

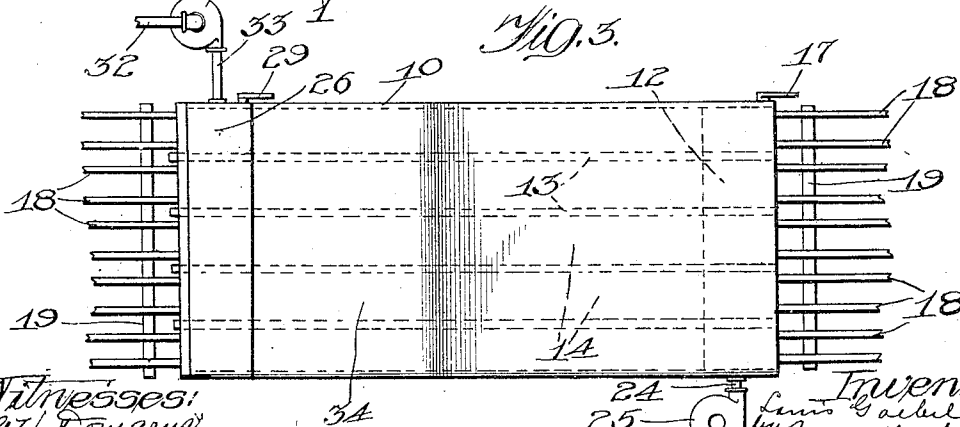
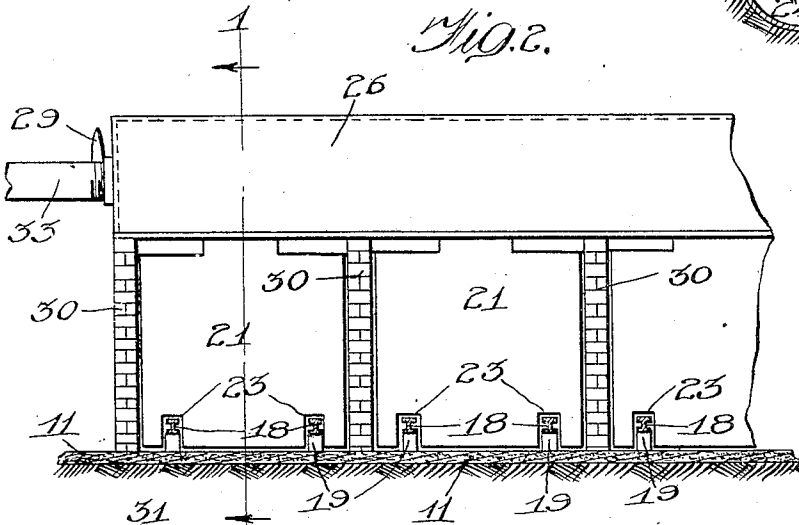
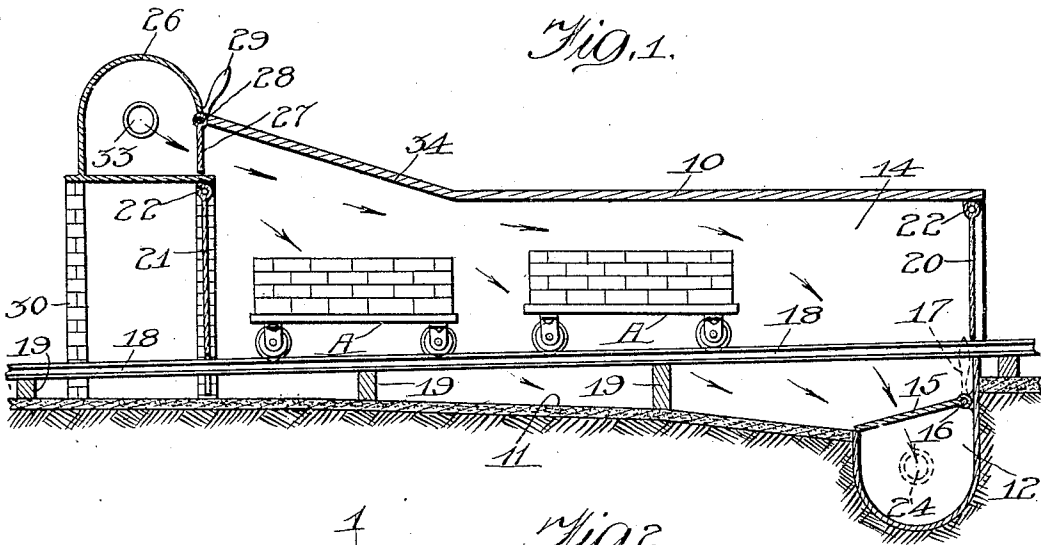
No. 835,519.

PATENTED NOV. 13, 1906.

L. GOEBEL.

DRY KILN.

APPLICATION FILED MAR. 22, 1906.



Witnesses:
C. V. Edwards
Robert H. Weir.

Inventor:
L. Goebel
by Brown, Darling and
Hepburn Attys.

UNITED STATES PATENT OFFICE.

LOUIS GOEBEL, OF CHICAGO, ILLINOIS.

DRY-KILN.

No. 835,519.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LOUIS GOEBEL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dry-Kilns, of which the following is a full, clear, and exact specification.

This invention relates to improvements in dry-kilns particularly adapted for drying bricks, lumber, or the like; and the object of the same is to construct an improved kiln of this character into which is moved one or more trucks upon which is placed the material to be dried, the trucks remaining within the kilns the required length of time and the forward one being ejected by the entrance of an additional truck at the rear of the kiln.

A further object is to construct an improved kiln of this character having a down-draft and in which the heavy or moist air is forced out of the bottom of the kiln by the heated air instead of being raised thereby and forced through the chimney.

A further object is to construct an improved kiln of this character into which the air is forced by a blast-fan and from which the moist air is withdrawn by means of a suction-fan.

A further object is to construct an improved kiln of this character which will be simple and cheap in construction and efficient and effective in operation.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination, and arrangement of the various parts, hereinafter more fully described and claimed, and shown in the accompanying drawings, illustrating an exemplification of the invention, and in which—

Figure 1 is a longitudinal sectional view on line 1 1 of Fig. 2. Fig. 2 is a front elevation of a portion of Fig. 1, and Fig. 3 is a diagrammatic plan of a kiln constructed in accordance with the principles of this invention.

Referring more particularly to the drawings, in which the same reference characters designate similar parts throughout the several views, the numeral 10 designates generally a kiln the floor 11 of which is inclined

from the exit or front end of the kiln toward the rear end thereof. At the rear of the kiln, preferably below the floor-line thereof and opening into the kiln, is a trough or tunnel 12 of any suitable size or construction.

The kiln 10 is divided by longitudinal walls or partitions 13 into any desired number of chambers or compartments 14. Within each of the compartments or chambers is a damper 15, which projects over and closes the opening of the trough or tunnel 12. If desired, a suitable rod 16 may extend through the walls 13 of the chambers or compartments to which the dampers 15 are secured. A handle 17 may also be secured to the rod 16, and by operating the same the rod 16 may be rotated to cause the dampers 15 to open or close the trough or tunnel 12, as will be understood.

Suitable tracks 18 pass longitudinally through the compartments or chambers 14 and are preferably supported above the floor or base 11 in any desired manner, preferably by means of blocks or supports 19, which do not extend across the compartment, but rest only under the tracks, so as not to form obstructions, and said tracks are so arranged as to incline toward the front of the kiln and in an opposite direction of inclination of the floor 11, so that a truck which enters the rear of the kiln may be easily moved forward; but the angle of inclination of the tracks is not sufficient that the gravity of the cars or trucks will cause them to pass entirely through the front end of the kiln.

Suitable doors or closures 20 21 are arranged to close the ends of the chambers or compartments 14, and said doors or closures may, if desired, be supported by means of rods 22 to form hinge-supports, and the lower portion of the doors or closures may be recessed or cut away, as at 23, (see Fig. 2,) so as to permit the lower edge thereof to stand in close proximity to the floor 11, between the tracks and the walls of the compartment, to prevent the escape of the heated air.

Connected to or communicating with the trough or tunnel 12 in any suitable manner—such as a pipe 24, leading from one end thereof—is a suction-fan 25 of any suitable size and construction and for a purpose to be set forth.

A trough or tunnel 26 is arranged at the front and at the top of the kiln 10, and said

trough or tunnel has communication with each of the chambers or compartments 14, and arranged to close each of these communicating openings is a damper 27, which, if desired, may be suitably mounted on an oscillating rod 28, having a handle 29, by means of which the damper may be operated. Arranged adjacent the front of the kiln are suitably-spaced columns or supports 30, which are of a height equal to the height of the front wall, and said trough or tunnel 26 rests upon and is supported by these columns and the front wall of the compartments. A suitable blast-fan 31, receiving its supply of heated air from any source through the pipe 32, discharges the same through the pipe 33, into one end of the trough or tunnel 26. The discharge-openings of the trough or tunnel 26 are preferably located above the doors or closures 21 thereof, and the roof or top of the chambers or compartments projects above the top of the discharge-openings, as at 34, so that the chambers will be enlarged at the front end to cause the heated air to be deflected downward as it enters the chambers.

From the foregoing it is thought that the operation of this improved kiln will be clearly understood; but, briefly stated, it is as follows: The bricks, lumber, or articles to be dried are placed upon the trucks or cars A and are shoved into the compartments from the rear end and through the door 20. When the desired number have been placed in each compartment or chamber, the door 20 is closed. The damper 27 is then opened and the hot blast of air, being forced into the trough or tunnel 26, enters the compartment through the open damper and is deflected downwardly by means of the inclined portion 34 of the roof and against the bricks or articles on the trucks A. The dry air contacting with the moist articles will absorb the moisture and become heavy, thereby tending to descend toward the floor 11. The dry air entering the chamber on top of the moist air forces the same downwardly and toward the rear end of the chamber. At the same time the suction-fan 25 will draw the moist air into the trough or tunnel 12, if the damper 15 be open, and discharge the same at any desired point. When the articles on the first car have become sufficiently dried, a new car or truck may be shoved into the chamber, thereby ejecting the first truck or car through the door 21 and advancing the remaining car. It will thus be seen that by inclining the bottom or floor of the chambers the chambers may be more readily freed of moist air, and any moisture which may be formed by condensation will run down the inclined floor and into the trough or channel.

It is to be understood that it is not desired to be limited to the exact details of construction or arrangement of the several parts, as

numerous changes may be made therein without departing from the spirit of the invention.

What is claimed as new is—

1. An apparatus of the class described, comprising a drying-chamber having an inlet at one end and an outlet at the other end for the material, a blast-pipe discharging into the top of the chamber, adjacent the outlet end, and a suction-pipe communicating with the bottom of the chamber adjacent the inlet end.

2. An apparatus of the class described, comprising a drying-chamber having an inlet and an outlet for the material at opposite ends thereof, a blast-pipe discharging into the top of the chamber adjacent the outlet end, a suction-pipe communicating with the bottom of the chamber adjacent the inlet end, and valves for each of said pipes.

3. An apparatus of the class described, comprising a drying-chamber open at both ends, a blast-pipe discharging into the top of the chamber at the front end and toward the opposite end thereof, a suction-pipe communicating with the bottom of the chamber at said opposite end, and means for closing the ends of the chamber.

4. In an apparatus of the class described, the combination of a chamber open at both ends and having an inclined bottom terminating in an outlet-trough within the chamber and adjacent one end thereof, closures for the ends of the chamber, and a blast-pipe discharging into the upper part of the chamber at the opposite end.

5. In an apparatus of the class described, the combination of a chamber open at both ends, closures for said ends, an air-tunnel arranged at the front of the chamber, adjacent the top thereof and having an opening communicating with the chamber, a valve for the opening, a blast-fan discharging into the tunnel, a trough at the bottom of the chamber and located adjacent the other end thereof, and communicating with the chamber, a valve for closing this opening, and a suction-fan communicating with the trough.

6. In an apparatus of the class described, the combination of a chamber, a trough communicating with the chamber and located at the bottom and adjacent the rear thereof, the bottom of said chamber inclining toward the trough, tracks passing through the chamber and inclining toward the front thereof at an angle opposite to the angle of inclination of the bottom of the chamber, and an air-tunnel located at the front of the chamber adjacent the top thereof and discharging into the chamber.

7. In an apparatus of the class described, the combination of a chamber open at both ends, closures for the openings, a suction-fan communicating with the bottom of the chamber at one end thereof, a tunnel communi-

cating with the top of the chamber at the other end and above the closure for said end, the roof of the chamber at this end extending upward and above the tunnel-opening to form a deflector, and a blast-fan discharging into the tunnel.

8. In an apparatus of the class described, the combination of a chamber, the bottom thereof inclining from the front to the rear, a suction-fan communicating with the bottom of the chamber adjacent the rear thereof, the front of the chamber being enlarged and provided with an inclined top, a blast-pipe discharging into the enlarged part of the chamber at the front thereof and adjacent the top, closures for the ends of the chamber, and inclined tracks within the chamber supported above the base thereof, said tracks being disposed at an angle opposite to the angle of inclination of the bottom of the chamber.

9. In an apparatus of the class described, the combination of a chamber, the bottom

thereof inclining from the front to the rear, a suction-fan communicating with the bottom of the chamber adjacent the rear thereof, the front of the chamber being enlarged and provided with an inclined top, a blast-pipe discharging into the enlarged part of the chamber at the front thereof and adjacent the top, closures for the ends of the chamber, inclined tracks within the chamber supported above the base thereof, said tracks being disposed at an angle opposite to the angle of inclination of the bottom of the chamber, and regulating-valves for the suction-fan and the blast-pipe.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 28th day of March, A. D. 1906.

LOUIS GOEBEL.

Witnesses:

J. H. JOCHUM, Jr.,
CHAS. H. SEEM.