from the conveying pipe sprays above the moving platform and on to this deposit of lime, then the slaking of the latter begins.

The continuous operation of the shaft 22 and the continuous travel of the platform, as well as the constant operation of the water spray keep the process of slaking in continuous progress, while the machine is in motion and it will be understood that the heat generated from the lime in its contact with water vaporizes the latter so there must be some escape for the excess of steam, therefore the slide valve 26 is operated and the said steam exhausts through the pipe 25. The slaking of the lime traveling down the moving platform 40 is completed by the time it reaches the roll 36 and it is there de-

posited in its hydrated form on to the screw conveyer 45, from which it is discharged through a suitable discharge opening in the side of the casing 1.

The water pipe in this machine is shown as extending through the casing and along under the top thereof, but this, of course is unimportant except perhaps in cold countries, where it is advisable to have the water heated for slaking purposes.

It must be understood that without departing from the spirit of this invention, the construction of the various parts may be modified considerably in order to suit different conditions, the salient features of the invention being the moving platform and the feeding of the water to the lime and consequently the continuity of the process during the travel of said platform.

It may be here stated that this must not be confused with any known machines in which various receptacles are used, because in the present invention, it is the distribution of the lime and the water on a surface, which is so important and very essential in obtaining the proper product.

The moving platform 40 within the casing moves immediately under the longitudinal inclined side walls 30^a, so that the lime thereon cannot be deposited in passage over the side edges of said platform, but the cross wall 30^c terminates at its lower end slightly above the moving platform, in order that the lime may pass along with said platform, the said wall 30^c being for the purpose of directing the steam, generating in the main portion of the casing, to the slide valve, in other words, the wall 30^c forms a barrier, thus the channels or grooves in the shaft 22 will not become clogged with wet lime. Any steam there may be in the upper part of the casing beyond said wall 30^c will find egress through the openings 30^b.

The arrangements for heating the water are very simple and that fact must be mentioned, but this part of the invention is not essential in the operation of the machine.

What I claim as my invention is:

1. In a lime hydrating machine, a casing having a suitable feed opening, a platform capable of traveling in said casing, means for distributing water over the lime on said platform, and means for operating said platform.

2. In a lime hydrating machine, a casing having a suitable feed opening, a hopper over said feed opening, a platform capable of traveling in said casing, means for depositing a predetermined quantity of lime on to said platform from said hopper, means for distributing water on said lime deposited on said platform, and means for operating said platform.

3. In a lime hydrating machine, a casing having a suitable feed opening, a hopper

over said feed opening, a platform capable of traveling in said casing, a rotatable member at the bottom of said hopper adapted to deposit a predetermined quantity of lime on said platform, a water sprayer connected to a suitable water supply and arranged within said casing over said platform, and means for operating said platform.

4. In a lime hydrating machine, a casing having a suitable feed opening, a hopper over said feed opening, a platform capable of traveling in said casing, a shaft journaled at the lower end of said hopper and having longitudinal grooves therein forming channels adapted to receive the lime and deposit it on to said platform, a water sprayer arranged within said casing adjacent to said feed opening and connected to a suitable water supply, and means for operating said platform.

5. In a lime hydrating machine, a casing having a suitable feed opening, means for supporting said casing in an inclined position, a hopper over said feed opening, means for delivering lime from said hopper into said casing, a platform capable of traveling in said casing, a water spraying pipe extending across said casing adjacent to said feed opening and connected to a suitable water supply, means for operating said platform, and means for discharging the hydrated lime at the lower end of said casing.

6. In a device of the class described, in combination, a casing supported in an inclined position and having adjacent to its upper end, a suitable feed opening and an enlarged portion at its lower end and terminating in the conveyer chamber, a roll suitably journaled within said casing in said enlarged portion, a roll journaled in suitable bearings supported beyond the upper end of said casing, a sheet metal platform traveling on said rolls and extending through the walls of said casing, a hopper secured above said feed opening, and a water pipe adapted to feed water on to the lime deposited on said platform through said feed opening.

7. In a device of the class described, in combination, a casing of rectangular form having an enlarged lower end and a conveyer chamber extension, and a feed opening adjacent to its upper end, a roll journaled within the casing at the said enlarged end, a roll suitably journaled in bearings supported beyond the upper end of said casing, rolls mounted at intervals on the bottom of said casing and therewithin, a sheet metal platform arranged in belt form on said rolls and having the upper portion thereof traveling on said rollers within said casing and the lower portion thereof below said casing, a hopper over said feed opening, means for operating said rolls, means for delivering lime from said hopper on to said sheet metal,

and a water sprayer arranged within said casing adjacent to said feed opening.

8. In a device of the class described, in combination, a casing supported in an inclined position having a feed opening adjacent to the upper end thereof, an enlarged lower end and a discharge chamber at the extremity of said enlarged lower end, a platform capable of traveling in said casing, a water pipe connected to a suitable supply and leading into said casing intermediate of the length of the casing and extending upwardly therealong under the top thereof and at its extreme upper end having a suitable pipe sprayer extending across said casing, a hopper over said feed opening, and means for depositing lime from said hopper on to said platform.

9. In a device of the class described, in combination, a casing supported in an inclined position having a feed opening adjacent to the upper end thereof, a platform capable of traveling in said casing, a hopper above said feed opening, means for depositing lime from said hopper on to said platform a water sprayer adjacent to said feed opening and connected to a suitable water supply, and a screw conveyer at the extreme lower end of said casing for discharging the hydrated lime.

10. In a device of the class described, in combination, a casing supported in an inclined position having a feed opening adjacent to the upper end thereof and a steam exhaust opening adjacent to said feed opening, a pipe leading from said steam exhaust opening, a slide valve controlling said exhaust, a platform capable of traveling in said casing, a hopper above said feed opening, and a water sprayer arranged adjacent to said feed opening.

11. In a device of the class described, in combination, a casing supported in an inclined position having a feed opening adjacent to the upper end thereof and a steam exhaust chamber adjacent to said feed opening, a slide valve extending across said chamber, a partition between the cross wall of said chamber and said slide valve having openings therethrough, a wall or barrier extending downwardly from between said partition and said slide valve and adapted to direct the steam generating in the casing below said barrier to said slide valve, a platform capable of traveling in said casing beneath said barrier wall and inclined side walls extending from the sides of said casing to said moving platform.

Signed at Joliette, Co. of Joliette Canada this fifteenth day of March 1910.

EUCLIDE EUGENE LEPINE.

Witnesses:

LOUISE LABELLE,
P. H. DUCKETT.