(No Model.) 2 Sheets—Sheet 1.

N. S. WILLET.

BRICK DRYING APPARATUS.

No. 280,271. Patented June 26, 1883.

Fig. 1.

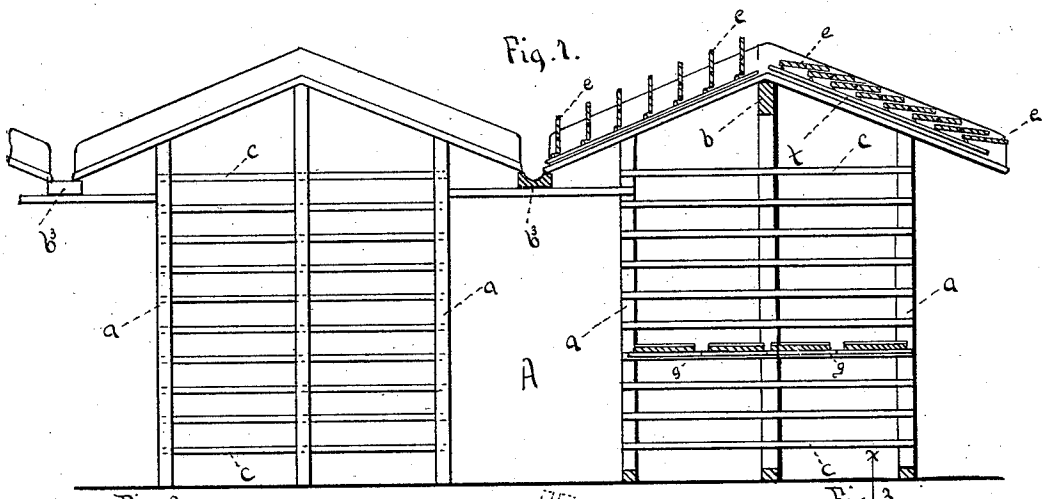


Fig. 2

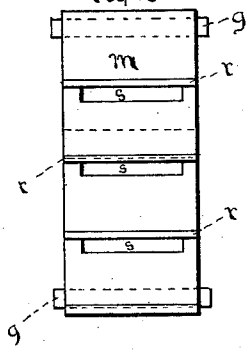


Fig. 4.

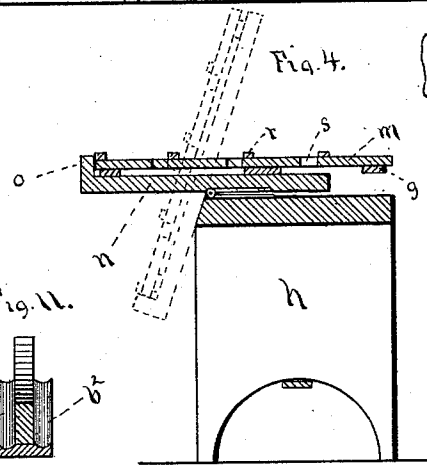


Fig. 3.

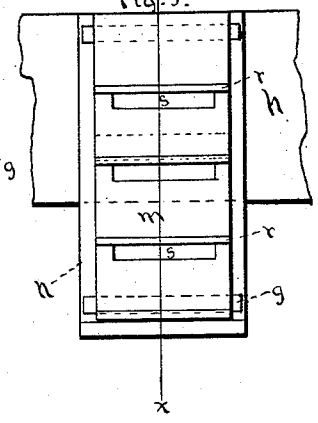


Fig. 11.

Fig. 6

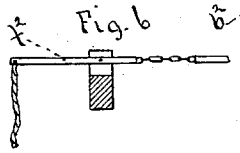
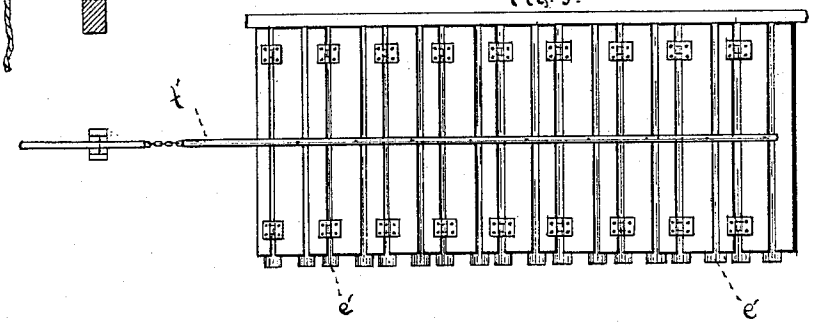


Fig. 5.



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(No Model.) 2 Sheets—Sheet 2.

N. S. WILLET.

BRICK DRYING APPARATUS.

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Fig. 7.

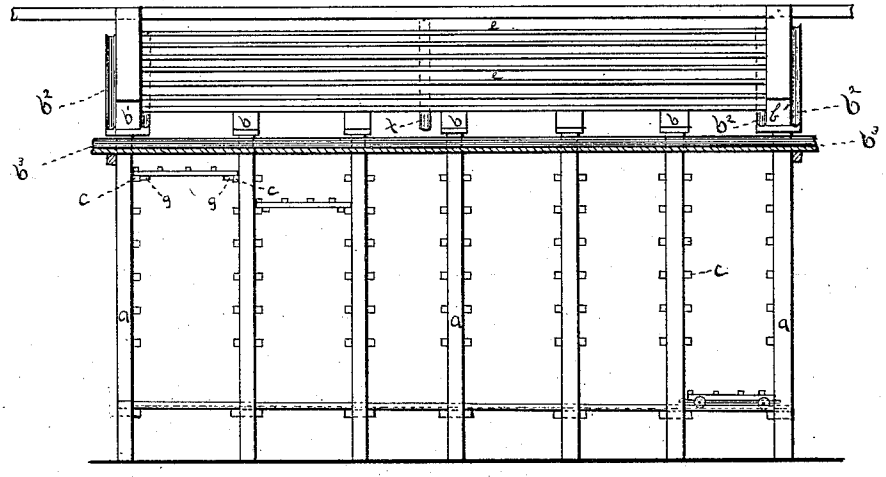


Fig. 8

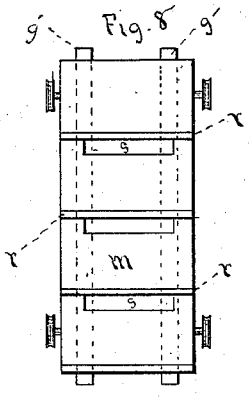


Fig. 9

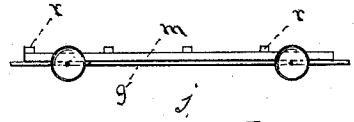


Fig. 10

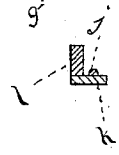
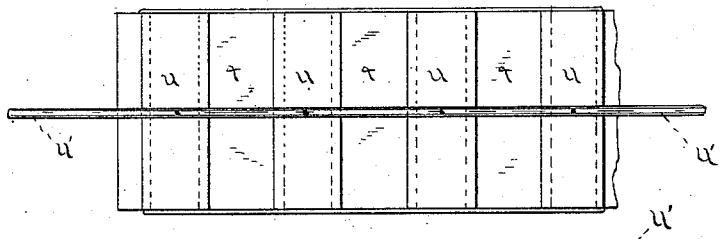


Fig. 12.



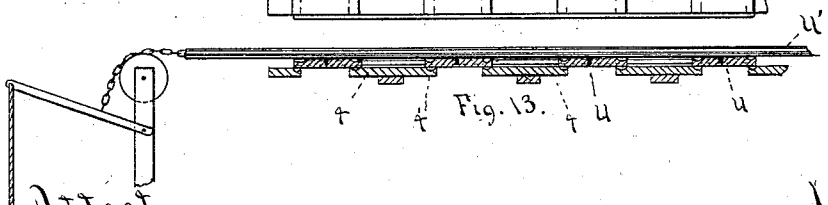


Fig. 13.

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UNITED STATES PATENT OFFICE.

NATHANIEL S. WILLET, OF NEWARK, NEW JERSEY, ASSIGNOR TO MINETTA P. COOPER, OF SAME PLACE.

BRICK-DRYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 280,271, dated June 26, 1883.

Application filed March 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL S. WILLET, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Brick-Drying Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to dry brick with greater facility, to preserve the quality of the same, and to reduce the cost of manufacturing.

Heretofore the process of drying brick has been to spread the same upon the ground, one separated from the other, to allow the sun and air full access. When said bricks were partially dry the same were filed in a stack, where the process of drying was continued until the bricks were in a fit condition to be burned. By this method of drying, which in itself was a slow process, the bricks were liable to be damaged when on the ground by sudden storms of rain washing the corners off and roughening the surface thereof, producing a very inferior quality, known in the market as "washed brick." The necessary handling required in stacking, or, as it is technically called, "hacking," damaged the brick by chipping off the corners and bending the same, as well as requiring a large expenditure of labor, whereby the cost of the brick was materially increased. By my improvements these defects have been obviated.

Referring to the accompanying drawings, embodied in two sheets, in which similar letters of reference indicate like parts in each of the several figures, Figure 1, Sheet 1, is an end elevation of a brick-drying structure embodying a portion of my invention, partly in section. Fig. 2 is a plan of a brick-board. Fig. 3 is a plan view of a part of a bench having attached thereto a mold-lander or tilting-board, upon which is a brick-board. Fig. 4 is a vertical section taken through line *x* of Fig. 3. Fig. 5 is a plan view of the hinged boards. Fig. 6 is a vertical section of the lifting mechanism attached to the lever of Fig. 5. Fig. 7 is a side elevation of a part of my brick-drying structure, partly in section. Fig. 8 is a plan of a brick-board mounted on wheels. Fig. 9 is a side elevation of Fig. 8. Fig. 10 is a cross-section of the ways on which the brick-board car moves, and Fig. 11 is a cross-section of the rafter or beam *b'* in Fig. 7. Fig. 12 is a plan of a modification of the movable roof. Fig. 13 is a vertical longitudinal section taken through a line directly under the rod *u'* in Fig. 12.

In the said drawings, Figs. 1 and 7, *a a* are uprights, which stand preferably apart at the same distance from one another, said distance being about equal to the length of the brick-boards, as shown in Fig. 7. Said uprights support the rafters *b* and receive the cleats *c*, arranged on the uprights one over the other, and in such a position as that when the brick-boards are laid from one series of cleats to the opposite one said brick-boards will lie approximately level.

The roof of the brick-drying structure may be formed so that the same may be opened to allow the sun and air to enter, or be closed to exclude the rain or dew. This may be accomplished by pivoting the roof-boards *e*, Figs. 1 and 7, and connecting them by a strip, *f*, of wood or iron, whereby all said pivoted boards may be opened or closed at once, as shown in Fig. 1. Said strip *f* may be operated directly by the hand, by a lever, or by any suitable means.

Three ways of arranging the roof-boards so that the air, &c., may be admitted or excluded are shown in the drawings, Fig. 1 showing the pivot in the center and the boards when closed, overlapping in a manner common to window-shutters, Fig. 5 showing the roof-boards hinged to stationary strips laid on the rafters, gutters *e'* being provided beneath the joints. The said hinged boards shown in Fig. 5 are lifted by a rod or strip, *f'*, which may be operated either by hand directly or by a lever, *f'''*, pivoted or fulcrumed as shown in Fig. 6, and connected to the rod *f'* by chains or other suitable means, whereby all of the hinged boards can be lifted or lowered simultaneously. The weight of the rod

f' upon the boards keeps them down tight when closed. The said hinged boards are arranged at right angles to the ridge-pole, and may extend from one end of the drying-racks to the other. The said lever f''', Fig. 6, may be operated by a rope of convenient length attached to one end of said lever, as shown. The third way in which the roof-boards may be arranged is shown in Figs. 12 and 13, in which t are stationary boards secured to the rafters, and which are overlapped by the sliding boards u. Said fixed boards may have gutters on their upper side near the joints, as at t', Fig. 13. If necessary, gutters may also be made on the top of the boards u, as in Fig. 13. Small wheels may be let into the under side of the sliding boards, moving on the under boards or on tracks, in order to facilitate the movement of the sliding boards. The sliding boards u are moved by the rod u', Figs. 12 and 13, which in turn is operated by the mechanism shown in Fig. 13, suitably connected thereto. The said mechanism is attached to both ends of the rod, in order to open and close the sliding boards. A hood may be used to cover the ridge-piece and the joints at that place.

The brick-boards m are formed with projecting cleats g, Fig. 2, on the under side, so that when said boards are placed side by side on the cleats in the brick-drying structure the extremities of the brick-board cleats g will abut, and thus form an opening between the boards, through which the air may freely pass. The cleats g on the brick-boards are arranged to engage with the cleats c in the brick-drying structure, so that the said boards may be readily and securely held in position in said structure without any danger of said boards sliding off. The said boards m are further provided with strips r upon the upper side, as shown in Fig. 2, against which the brick-mold rests when the brick-board is being loaded. Openings, as s, Fig. 2, may be made through the brick-board m, to permit the passage of air. The said boards may be further strengthened by a cleat on the under side, at the middle.

Adjacent to the brick-drying structure I construct a bench, h, Figs. 3 and 4, to one edge of which is pivoted a tablet or tilting-board, n, Fig. 4, of a sufficient size to hold the brick-board m. Said bench may be placed in close proximity to the brick-machine.

The manner of placing the green brick upon the brick-board is as follows: The tilting-board n being in its loading position, as indicated by the dotted lines on Fig. 4, the brick-board is placed thereon, and is held in place by a stop-piece, o, on said tilting-board. The workman takes the mold from the machine, and, resting it upon the strip r upon the brick-board, turns it and deposits the mold, with its contents of green brick, upon said brick-board without injury. This is repeated until the brick-board is full, and when the last mold of brick is laid on, the weight of the brick causes the tilting-board to revolve, which then comes to a horizontal position, as in Fig. 4. The molds being taken off of the bricks, the brick-board, with its load of brick, is then removed to the drying structure, which is near at hand, where they remain without further handling until dry and ready for burning.

The tilting-board n is so constructed or pivoted that when the brick-board is removed it returns to its loading position. Several of these tilting-boards may be placed between the brick-machine and drying-racks—as many as may be necessary.

If desirable, the brick-boards may be mounted upon wheels, as shown in Figs. 8 and 9, either grooved or flat, and move on tracks laid upon the cleats, as in Fig. 7, in the drying structure, or secured in some other suitable manner to the uprights a, and having a slight pitch or descent from one end of the drying apparatus to the other, in order to facilitate the movement of the loaded cars on said tracks. The cars, after being loaded with the green brick, are placed upon the tracks and move to the other end of said tracks, one after the other, until each track is full. In order to prevent the cars from striking each other too heavily, and thus displace the brick, their descent may be checked, either by a workman or by other suitable means. When the brick-boards are mounted upon wheels, the cleats g' on the under side of said brick-boards are placed so that they extend beyond the ends of the cars, as shown in Fig. 8, and thus admit the circulation of air.

The rails may be constructed as shown in Fig. 10. The rail j is secured to a strip, k, and has a side piece, l, as a further prevention against the cars slipping off the track.

In order that no moisture can possibly leak through upon the brick, I provide, in addition to the other means, gutters, as b'', Fig. 7, extending from the ridge-piece to the eaves, under the joints where the shutters e meet the rafters b', to carry off the water, &c.

The brick-drying structures may be one hundred feet long, more or less, and in building them I prefer to place them so that the eaves of one may touch, or nearly so, those of the other, as shown in Fig. 1, Sheet 1, and at or under the point of meeting to provide a gutter, b''', Figs. 1 and 7, suitably pitched and supported, into which the gutters b'', Fig. 7, and e', Fig. 5, may lead. By this construction a covered way, a, Fig. 1, is made for the passage of the workman, and all the work can be carried on without regard to the weather, and complete protection is assured.

If desirable, the sides and ends of the drying structure may be protected by movable parts similar to those in the roof; or protectors made of several boards nailed together, of sufficient height, may be used.

The aforementioned roof may be extended, if thought desirable, so as to cover other operations in the process of brick-making, so that the brick-yard may be completely covered.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent, is—

1. A series of brick-drying structures having uprights, (as *a*,) cleats (as *c*) secured to said uprights, and a roof provided with movable parts, (as *e*,) so placed that the eaves of one shall touch or come near to the other, and having a gutter (as *b'''*) at the point of meeting, all substantially as and for the purposes herein set forth.

2. In a series of brick-drying structures so placed that the eaves of one shall touch or come near to the other, and having gutters (as *b'''*) at the points of meeting, the combination, with uprights (as *a*) having cleats (as *c*) secured to said uprights, and adapted to receive brick-boards, (as *m*,) of a roof provided with movable parts, so constructed that all or a given number of such parts may be operated simultaneously, and having gutters, (as *b''*,) all substantially as and for the purposes herein set forth.

3. In a brick-drying structure, the combination, with uprights (as *a*) and cleats (as *c*) adapted to receive brick-boards, (as *m*,) of a roof provided with movable parts, (as *e*,) so constructed that all or a given number of such parts may be operated simultaneously, and having gutters, (as *b''*,) all substantially as herein set forth.

4. The combination, with a brick-drying structure having uprights, (as *a*,) cleats, (as *c*,) and a roof provided with movable parts, so constructed that all or a given number of such parts may be operated simultaneously, of a brick-board or brick-boards (as *m*) having cleats (as *g*) on the under side, and strips (as *r*) on the upper side, and apertures (as *s*) therethrough, all substantially as set forth.

5. The combination, with an apparatus used in the manufacture of brick, of a bench (as *h*) having attached or pivoted thereto one or more tilting-boards or mold-landers (as *n*) adapted to receive or hold a brick-board, (as *m*,) all substantially as set forth.

6. A bench (as *h*) having attached or pivoted thereto a tilting-board or mold-lander, (as *n*,) and adapted to receive a brick-board, (as *m*,) all constructed and operating substantially as herein set forth.

7. A brick-drying structure having uprights (as *a*) and a roof provided with movable parts, so constructed that all or a given number of such parts may be operated simultaneously, and having therein or connected therewith a track or tracks, and adapted to receive thereon brick-board cars, all arranged and operating substantially as and for the purposes set forth.

8. The combination, with a brick-drying structure having uprights (as *a*) and a roof provided with movable parts, of which parts all or a given number may be operated simultaneously, and having therein a track or tracks adapted to receive brick-board cars, of a brick-board (as *m*) having strips (as *r*) on the upper side and apertures (as *s*) therethrough, the same being mounted on wheels, all substantially as set forth.

9. A brick-board adapted to receive brick, having cleats or strips (as *r*) on the upper side and apertures (as *s*) therethrough, and mounted on wheels, all arranged and operating substantially as and for the purposes herein set forth.

10. A brick-board (as *m*) adapted to receive and hold brick, having strips (as *r*) on the upper side, cleats (as *g*) on the under side, and apertures (as *s*) therethrough, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of March, 1883.

NATHANIEL S. WILLET.

Witnesses:
F. F. CAMPBELL,
O. DRAKE.