

(No Model.)

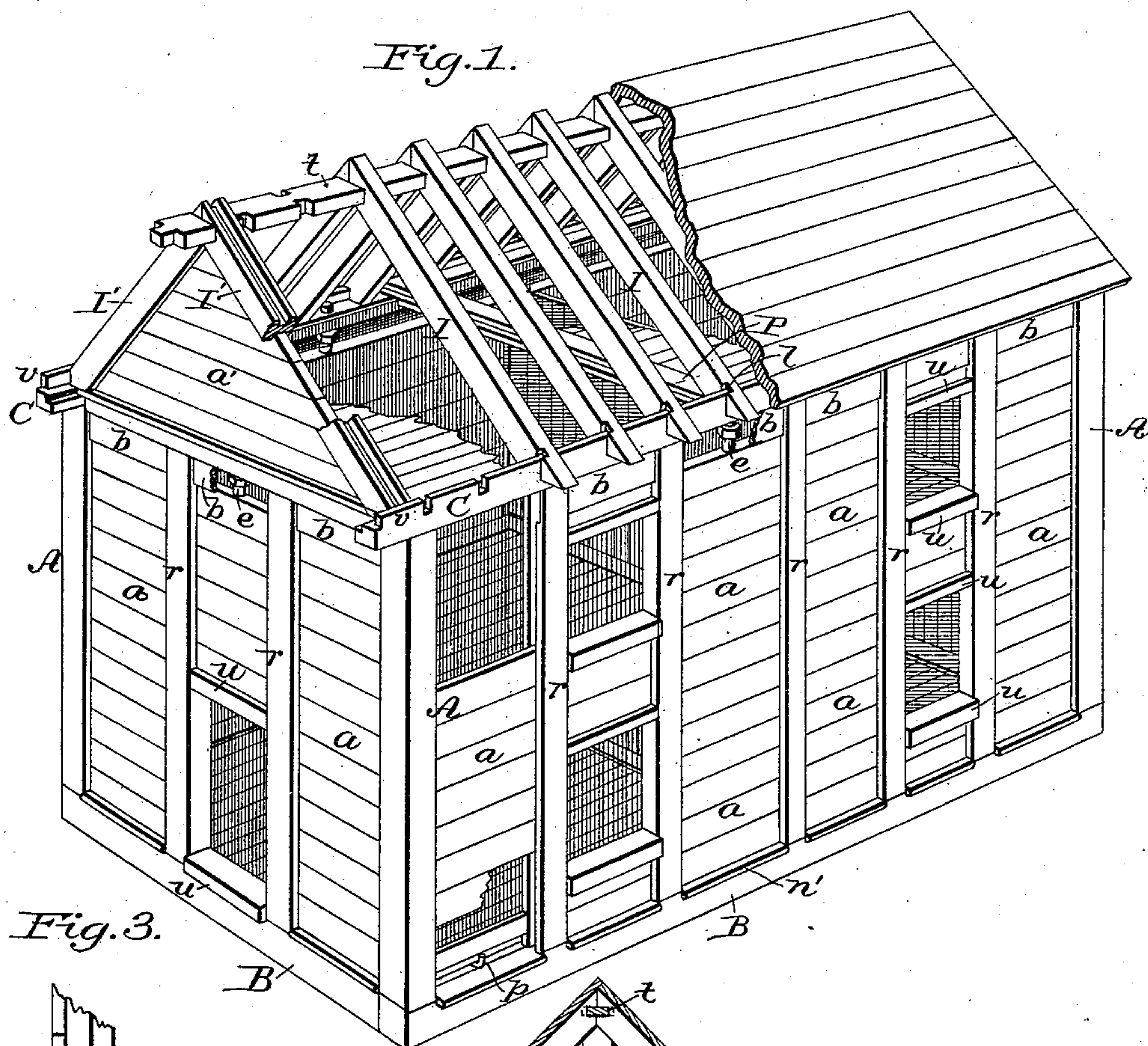
2 Sheets—Sheet 1.

T. R. CARSKADON.

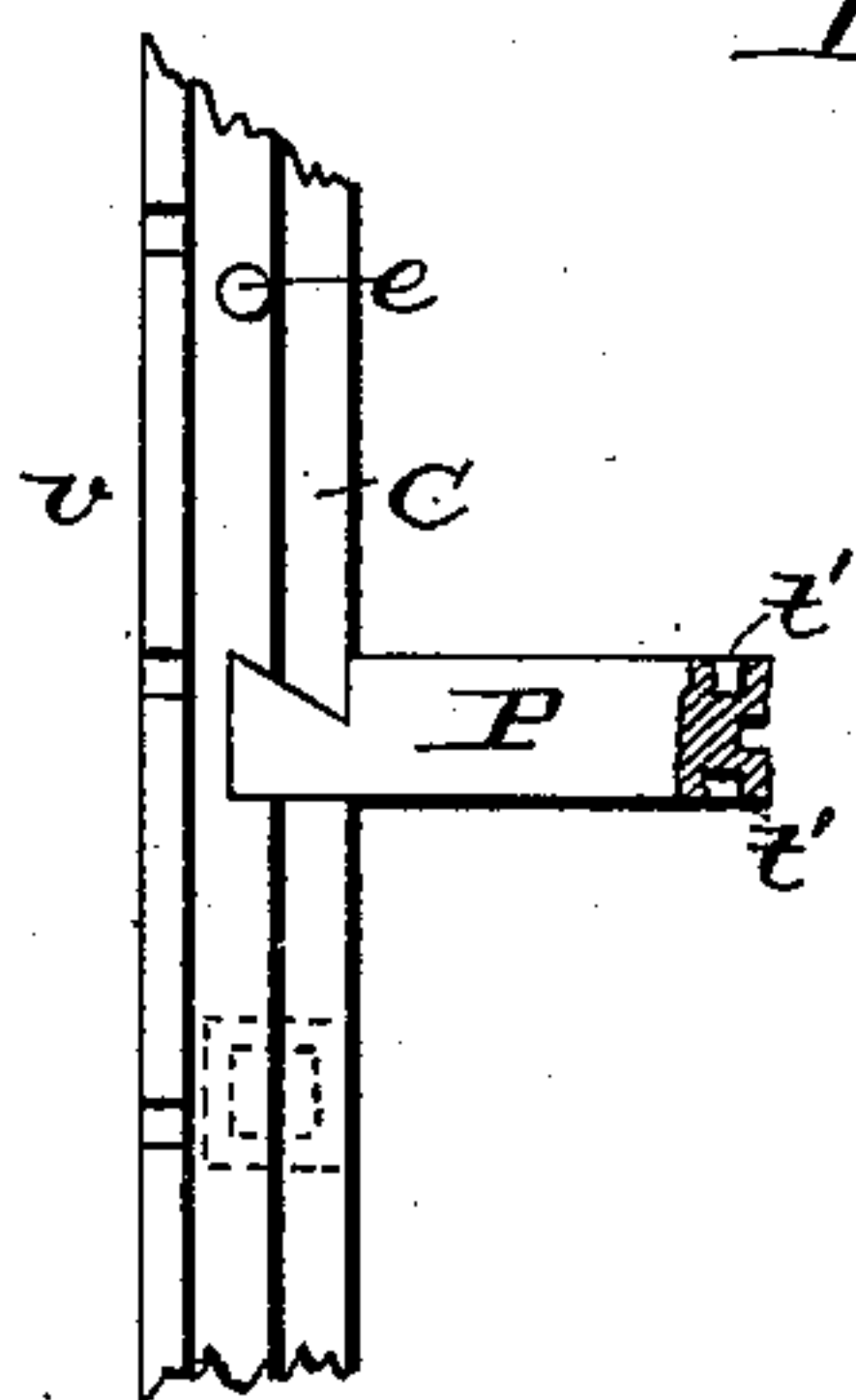
PORTABLE BUILDING.

No. 324,456.

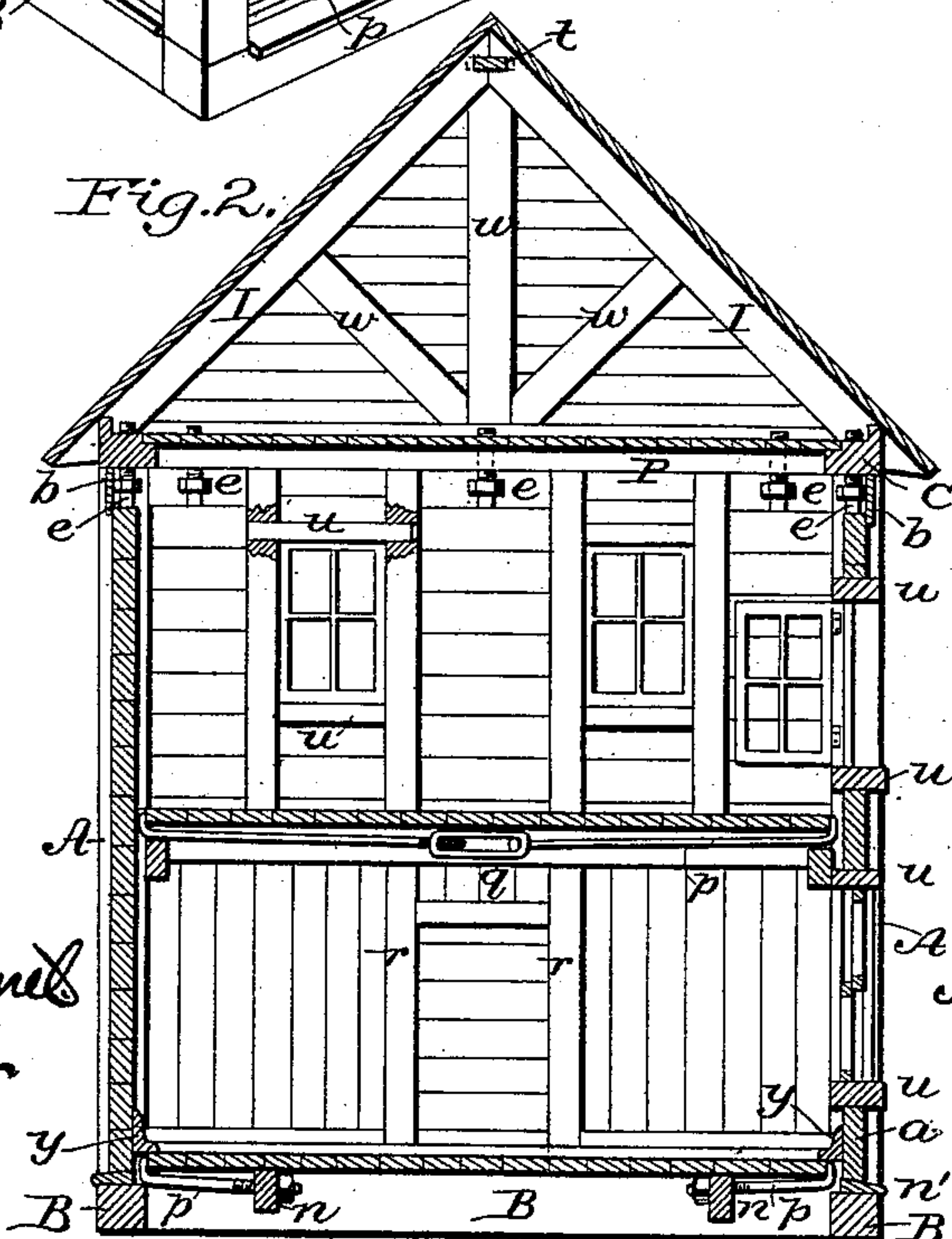
Patented Aug. 18, 1885.



*Fig. 3.*



*Fig. 2.*



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(No Model.)

2 Sheets—Sheet 2.

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PORTABLE BUILDING.

No. 324,456.

Patented Aug. 18, 1885.

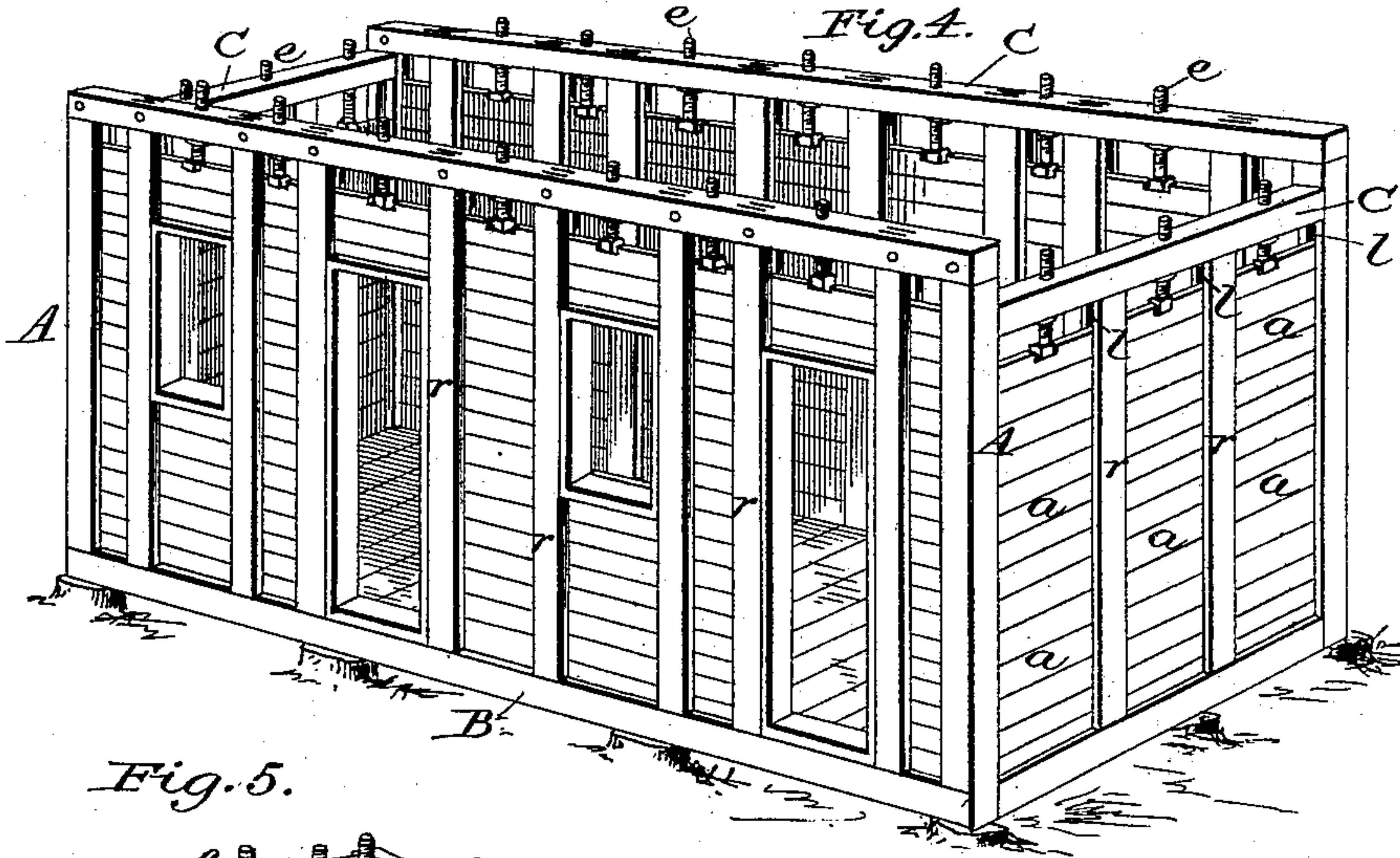


Fig. 5.

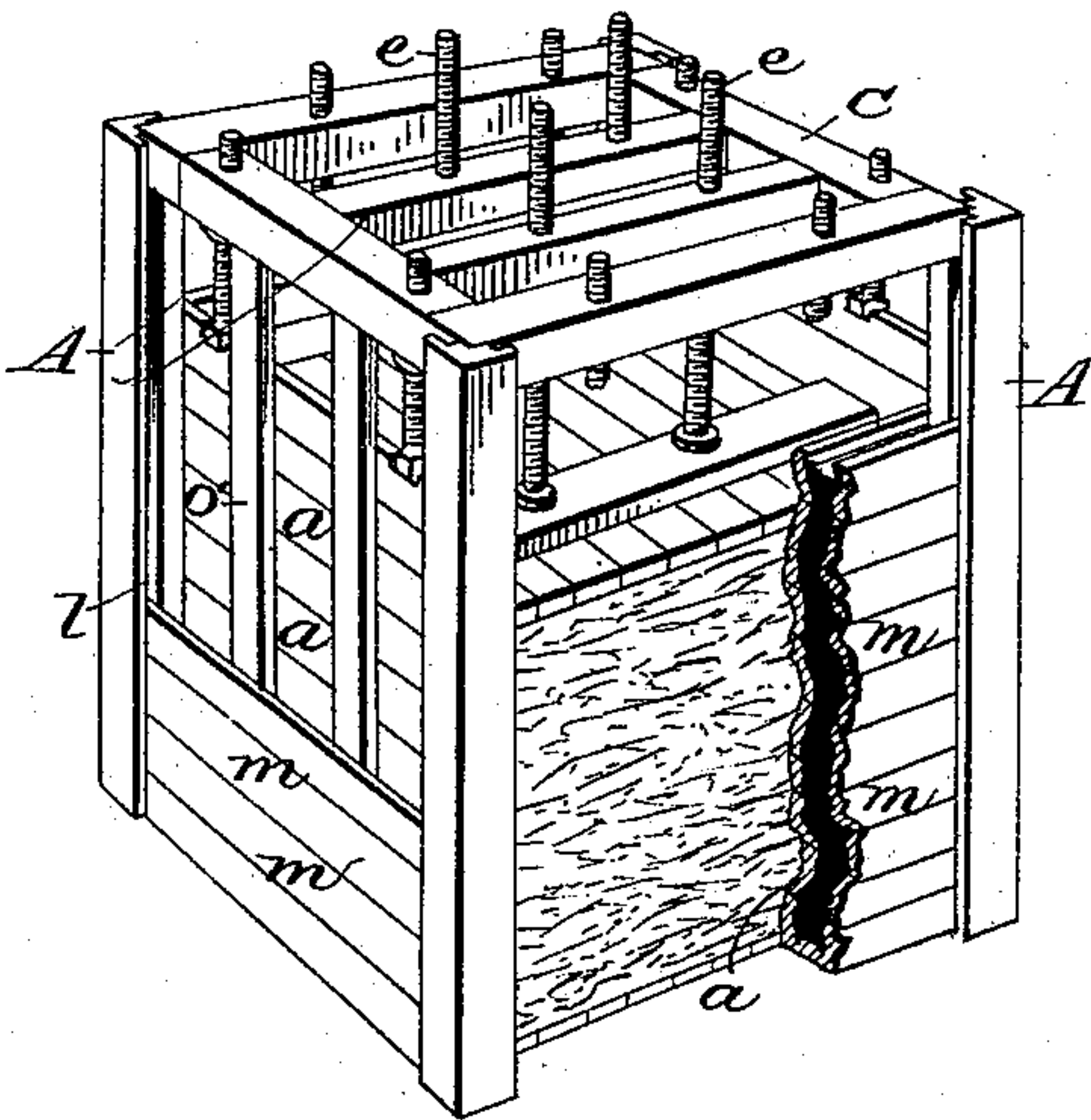


Fig. 6.

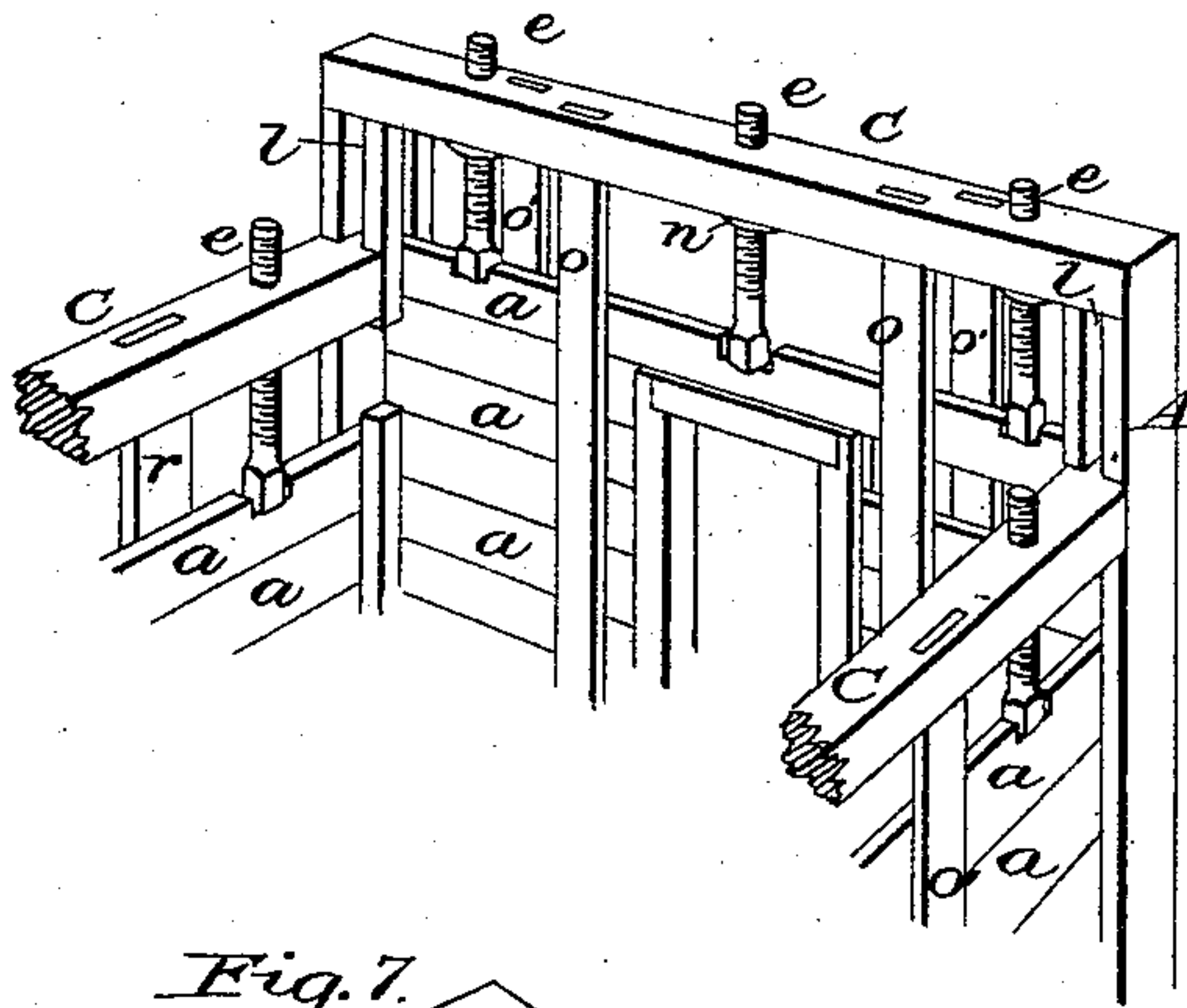


Fig. 7.

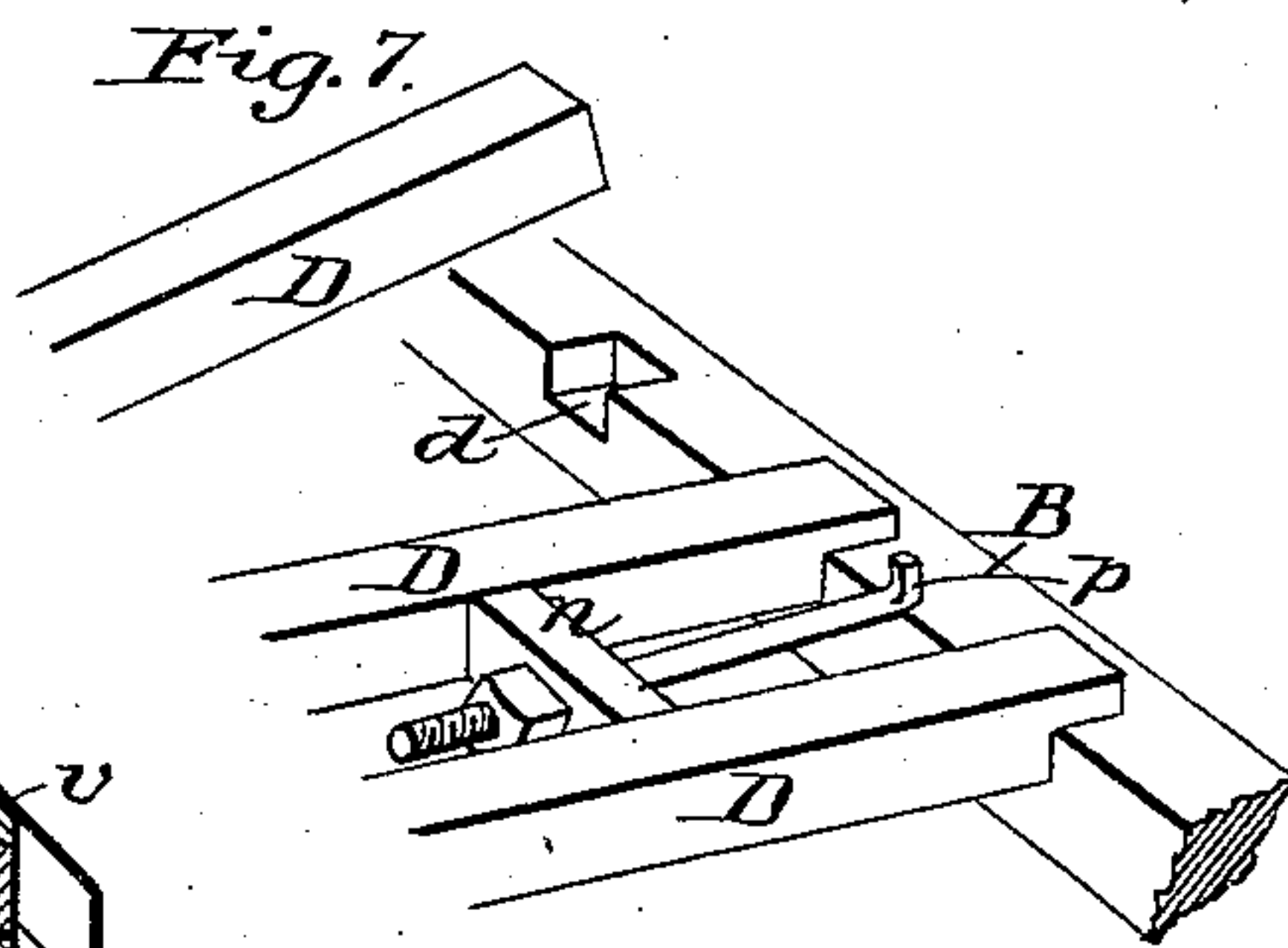
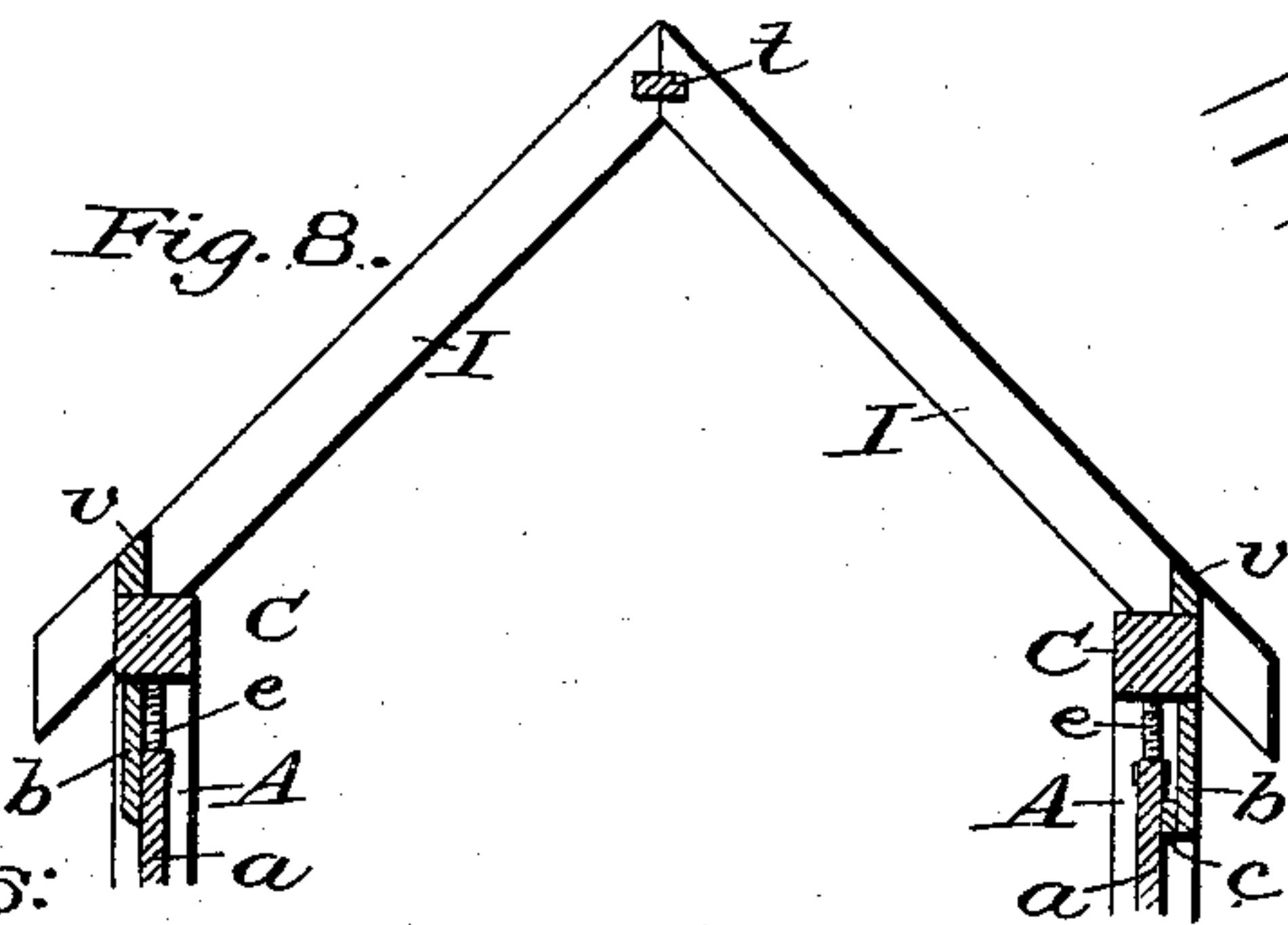


Fig. 8.



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# UNITED STATES PATENT OFFICE.

THOMAS ROSABOOM CARSKADON, OF KEYSER, WEST VIRGINIA.

## PORTABLE BUILDING.

SPECIFICATION forming part of Letters Patent No. 324,456, dated August 18, 1885.

Application filed May 2, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS R. CARSKADON, of Keyser, in the county of Mineral and State of West Virginia, have invented certain new and useful Improvements in Portable Buildings, &c., of which the following is a specification.

My invention relates to the construction of buildings or similar structures made of wood; and the invention consists in a novel manner of framing and uniting the parts, whereby the whole can be put up, taken down, removed, and again put up without the use of nails and without destroying or injuring any of the parts, and at the same time render the building tighter than when constructed in the ordinary manner, as hereinafter more fully set forth.

Figure 1 is a perspective view of a two-story dwelling built on my plan. Fig. 2 is a transverse section of the same. Figs. 3, 4, 5, 6, 7, and 8 are views showing details of construction and modifications of the same.

The primary object of this invention is to construct portable buildings so the same may be manufactured and shipped ready to set up wherever desired, and to so construct them that they can be readily taken down, removed, and be set up again whenever and wherever desired.

To accomplish these objects, I first make a frame of any desired size and form, which frame consists of the ground-sills B and plates C at the top, united by corner posts, A, and intermediate posts or studs, *r*, as shown in Figs. 1, 2, 4, 5, and 6, and, when necessary, there are cross-timbers P, which are secured to the side timbers by dovetail joints, as shown in Fig. 3. All the upright posts and studs A and *r* are provided with vertical grooves *l*, as shown more clearly in Figs. 4, 5, and 6, said grooves being either cut in the solid wood or formed by the addition of narrow strips spiked or otherwise securely fastened thereto.

To form the walls of the building, I take ordinary inch-boards and cut them into lengths corresponding to the width of the spaces between the uprights, so that when in place their ends will rest in the grooves *l* in the adjoining faces thereof, *a* representing the pieces of boards thus inserted, there being a space left

at the top, where one wall of the groove is cut away of sufficient height to permit the pieces *a* to be inserted, as shown in Fig. 6. At the points where doors or windows are to be located the studs or uprights *r* are set the proper distance apart to receive the doors and the window-sash without any other frame except the necessary cross-pieces, *u*, at top and bottom, as shown in Fig. 1, the bottom piece being made to project more or less, so as to form a suitable sill. If the windows are to be hinged, suitable strips to form stops will be secured to the studs *r*, and if sliding sash be used two strips will be used on opposite sides of the sash, the inner strips being fastened with screws so as to be removed and replaced when necessary, both plans being shown in Fig. 2. Separate door and window frames may be used, if desired, as shown in Fig. 4.

The floor-joists D are set in gains cut in the sills B, as shown in Fig. 7, and if the building be of such a size as to have several rooms, the joists which come in line with the partitions will preferably be attached to the sills by a dovetail joint, as shown in Fig. 3, to prevent any spreading of the frame.

Having built up the walls by the insertion of the boards *a*, as previously described, to near the plates C at the top, there being a space of six inches (more or less) left all around between the top edge of the walls and the plates C, as shown more clearly in Figs. 4 and 6, I then place upon the top edges of the wall at suitable intervals a series of screw-bolts, *e*, each carrying a nut or nut and washer, as shown in Figs. 1, 2, 4, 5, 6, and 8, the upper end of these bolts projecting upward into or through holes in the plates C, so that by turning up the nuts on said bolts until they bear against the under side of the plates the bolts are forced downward with any degree of pressure required, thereby pressing the entire series of boards composing the side walls tightly together, completely closing all the cracks or joints between them, and thus making a very tight wall. This arrangement also enables the walls to be compressed at any time to compensate for shrinkage, the nuts being accessible from the inside, so they can be turned up or down, as circumstances may require. The space at the top of the walls is closed by a sep-



arate piece, *b*, applied from the outside, as shown in Figs. 1, 2, and 8. It may be a plain piece of board, as shown at left-hand side of Fig. 8, or it may have a strip, *c*, secured to its lower inner edge, as shown at the right-hand side. The plan which I prefer, however, is to use thinner material for this purpose, cut a little longer than the space between the outer face of the uprights, so that by springing or bending it a little its ends can be inserted into grooves which are set the thickness of the piece *b* outside of the main grooves, as represented in Figs. 1 and 2, screws being inserted when desired or found necessary to hold the lower edges of these pieces *b* tight against the side walls or boards, *a*.

The floors will be composed of boards either tongued and grooved in the usual manner or not, according to the style and costliness of the building, and in order to keep the joints closed tight and to enable them to be pressed together as they shrink, I use a series of draw-bolts, *p*, one end of which is flattened and bent at a right angle, so as to hook over the edge of the outer boards, as shown in Figs. 2, 7, and 8, their opposite ends passing through a cross-piece, *n*, secured between two adjoining floor-joists, *D*, and having a nut on them, so that by turning these nuts the floor-boards can be drawn or pressed together as tightly as may be required. The same result may be accomplished by the use of a rod extending from side to side under the floor, with a swivel or screw-link, *q*, as shown in Fig. 2, (at the second floor,) for tightening it. To cover the ends of these draw-bolts and make a neat finish inside, I provide a strip, *y*, as shown in Fig. 2, which is cut into proper lengths to fit in between the uprights, thus forming what may be termed a "wash-board," and which may be secured in place by screws. A beveled strip, *n'*, to form a water-table at the bottom of the walls around the outside is also provided and inserted, as shown in Figs. 1 and 2, before the wall-boards *a* are inserted.

In order to provide for ceilings wherever required, the cross-timbers *P* have grooves *t'* formed in their sides, as shown in Fig. 3, so that boards can be fitted therein the same as in the side walls, and may be clamped or pressed together by rods, as before described, if desired. The ceiling next to the roof rests upon the plates *C*, which, as shown in Fig. 2, have a rabbet formed along their upper inner edges for that purpose.

To hold and lock the rafters securely in place, they are provided with a notch or gain in their abutting-faces at the top, in which I fit a notched strip, *t*, as shown in Figs. 1 and 2, and where they rest on the plates *C* they have a notch cut in the usual manner to permit them to have a fair, firm bearing on the plate, and also have a notch, *t'*, cut in one side to receive the end of a vertically-projecting strip, *v*, formed on or secured firmly to the upper edge of the plate *C*, as shown also in

Figs. 1 and 2. By these means the rafters are all locked together and to the plates *C*, and, when desired, they may be further fastened by means of screws or bolts. The end rafters, and also those over the partitions, are grooved on their under sides to receive and hold the boards which form the gable walls of the building and those over the partition-walls of the attic, in case these latter be desired, as represented in Fig. 1, the gable-walls being further strengthened or supported by strips of plank or pieces of joists *w*, preferably arranged, as shown in Fig. 2, so as to form a sort of truss or braces.

It will of course be understood that partitions may be located wherever desired, according to the size of the building, it only being necessary to properly locate the required cross-timbers *P* and form the necessary grooves in them to receive the ends of the boards forming the partitions.

This plan of constructing buildings, while especially adapted for portable buildings, is also well adapted for other structures—such as ice-houses, silos, and the like—and in Fig. 5 I have shown a silo constructed on this plan, with its walls made double to more effectually exclude the air. In such a structure the inner walls will preferably be made of plank, as they are necessarily subjected to great pressure, and instead of being cut into short pieces they are left of full length, with their ends resting against the inner face of the posts *A*, which are rabbeted to receive them, while the boards *m*, which compose the outer walls, have their ends held in grooves *l* in the posts, as shown clearly in Fig. 5, the posts *A* in such case of course being of the proper diameter to afford the required space between the inner and outer walls; or, if more space be required, duplicate sets of posts may be used. In this case the intermediate uprights, *o'*, are not grooved, but should be of such a thickness as to fill the space between the inner and outer walls, in order to hold the inner walls in place and prevent them from being forced outward by the pressure. The hollow walls thus formed may be filled in with any suitable non-conducting material, and thus a silo may be built entirely above ground, instead of digging a pit for it, as is the usual custom.

One great advantage of this plan for silos and ice-houses is that walls can be built up from time to time by the addition of one plank or board as the material is put in, and in like manner they may be successively removed as the material is taken out, thus avoiding the labor necessary to lift the material all over or to near the top of the wall both in filling and emptying the structure.

It will be observed that by constructing buildings on this plan the use of nails and spikes is dispensed with, and that as the walls, floors, and partitions are all held in place by the grooved timbers of the frame and screw-bolts and screws, the parts all being fitted so



as to go together without any cutting, fitting, or nailing, they can be transported, set up, taken down, removed and set up again without splitting, breaking, or otherwise injuring or destroying the lumber.

For cheap houses, ordinary rough boards may be used, the screw-bolts enabling them to be pressed together so tightly as to exclude rain, dust, or wind. If, however, their edges are irregular, they should be jointed or straightened before being used. It is obvious, however, that where it is desired to erect a more pretentious structure the lumber will all be dressed both on the exterior and interior of the building, and, if desired, may be painted before it is shipped. By selecting the proper kinds of wood and dressing it in well-known styles it may be made highly ornamental also.

Instead of having the boards *a*, which compose the outer walls, of uniform thickness, as shown, they may be worked so as to be of varying thicknesses, and, if desired, they may be so prepared that the upper edge of each may fit into a groove or a recess formed in the lower edge of the one next above, these being well-known plans of preparing siding for buildings, and therefore not necessary to further describe or illustrate.

Having thus described my invention, what I claim is—

1. In combination with the boards *a*, held in place by the grooved posts or uprights, as set forth, the screw-bolts *e*, arranged to operate upon the boards *a* and press them together, substantially as and for the purpose set forth.

2. In a portable building, the combination of the rafters *I*, provided with notches, as shown, the notched strip *t*, and the vertically-arranged projections *v* on the plate *C*, all being constructed and arranged substantially as set forth.

3. In combination with the floor-boards of a portable building, the draw-bolts *p* or equivalent screw-rods for pressing the boards composing the floor tightly together, substantially as shown and described.

4. The combination, in a portable building, of the grooved vertical posts, the transverse boards *a*, having their ends resting in the grooves of the posts, the screw-bolts *e*, arranged to press upon the upper edge of the boards, and the external boards or pieces *b* to cover the open space occupied by the screw-bolts, all constructed and arranged substantially as shown and described.

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