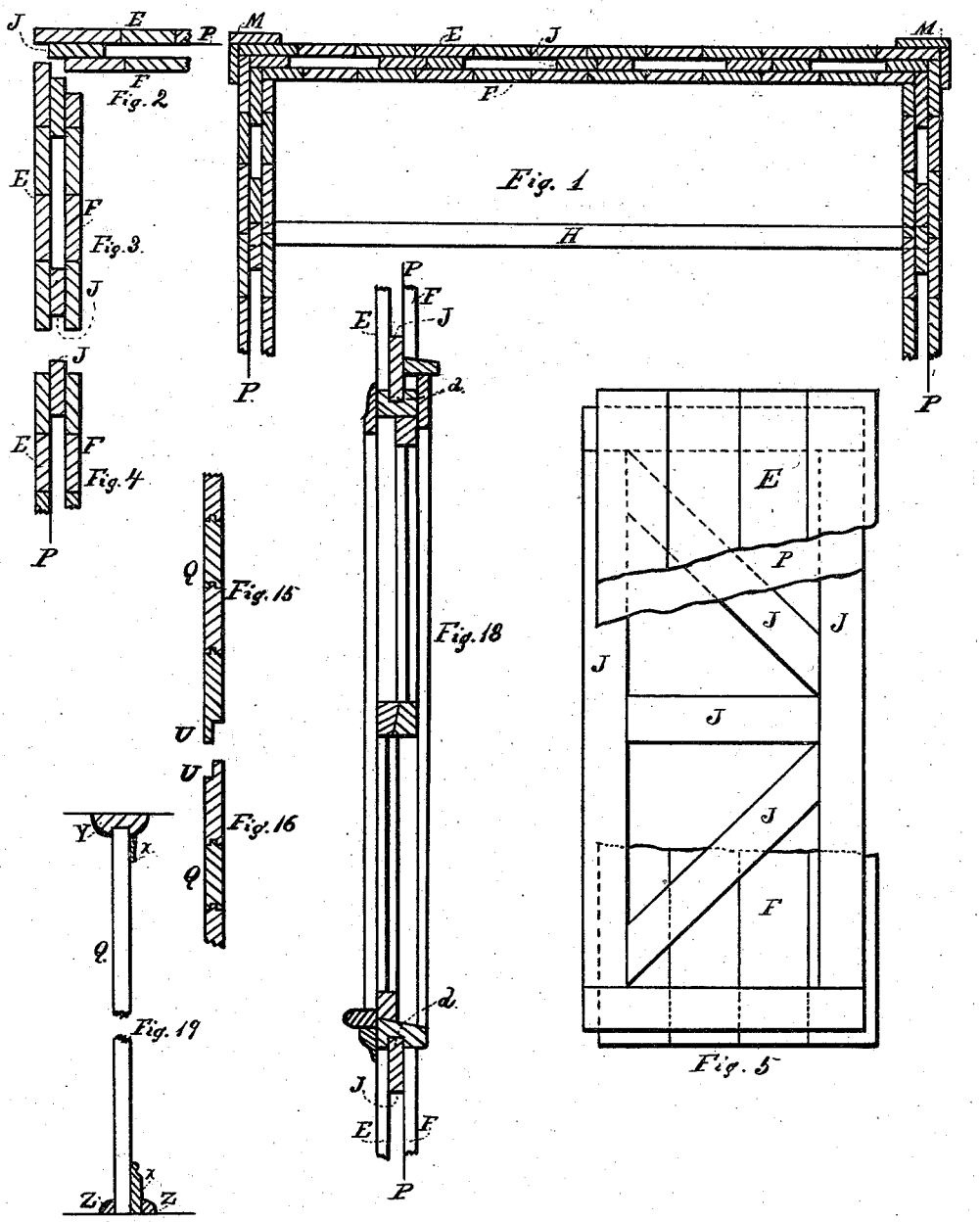
(No Model.)

2 Sheets—Sheet 1.

L. FORREST.

PORTABLE HOUSE.

No. 305,584. Patented Sept. 23, 1884.



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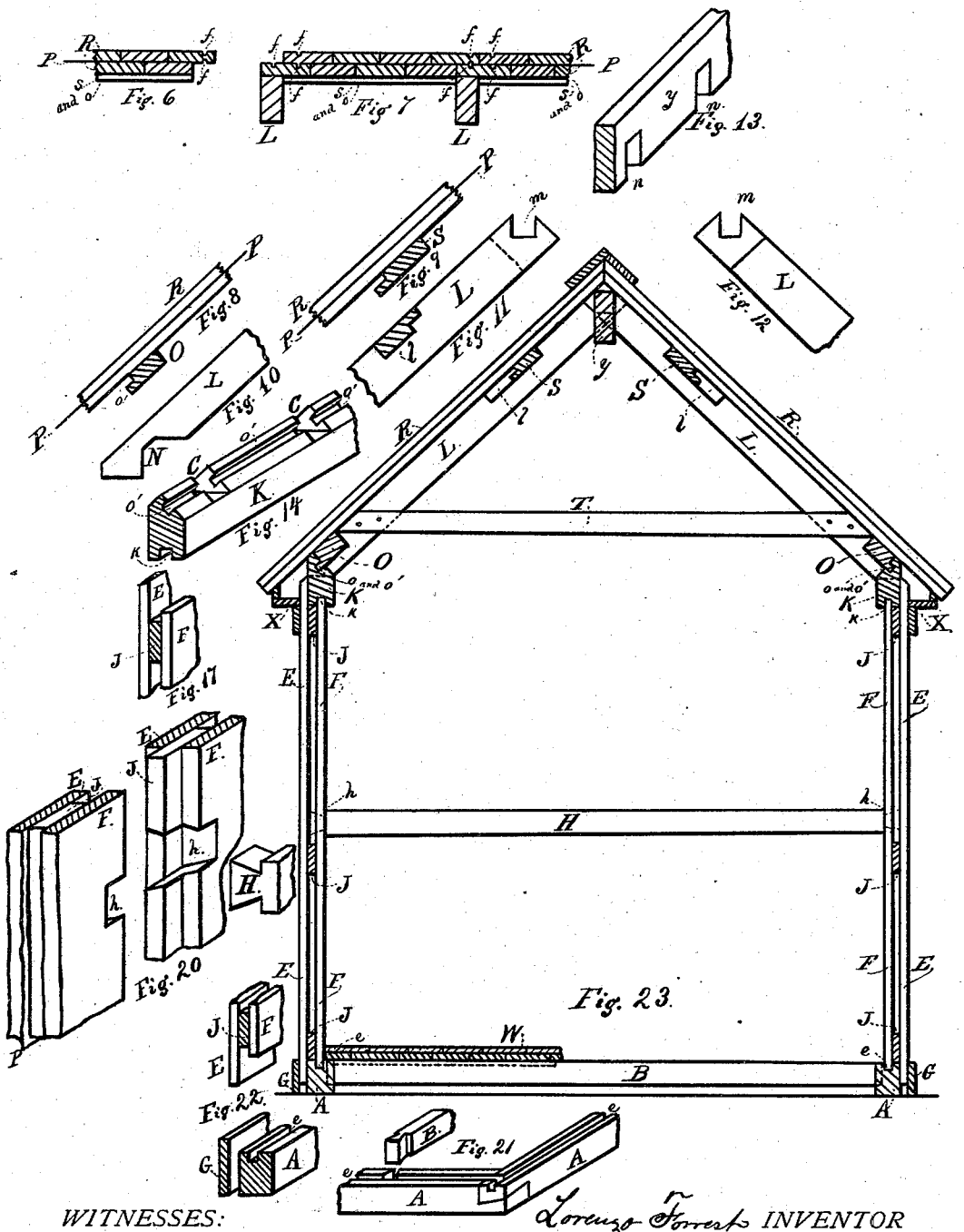

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UNITED STATES PATENT OFFICE.

LORENZO FORREST, OF MINNEAPOLIS, MINNESOTA.

PORTABLE HOUSE.

SPECIFICATION forming part of Letters Patent No. 305,584, dated September 23, 1884.

Application filed March 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, LORENZO FORREST, a citizen of the Dominion of Canada, and residing in the city of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Portable Houses; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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.

In the drawings, Figure 1 represents a sectional view in plan; Figs. 2, 3, and 4, a sectional view in plan of two adjacent corner-sections and a side section adjacent thereto detached; Fig. 5, the construction of a side or wall section; Figs. 6, 7, 8, 9, 10, 11, and 12, details of the roof and rafters; Fig. 13, an end sectional view of the ridge-purlin; Fig. 14, a view of the top wall-plate; Figs. 15 and 16, a horizontal sectional view of two adjacent sections to form a partition; Fig. 17, a sectional view vertically edgewise of the top end of a wall-section; Fig. 18, a vertical section edgewise through a window opening and sash; Fig. 19, a similar view of a partition; Fig. 20, a view of two adjacent side sections where a floor-joist is sustained elsewhere than on the ground-floor; Fig. 21, a view of the sills at the corner of the house, and of the end of a ground-floor joist; Fig. 22, a vertical edgewise sectional view showing the lower end of a wall-section, the sill, and the base-board detached; and Fig. 23, a vertical sectional view of the entire house looking toward one of the gables.

To describe the invention more at length, we will begin at the bottom, and proceed as if actually building the house.

A A, Figs. 21, 22, and 23, show the sills, which lie upon the underpinning, as is usual in all houses. These sills A A are halved together at the four corners of the house, as shown in Fig. 21. This halving joint is cut on a bevel similar to a dovetail both ways, so that the weight of the house thereon makes it impossible for the four sills A A A A to come apart. In all these sills A, and on top of the same, there are grooves (rectangular) *e e*, Figs. 21, 22, and 23, and these grooves *e e* extend all around on top of the sills A A. The object of these grooves *e e* is to receive the lower end of the part F, Figs. 22 and 23, of the wall-sections. The construction of one of these wall-sections is shown in Fig. 5. They consist of three layers of plank—say one inch thick each—arranged thus: E, Fig. 5, represents plank laid closely together, or tongued and grooved, and intended to be on the outside of the section. Inside of these plank E E comes a layer of building or tarred paper, P. Then comes plank laid some such way as J J J, Fig. 5; lastly, on the inside of the section comes plank F F, Fig. 5, laid closely together, or tongued and grooved. The material contained in Fig. 5 is put into forms over iron plates and clamped. The entire system is then nailed together with wrought-iron clinch-nails, the said iron plates serving to turn the nails on under side. The sections are then withdrawn from the forms and are ready for erection. The bottom edge of a section is shown in Figs. 22 and 23. The side edges of two contiguous or adjacent sides and also two adjacent corner-sections are shown in Figs. 1, 2, 3, and 4. The top edge similar to the bottom is shown in Figs. 17 and 23.

From the preceding it will be seen that an air-space is left in the interior of these wall-sections between the outer and inner plank, E and F. The said air-spaces are for the purpose of excluding heat or cold.

The sections as above constructed are placed in position all around the building, and constitute the walls thereof.

Fig. 22 shows the position of a section just ready to be placed on the sill A. The inner sheathing, F, enters into the groove *e* on the sill A, and the outer sheathing, E, extends down outside said sill A, and is secured to said sills by bolts through said sheathing E and sill A.

Fig. 1 shows the several side and corner sections in juxtaposition, and Figs. 2, 3, and 4 show the same just before going together.

In the corner wall-sections, Figs. 1, 2, and 3, the outer sheathing, E, is of the required width of a section. The plank J is located at a distance from the corner edge equal to the thickness of the outside sheathing, and the inner sheathing, F, is located still farther, equal to the thickness of said plank J, thus giving

to the corner sections the shape as shown in Figs. 2 and 3. Consequently the projecting edge of the outer sheathing on one corner section laps over the edge of the outer sheathing on the other corner section, and J in one section laps over the edge of plank J in the adjacent section, and so on, thus forming a break-joint at each and every corner. They are then fastened together by screws from the outside passing through the outer sheathing, the whole construction effectually excluding wind.

The joists H, Figs. 1, 20, and 23, rest on the bottom of a mortise cut two-thirds through two contiguous sections, and equally deep in each section, the ends of the joists H H being dovetailed, and the mortise also, thus serving also as a tie-beam across the building. This is fully shown in Figs. 20 and 23.

The window-frames are built into any wall-section. In such case a vertical section through the window is shown in Fig. 18. These window-frames have the special feature of a groove, *d d*, Fig. 18, running along the top, bottom, and sides of said frame, in which groove *d d* the plank J of one or more wall-sections is inserted. Thus the window-frame may be placed in any desired part of one or more wall-sections. Outside of said window-frames is placed the ordinary window-casing. The grooves *d d*, Fig. 18, and this casing together give a double assurance of being wind-proof, the casing serving as stops to keep the sash in place. The door-frames are inserted similarly to the window-frames. The lower floor-joists, B, are dovetailed at the ends of said joists B, and let into correspondingly-shaped gains in the sills A, as shown in Figs. 21 and 23. These also serve as tie-beams. A base-board, G, runs around the outside of the bottom of the walls after the erection of said walls, as shown in Figs. 22 and 23, and corner boards, M M, are placed as in Fig. 1.

The walls and everything below now being in position, the wall or top plates, K K K, are placed thereon, as shown in Fig. 23. The groove *k* under said wall-plates K K, Figs. 14 and 23, engages over the top of the part E F of a wall-section, Figs. 17 and 23, said wall-section being secured to wall-plate K by screws through the outside plank, E. The rafters L, Figs. 23 and 10, are notched, as at N, Fig. 10, to fit into the notches C in the wall-plate K, Fig. 14. It will be seen that the vertical edge of the notch N in the rafter L extends down over the outside of the wall-section, thus serving to tie the walls together. In this the rafters L are assisted by a tie-beam, T, bolted so as to connect a pair of rafters, as shown in Fig. 23. The top ends of the rafters L are shown in Figs. 11 and 12. The two abutting rafters are halved together, as shown in said Figs. 11 and 12. In the top of each rafter, as at *m*, Figs. 11 and 12, are notches, and also in the bottom of the ridge-purlin *y*, as at *n*, Fig. 13, are similar notches, so that the ridge-purlin *y* can engage over every pair of rafters in the building, and thus securely bind all together. This ridge-purlin *y*, extending from one end of the building to the other, serves as a tie-beam for the top ends of all the rafters.

The roof proper is formed in sections put together with clamps and nails, in the same manner as in the wall-sections before described, but without air-space. They are formed of two layers of plank with tarred paper between, and the plank are tongued and grooved and laid to break joints. These plank and the paper are united with two or more cross-battens nailed and clinched to the same in a similar manner to the side sections. This is shown in Figs. 6 and 7, where we see three of these contiguous sections, in which R shows the plank, P the paper, and *s* the cross-batten.

The cross-batten O, Figs. 8 and 23, nearest to the wall-plate K is provided with a tongue, as *o*, Fig. 8, said tongue *o* being designed to enter a corresponding groove, *o'*, extending along the wall-plate K, Fig. 14. This cross-batten O, engaging as it does into the groove *o'* in the wall-plate K, secures the roof R from lifting, prevents wind from blowing in, and also binds the rafter L firmly in its notch C in the wall-plate K—in short, effectually binding together wall-plate K, rafters L, and roof R. The top cross-batten, *s*, bears against and hooks under a cleat, *l*, attached on both sides of the rafters L, and serves to take the weight of roof R from off the side walls, and also holds down the top part of roof from being lifted by the wind. This last construction is assisted by the halving together of the rafters L at their top ends, as hereinbefore mentioned.

Small grooves *f f f*, Figs. 6 and 7, serve to conduct water away before having a chance to penetrate to the interior of the roof R. The adjacent sections of the roof are lapped over above a rafter, L, so as to break joints, and are secured by screws to said rafters L. This is shown in Figs. 6 and 7. The roof at top is bound by a ridge-board secured by screws, said ridge-board being shown in Fig. 23. A cornice, X, Fig. 23, of any desired ornamentation, is secured to side walls and ends of rafters by screws.

Figs. 15 and 16 show a horizontal sectional view, and Fig. 19 a vertical edgewise sectional view, of a partition for the interior. These partitions are formed by sections made of one thickness of plank Q, tongued and grooved together, and connected by two or more cross-battens, X, of some ornamental design, clinch-nailed to the said plank Q. The different sections are ship-lapped together, as at U, Figs. 15 and 16.

At the ceiling the partitions are held in place by a molding, Y, Fig. 19, screwed to the ceiling, and on the floor the partitions are held in place by a quarter-round molding, Z, Fig. 19, placed on each side of said partition and screwed to the floor. Ceiling-sections are joined in the same manner and held together

by cross-battens nailed and clinched to said ceiling on the unplaned or upper side thereof.

The floors W, Fig. 23, are in sections, and formed of two layers of plank placed together by tongue and groove, and breaking joint and joining section to section in the same manner as the roof R in Figs. 6 and 7.

Tarred paper is placed between the two layers of plank that constitute the floor.

Two or more cross-battens similar to those at S, Figs. 6, 7, 9, and 23, but of a simple rectangular shape, are nailed with clinch-nails to the under side of the floor-sections.

Having thus described my invention, I desire to claim and secure by Letters Patent of the United States as follows:

1. In a portable house, the combination of the wall-sections thereof with the wall-plates, and also with the sills, by means of the inner sheathing of said wall-sections engaging into grooves *e* and *k* in said wall-plates and sills, and also by means of the outer sheathing of said wall-sections extending over the outside of said wall-plates and sills, enabling said wall-sections to be readily secured to said wall-plates and sills by screws passing through said outer sheathing into said wall-plates or sills, all arranged substantially as described.

2. In a portable house, the wall-sections composed of an outer layer of plank, an inner layer of plank, and a middle set or layer of plank along the edges of said wall-section and occasionally crossing the same, said intermediate layers projecting and receding on alternate edges of said wall-sections, thus permitting the joining of said wall-sections on the principle of tongue and groove, and composed, lastly, of building-paper between the outer layer and the middle layer of plank, and all arranged, nailed, and clinched together substantially as described.

3. In a portable house, the combination of the joists H, having dovetailed ends, with the two adjacent wall-sections by means of a dovetailed gain, half in each section, substantially as and for the purposes described.

4. In a portable house, the wall-plate K, with its groove *k*, to receive the upper end of a wall-section, also with its notches C C, to receive the rafters L L, also with its groove *o'*, to receive the tongue *o* on the lower cross-batten, O, of roof-sections, all substantially as described.

5. In a portable house, the roof-sections composed of two layers of plank breaking joint with one another, and tarred or building paper between said plank, said plank being secured together by cross-battens *s* and O, and said sections being detachably joined together, all substantially as and for the purposes described.

6. In a portable house, the combination of the rafter L, having its notch N, the wall-plate K, with its notch C and grooves *o'* and *k*, the roof-sections having the lower cross-batten, O, and the wall-sections, all arranged substantially as described.

7. In a portable house, the combination of a roof-section having cross-battens *s* and the cross-battens O with tongue *o*, to engage in groove *o'* of wall-plate K, with the rafters L, furnished with cleats *l*, and the wall-plate K, all substantially as and for the purposes described.

8. In a portable house, the construction and arrangement of the corner wall-sections at the corners of said house, the outside sheathing of one section lapping over the edge of outside sheathing of the other section, and planks J J, and inner sheathing receding alternately on each section, so as to break joints with one another, for the thorough exclusion of air from said corners of the house, all substantially as described.

9. An improved portable house having its wall-sections engaging with and projecting over the outside of its sills and wall-plates, its rafters notching over wall-plates and wall-sections, its ridge-purlin binding rafters and end walls together, its roof-sections detachably joined, and formed of two layers of plank breaking joint, and secured together by cross-battens that engage rafters and wall-plates, its joists dovetailing with the wall-sections, its sills receiving the side wall-sections and floor-joists, and its wall-plates receiving the upper end of the wall-sections and supporting rafters and roof lower cross-battens, all arranged substantially as and for the purposes described.

In testimony that I claim the foregoing as my own I do affix hereto my signature in presence of two witnesses.

LORENZO FORREST.

Witnesses:
WILLIAM W. REDFIELD,
JAMES A. FORREST.