No. 848,358. PATENTED MAR. 26, 1907.

P. C. FORRESTER.

LIME HYDRATING MACHINE.

APPLICATION FILED OCT. 4, 1906.

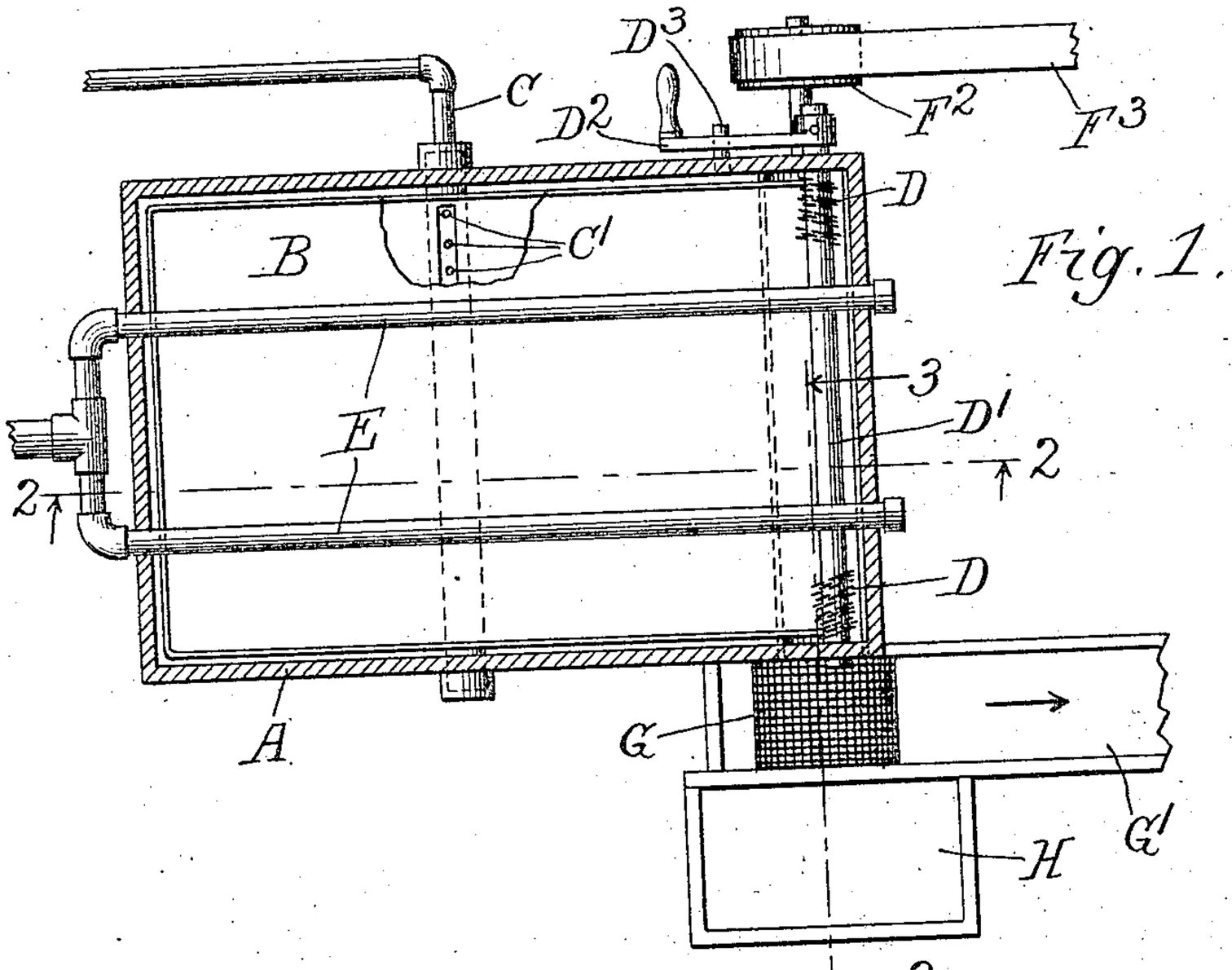


Fig. 1.

Fig. 2.

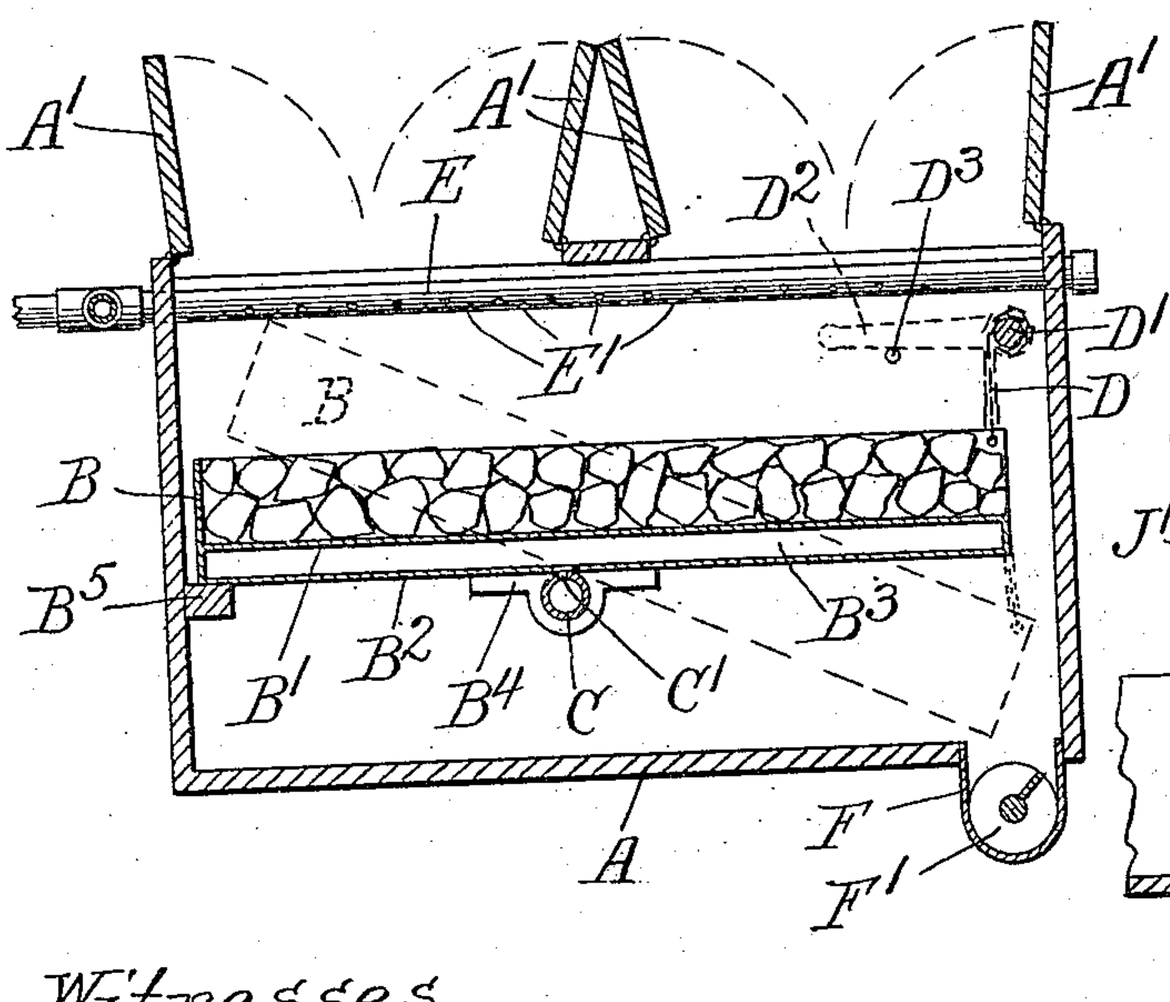
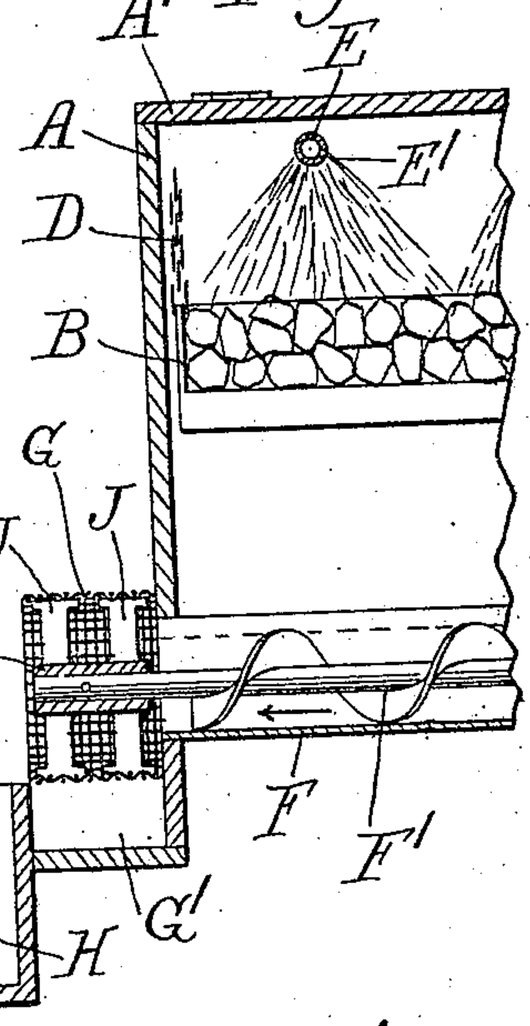


Fig. 3.



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UNITED STATES PATENT OFFICE.

PETER C. FORRESTER, OF TACOMA, WASHINGTON.

LIME-HYDRATING MACHINE.

No. 848,358. Specification of Letters Patent. Patented March 26, 1907.

Application filed October 4, 1906. Serial No. 337,341.

To all whom it may concern:

Be it known that I, PETER C. FORRESTER, a citizen of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented a certain new and useful Improvement in Lime-Hydrating Machines, of which the following is a specification.

My invention relates to apparatus for hydrating lime and for the handling of the product of such hydrating process, and has for its object to provide new and improved devices and constructions in apparatus of this character.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a horizontal sectional view through the top of the hydrating-chamber; Fig. 2, a vertical section on line 2 2 of Fig. 1; and Fig. 3, a vertical section on line 3 3 of Fig. 1.

Like letters of reference indicate like parts in all the drawings.

The apparatus consists of a box or chamber, with suitable means for holding the lime and supplying water thereto, together with new and improved devices for sifting and conveying the product of such hydration.

A represents the box forming the hydrating-chamber, provided at the top with the hinged doors A′, preferably arranged as shown—that is, the end doors hinging outward and the center doors hinged so as to fold together, this arrangement affording the best possible amount of open space.

Within the chamber is a hydrating-pan B, having two bottoms B′ B^2, between which is the space B^3. The pan is arranged to tilt on a suitable axis. For example, I have shown the pan mounted by means of straps B^4 on a pipe C, the pipe extending across the hydrating-chamber at one side of the center of the pan. The short end of the pan rests upon the cross-beam B^5, the long end being suspended by the chains D D, attached to the windlass D′, which may be conveniently manipulated by the handle D^2, which is held in position by the pin D^3. The pipe C is provided with perforations C′, opening into the space B^3. Steam or other hot fluid is introduced into the space B^3. Preferably I use steam, and this heats the pan and also prevents the wooden part from burning.

Water may be supplied in any desired manner. For example, I have shown two water-pipes E E, having the perforations E′ in their under sides, this arrangement securing an even distribution of the water over the lime in the pan.

In the bottom of the chamber is a trough F, containing a screw conveyer F′ on the shaft, on which is the pulley F^2, driven by a belt F^3 from any desired source of power. The conveyer discharges into a cylindrical screen G, through which the finer product is sifted into a trough G′. The larger lumps are carried out into the receptacle H by means of the spokes J J, formed on a collar J′, pinned to the end of the conveyer-shaft.

I wish it to be understood that I do not desire to be limited to the exact details shown and described, for obvious modifications will occur to any person skilled in the art.

The use and operation of my invention relating to the hydrating of lime is as follows: The doors of the hydrating-chamber being in two pairs are open upwardly and folded together in groups of two, so as to leave the largest possible amount of open space. The hydrating-pan will be suspended in a horizontal position, resting at one end on the cross-bar and at the other being supported by the chains. The lime will then be spread over the pan, and the doors will be closed. The false bottom beneath the pan gives a horizontal chamber, into which steam is admitted from the steam-pipe on which the pan is mounted. This steam is discharged through a number of small holes up into the chamber and passes around and fills the chamber and assists in carrying on the process of hydrating. A suitable supply of water is furnished from the tank to the water pipe or sprinkler, which is mounted above the pan either so that it may swing back and forth or provided with holes properly graduated, so as to give a comparatively uniform distribution of the water over the surface of the lime. When the process of hydrating has been carried out, the crank can be operated to lower the chains and release the one end of the pan and permit it to assume the inclined position, (shown in dotted lines,) whereupon its contents, consisting of hydrated lime, will pass down into the transverse trough at one end of the collector. Here the conveyer conveys it out into the sifting-chamber at one side of the hydrating-chamber. The outside of this chamber is

composed of a sifting-gauze, through which the fine stuff passes into a suitable receptacle below. The outer vertical side of this sifting-chamber is open, and the heavy lumps of material carried around by the spokes on the conveyer-shaft, which are not sifted through the exterior screen, will be thrown outwardly and fall into the receptacle for large lumps.

I claim—

1. In hydrating apparatus, the combination of a hydrating-chamber, with a tilting pan, means for supplying water to the material in the pan, and a conveying device for conveying the hydrated products from the chamber.

2. In hydrating apparatus, the combination of a hydrating-chamber, with a tilting pan, means for supplying water to the material in the pan, a trough below one end of said pan, and a conveyer in said trough.

3. In hydrating apparatus, the combination of a hydrating-chamber, with a tilting pan mounted on an axis to one side of its center line, means for tilting and raising said pan, a trough in the chamber into which said pan discharges when tilted, and a conveyer in said trough.

4. In hydrating apparatus, the combination of a hydrating-chamber, with a tilting pan mounted on an axis to one side of its center line, a windlass device for supporting the long end of the pan, a trough in the chamber into which said pan discharges when tilted, and a conveyer in said trough.

5. In hydrating apparatus, the combination of a hydrating-chamber, with a pan in said chamber, a screw conveyer to convey the material from the chamber, and a screening-chamber to receive the material from the conveyer.

6. In hydrating apparatus, the combination of a hydrating-chamber, with a pan in said chamber, a screw conveyer to convey the material from the chamber, a cylindrical screening-chamber to receive the material from the conveyer, and rotating spokes in the screening-chamber.

7. In hydrating apparatus, the combination of a hydrating-chamber, with a pan having double bottoms, the upper one being perforate and a pipe to discharge a hot fluid into the space between the bottoms of the pan.

8. In hydrating apparatus, the combination of a hydrating-chamber, with a pan having a double bottom, and a steam-pipe on which the pan is mounted so as to tilt thereon, said steam-pipe being perforated so as to discharge steam between the bottoms of the pan.

PETER C. FORRESTER.

Witnesses:
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Correction in Letters Patent No. 848,358.

It is hereby certified that in Letters Patent No. 848,358, granted March 26, 1907, upon the application of Peter C. Forrester, of Tacoma, Washington, for an improvement in "Lime-Hydrating Machines," an error occurs in the printed specification requiring correction, as follows: In line 51, page 2, the word "perforate" should read *imperforate*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 27th day of April, A. D., 1909.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.