APPENDIX B
BUILDING PLANS

This appendix presents plans for army buildings issued by the War Department (all full size, unless otherwise stated, but some reassembled to fit the pages), in the following order:

1820, Plan of Cantonment Missouri (from reduced-size copy in author's collection of original in National Archives)

1860 (from Barracks Regulations 1860), as follows:

Barracks

Guardhouse

1862 (from QMConFile--Barracks, New Jersey, RG92), as follows:

Plan for New Jersey Barracks

New Jersey Barracks as Built

1864 (From QMConFile--Barracks, Plans for, RG92), as follows:

Barracks for One Company

Barracks Ventilation (note the detail on bunks and shelving)

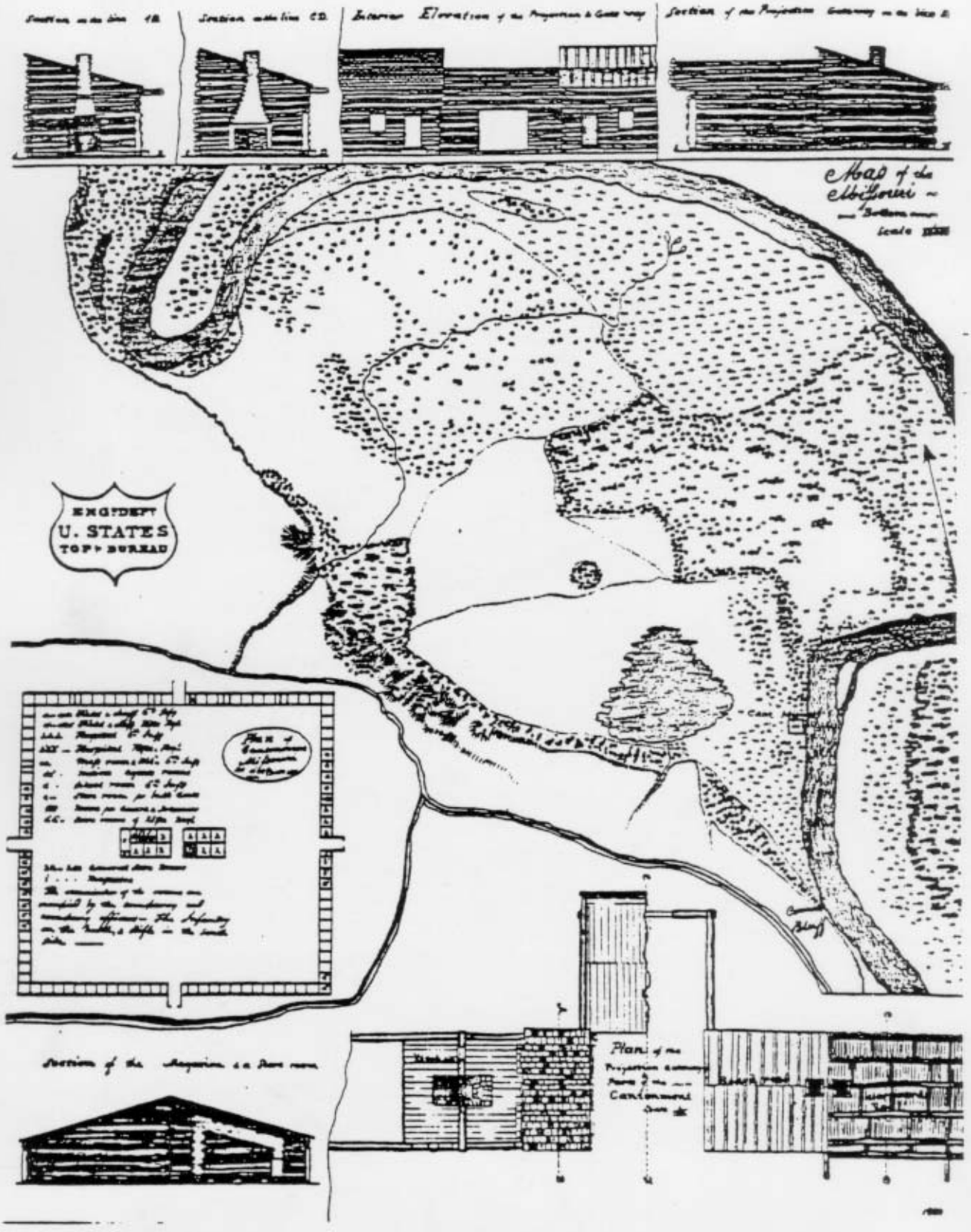
1864, Hospital Dry Latrine (from QMConFile--Hospitals, accompanying report dated July 18, 1864, RG92)

1872, Suggested Standard Plans for Construction at Temporary Posts in the West (from ARQMG 1872), as follows:

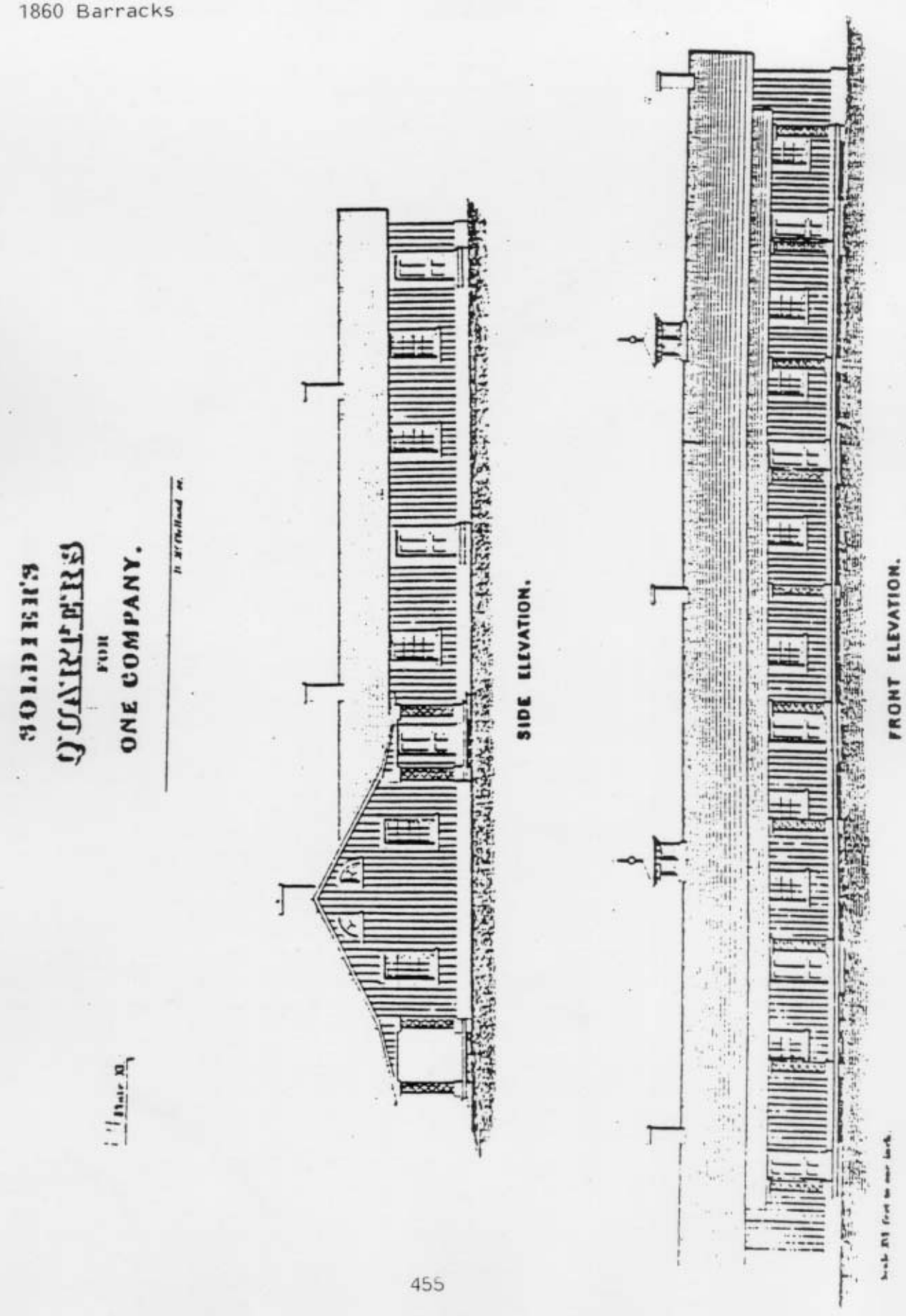
Barracks

Guardhouse

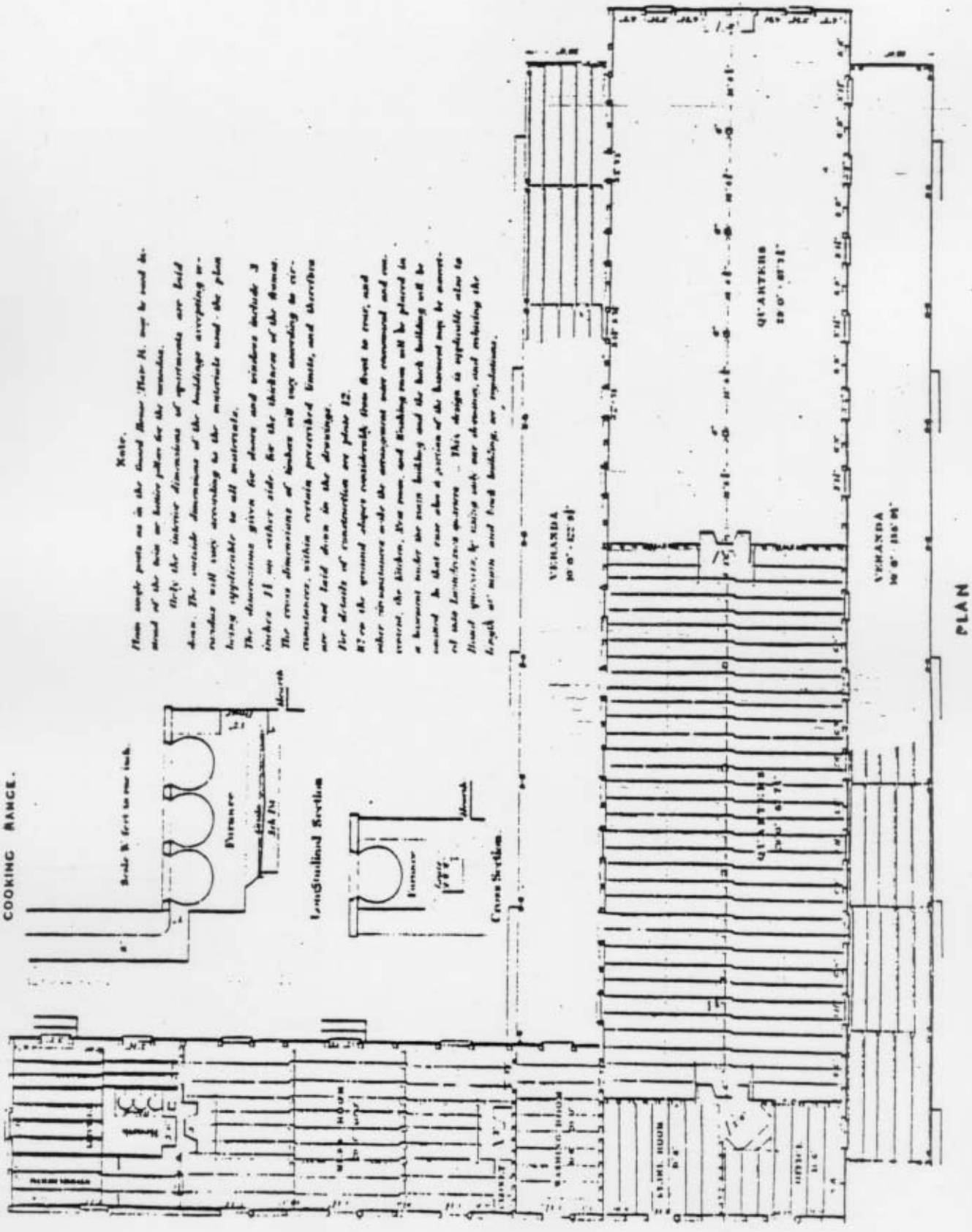
1820, Plan of Cantonment Missouri



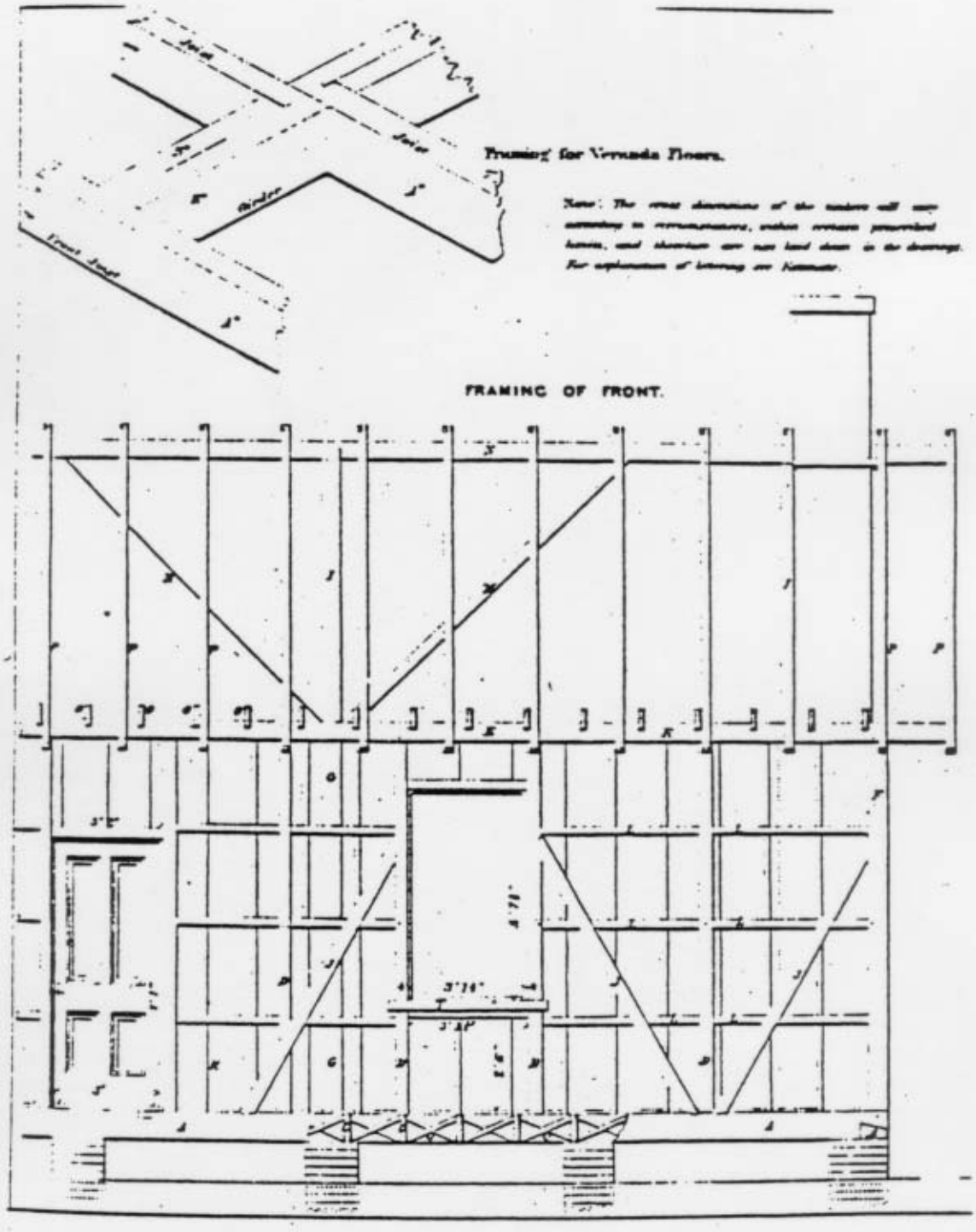
1860 Barracks

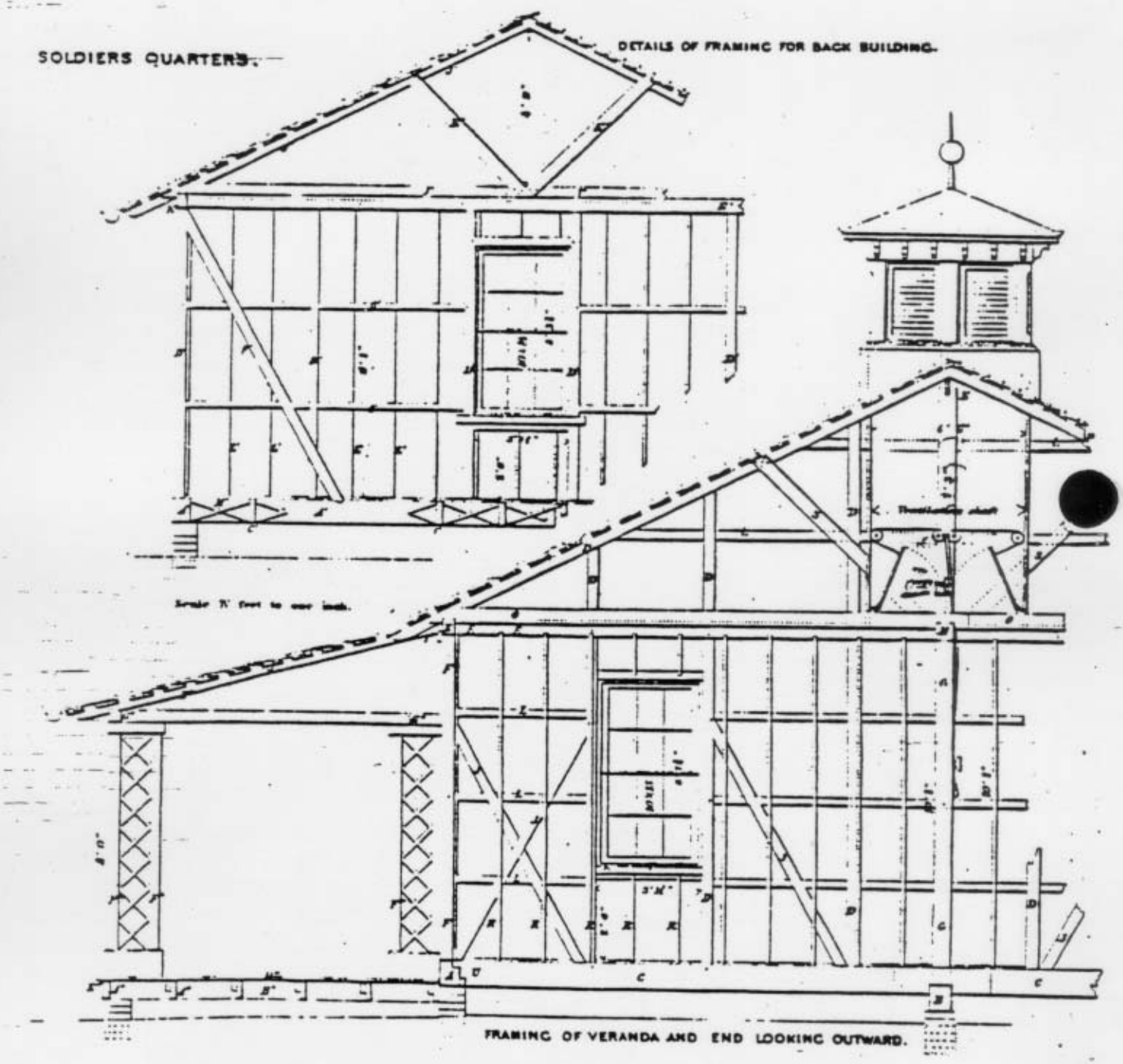


1860, Barracks

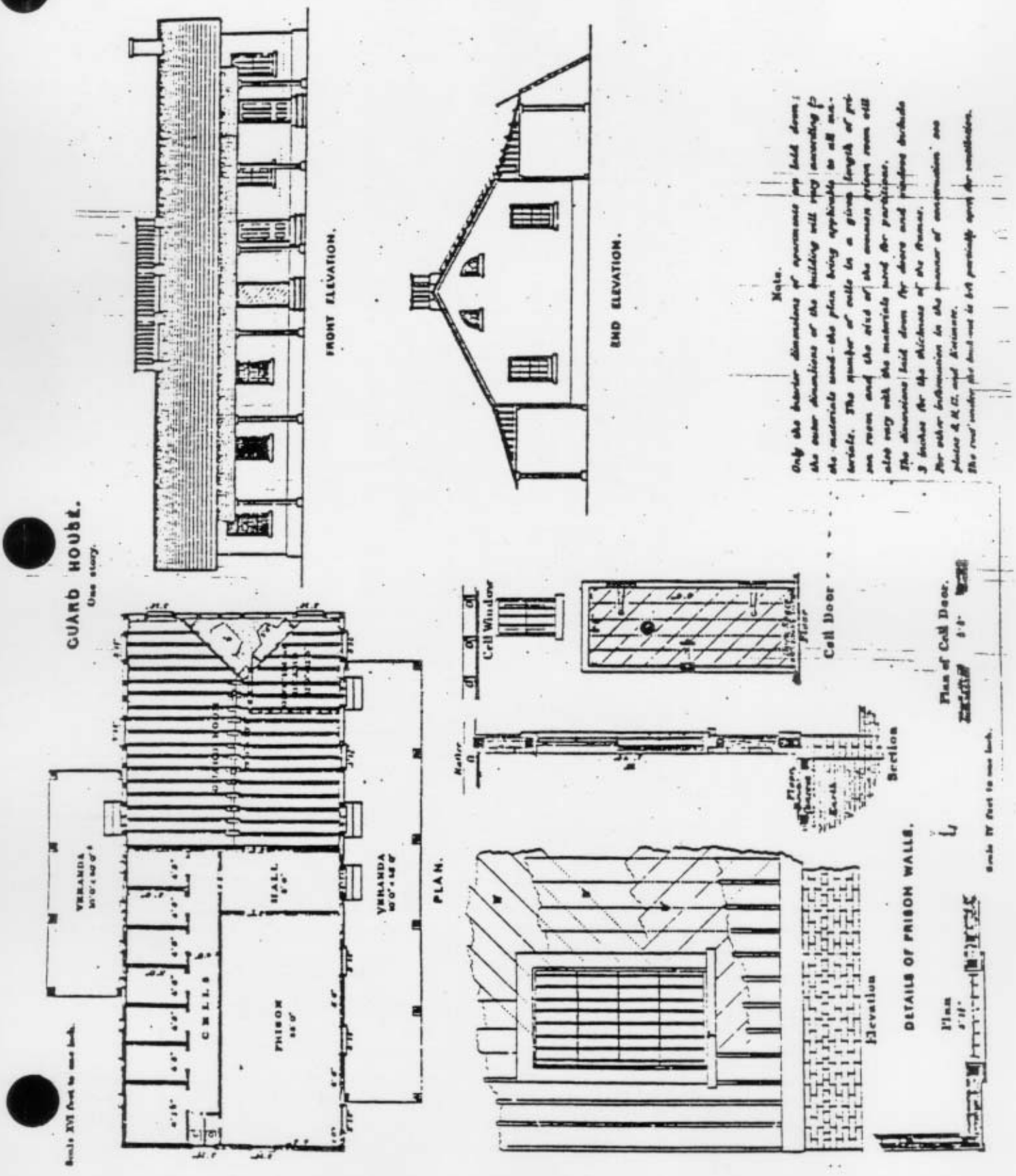


1860, Barracks

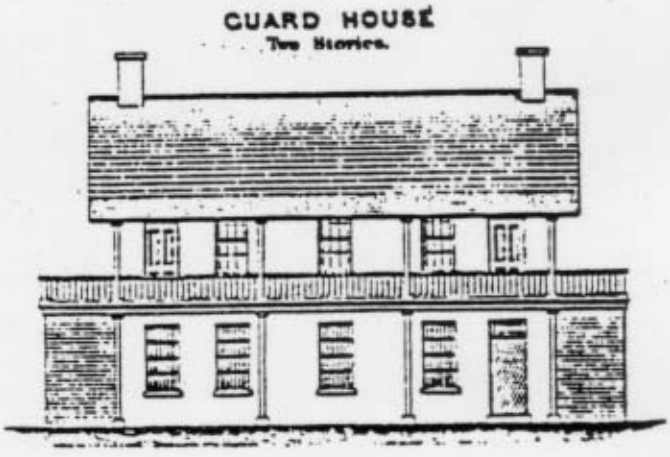


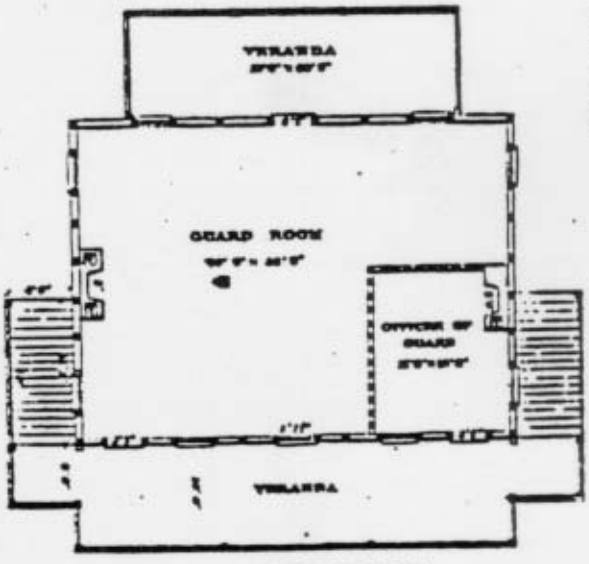

SOLDIERS QUARTERS.
DETAILS OF FRAMING FOR BACK BUILDING.
FRAMING OF VERANDA AND END LOOKING OUTWARD.

1860, Guardhouse

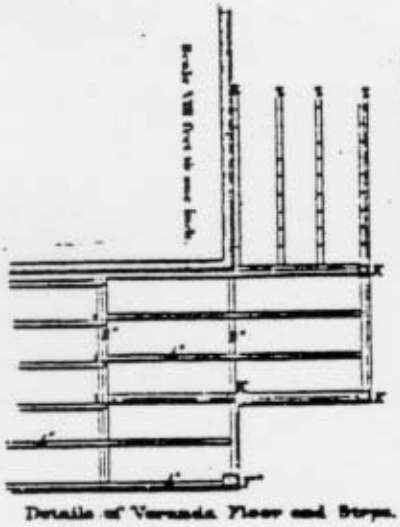


1860, Guardhouse



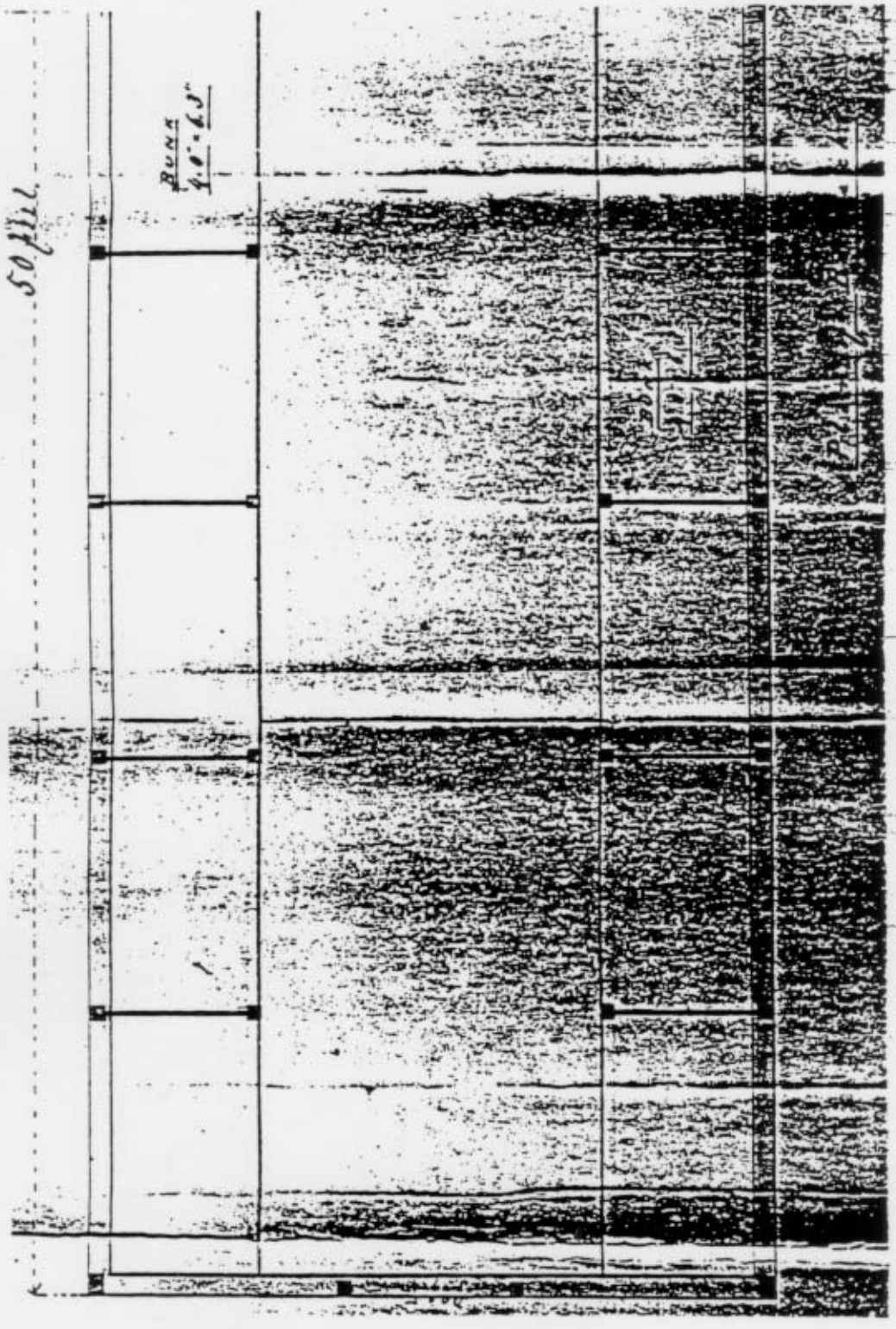


PLAN OF SECOND FLOOR

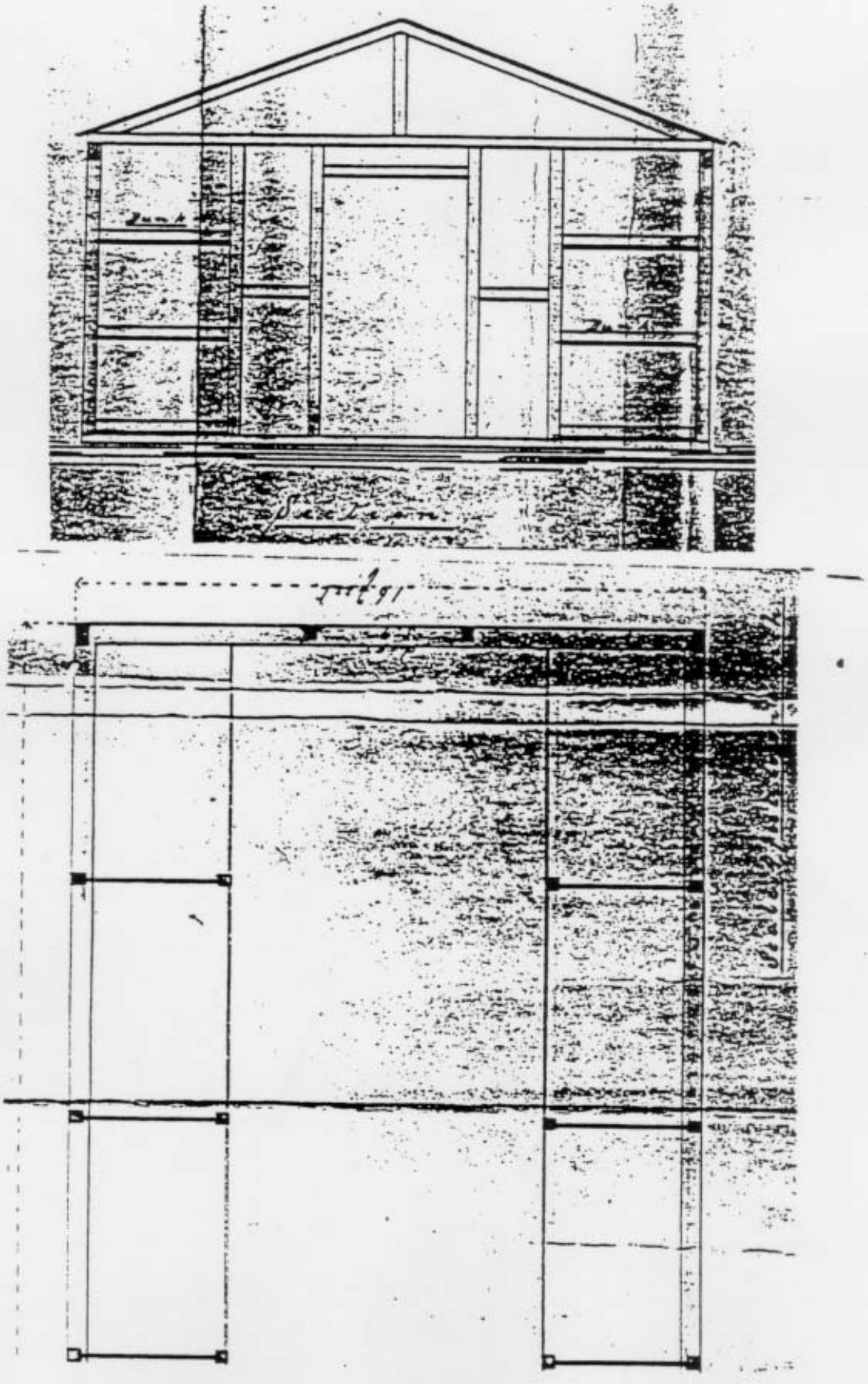


Details of Veranda Floor and Steps.

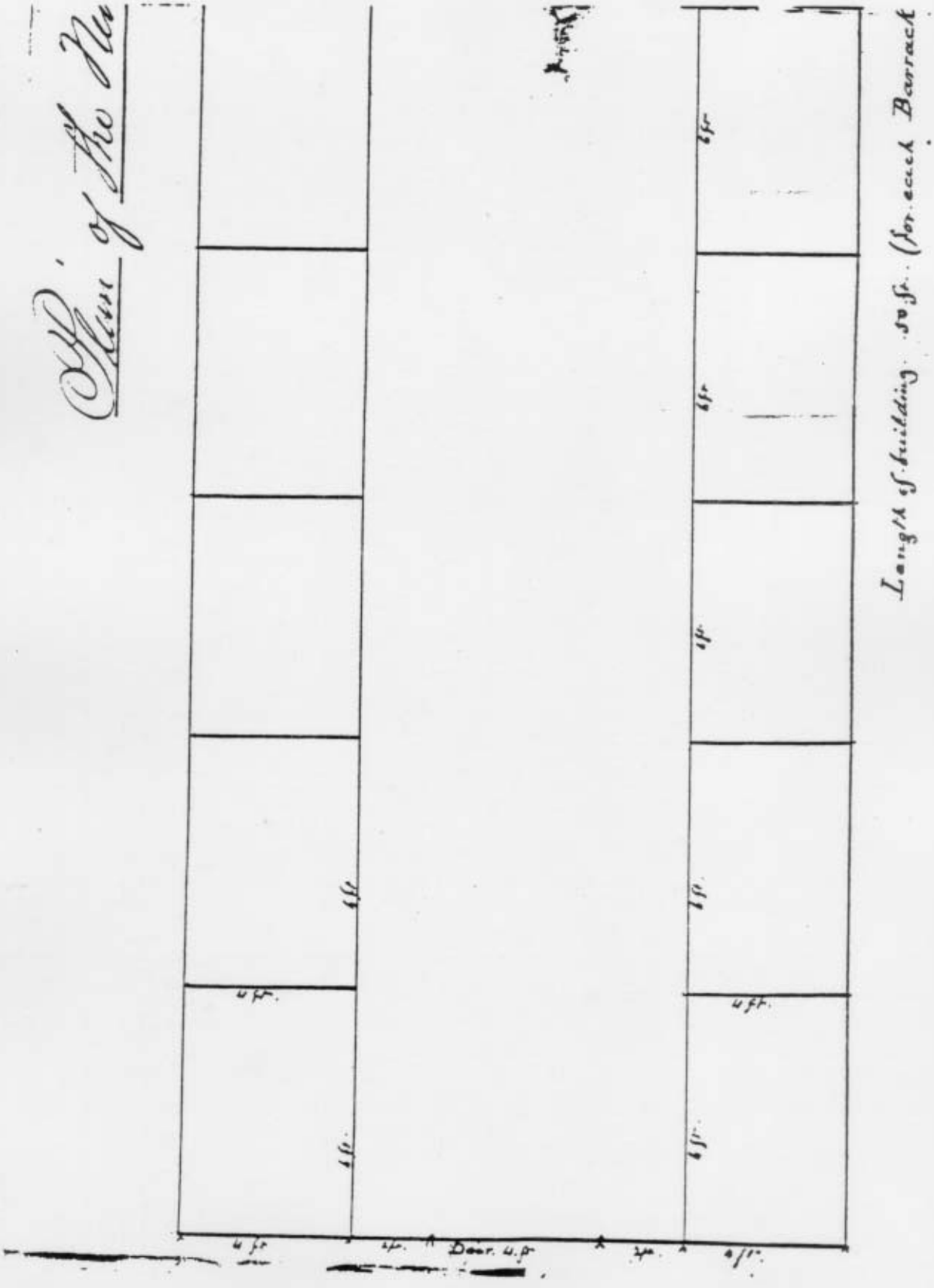
1862, New Jersey Barracks Plan--Front End



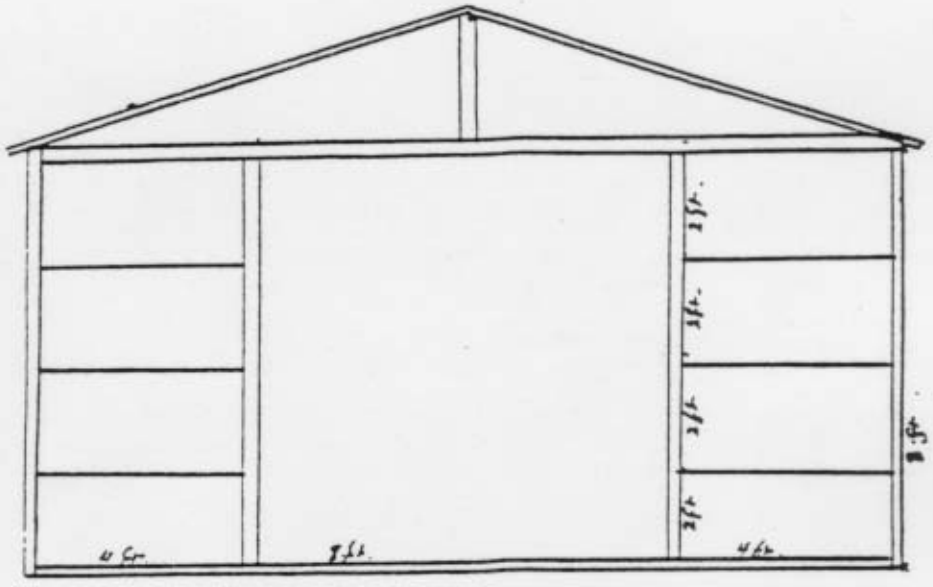
1862, New Jersey Barracks Plan--Rear End and Section

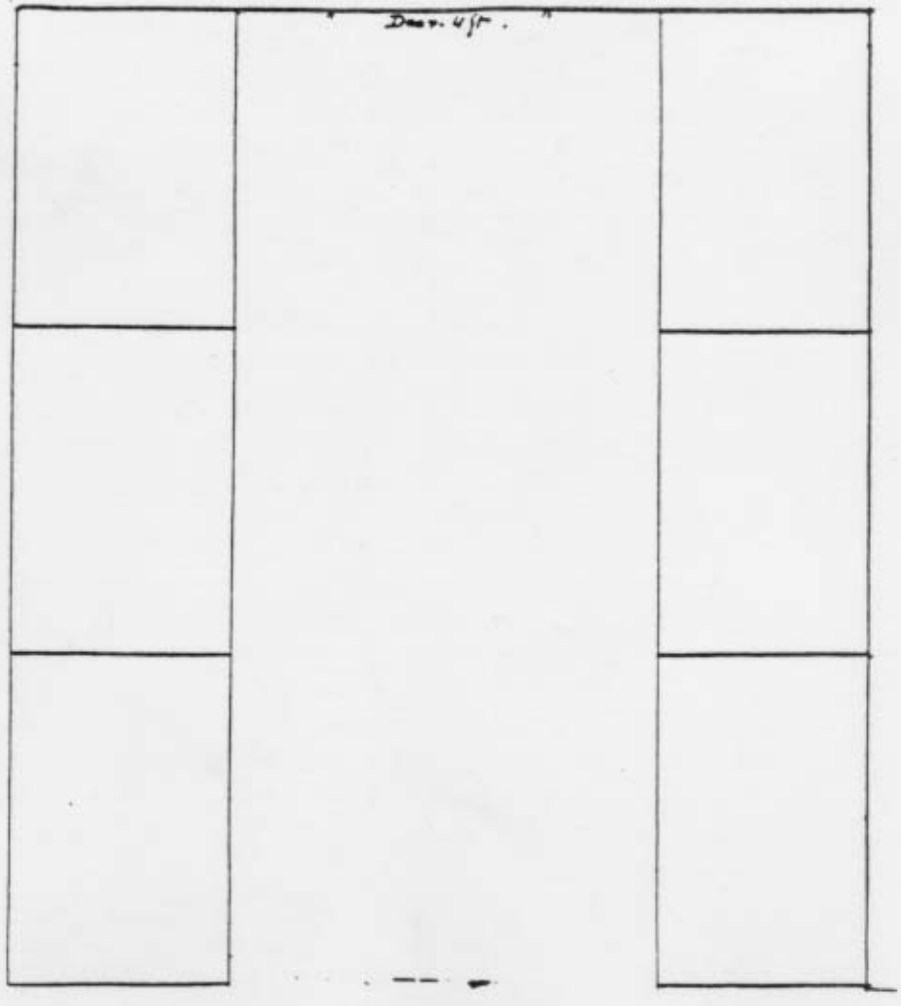


1862, New Jersey Barracks As Built--Front End (note on rear of drawing says "Extreme width 16 feet")

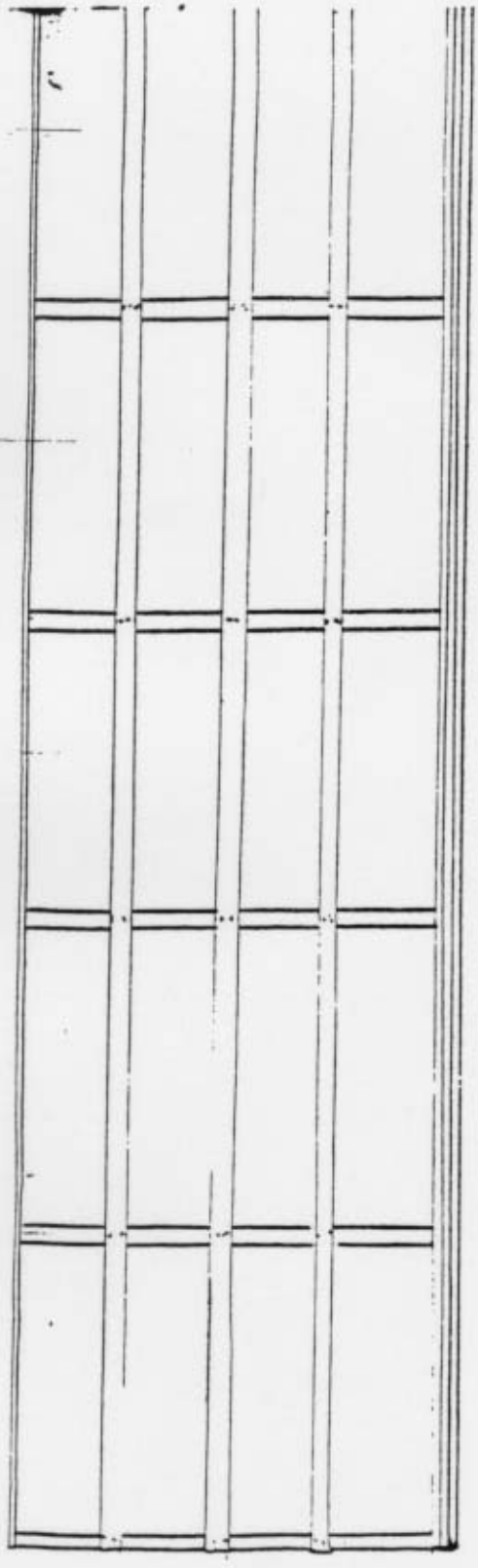


1862, New Jersey Barracks As Built--Rear End and Section

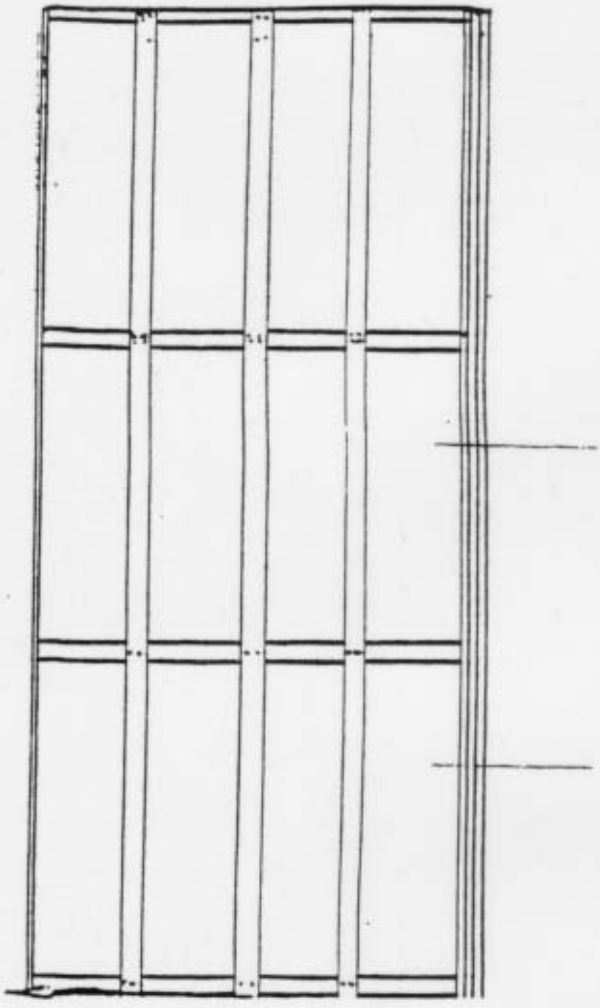




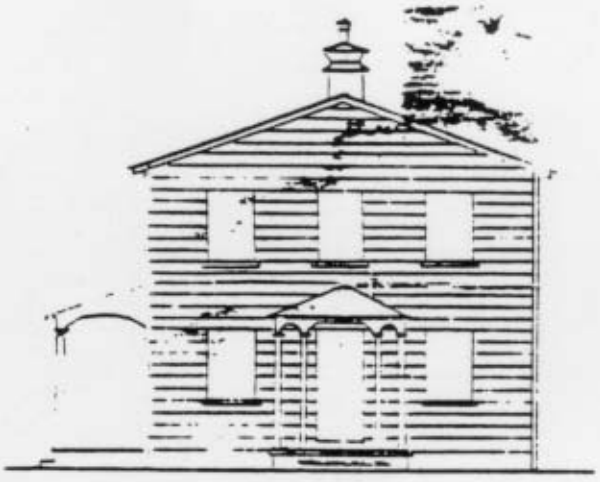
1862, New Jersey Barracks As Built--Front and Rear Sections



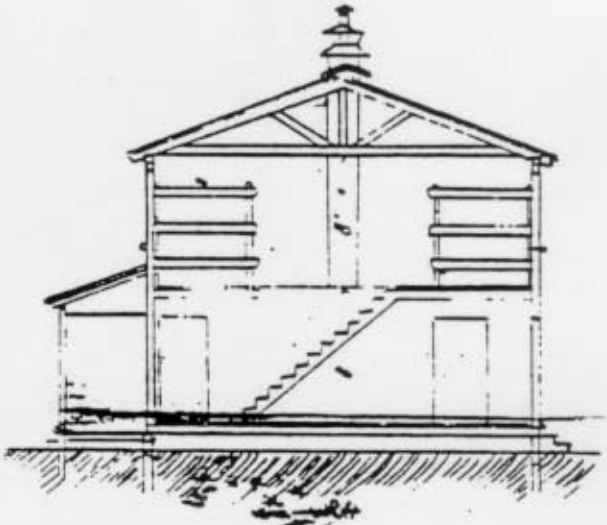
Longitudinal Section of Barracks



QUARTERMASTER GENERAL'S OFFICE
WASHINGTON D.C. APRIL 13th 1864.



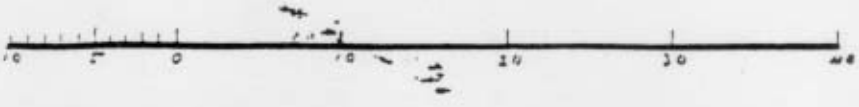
End Elevation

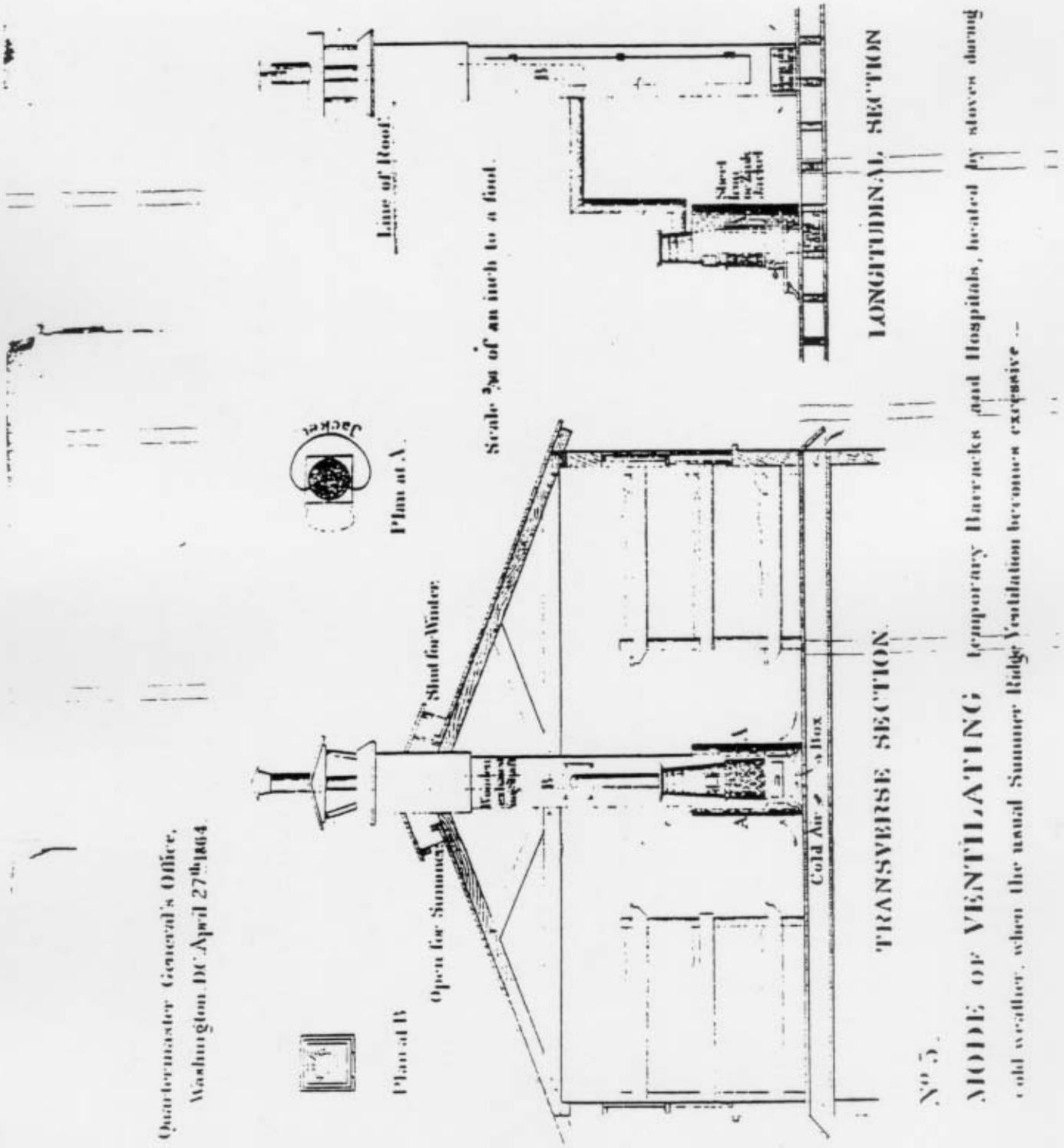


Section

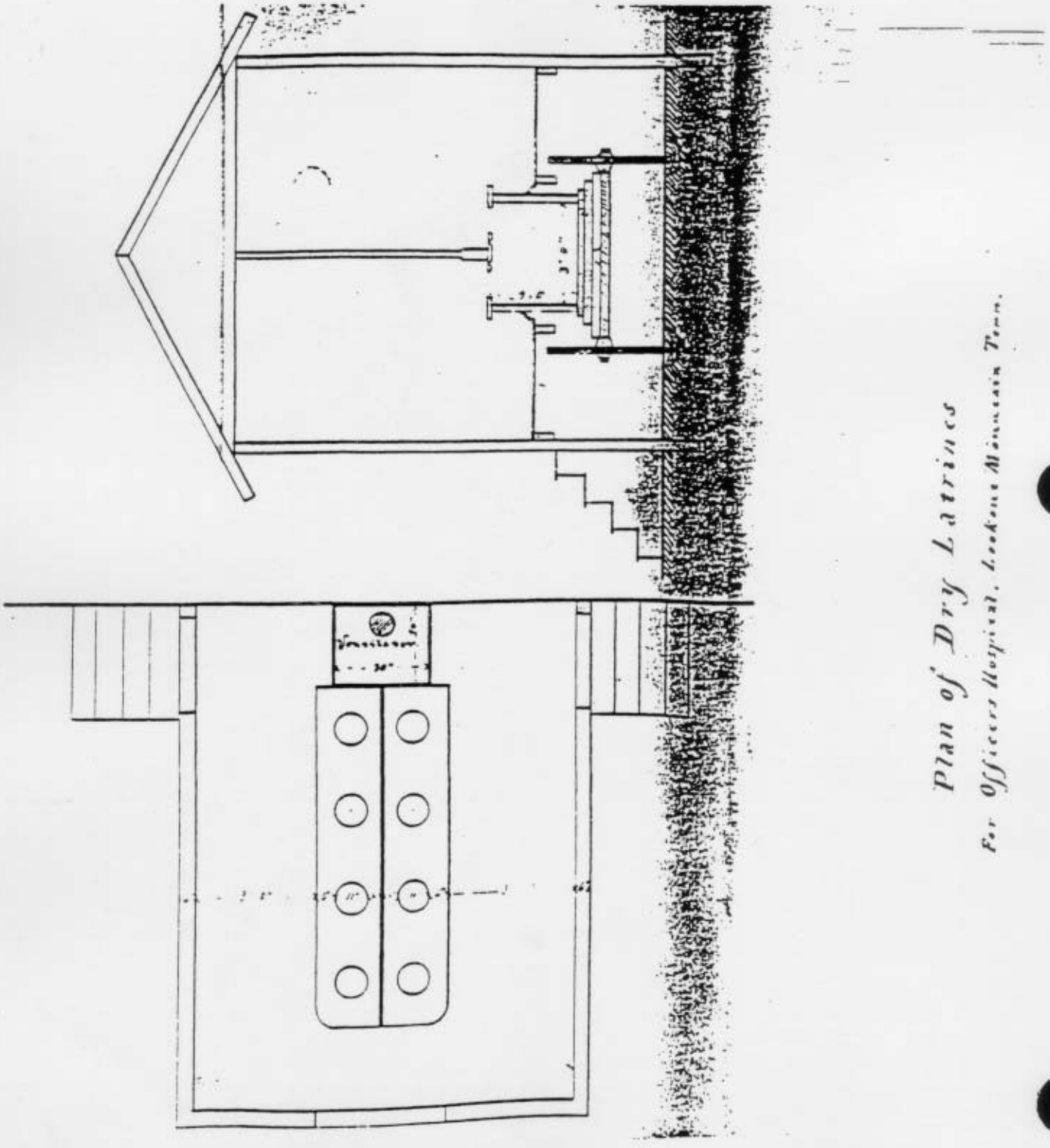
BARRACKS
FOR
ONE COMPANY

Note - Where Shingles are used, the Roofs should have more slope.

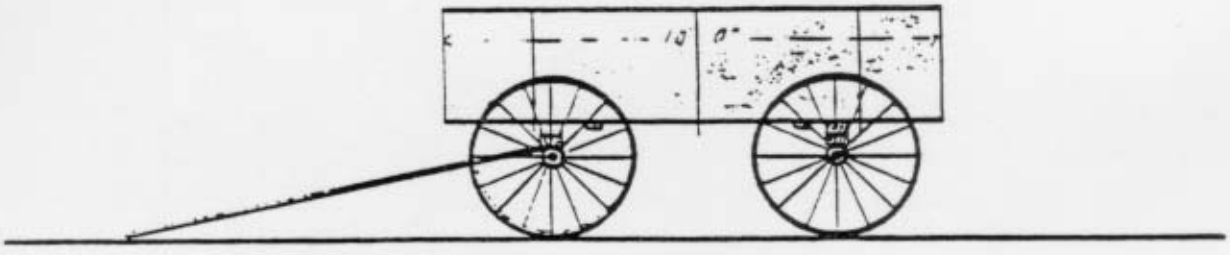



Quartermaster General's Office,
Washington DC April 27th 1864
Plan at B
Open for Summer
Shed for Winter
Plan at A
Jacket
Scale 3/16 of an inch to a foot.
Line of Roof
TRANSVERSE SECTION
LONGITUDINAL SECTION
No. 5.
MODE OF VENTILATING temporary Barracks and Hospitals, heated by stoves during
cold weather, when the usual Summer Ridge Ventilation becomes expensive

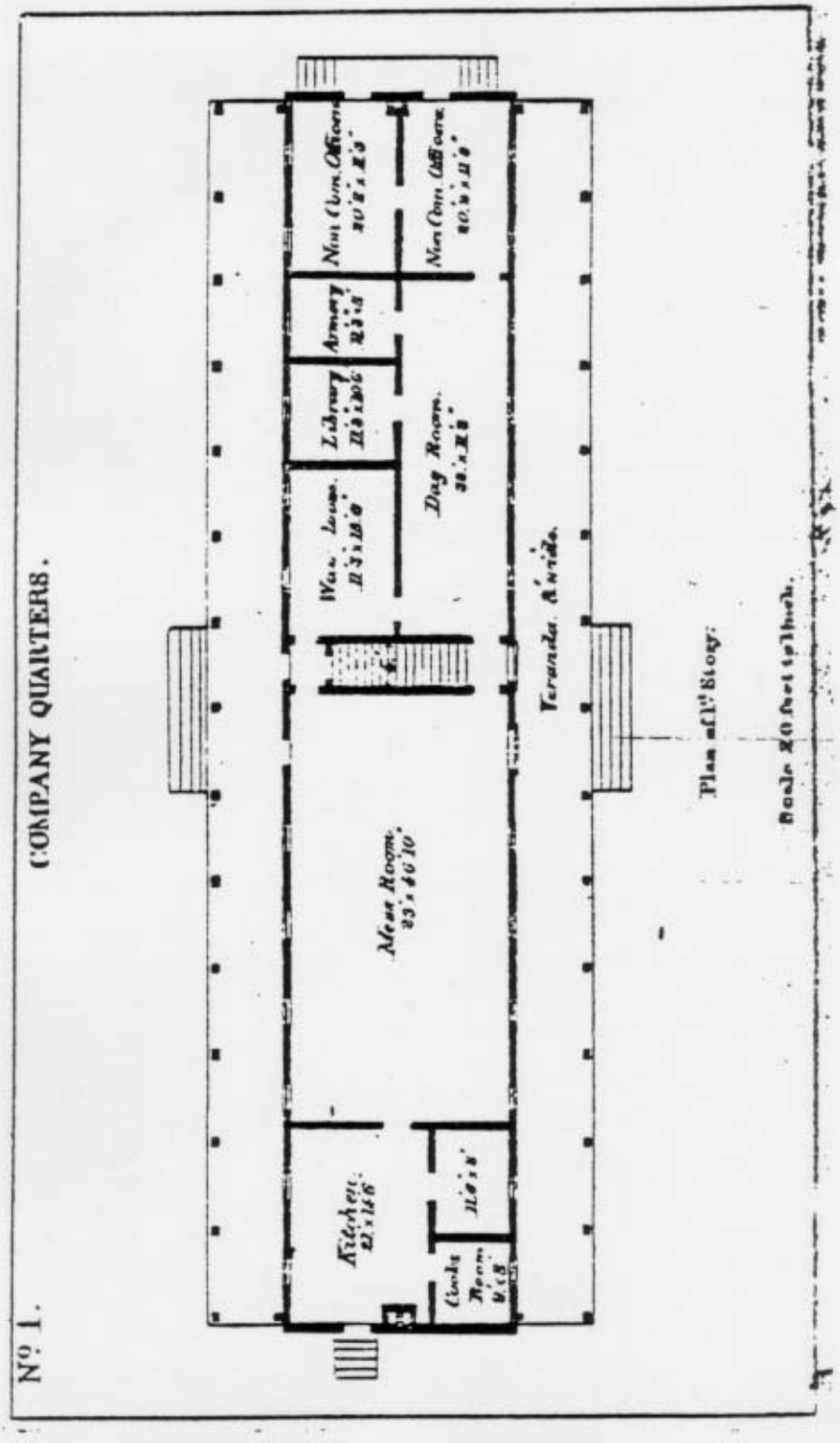
1864, Hospital Dry Latrine (note honey wagon in place)



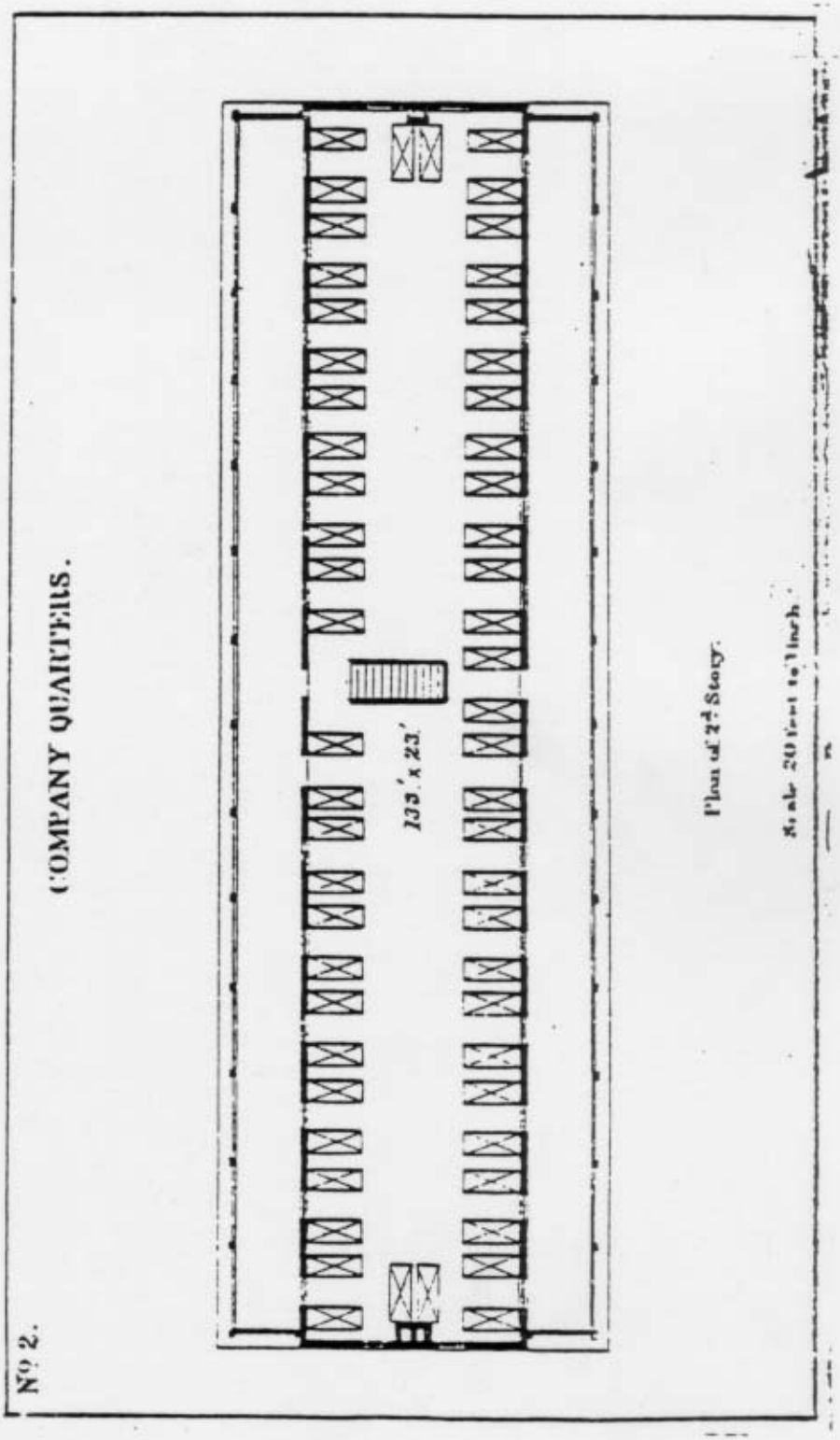
1864, Hospital Dry Latrine--Design of Honey Wagon

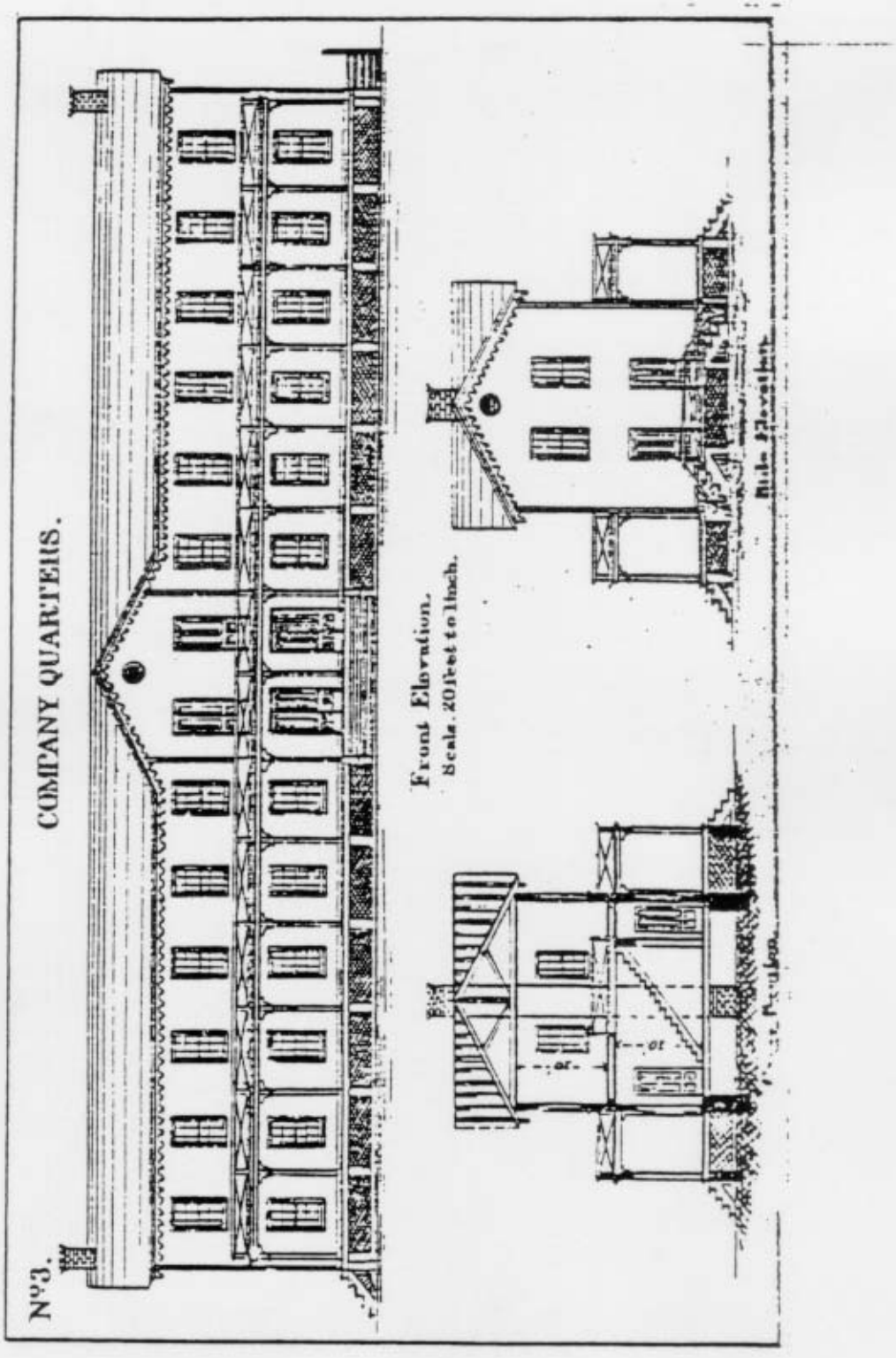


1872, Barracks

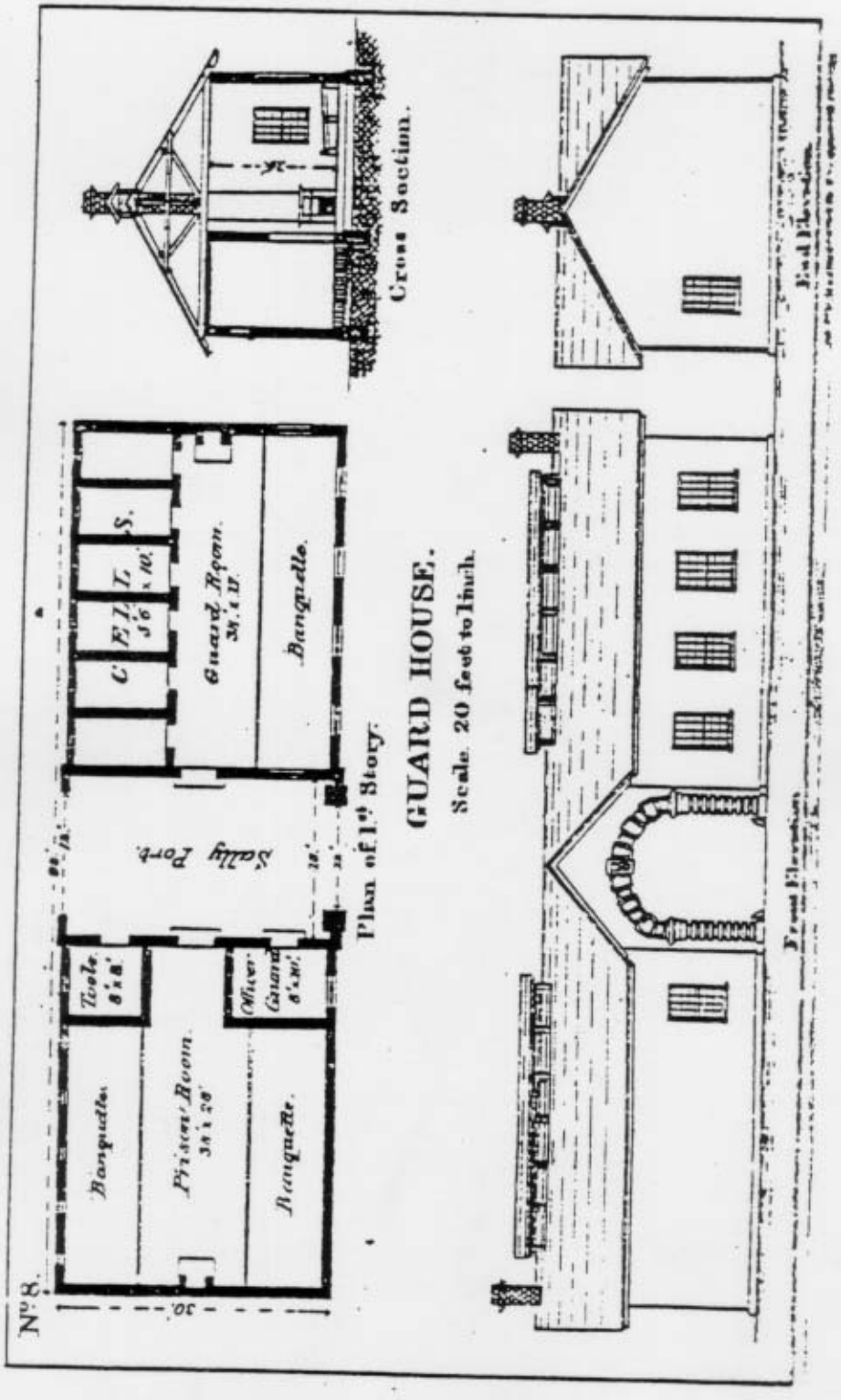


1872, Barracks




No 3.
COMPANY QUARTERS.
Front Elevation.
Scale. 20 feet to 1 Inch.

1872, Guardhouse



APPENDIX C
FIREPLACES AND STOVES

This appendix includes the following, in order:

Comments on the construction of fireplaces and chimneys, with plate (from 1860 building regulations 480 and plate III)

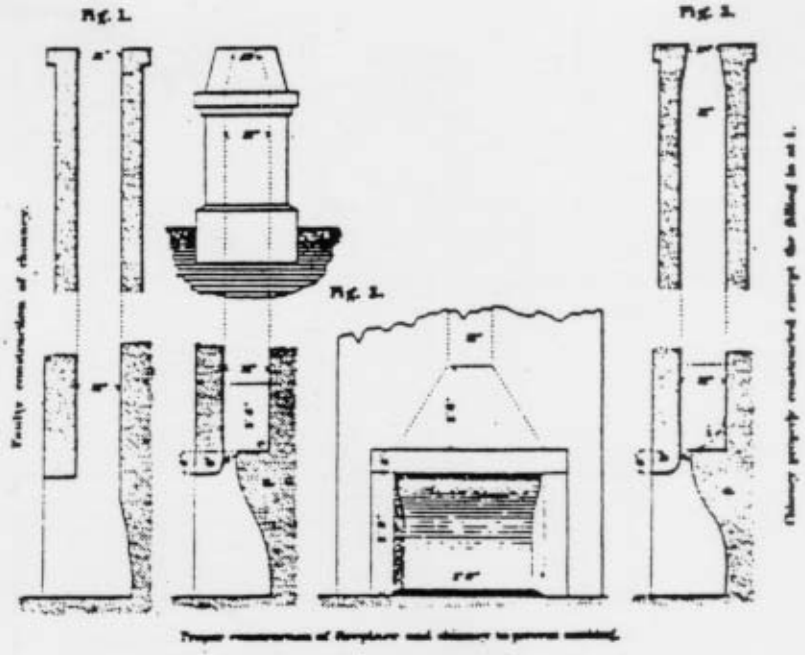
1875, Specifications and Supply Table for Army Stoves and Ranges (ARQMG 1876; drawings are from the 1882 republication, and were taken from the Fort Laramie "Historic Structure Report")

1876, Specifications for Furniture for the Cooking Ranges (from Specifications for Means of Transportation . . . (1882), 111-14)

CONSTRUCTION OF FIREPLACES AND CHIMNEYS, PLATE III.

The *principle* in building chimneys to draw well is to contract both the throat and the top of the flue. The first is effected by inclining the back of the fireplace forward, as at (*a*) figures 2 and 3, plate III, so as to give the throat about 4 inches from front to back. The area of the throat should not be greater than that of the body of the flue: thus, for a flue 12 x 12=144 square inches, the throat should not be greater than 4 x 36=144 square inches. As for the top of the chimney, it should, for exposed and windy situations, be about one third less than the size of the flue: that is, for a flue 12 x 12=144 square inches, the top should be contracted to 96 square inches, about 9¾ x 9¾; but in ordinary situations it is sufficient to make the flue two inches less in diameter immediately at the top than in the body. Besides these conditions, the offset from the throat to the back of the flue should be six inches above the arch or opening of the fireplace, and square, as at (*c*) in figure 2, not filled in or sloping as at (*i*) in figure 3. The inner corner of the arch or breast piece should be rounded, as at (*b*) in figures 2 and 3, not square as in figure 1.

The best flues are round or oval, like that made with the oval mold in Plate I for pisé work. For stone or brick chimneys, the masonry is built around a tin mold 1 or 2 feet long, closed at both ends, with a handle at one end to draw it out. Large fireplaces for wood require flues from 12 to 24 inches in diameter, depending on the height of the chimney, low chimneys requiring the longest. For coal they may be made smaller—from 8 to 10 inches in mean diameter.



CONSTRUCTION OF FIREPLACES AND CHIMNEYS.

F.—Stoves and ranges for Army use.—Specifications, supply-table, &c.

WAR DEPARTMENT, QUARTERMASTER-GENERAL'S OFFICE.
Washington, May 25, 1876.

Under authority of the Secretary of War, who has approved the recommendations of the Board of officers appointed by paragraph 2, Special Orders No. 68, War Department, Adjutant-General's Office, dated April 17, 1875, "to meet at Omaha, Nebraska, on the 15th day of May, 1875, or as soon thereafter as practicable, to draw up and submit for the consideration of the Secretary of War specifications for cooking and heating stoves and ranges for Army use, and to prepare a supply-table, giving the number to be supplied for use of officers and of men in public quarters and barracks;" and who has approved the recommendations made by this office in forwarding the Board's report for his consideration, the subjoined extract from the report of the Board, including the drawings of the stoves and ranges recommended for use, the supply-table, the orders appointing the Board, &c., and the papers (or extracts thereof) referred to in the report, embracing all that is material and necessary to a proper understanding thereof; and also the indorsements of this office, and of the Adjutant-General and Secretary of War, showing the action thereon, are hereby published for the information and guidance of officers of the Army.

M. C. MEIGS,
Quartermaster-General, Bvt. Maj. Gen'l, U. S. A.

(4754 Q. M. G. O., 1875.)

REPORT.

OMAHA, NEB., *November 15, 1875.*

* * * * * * *

After examining a great variety of patterns of heating and cooking stoves and ranges which were presented to the Board by different manufacturers and dealers from various localities, also heating and cooking stoves and ranges which are in use in the city of Omaha, and practically testing different patterns of cooking-ranges at Omaha Barracks—giving due attention to the letters, circulars, and price-lists from manufacturers and dealers, and other sources received by the Board—after mature and careful consideration of the subject submitted to them, in connection with letters from the War Department, (Quartermaster-General's Office,) hereto attached, the Board respectfully recommend stoves and ranges similar to the following:

The heating-stoves and cooking-ranges are distinguished by the following names and numbers:

Army cast-iron wood heater, No. 1.
Army cast-iron wood heater, No. 2.
Army cast-iron wood heater, No. 3.

* * * * * * *

Weight of No. 1, from 600 to 700 pounds; Nos. 2 and 3, from 900 to 1,000 pounds.

The No. 1 is described as follows:

To be made of first-class cast-iron.
Length of stove, 31 inches.
Width of stove, 13 inches.
Height of stove, 21½ inches.
Thickness of side plates, ½ inch.
Thickness of bottom, top, and front plates, ¾ inch.
Height of legs, 3 inches.
Size of door, 9 by 14 inches.
Size of pipe, 5 inches.

[NOTE BY THE QUARTERMASTER-GENERAL'S OFFICE.—The size of the pipe to be 6 inches instead of 5 inches. Recommendation of the Quartermaster-General in submitting report to Secretary of War. Approved by the latter.]

The sides of the stove are formed by three plates of equal dimensions, and the same as the end plate; the longest edges of the side and end plates have a bevel of 45°, which renders any one of them interchangeable with any other, and are fastened at the top and bottom by eight half-inch round iron rods, the top by the knobs of the rods, and the bottom by screws.

The door is held by a loose hinge, the base of which is attached to the front plate by screw-bolts; the hinge being loose, the door can be opened and shut without a movable latch.

The No. 2 is described as follows:

It is the same as the No. 1, with the following exceptions:
Length of stove, 31.9 inches.
Width of stove, 17.2 inches.

Height of stove, 24 inches.
Thickness of iron, ¼ inch.
Thickness of front plate, 1 inch.
Height of legs, 10 inches.
Size of door, 10 by 15 inches.
Size of pipe, 6 inches.

[NOTE BY THE QUARTERMASTER-GENERAL'S OFFICE.—The size of the pipe to be 7 inches instead of 6 inches. Recommendation of the Quartermaster-General in submitting report to Secretary of War. Approved by the latter.]

The No. 3 is described as follows:

It is the same as the No. 2, except that this stove has two doors and two hearths, and all the upright plates are interchangeable, and the stove-pipe hole is in the middle of the stove.

[NOTE BY THE QUARTERMASTER-GENERAL'S OFFICE.—The size of the pipe to be 8 inches instead of 6 inches. Recommendation of the Quartermaster-General in submitting report to the Secretary of War. Approved by the latter.]

For further explanations and details see drawings of Army wood heater, Nos. 1, 2, and 3, marked "I," "K," and "L."

The three wood heating stoves above named are recommended for general use in the Army; they are durable and plain patterns, and the sides and end plates are interchangeable.

Nos. 2 and 3 are especially recommended for heating large rooms. No. 3, with two doors, it is believed possesses the advantage of burning fuel more evenly, and a trial of it is recommended. It is believed that each of the foregoing stoves should last in Army use indefinitely.

Army wrought-iron wood heater, No. 4.
Army wrought-iron wood heater, No. 5.

* * * * * * * *

The No. 5 is described as follows:

To be made of heavy wrought iron.
Length, 4 feet 2 inches.
Width, 1 foot 6½ inches.
Size of door, 12½ by 12½ inches.

The body is made of No. 10 wrought iron, with ribs of 1¼-inch angle-iron riveted to the body, preventing the body from warping or bulging. The bottom is round and holds several inches of ashes, protecting the iron and the floor from heat. The front of the stove, where the door hangs, is made of bar-iron forged, 3 inches wide by ⅜ inch thick. The back end of the stove has three strips of wrought-iron 3 inches wide by ⅜ inch thick, riveted on the outside, so that it is sufficiently strengthened against being struck by wood thrown into the stove. The hearth is made of heavy wrought-iron, and is hooked to the stove by a heavy wrought-iron catch, and it can be unhooked and placed inside the stove when shipped.

The No. 4 is described as follows:

Length, 30 inches.
Width, 12 inches.
Size of door, 9 by 9 inches.
Other description the same as Army wrought-iron wood heater, No. 5.

For further explanations and details see drawings of Army wrought-iron wood heater, Nos. 4 and 5, marked "M" and "N."

The above wrought-iron stoves are recommended to supply posts distant from the seats of manufacture and from the general depots and posts, reached only by long lines of wagon transportation. It is a very strong pattern; it being made of wrought-iron, it has greater capacity than a stove of similar weight made of cast-iron, thereby saving the transportation, and is not as likely to be broken as a cast-iron stove. It can also be repaired at a post by a blacksmith, should it be required. It is believed that each of these wrought-iron stoves should ordinarily last in Army use from five to ten years.

Army cast-iron coal heater, No. 6.
Army cast-iron coal heater, No. 7.

* * * * * * * *

[NOTE BY THE QUARTERMASTER-GENERAL'S OFFICE.—Weight about 275 pounds and 1,600 pounds respectively.]

The No. 6 is described as follows:

Height of stove, 31 inches.
Diameter of stove, 15 inches.
Diameter of stove bottom, 16½ inches.
Diameter of stove top, 16½ inches.

This stove consists of four parts, Nos. 1, 2, 3, and 4. No. 1 is ⅜ inch thick; No. 2, ⅜ inch; No. 3, ¼ inch; and No. 4, ⅜ inch. Diameter of the grate 8 inches, and ⅜ inch thick. Top and bottom, ½ inch thick. The top of the stove is fastened to the bottom

of the stove by three ½-inch thick wrought-iron rods; the top of the rods by the knob of the rods, and the bottom by screws.

The No. 7 is described as follows:

To be manufactured of ½-inch cast iron.

Height of stove, 5 feet 7½ inches.

Diameter of stove, 20 inches.

Height of each cylinder, 13½ inches.

Size of doors, 8 by 10 inches.

Thickness of doors, ½ inch.

Thickness of grate, ½ by ⅝ inch.

Thickness of bottom and top, ½ inch.

Diameter of stove-pipe, 6 inches.

Diameter of grate, 18½ inches.

This stove consists of four cylindrical parts. The cylinders marked Nos. 1 and 3 and Nos. 2 and 4 are interchangeable. The grate is in two parts, (halves,) so that it can be readily removed; it rests on a ½-inch ring or shoulder inside of the stove. The stove is fastened by three ½-inch thick wrought-iron rods, holding the top to the bottom: the top is fastened by the knob of the rods, and the bottom by nuts secured on to the end of the rods.

For further explanations and details, see drawings of Army cast-iron coal heater, Nos. 6 and 7, marked "O" and "P."

The No. 6 is recommended for general use, and the No. 7 is especially recommended for use in barracks and other large rooms in cold climates. They are both adapted for the use of bituminous as well as anthracite coal, and it is believed that each of these stoves should ordinarily last in Army use from five to ten years.

Army parlor heater.

* * * * * *

This stove is described as follows:

To be built of first class cast iron.

Height, 2 feet 7½ inches.

Width outside, 2 feet 2 inches.

Width inside, 15 inches.

Thickness of bottom and top, ½ inch.

Thickness of outside mantel, ½ inch.

Thickness of outside fire-mantel, ½ inch, in fire-brick.

The opening for fuel can be covered by a sheet-iron blower.

This stove is intended to burn anthracite and bituminous coal, and can also be used for wood. It is recommended more especially for officers' use. It is believed that such a stove should ordinarily last in Army use about five years. See accompanying drawing of the above described stove, marked "Q." This is considered by the Board as one among many of the very good patterns of open coal-stoves, and do not consider it necessary to recommend any particular pattern as most suitable to be adopted.

Army cooking range, No. 1.

Army cooking range, No. 2.

* * * * * *

No. 1 with mantel and trimmings.

* * * * * *

No. 2 without mantel and with trimmings.

* * * * * *

The No. 1 range is described as follows:

To be built of first class wrought iron, No. 10, with cast iron top.

Top cooking surface, 2 feet 10 inches by 2 feet 3 inches.

Size of baking-oven, 1 foot 2½ inches by 1 foot 5½ inches.

Size of warming-oven, 1 foot 4 inches by 1 foot 3½ inches.

Size of holes, 8 inches.

Size of galvanized iron water-tank, 40 gallons.

The back side and bottom are double-cased and filled with hydraulic cement.

The top consists of 13 loose pieces, and of 4 pieces fastened by screws to the side of the range.

To prevent smoking, the top rests on the water-tank in a layer of cement.

The covers of the cooking holes are resting in ½-inch grooves.

The grate consists of 6 iron cast pieces.

The sides of the fire-place are protected by ½-inch cast iron plates.

The water-tank is heated on the lower part of the side next to the inside of the range.

The oven doors are lined, to avoid wasting heat.

The different sizes and measure of the range doors, &c., are shown by the drawing.

The No. 2 range is described as follows:

The same as the No. 1 range, with the following exception—

Size of top cooking surface, 3 feet 7 inches by 2 feet 9 inches.

Size of baking oven, 1 foot 4 inches by 1 foot 10½ inches.

Size of warming oven, 1 foot 3 inches by 11½ inches.

Size of cooking holes, 9 inches.

The top consists of 9 loose pieces and 4 pieces fastened by screws to the sides of the range.

The grate consists of 3 iron cast pieces.

The following is a list of the trimmings for these ranges:

Tin trimmings:

- 1 wash-boiler.
- 1 coffee-boiler.
- 1 steamer.
- 1 tea-kettle, (iron or tin.)
- 3 bake-pans.
- 1 pot-cover.

$\frac{1}{16}$-inch cast iron:

- 2 pots.
- 2 skillets.
- 2 griddles.
- 1 iron-heater.

Sheet iron No. 26:

- 3 joints pipe.
- 1 elbow.

For further explanations and details see drawings of Army cooking range, Nos. 1 and 2, marked "1:" and "8."

These ranges are intended for either coal or wood, without alteration.

The No. 2 range has ample capacity for cooking for any company of troops, and is recommended for the use of companies and large hospitals, according to the number of men to be provided for. The No. 1 is recommended for small hospitals, bands, detachments, officers' messes, and for officers with families, when smaller size stoves will not suffice. It is believed that each of these ranges should ordinarily last in Army use from five to ten years.

The Board concur in the opinion of the Quartermaster-General, hereto attached, marked "D," relative to the allowance of stoves: that the maximum allowance of stoves to be purchased by the Quartermaster's Department should not exceed for officers occupying public quarters owned or hired by the United States for the use of troops, a greater number, including heating and cooking, than their allowance of rooms requires, say, for a lieutenant 2, for a captain 3, as a limit, and not these if the rooms have open fire-places, except in very severe climates; for a company of troops a cooking range sufficient to cook its food, two large stoves in the dormitory, one large stove in each mess-room and day-room, and one small stove for each of the two rooms for non-commissioned officers, and one small stove for the library, when there are no open fire-places or they are insufficient in very severe climates. These recommendations, as to the maximum allowance of the number of stoves for a company of troops, are based upon the arrangement and general plans of drawings of military buildings, recommended to the Secretary of War by the Board on Revision of the Army Regulations, published September 14, 1872. As, however, most of the barracks at present occupied by troops are not built in accordance with the drawings referred to, an absolute fixed allowance of stoves, based on those plans of barracks, would not always be applicable. The Board therefore recommend that a proportionate allowance of stoves be supplied in accordance with the foregoing. It is thought by the Board that the recommendations contained herein will meet all necessary requirements for heating stoves and cooking purposes for the Army. The importance of a system being adopted by which the spare parts of stoves and ranges can be obtained on requisition to replace those rendered unserviceable or lost is too evident to require comment. Attention is also called to the fact that the sheet-iron in general use in the Army for stove-pipe is not heavy enough, as it soon rusts and burns out. The Board recommend that, when it is absolutely necessary, each laundress be allowed to purchase a single stove from the Quartermaster's Department at the invoiced price, when the same can be spared.

The accompanying supply-table for fixing the number of stoves for use of officers and men in public quarters and barracks is respectfully submitted. As far as practicable, the Board has been governed by the suggestions contained in letter from Quartermaster-General's Office, herewith, marked "D," and not recommended for adoption the stoves or ranges of any particular manufacturer. The heating stoves, Nos. 1, 2, and 3, differ somewhat from any the board has ever seen. Numbers 4 and 5 are similar to those advertised to be manufactured by Messrs. Van & Co., of Cincinnati, Ohio. Numbers 6 and 7 are similar to those manufactured by the Union Pacific Railroad Company, the No. 7 being somewhat altered. The Army parlor heater is known as the Harvard Stove. The ranges, Nos. 1 and 2, are similar to those manufactured by Messrs. Miller & Co., of Cincinnati, Ohio, the water-tank having been changed on the suggestion of the Board.

There being no further business before it, the Board then adjourned, November 17, 1875, *sine die*.

JEFF. C. DAVIS,
Colonel Twenty-third Infantry, U. S. A.
C. GROVER,
Lieutenant-Colonel Third Cavalry, U. S. A.
ALEX. J. PERRY,
Lieut. Col. and D. Q. M. G., U. S. A.
JAS. S. BRISBIN,
Major Second Cavalry, U. S. A.
E. B. ATWOOD,
Captain and A. Q. M., U. S. A.

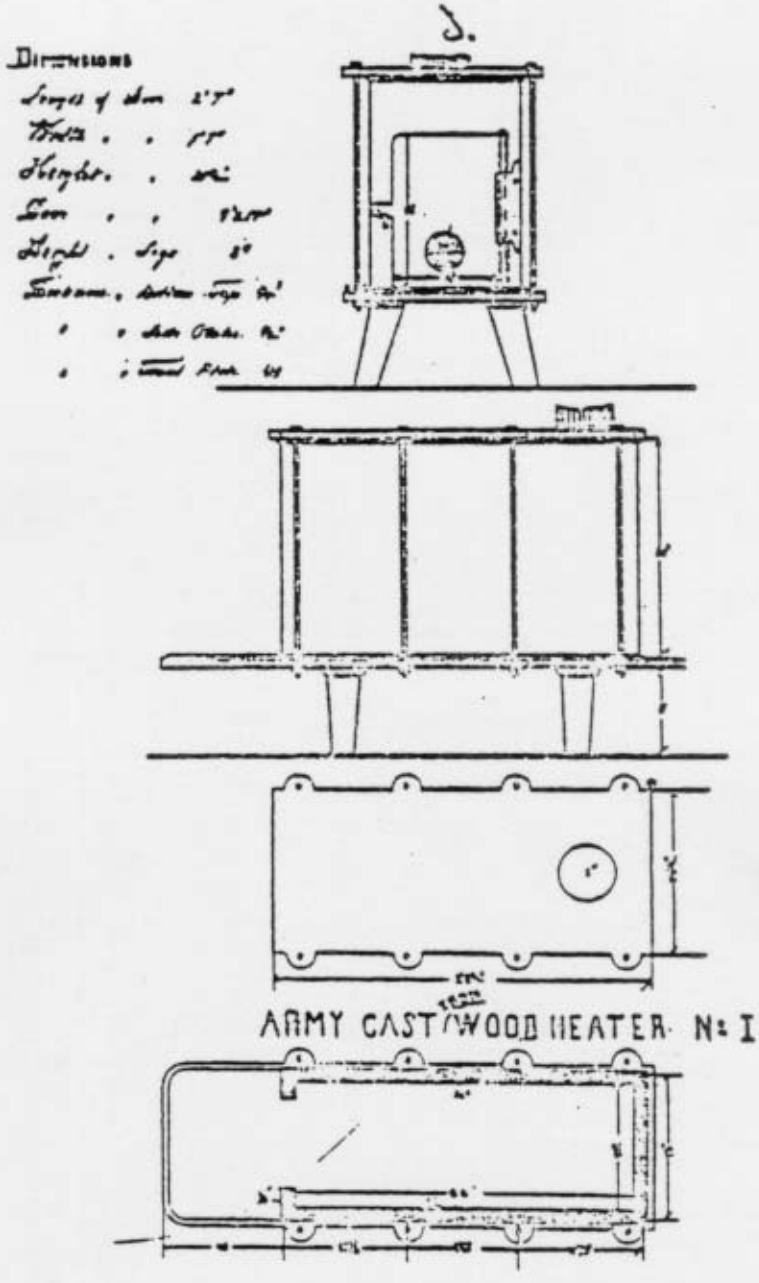
Supplementary table of allowances of stoves, recommended by the Board of officers appointed per Special Orders No. 68, War Department, Adjutant-General's Office, April 17, 1875, (where quarters are not provided with open grates, or fire-places, or there are insufficient in very severe climates.)

	For quarters.		For office.
	Heating stoves.	Cooking stoves or ranges.	Heating stoves.
The General. (Allowed by law for quarters and fuel $300 per month.)			
The Lieutenant-General of major-general	5	1	
A brigadier-general or colonel	4	1	
A lieutenant-colonel or major	3	1	
A captain or chaplain	2	1	
A lieutenant	1	1	
The General commanding the Army			3
The commanding officers of a geographical division or department			2
An assistant or deputy quartermaster-general; an assistant commissary-general of subsistence; an assistant surgeon-general; the assistant judge-advocate-general; the assistant and deputy paymaster-general; and the chief quartermaster and chief commissary of subsistence at the headquarters of a geographical division or department			2
The commanding officer of a regiment or post, a paymaster, quartermaster, assistant quartermaster, commissary of subsistence, military store-keeper, and medical store-keeper, each			1
An assistant adjutant-general; an inspector-general, or an assistant inspector-general; an engineer officer,* an ordnance officer,* a judge-advocate, a medical purveyor, and the senior medical officer when stationed on duty at any place not in the field*			1
An acting assistant quartermaster, an acting assistant commissary of subsistence, a regimental or post adjutant, when approved by the Quartermaster-General, each			1
A wagon or forage master, sergeant-major, ordnance-sergeant, saddler-sergeant, quartermaster-sergeant, commissary-sergeant, hospital-steward, regimental veterinary surgeon, chief trumpeter, and principal musician, each	1		
Superintendent national cemetery	1		
For a company: Two large stoves in dormitory, one large stove in each the mess-room and day-room, one small stove for each of the two rooms for non-commissioned officers, and one small stove for the library, and one cooking stove or range sufficient to cook its food	7	1	
Each necessary fire for the sick in hospital, each dispensary and hospital mess-room, to be regulated by the commanding officer and surgeon, not exceeding	1		
Each hospital-kitchen		1	
For each guard-house, fire to be regulated by the commanding officer, not exceeding	1		
Each necessary fire for military courts or boards, not exceeding	1		
For chapel, reading or school room, upon requisition approved by the commanding officer	1		
Storeroom of a commissary, quartermaster, and medical purveyor, when necessary, not exceeding	1		
A regimental or post mess		1	
For each authorized room as quarters for civilian employés	1		
For each six civilian employés to whom fuel is allowed	1		
For mess of civilian employés		1	
For telegraph-office	1		
For each blacksmith, carpenter, and saddler shop	1		

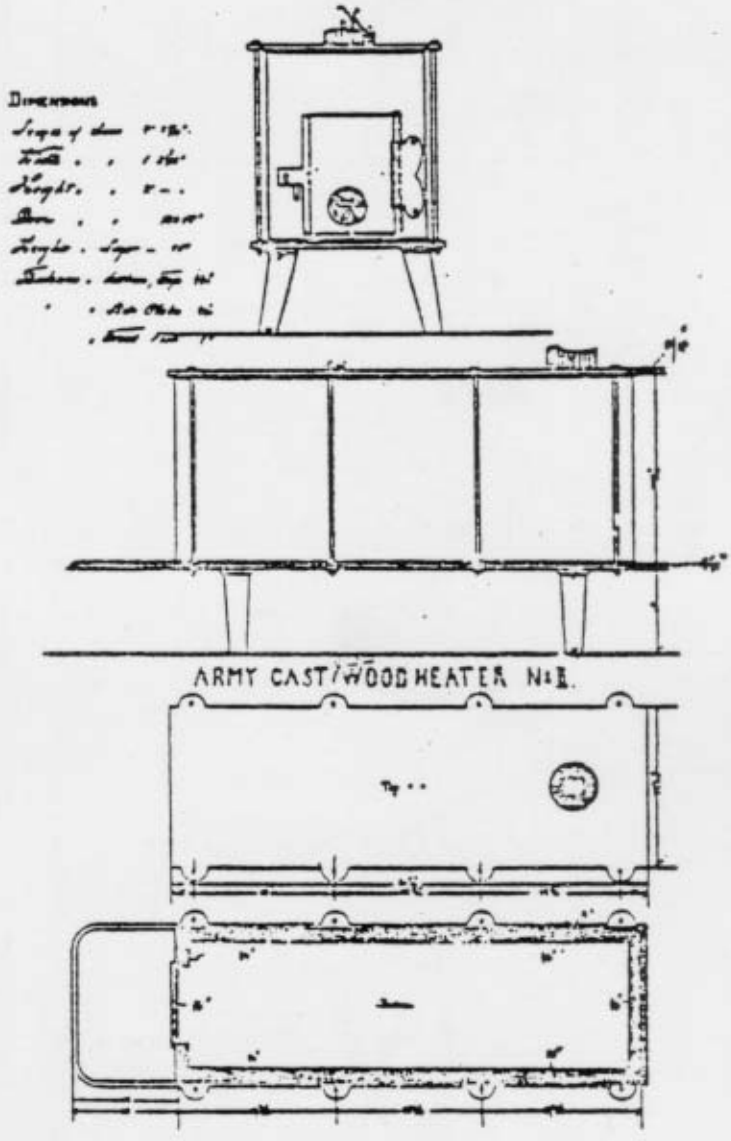
* Except at Military Academy.

[NOTE BY THE QUARTERMASTER-GENERAL'S OFFICE.—The necessary heating-stoves for the additional officers-rooms authorized by General Orders No. 99, War Department, Adjutant-General's Office, November 1, 1875, will be allowed, not exceeding one heating-stove for each room.]

1875

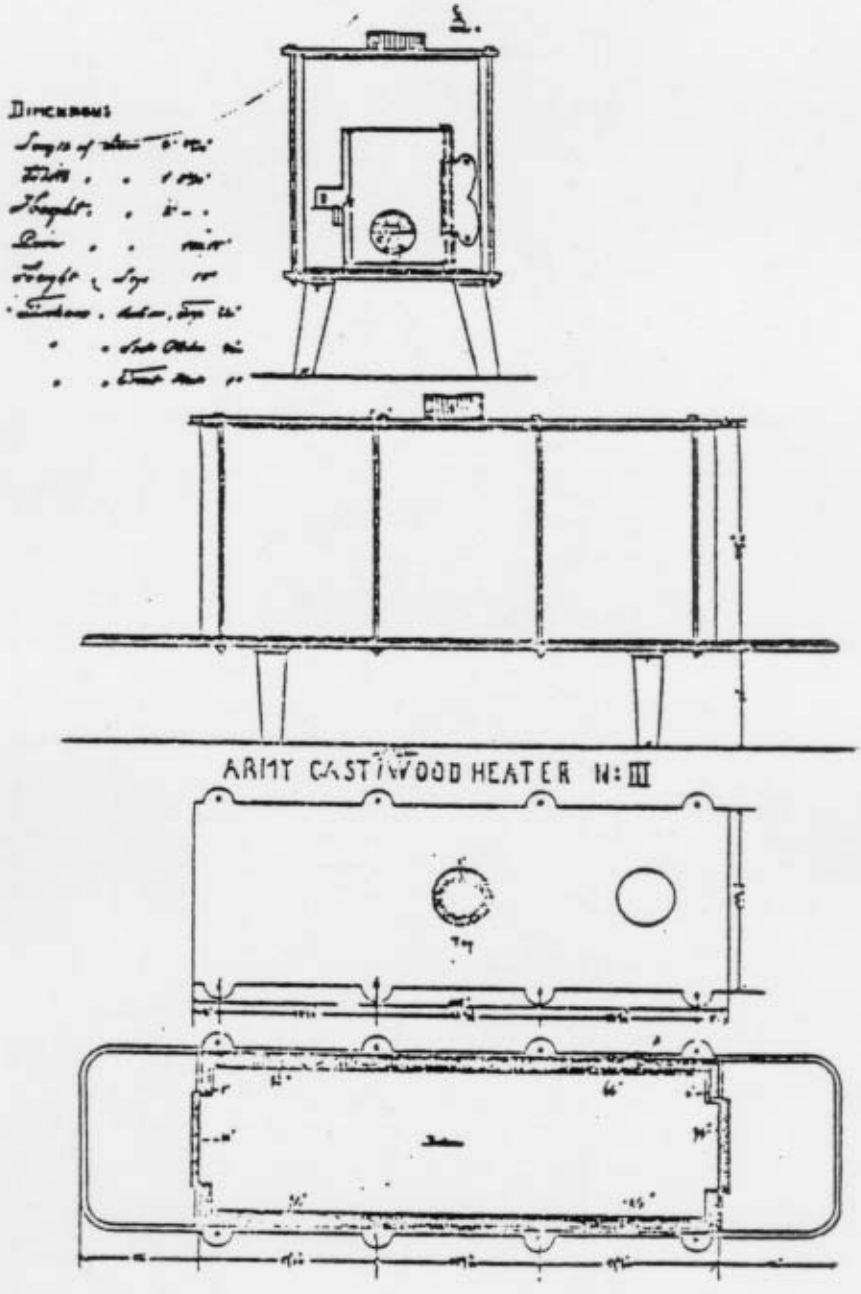


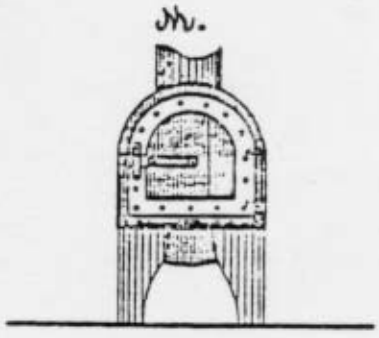
NOTE BY [illegible] LIST OF THE PIPE TO BE [illegible] RECOMMENDATION OF [illegible] CHANGE IN [illegible] REPORT TO THE CONTRACT OF WHO APPROVED BY LETTER



NOTE BY R.U.S.G. [illegible]

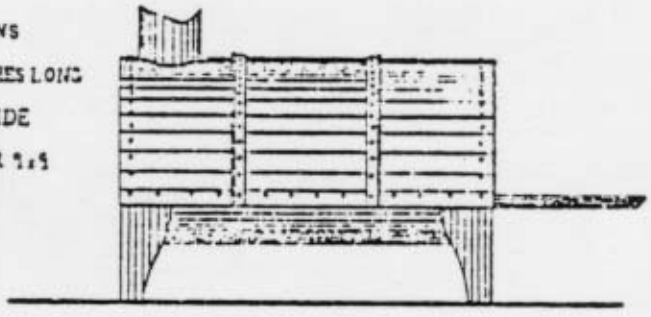
1875



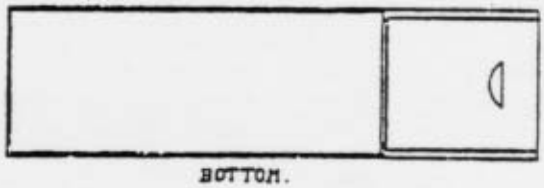


FRONT ELEVATION

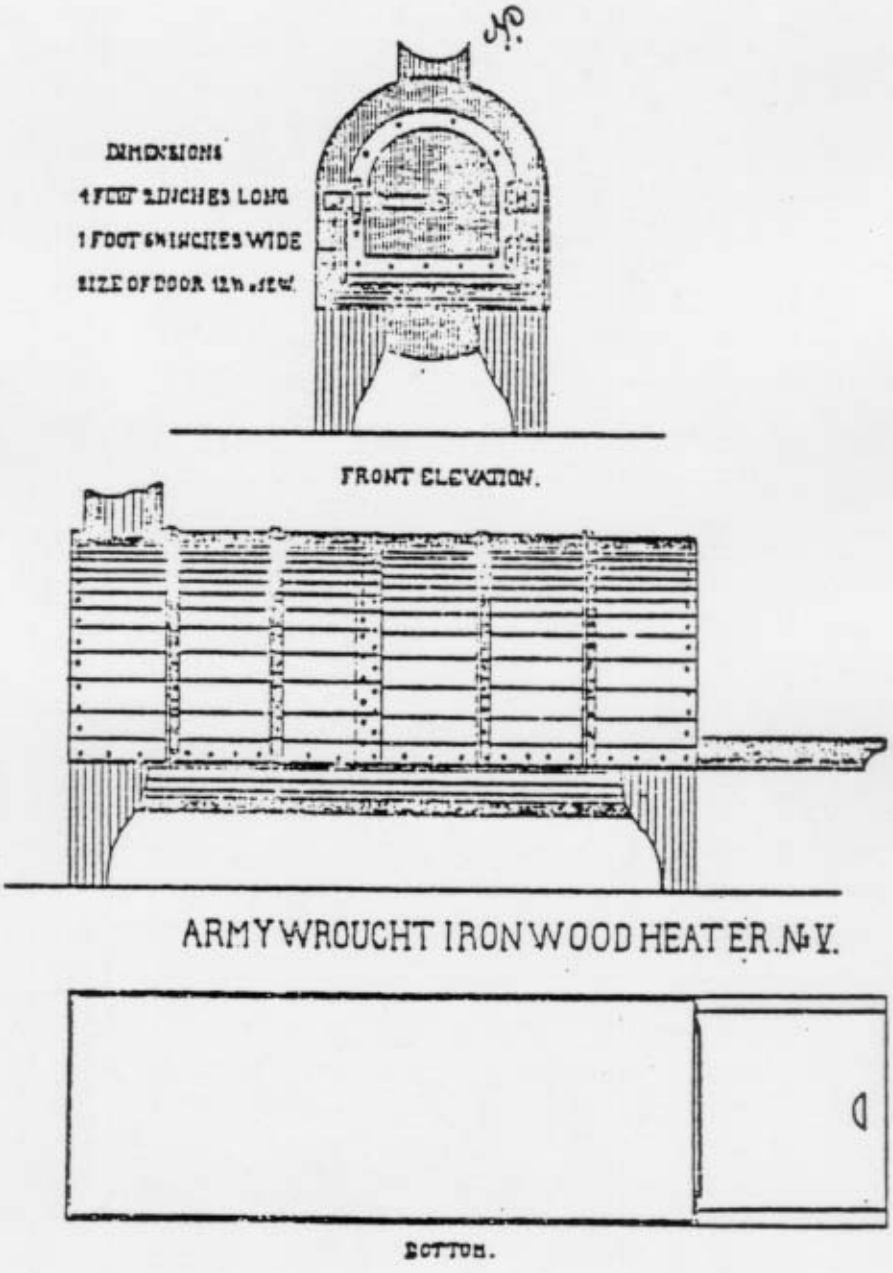
DIMENSIONS
2 FEET 6 INCHES LONG
12 INCHES WIDE
SIZE OF DOOR 9 x 9



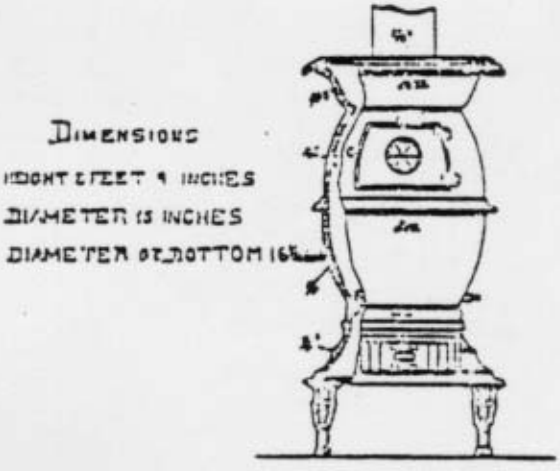
ARMY WROUGHT IRON WOOD HEATER No. III



BOTTOM.


No.
DIMENSIONS
4 FEET 2 INCHES LONG
1 FOOT 6 INCHES WIDE
SIZE OF DOOR
FRONT ELEVATION.
ARMY WROUGHT IRON WOOD HEATER. No. V.
BOTTOM.

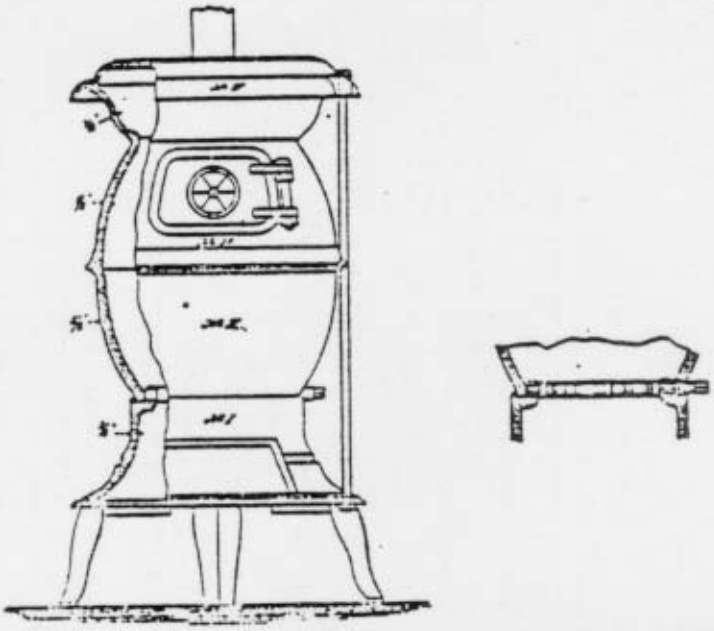
O.



ARMY CAST IRON COAL HEATER.
N: VI

BOTTOM

O.



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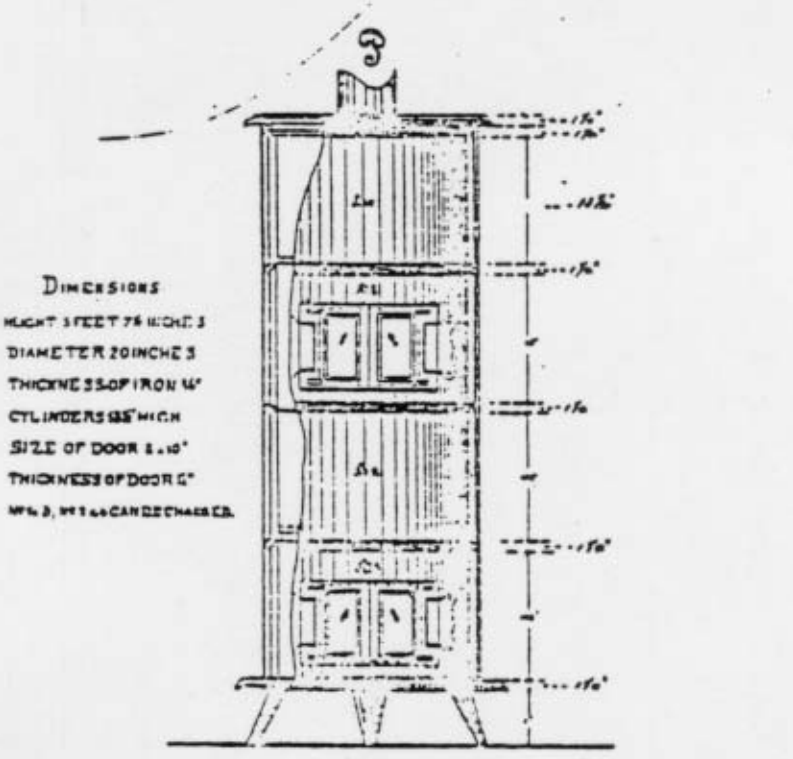
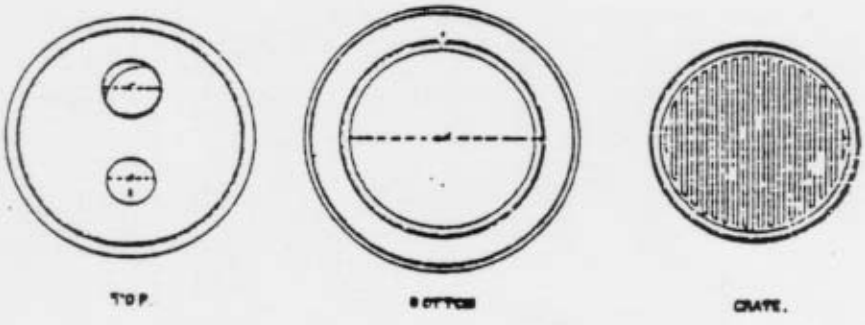
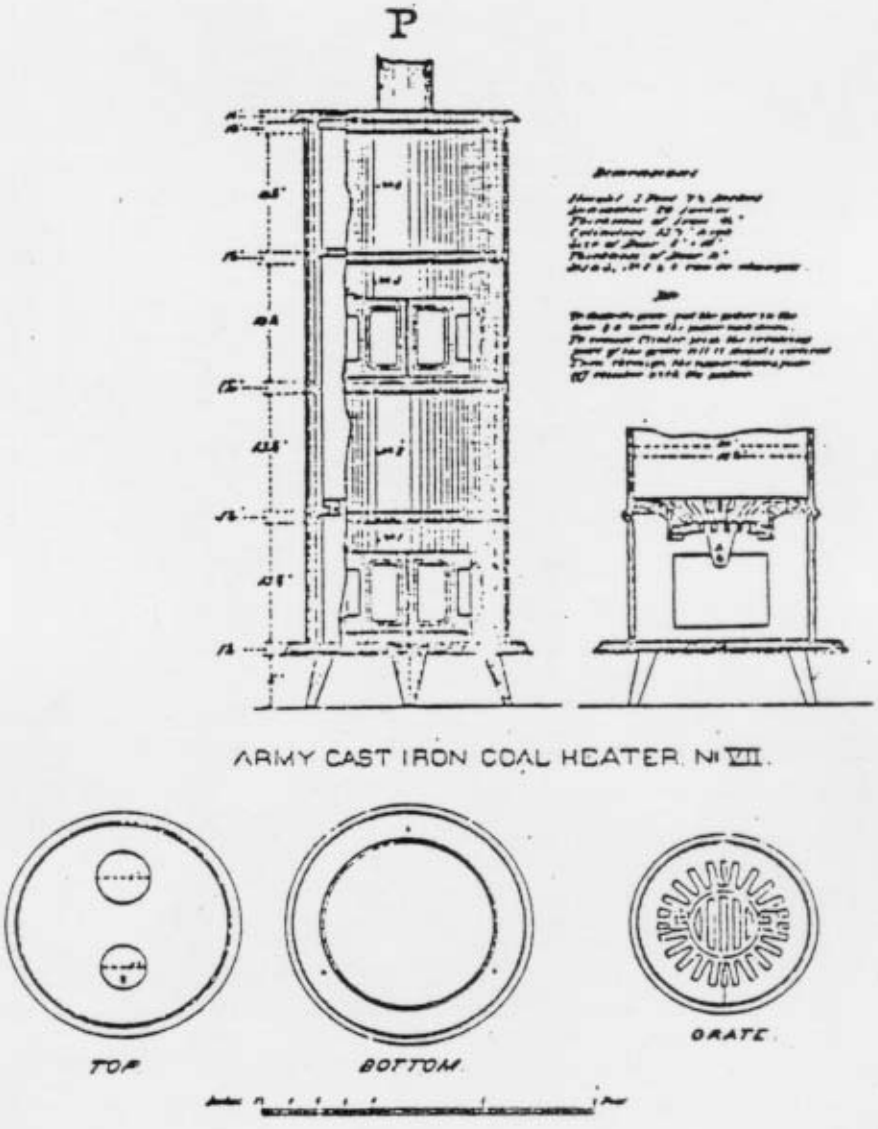
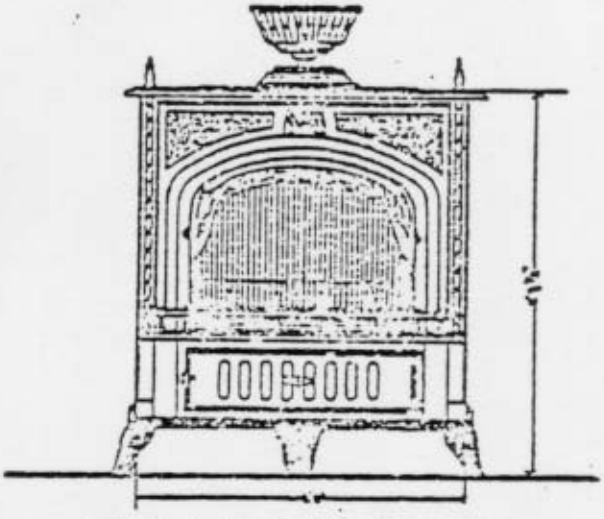


ARMY CAST IRON COAL HEATER. No III

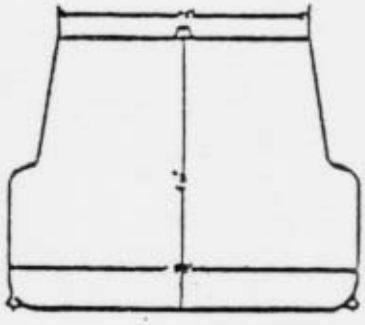



P
ARMY CAST IRON COAL HEATER. No VII.
TOP
BOTTOM
GRATE

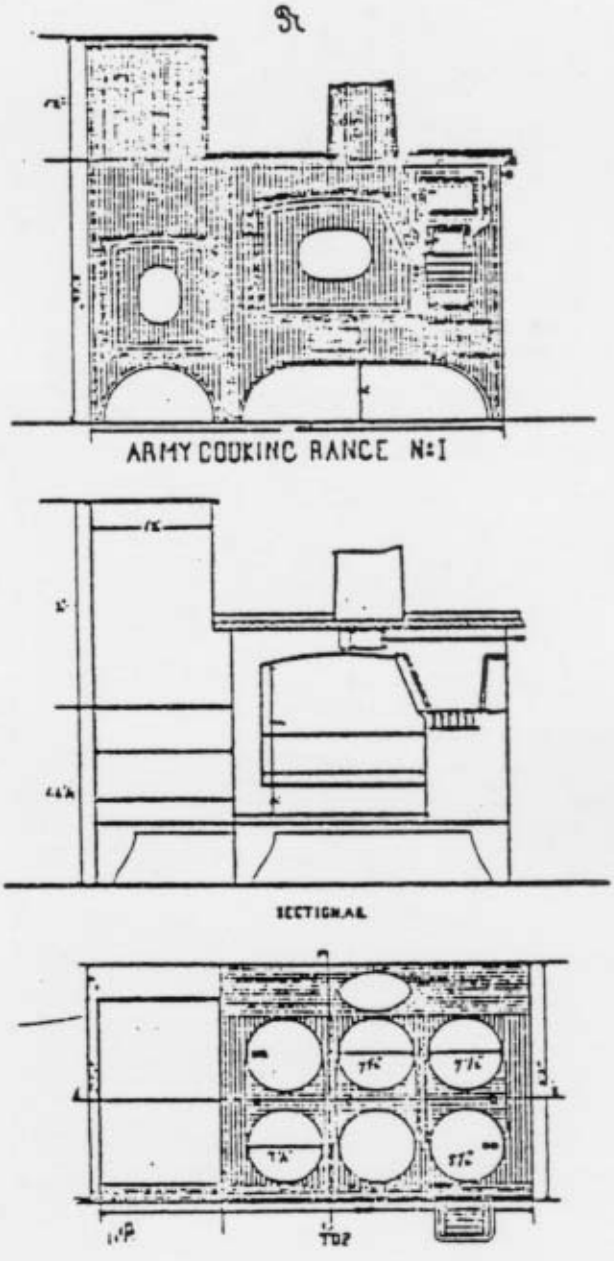
Q.

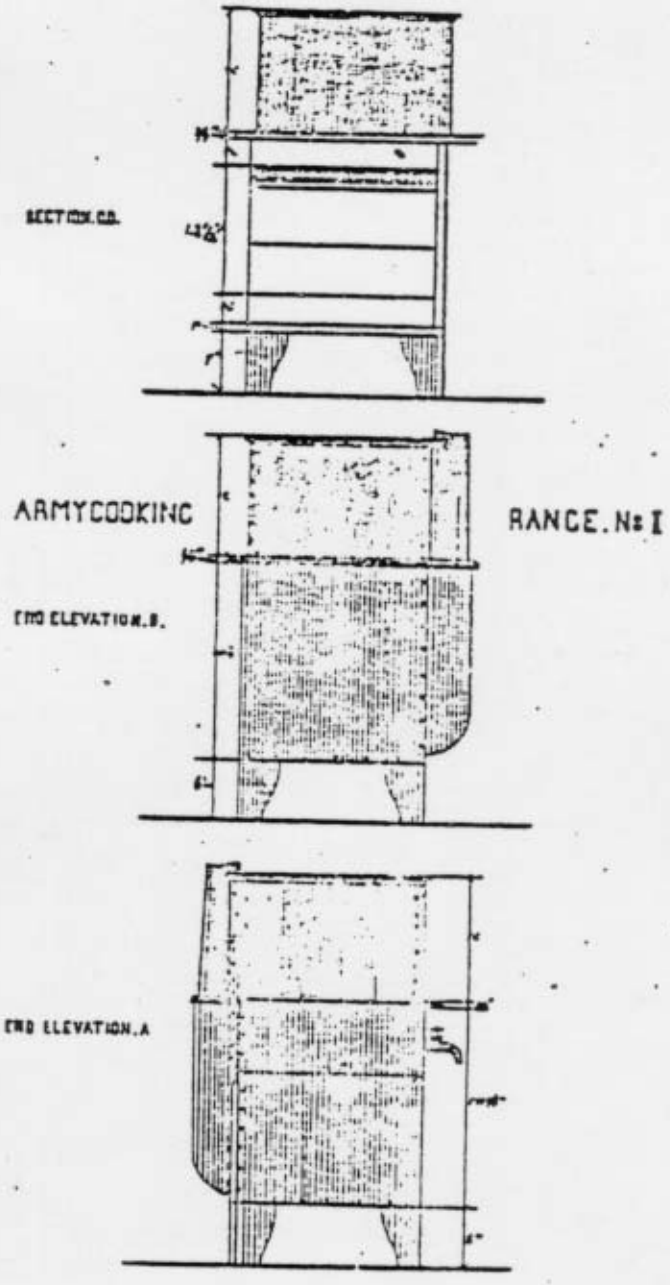


ARMY PARLOR HEATER.

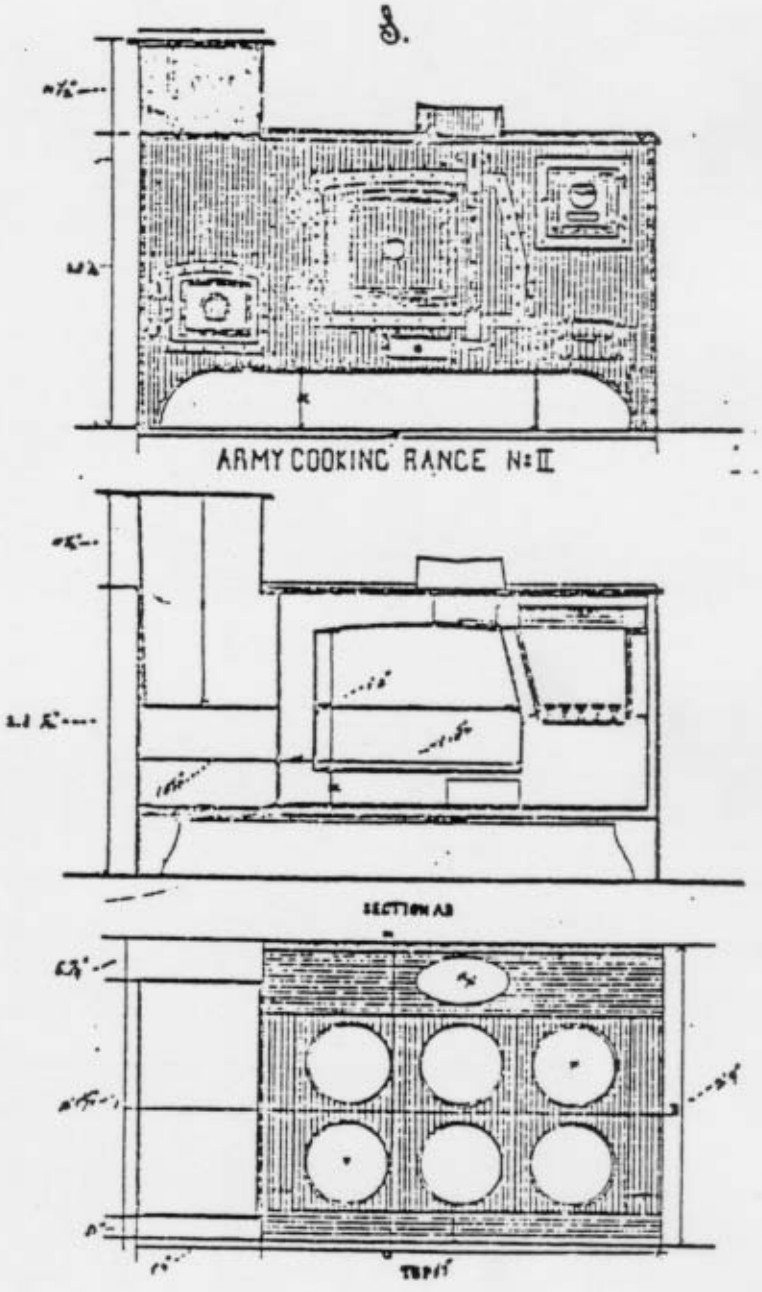


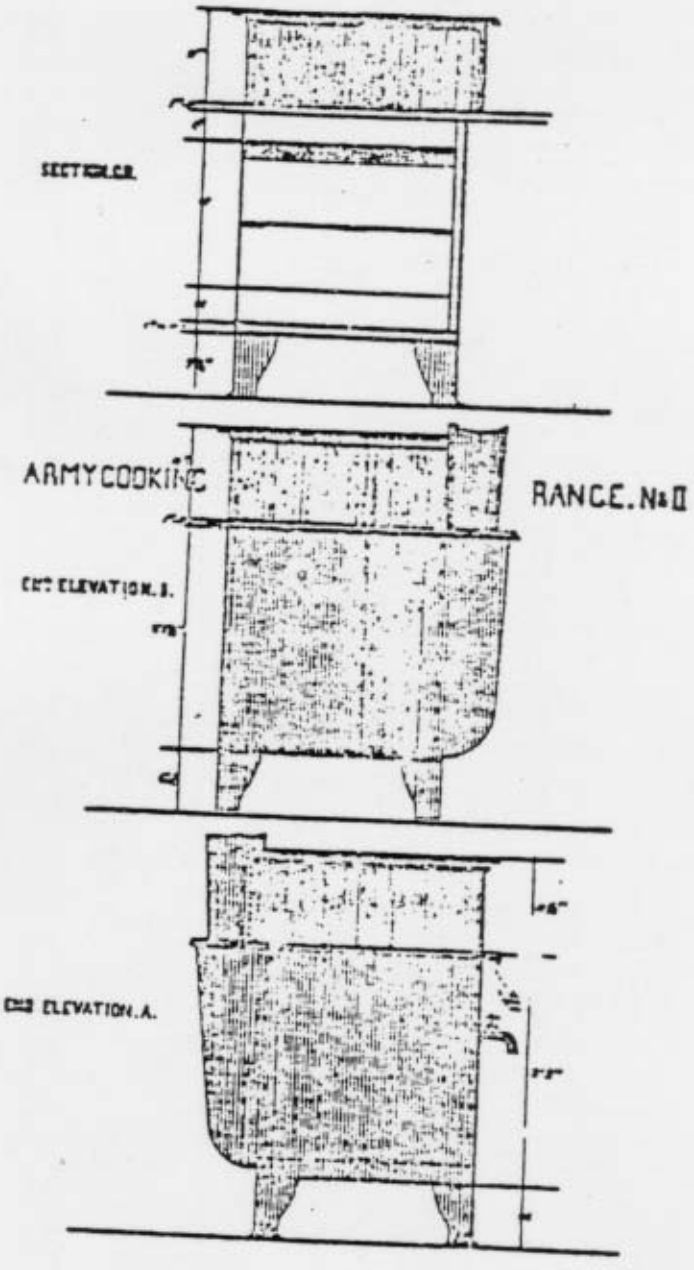
1875




SECTION.CD.
ARMYCOOKING
RANGE.No I
END ELEVATION.B.
END ELEVATION.A

1875




ARMY COOKING
RANGE. No II
ELEVATION. B.
ELEVATION. A.

SPECIFICATIONS OF FURNITURE

FOR THE

Nos. 1 and 2 Army Cooking-Ranges,

ADOPTED BY CIRCULAR FROM QUARTERMASTER GENERAL'S OFFICE, DATED MAY 25, 1876.

RANGE No. 1.

One wash-boiler.—The wash-boiler to be of 4 XXXX bright charcoal tin, with oval ends, and drop bottom ¾ inch deep, of 18-oz. copper; length 21¼ inches, width 10¼ inches out to out; extreme depth inclusive of drop bottom, 14 inches. Capacity 11 gallons.

Ears.—Ears of same material as boiler; to be 2¼ inches wide, 1 inch long, riveted on and doubled to take handle.

Handles.—Handles of No. 5 iron wire, 4 inches long, 1¾ inch wide out to out. Top to be edged over No. 5 iron wire.

Cover.—Cover to be of 2 XX hundred plate bright charcoal tin with usual pitch.

Lifting-handle.—Lifting-handle, 1¼ inch wide, with creased edges, to form one-half of circle 3¾ inches diameter; to be soldered and riveted on.

Rim.—Rim of cover 1 inch deep.

One coffee-boiler.—The coffee-boiler to be of 3 XXX hundred plate bright charcoal tin, with drop bottom ¾ inch deep, of 18-oz. copper. Diameter at base 6¾ inches, tapering to 5½ inches at top; extreme depth 9¼ inches, inclusive of drop bottom. Capacity 1½ gallon. Top to be edged over No. 9 iron wire.

Ears.—Boiler to have substantial ears 1¾ inch long, 1¼ inch wide, finished, tapering to ¾ inch at top. Ears to be riveted on.

Bail.—Bail to be of No. 8 iron-wire.

Handle.—Handle to be 1¼ inch wide at top, tapering to ¾ inch at lower end, with 2½-inch arch; extreme length 5¼ inches. To be edged over No. 9 iron wire, soldered and riveted to boiler.

Lip.—Lip to project 1¼ inch at top; width at boiler to be 2¾ inches, tapering to 1 inch at point; to be edged and double-creased and applied to boiler with three rivets. To have not less than thirty perforations on inside, properly spaced.

Cover.—Cover to be of 2 XX hundred plate bright charcoal tin, with $\frac{3}{4}$-inch rim.

Ring.—Lifting-ring to be 1 inch diameter, $\frac{3}{4}$ inch wide, edged and creased; clinched through cover and soldered.

One steamer.—The steamer to be of 2 XX hundred plate bright charcoal tin, $10\frac{1}{2}$ inches diameter out to out, depth $4\frac{1}{2}$ inches. Top to be edged over No. 8 iron wire. Bottom to be without rim, pinned to body; to have three triangular rests arranged to fit pot, and to have not less than fifty-seven (57) perforations, each $\frac{3}{16}$ inch diameter, properly spaced.

Handles.—Handles to be $1\frac{1}{4}$ inch wide, $3\frac{1}{2}$ inches long, with $1\frac{1}{4}$-inch arch at bottom. To be edged and creased and soldered on.

Cover.—Cover to be of same material as steamer, with usual pitch, and $\frac{3}{4}$-inch rim.

Handle.—The lifting-handle to be $1\frac{1}{2}$ inch wide, and to form a half circle of $3\frac{1}{2}$ inches diameter; to be edged and creased, soldered and riveted on.

One tea-kettle.—The tea-kettle to be of best quality cast-iron, not less than $\frac{1}{16}$ inch thick; size, No. 8 of standard pattern, with sliding lid; capacity $1\frac{1}{2}$ gallon.

Bail.—Bail to be of $\frac{1}{2}$-inch half-oval iron.

Weight.—Weight to be not less than $8\frac{1}{4}$ pounds.

Three bake-pans.—The bake-pans to be of No. 22 smooth, cleaned, charcoal sheet-iron, without seams, and with substantial folds at corners, and of two sizes, as follows:

Size.—One (1) 15 x $16\frac{1}{2}$ inches, two (2) $7\frac{1}{2}$ x $15\frac{1}{2}$ inches, measurement on bottom outside; all to be $2\frac{1}{2}$ inches deep, with 1 inch flare on all sides. Large pan to be edged over No. 6, and small pans over No. 8 iron wire.

Ears.—Ears to be 2 inches long, $1\frac{1}{4}$ inch wide, doubled over handles, and applied with two rivets in each.

Handles.—Handles to be of No. 7 iron wire; length $3\frac{1}{2}$ inches, width $1\frac{1}{2}$ inch out to out.

One pot cover.—The pot cover to be of 2 XX hundred plate bright charcoal tin, $10\frac{1}{2}$ inches diameter, with not less than four corrugations on surface.

Ring.—Lifting-ring to be of No. 11 iron wire, clinched through and soldered.

Two pots.—The pots to be of best quality cast-iron, not less than $\frac{1}{16}$ inch thick, of standard pattern; diameter at top $10\frac{1}{2}$ inches out to out, depth at center $9\frac{1}{2}$ inches. Capacity $2\frac{1}{2}$ gallons each.

Bail.—Bail to be of No. 4 iron wire.

Weight.—Weight to be not less than $8\frac{1}{2}$ pounds.

Two skillets.—The skillets to be of best quality cast-iron, not less than $\frac{1}{16}$ inch thick; diameter, out to out at bottom, 9 inches; depth $1\frac{3}{8}$ inch; flare of sides $\frac{1}{2}$ inch.

Lip.—Lip, on left side from handle, of proper projection.

Handle.—Handle to be 5 inches long, curved; greatest width 1¼ inches.

Weight.—Skillets to weigh not less than 3¾ pounds each.

Two griddles.—The griddles to be of best quality cast-iron, not less $\frac{1}{16}$ inch thick; diameter, out to out, 9¾ inches; depth to be ½ inch. To have rim formed in casting to fit 8-inch opening.

Handle.—Handle to correspond in size and pattern to those of skillets.

Weight.—Weight of griddles to be not less than 2¾ pounds each.

One iron-heater.—The iron-heater to be of best quality cast-iron, not less than $\frac{1}{16}$ inch thick, with oval ends; length, out to out exclusive of handle, 19¼ inches; width, out to out, 9½ inches inclusive of flange; depth 1½ inch, with slight flare of sides.

Flange.—Flange 1 inch wide, with $\frac{3}{16}$-inch molded edge.

Handles.—End handles to be formed in casting, not less than 2 x 1¼ inch, with openings 1 x ⅝ inch.

Weight.—Weight of heater to be not less than 5¼ pounds.

Three joints and one elbow stove-pipe.—The stove-pipe and elbow to be of best quality sheet-iron, No. 24, size 7-inch; pipe to be double-seamed, riveted at ends, beaded 1¾ inch from top. Elbow to be curved and formed of not more than five pieces, the pieces to be substantially riveted.

Range No. 2.

One wash-boiler.—The wash-boiler to be identical in material, style, and finish with that for No. 1 range; length 23¼ inches, width 11¾ inches out to out, extreme depth 14 inches, inclusive of drop in bottom. Capacity 14 gallons.

One coffee-boiler.—The coffee-boiler to be identical in material, style, and finish with that for No. 1 range; diameter at base 11½ inches, tapering to 7 inches diameter at top; extreme depth 11⅜ inches, inclusive of drop in bottom. Capacity 3 gallons.

Ears.—Ears to be 1½ inch long, 1½ inch wide, tapering to 1 inch at top.

Bail.—Bail to be of No. 7 wire.

Handle.—Handle to be 1½ inch wide at top, tapering to ¾ inch, with 3-inch arch.

Lip.—Lip to project 2¼ inches, width at top 2½ inches, tapering to 1¼ inch at point. To have not less than forty-two perforations on inside, properly spaced.

One steamer.—The steamer to be identical in material, style, and finish with that for No. 1 range; diameter at top 11¼ inches out to out; depth 4½ inches; bottom to have not less than fifty-nine perforations, each $\frac{3}{16}$ inch diameter, properly spaced.

One tea-kettle.—The tea-kettle to be identical in material and style with that for No. 1. Size to be No. 9. Capacity 2 gallons.

APPENDIX D
EARLY IRON BUNKS

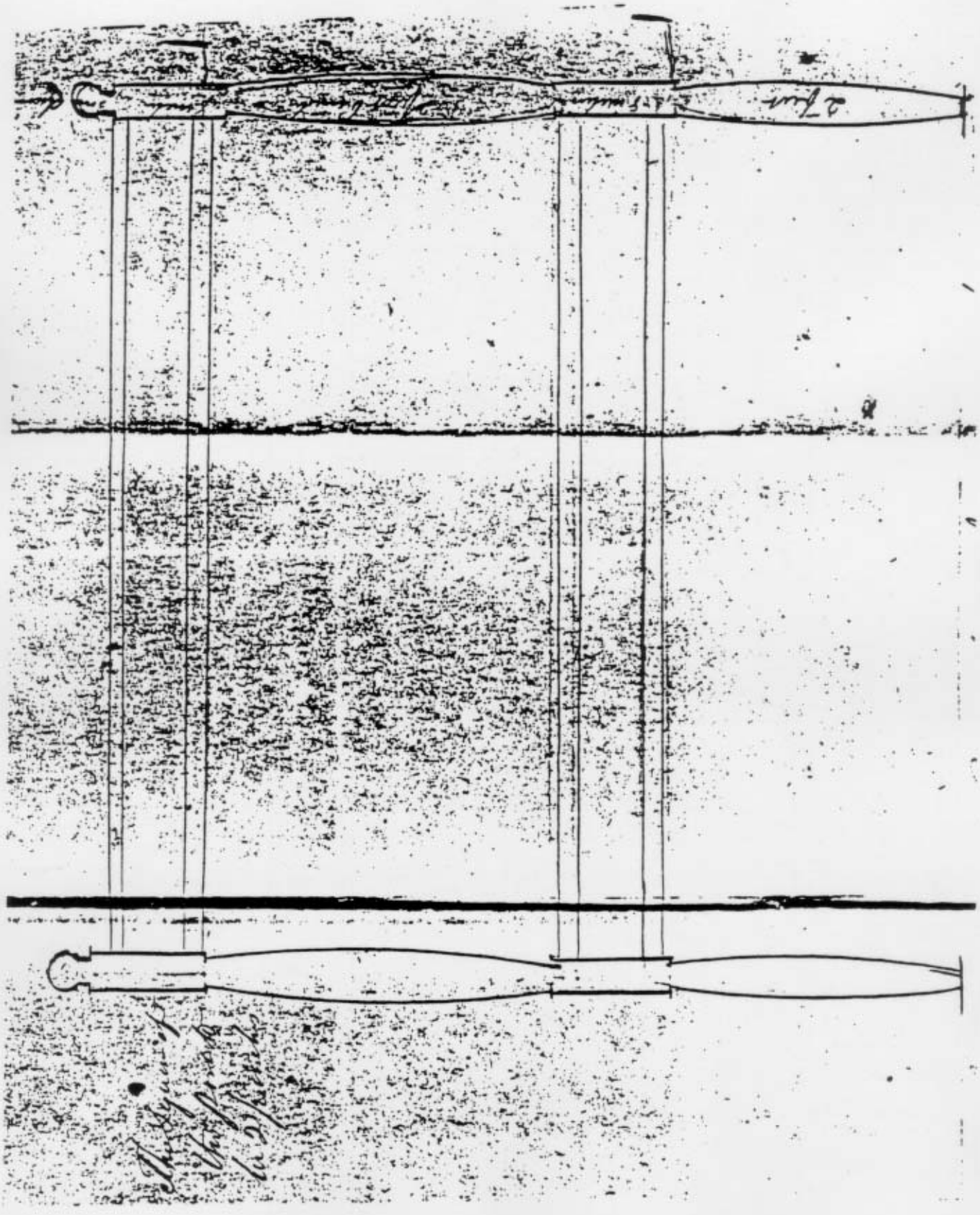
This appendix presents copies of original designs for two-level iron bunks proposed before 1870 but not adopted for general use in the Army, in order:

1848, pencil sketch of bunk proposed by Whiting for the forts at New York City (accompanying Whiting to Jesup, Oct. 23, 1848, QMConFile--Bunks, RG92). There is no positive evidence that bunks following this pattern were actually constructed. But it is known that iron bunks were placed in many of the New York barracks during the 1850s, including the recruiting depot at David's Island, where a few years later the men slept on floors because the iron bunks had fallen appart. This sketch may be more useful in showing the general form of wooden bunks, which it probably followed, in use at New York in the late 1840s.

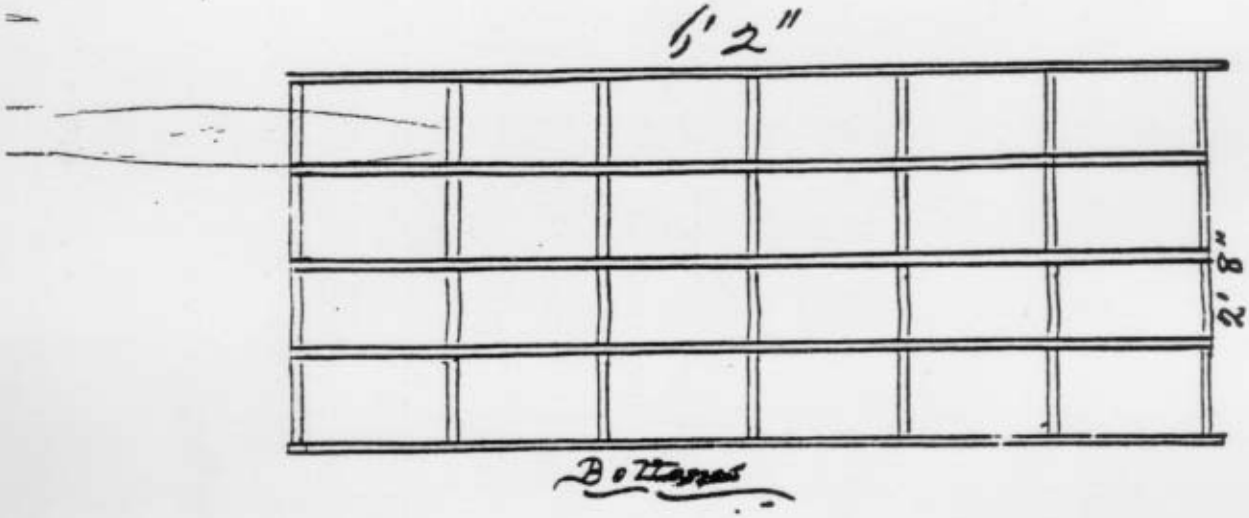
1869, sketch of two-level, two-man iron bunk designed by a quartermaster at the St. Louis depot (accompanying Thomas to Rucker, Sept. 10, 1869, QMConFile--Bunks, RG92). The designer requested explicit authority to manufacture the bunks. The question evidently was referred to Washingon, with no apparent response. It is therefore unlikely that this bunk was constructed, although a few two-level, two-man iron bunkbeds were reported by Billings to have been issued at a few western posts before 1875.

Plan of a Folder's Bunk to be of Iron. It upright or posts of Cast Iron, Ends to be of wrought flat bars covered with Russia Sheet Iron, the above presents a side view, the ends to be same. Bottom of Hoop Iron. woven through each other.

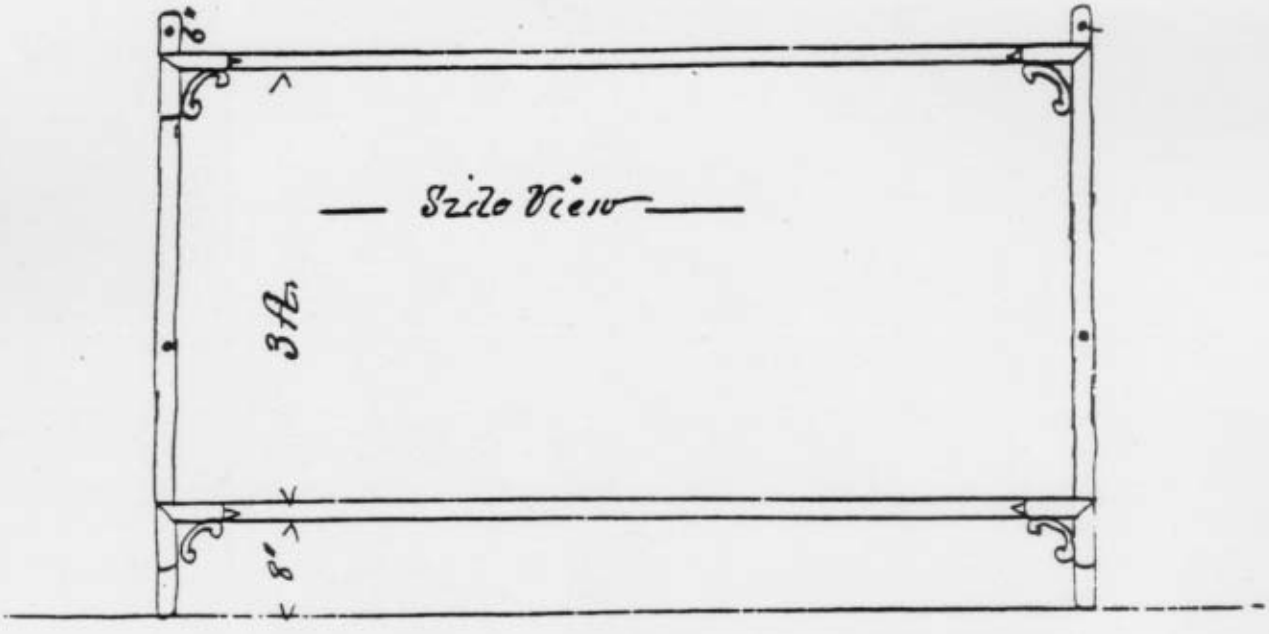
1848, Whiting



1869, St. Louis



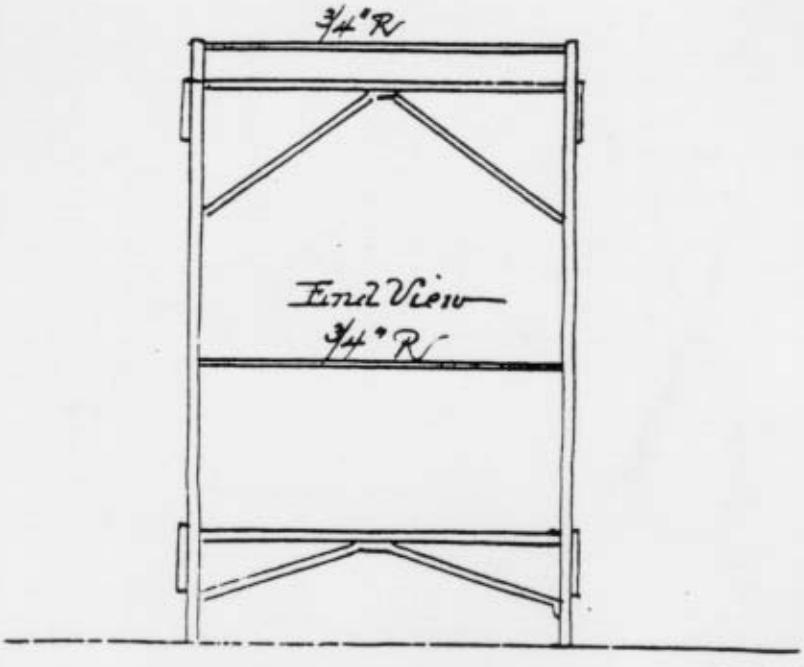
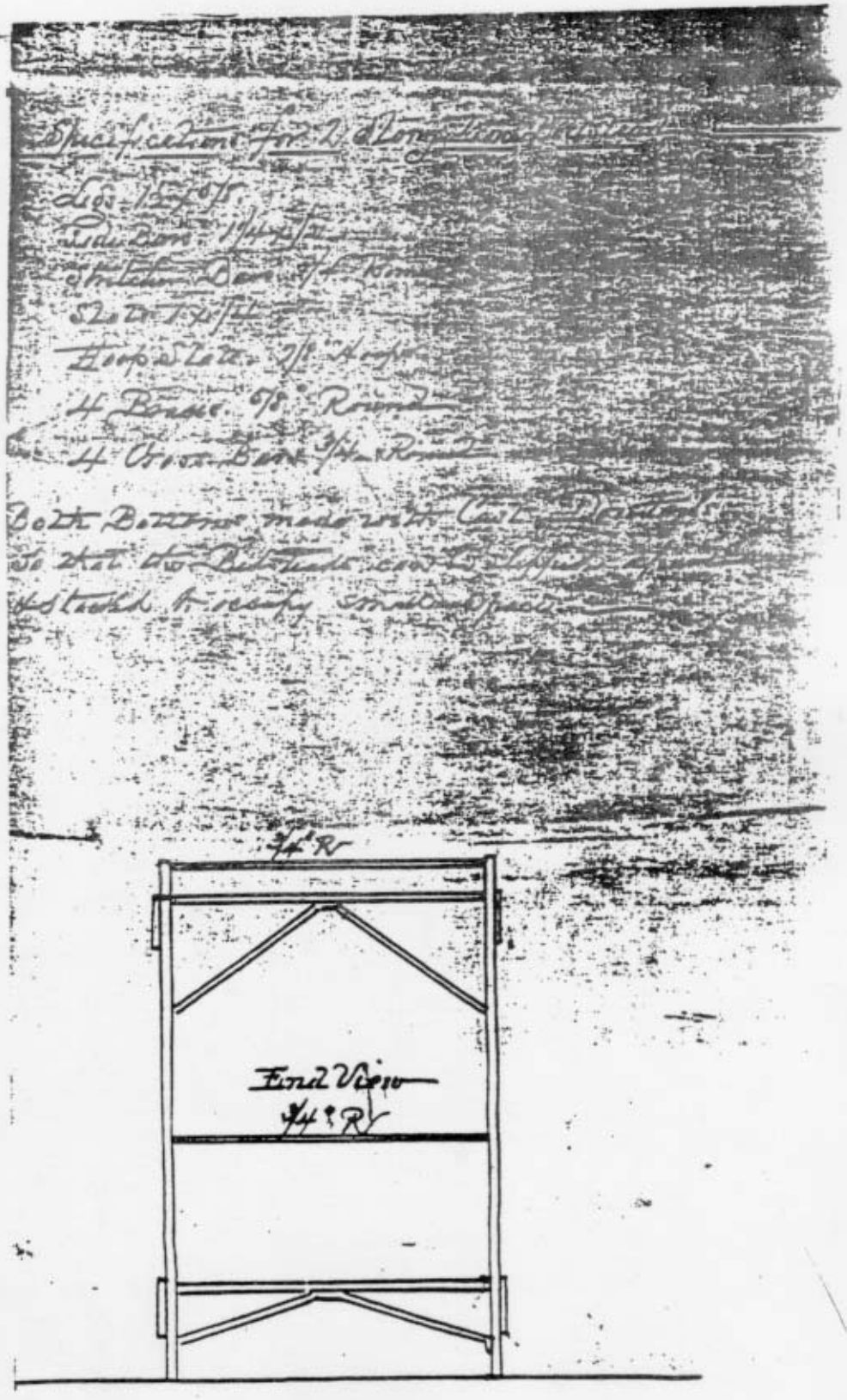
Scale 3/4" = 1 ft.



Specifications for 2 story Iron Bedstead. —

Side 1½ x 3/8.
Side Bars. 1¼ x ½.
Stretcher Bars. ¾. Round.
Slats 1 x ¾.
Horse Slats. 3/8" Rope.
4 Braces. 5/8" Round.
4 Cross Bars ¾ Round.

Bolt [illegible] Cast Dovetails
[illegible] Bedstead [illegible] Stiffer [illegible]
[illegible] Space. —



1869, St. Louis