

(No Model.)

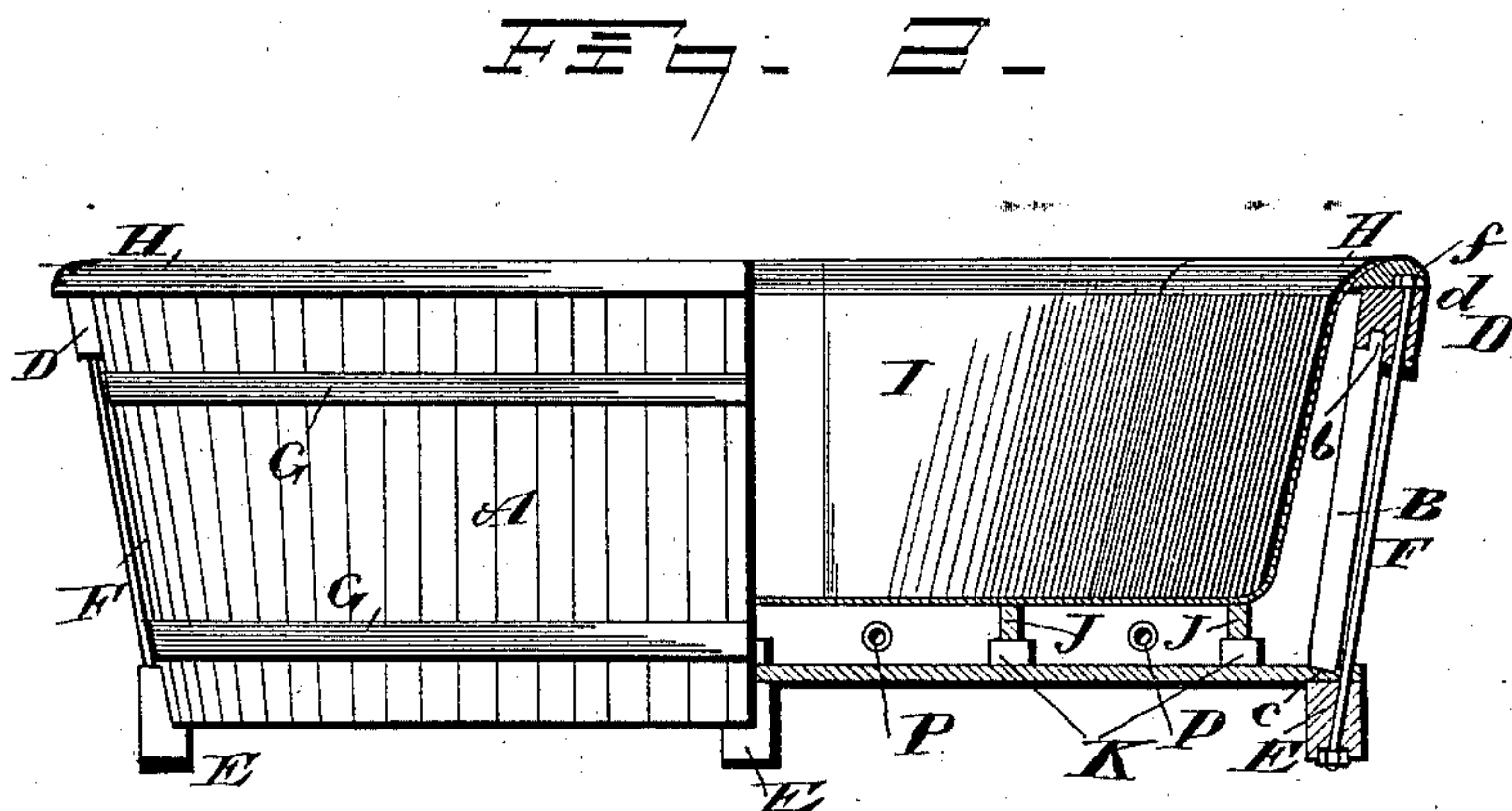
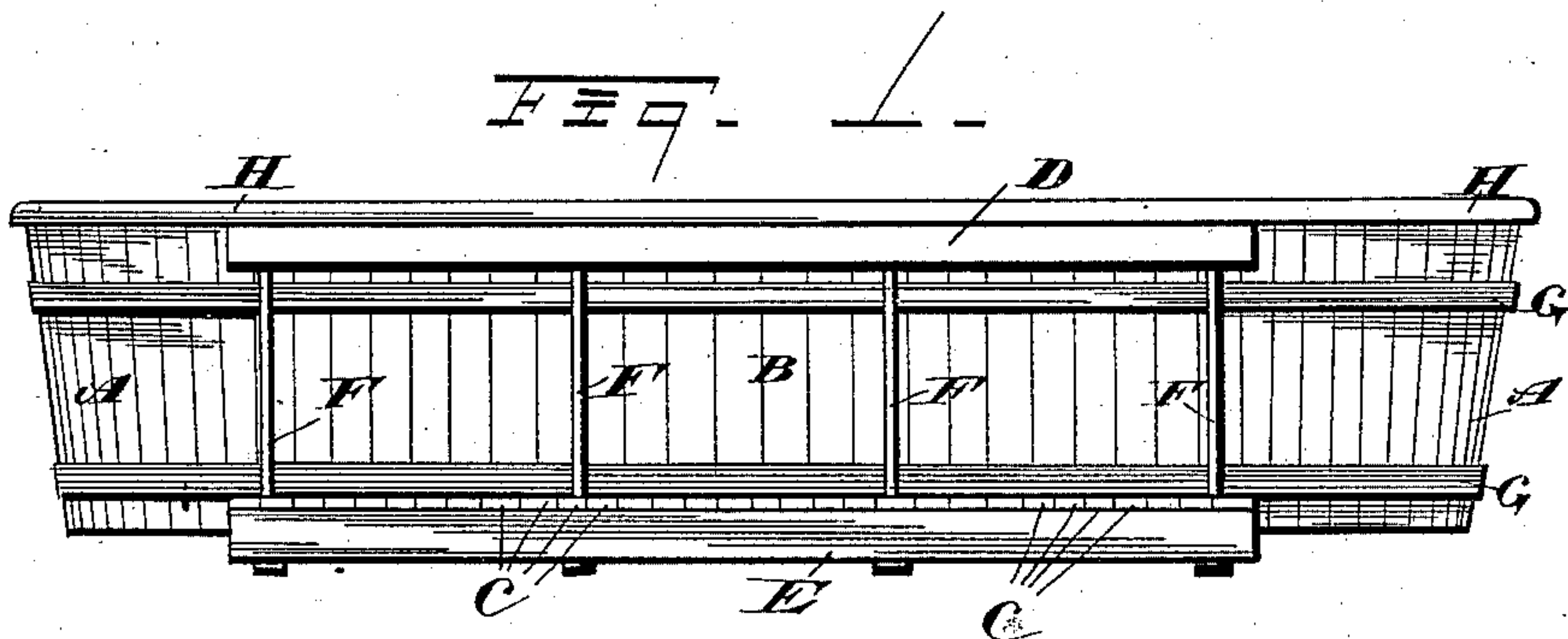
2 Sheets—Sheet 1.

D. H. ROE.

KNOCKDOWN CHEESE VAT.

No. 306,034.

Patented Sept. 30, 1884.



WITNESSES

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Geo. W. King

INVENTOR

Daniel H. Roe.

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(No Model.)

2 Sheets—Sheet 2.

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FIG. 3.

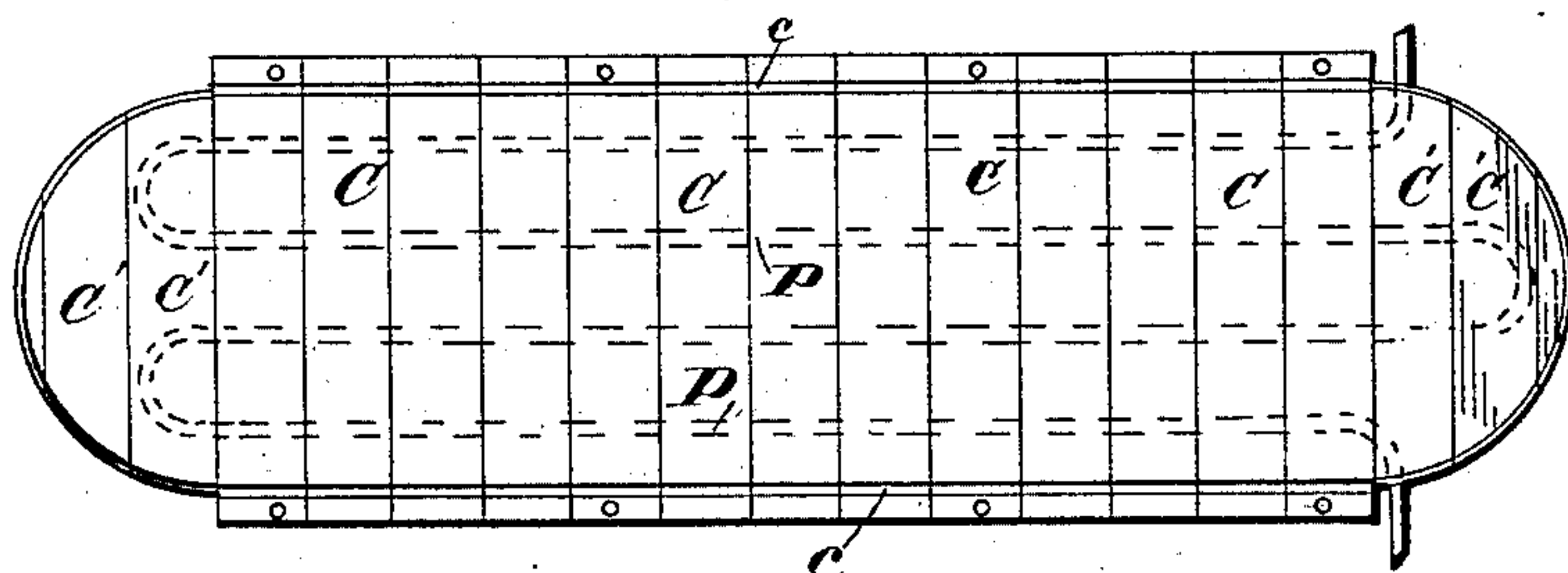


FIG. 4.

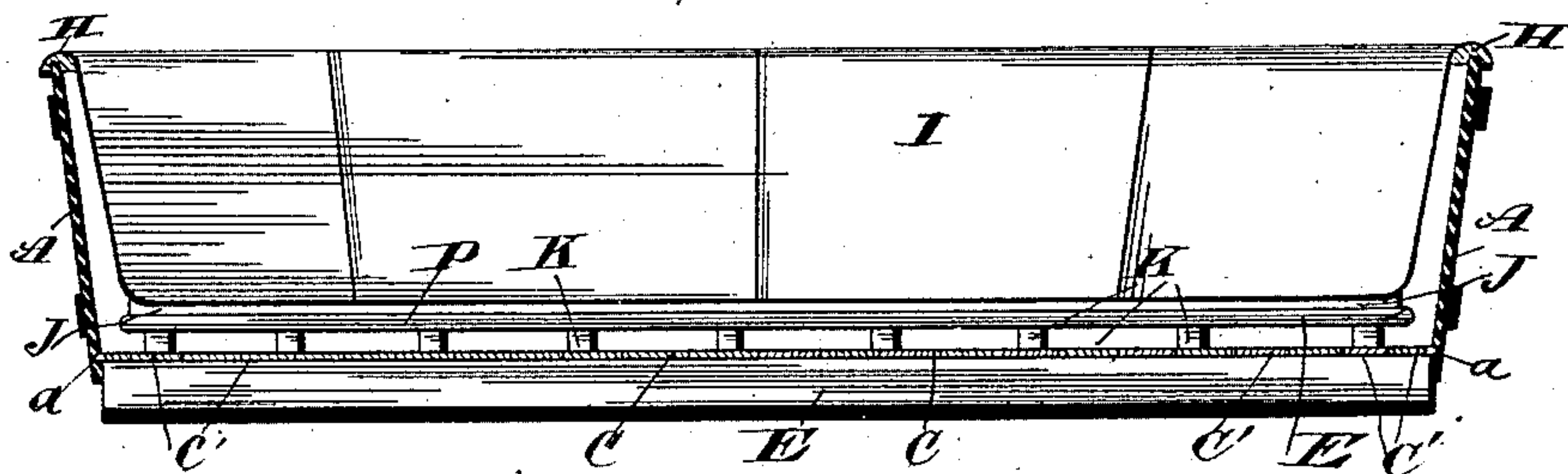


FIG. 5.

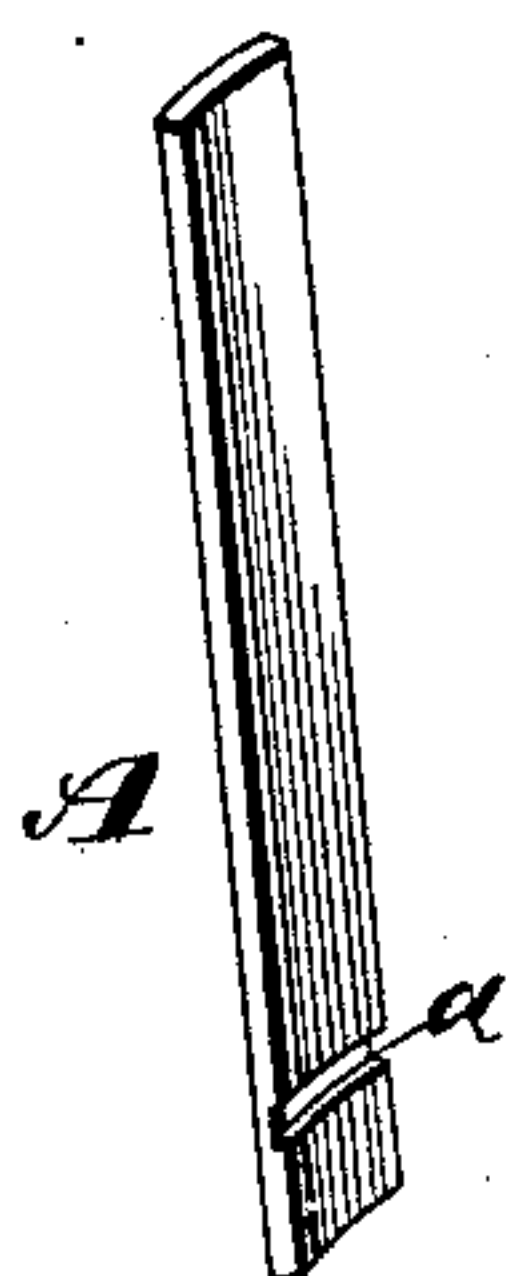


FIG. 6.



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# UNITED STATES PATENT OFFICE.

DANIEL H. ROE, OF MADISON, OHIO.

## KNOCKDOWN CHEESE-VAT.

SPECIFICATION forming part of Letters Patent No. 306,034, dated September 30, 1884.

Application filed December 21, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL H. ROE, of Madison, in the county of Lake and State of Ohio, have invented certain new and useful  
5 Improvements in Knockdown Cheese-Vats; 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 pertains to make and use the  
10 same.

My invention relates to improvements in cheese-vats and to the material prepared and fitted for cheese-vats and known as "knock-downs."

15 The object of my invention is to improve the construction and form of cheese-vats. A further object is so to construct cheese-vats that the material fitted for the same may be sold knocked down, and put together with-  
20 out skilled labor.

With these objects in view my invention consists in certain features of construction and in combination of parts, hereinafter described, and pointed out in the claims.

25 The form of my improved cheese-vat is oblong, the plan of the central part being rectangular and of the end portions semicircular. The staves around the circular portions are crozed to engage the bottom, and the whole  
30 structure is provided with hoops or bands in the usual manner. These bands press all of the staves together edgewise, and press the end staves firmly against the contiguous circular portions of the bottom, but could not be made  
35 to press the side staves along the flat surface of the sides with sufficient force against the bottom if the said side staves were crozed and made to engage the bottom accordingly. I therefore extend the bottom boards of the  
40 rectangular part laterally beyond the staves, and groove the top surface of the bottom boards to receive the bottom ends of the side staves, and by means of bolts passing up through the bed-timbers E and bottom boards  
45 and outside of the staves and bands, and thence through the caps, with a nut on top, these side staves are pressed down into the grooves of the bottom boards and firmly held. The length of these side staves is such that the tops  
50 of the caps, when in position, are flush with the top of the end staves.

The further details will be better illustrated by the accompanying drawings.

Figure 1 is a side elevation of my improved cheese-vat set up and ready for use. Fig. 2 is 55 an end elevation of the same, partly in section. Fig. 3 is a plan view of the bottom boards, and in dotted lines is shown the position of the heating-coil of pipes. Fig. 4 is a longitudinal vertical section through the center of 60 the vat. Fig. 5 is a view in perspective of one of the end staves, showing the crozing. Fig. 6 shows a preferable manner of coupling the ends of the bands or hoops by means of a bolt.

A represents the end staves, and B the side 65 staves. The former are crozed, as shown at *a*, Fig. 5, to engage the bottom boards, C', of the circular parts, and the lower ends of the staves B engage the grooves *c* in the boards C of the rectangular portion of the bottom. The 70 upper ends of the staves B are provided with a tongue, *b*, that engages a groove, *d*, in the cap D.

F are bolts that pass through the cap D and down outside of the staves and bands and 75 through the bottom board, C, and the bed-timbers E, on which the bottom boards rest. By means of the nuts *f* on these rods the caps are drawn upon the staves B, forcing the lower end of these staves firmly into the grooves *c*. 80 The whole structure is encircled by two or more bands, G, that are preferably in two or more pieces, each with the ends turned outward, as shown in Fig. 6, and provided with holes, through which pass the bolts *g*, by means 85 of which the bands may be drawn tight around the vat. These bands press the crozing of the end staves onto the bottom boards in the usual manner of round vats, and press all of the staves firmly together edgewise. 90

H is a rim, made in sections, and secured on the top edge of the vat, preferably by dowel-pins (not shown) passing through the rim and into the staves and the caps D, respectively.

I represents a tin lining, consisting of flar- 95 ing sides and a flat bottom. The former is bent over the rim H, and secured to the outer edge thereof, preferably by nailing. The latter is supported on wooden strips J, that are in turn supported on the blocks K, that rest 100 on the said bottom boards of the vat.

P are steam-pipes connected in any suitable



manner into a convenient coil, and the ends of the pipes may pass out through the staves or bottom boards, as is most convenient, and at any desired points.

5 The vat, as shown in the drawings, is in its finished condition set up and ready for use.

The rim H, with the tin lining attached, may be lifted from the vat at any time and turned bottom upward and safely shipped in this condition.

10 If the vat is of large size, the tin is not nailed to the rim until the parts are assembled after reaching their destination, and in such cases some of the seams are left unsoldered, in which condition the lining may be separated and packed in moderate-sized bundles and crated. These parts may easily be put together and soldered by any ordinary tinner. The other portions of the vat, by loosening the bands and bolts, are easily separated. They are numbered and packed in bundles and may be re-assembled by any ordinary workman. It is unnecessary, therefore, to incur the great expense of sending experts around the country to set up the vats.

25 These vats, after they are set up ready for use, are seldom moved; but if it becomes necessary to move them, as aforesaid, the lining and attached rim may be lifted from the vat and the other parts separated, as already described.

What I claim is—

1. In a knockdown cheese vat, the combination, with an oblong bottom having rounded ends and a body made of staves, the end staves being crozed to engage the edges of the bottom, while the lower ends of the staves forming the sides of the body rest in grooves formed in the bottom, of bands securing the parts together, substantially as set forth.

2. In a knockdown cheese-vat, the combination, with a bottom having rounded ends and staves grooved or crozed for engaging the edges of the bottom, side staves, the lower ends of which rest in grooves formed in the bottom, a cap or top rail, and the timbers E, of one or more bands embracing the staves, and the rods F, passing through the top rail and bottom and timbers E, substantially as set forth.

3. In a knockdown cheese-vat, the combination, with the oblong bottom having rounded ends and the upright staves secured to said bottom, as described, the portion of the bottom between the curved ends projecting out beyond forming a rest for the upright staves, of a top or cap rail, the timbers E, the rods passing through the top rail, bottom, and timbers E, and hoops embracing the upright staves, substantially as set forth.

4. In a knockdown cheese-vat, the combination, with oblong bottom, upright staves secured to said bottom, as described, a top rail secured to the upper edges of the upright staves, and a rim secured on said rail, of a metallic lining secured to the rim, and strips interposed between the wooden bottom and metallic lining, substantially as set forth.

5. A knockdown cheese-vat with curved ends, upright staves forming said curved ends and crozed to embrace the bottom, and a middle section rectangular in form, the upright staves of which rest in grooves formed in the bottom boards, the section running crosswise of the vat and extending beyond the sides thereof, the parts being secured as described, and a tin lining supported from the wooden structure in such a manner as to leave a space between the two, all combined and arranged substantially as set forth.

6. In a knockdown cheese-vat, the combination, with an oblong bottom having rounded ends, a body made of staves, the end staves being crozed to engage the edges of the bottom, while the lower ends of the staves forming the sides of the body rest in grooves formed in the bottom, and bands for securing the parts together, of a metallic lining slightly smaller than said wooden structure and secured to the rim thereof.

7. In a knockdown cheese-vat, the combination, with an oblong bottom having rounded ends, a body made of staves, the end staves being crozed to engage the edges of the bottom, while the lower ends of the staves forming the sides of the body rest in grooves formed in the bottom, and bands for securing the parts together, of a metallic lining slightly smaller than said wooden structure, and heating-tubes located between the wooden structure and lining.

8. A knockdown cheese-vat with circular or rounded ends, having staves provided with crozing for embracing the edges of the bottom, and a middle section of rectangular form, the sides of which are of staves engaging grooves in the bottom, in combination with a tin lining supported from the outer structure in such a manner as to have a space between the two, substantially as set forth.

9. A knockdown cheese-vat having rounded or circular ends with staves provided with crozing in the usual manner, a middle rectangular section with staves engaging grooves in the bottom boards that extend crosswise and beyond the sides of the vat, a cap or rail, rods for holding the parts together, and hoops, bands, or rods encircling the staves, in combination with a tin lining supported from the outer structure in such a manner as to leave a space between, substantially as set forth.

10. A cheese-vat with circular or rounded ends made of staves provided with crozing for engaging the edge of the bottom and with a middle rectangular section, the sides of which are of staves engaging grooves in the bottom, and with a tin lining supported from the outer structure, in combination with heating pipes or tubes located between the tin lining and outer structure, substantially as set forth.

11. A cheese-vat having rounded or circular ends provided with staves having crozing for embracing the ends of the bottom, and a



middle rectangular section, the sides of which are of staves, said staves being adapted to engage grooves in the bottom boards that run crosswise and extend beyond the sides of the vat, and a tin lining supported from the outer structure in such a manner as to leave a space between, in combination with heating-pipes located in said space, substantially as set forth.

12. A cheese-vat with rounded or circular ends, of staves grooved for embracing the bottom, and a middle rectangular section, the sides of which are of staves engaging grooves in the bottom boards that extend crosswise and beyond the sides of the vat, a cap, rods

for holding the side staves and bottom together, and hoops encircling the staves, in combination with a tin lining supported from the outer structure in such a manner as to leave a space between the lining and outer structure, and heating-pipes located in said space, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 7th day of December, 1883.

DANIEL H. ROE.

Witnesses:

C. H. DORER,

ALBERT E. LYNCH.