

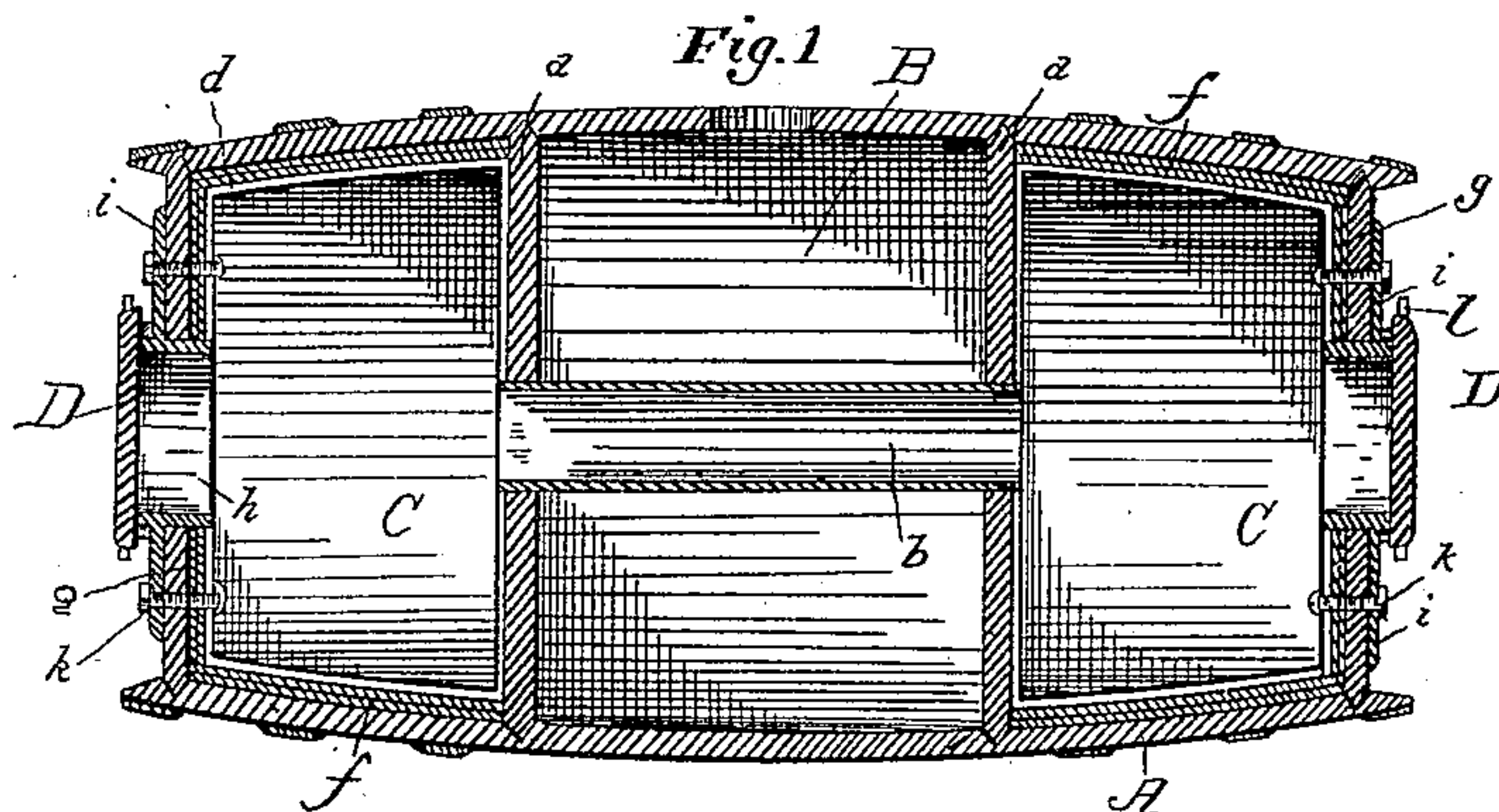
(No Model.)

G. A. LENZ & J. A. SAUER.

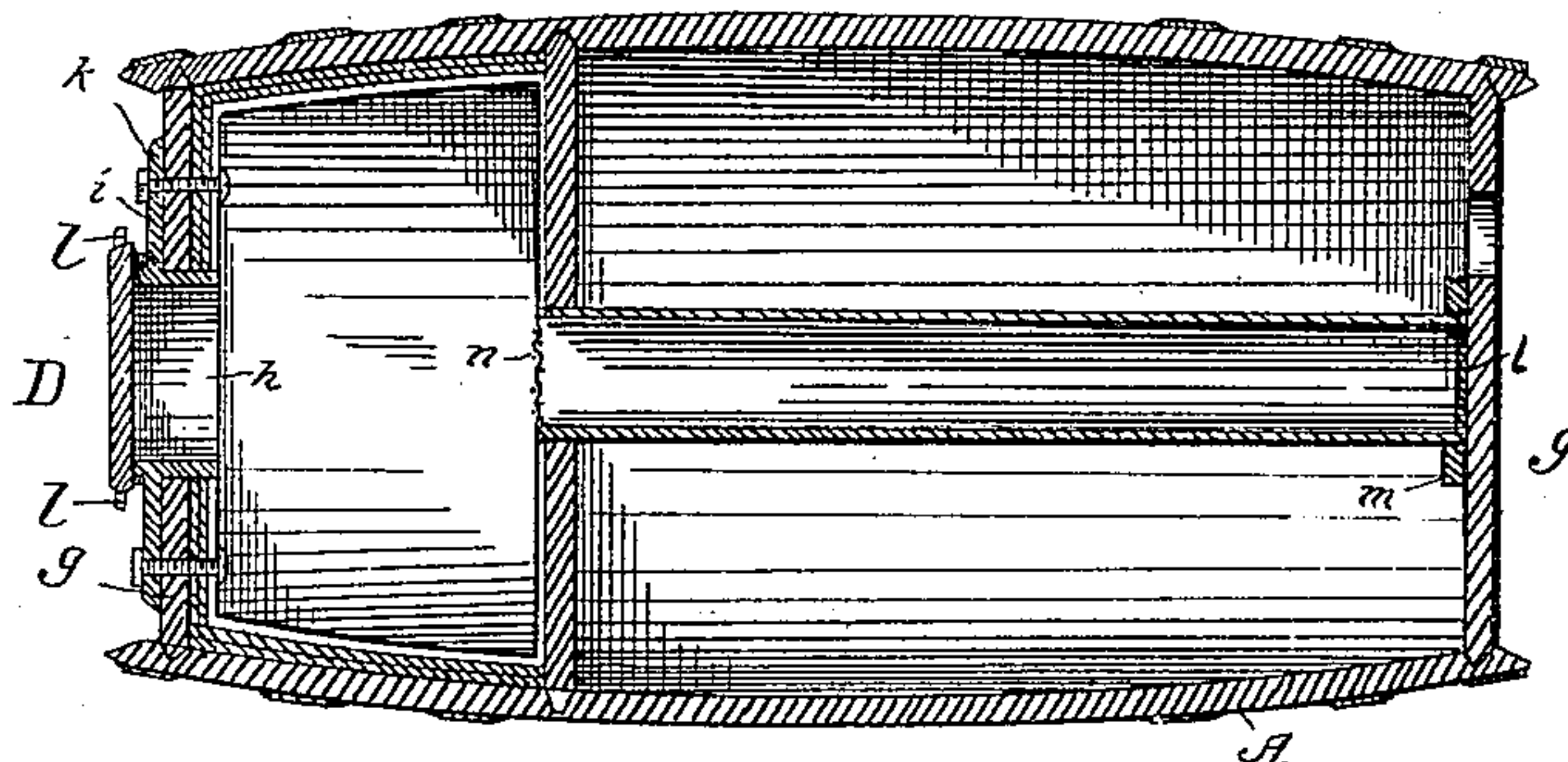
REFRIGERATING BARREL.

No. 249,642.

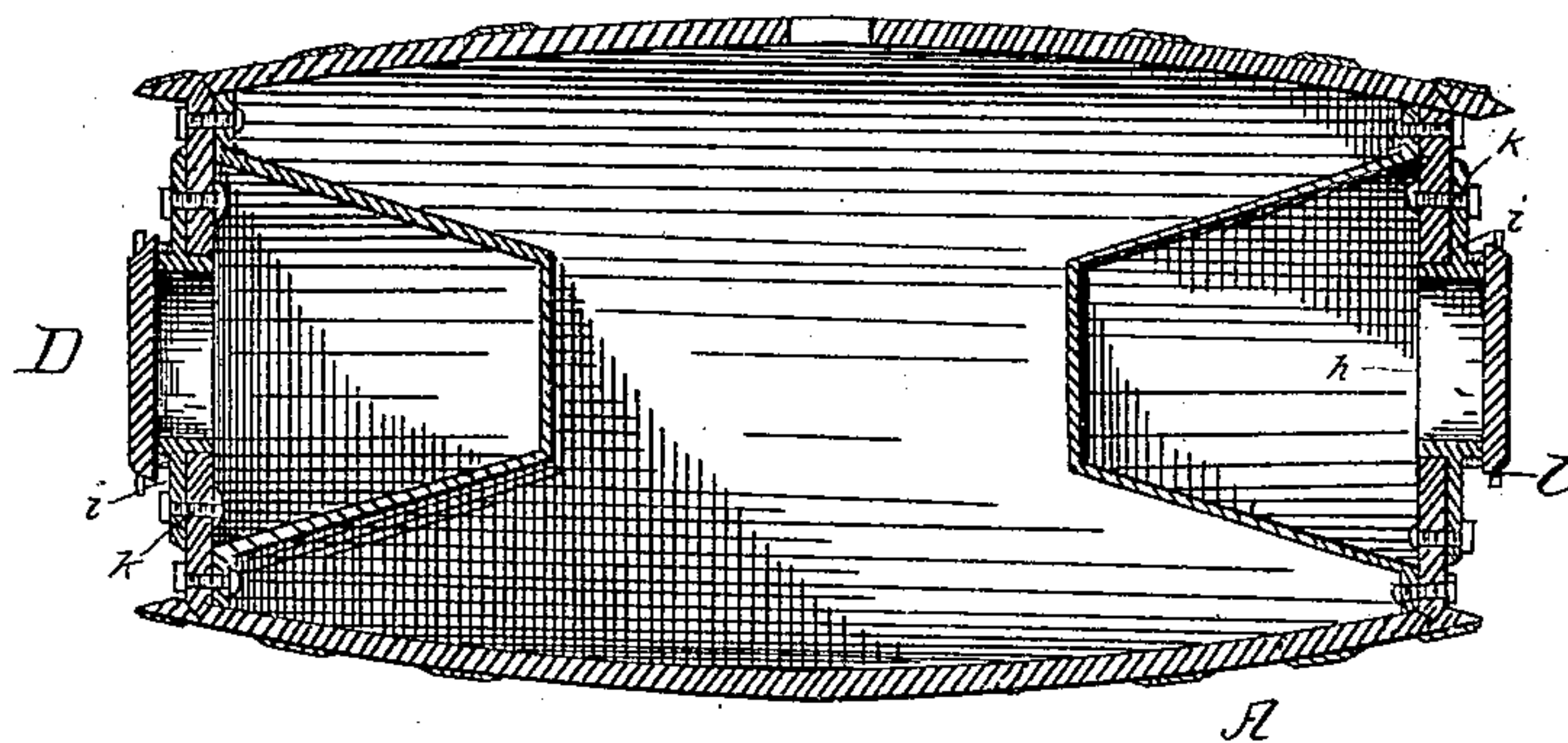
Patented Nov. 15, 1881.



*Fig. 2.*



*Fig. 3.*



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**WITNESSES**

WITNESSES  
Frank L. Middleton

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# UNITED STATES PATENT OFFICE.

GEORGE A. LENZ AND JOHN A. SAUER, OF BALTIMORE, MARYLAND.

## REFRIGERATING-BARREL.

SPECIFICATION forming part of Letters Patent No. 249,642, dated November 15, 1881.

Application filed September 15, 1881. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE A. LENZ and JOHN A. SAUER, of Baltimore, State of Maryland, have invented a new and useful Improvement in Refrigerating-Barrels; and I do hereby declare that the following is a full, clear, and exact description of the same.

Our invention is a refrigerating-barrel designed principally for holding and preserving oysters for shipment, but applicable also for other articles of a perishable nature.

It consists, essentially, of an ordinary barrel or like receptacle divided transversely by one or more diaphragms, forming a compartment or compartments provided with non-conducting linings for holding the ice, with an aperture or apertures for admitting the ice, and forming also a compartment for containing the oysters or other article, with a cylinder or chamber extending from the ice compartment or compartments through that which is intended to contain the material to be preserved and transported.

Heretofore oysters have been transported in barrels without any refrigerating material in contact with them, but under such circumstances it is possible to transport them only for short distances and in cool weather. Oysters are also transported in small tin cans, which are placed in contact with the ice, in which case the water from the melted ice runs freely from the boxes in which it is packed. Cans, of course, cannot be used a second time, and impair the flavor of the oysters.

Our object is to provide a wooden cask the material of which does not injure the flavor of the oysters; to pack the oysters air-tight in close proximity to the ice without, however, having them in contact with the ice or with water; and to retain the ice and the water formed by its melting within the same package and constantly near and within the mass of the oysters, whereby all its coolness is expended in preserving the oysters, and no waste or flow of water is occasioned during transportation, and whereby, also, the ice may be easily replaced after it is melted.

The mode of carrying out our invention is illustrated in the accompanying drawings, in which—

Figure 1 shows a central longitudinal sec-

tion of the receptacle in the shape of a barrel containing our invention with an ice-compartment in each end. Fig. 2 shows the same form of receptacle with an ice-chamber in one end only. Fig. 3 shows a modification of the device.

In these figures, A represents a barrel of ordinary shape and construction, and made of the material ordinarily used for such purposes.

In Fig. 1 are shown three compartments—a central compartment, B, and two compartments, C C, one at each end, and alike in size and in other respects. These compartments are formed by the heads and by two interior heads or diaphragms, *a*, each fitted in an ordinary croze made in the staves. These diaphragms are provided each with a central opening, in which is fitted a cylinder, *b*, passing through the central compartment and terminating on the outer surface of the diaphragms. This cylinder or chamber we make preferably of galvanized iron, but any other material may be used which will not injure the oysters by contact with them. The compartments C C are made water-tight, being provided with a lining of tin. This consists of an annular bottom placed upon the head or diaphragm *a*, with the central opening exactly fitted to the end of the cylinder and soldered thereto, with a like lining around the sides, (marked *d*,) and a second annular covering underneath the outer head, (marked *e*,) These parts are all securely soldered together, and are provided with a lining of non-conducting material, (marked *f*,) interposed around the sides between the tin and the staves, and also interposed between the tin and the outer head. This lining we prefer to make of ordinary coarse pasteboard about one-sixteenth of an inch in thickness, more or less; but other material of a non-conducting nature may be used instead.

The heads *g* are of ordinary construction, but are cut with an enlarged opening in the center for the admission of the ice. As these barrels are intended for repeated use and to be transported back and forth at great distances by railway or by ocean transportation, it is essential that the coverings of these openings by which the ice is admitted should be at the same time water-tight and capable of being readily put on or taken off, and capable also of being trans-



ported without injury. As these barrels are now made for the transportation of oysters, the heads are removed by starting the hoops, which is a matter of considerable difficulty. When done, as it usually is, by unskillful hands the barrel is greatly injured and often rendered useless. To provide for all these requirements we have made our barrel with the removable cover or covers D made preferably of cast-iron. These are fitted to a short cylinder, *h*, also preferably of cast-iron, which is itself fitted closely within the opening of the head, passing in so as to meet the edge of the tin lining, which it closely joins. This cylinder is provided also with an annular flange, *i*, adapted to rest on the head of the barrel and to be bolted thereto. An air-tight packing of rubber, felt, or any equivalent material is placed between the flange and the head, and bolts *k* pass through this flange, through the head and the linings, and are held by nuts on the inside. The outer end of the cylinder is turned with a thread, over which fits the cap D, provided also with an internal thread adapted to that upon the cylinder. The inside of the cap is provided with a disk of rubber, felt, or equivalent packing, which, when the cap is screwed down into place, is pressed upon the edge of the cylinder, making a tight joint. The cap is provided with lugs *l*, upon which a wrench of suitable construction may be placed for screwing down the cap. The lugs are made short, so that they are not available for turning the cap without aid of a specially-fitted wrench, so that the cap cannot be conveniently removed by unauthorized persons during transportation. As shown in the figures, the chine is extended, so as to be flush with the outer face of the cap D when in position.

Although we have shown this special construction of cap fitted to the threaded cylinder, other forms of cap may be used and well-known devices for securing them in place. That which we have shown we consider, on the whole, best adapted for the purpose.

When an ice-compartment is used in each end, as shown in Fig. 1, the galvanized-iron cylinder forms the connection between the two compartments, receiving the water from the melted ice and forming the interior cooling-chamber for the mass of the oysters which are contained in the central annular chamber about it. When only one ice-compartment is used this cylinder is made to extend from the ice-compartment through to the opposite head of the barrel, as shown in Fig. 2. The end of the cylinder is here covered by a circular piece of galvanized iron, as shown in Fig. 2, and is surrounded by a wooden gasket, *m*, to prevent any lateral movement. In this case we prefer to cover the end of the cylinder, where it opens into the ice-chamber, with a wire-gauze, *n*, Fig. 2, to prevent the sawdust used in packing ice from passing into the central cylinder.

The ice-chambers at the ends, instead of being formed in the manner heretofore described, may be made wholly of sheet metal, galvanized iron, or other suitable material, in the form shown in Fig. 3, the shape therein shown for the ice-chambers being that of a flaring vessel provided with horizontal flanges for connection with the head at the under side. This construction might be used instead of that shown. We do not, therefore, confine ourselves to the precise form of construction of the ice-chambers which we have particularly described.

When the central compartment is used, as shown in Fig. 1, the oysters or other article are introduced through an ordinary central bung-hole. It will be apparent that this compartment may be filled quite full and the bung-hole stopped air-tight, requiring no further opening until the barrel reaches its destination. The oysters are kept from the air and from contact with the ice or water, but are kept constantly cool by the vicinity of the ice or water.

If it happen, in case of transportation to great distances, that the ice should become melted, the caps may be removed and the ice replaced without disturbing the contents of the central compartment.

In case the ice-chamber be used only at one end, the opening to the compartment which is to contain the article to be observed may be through the head opposite the ice-chamber.

By means of this apparatus oysters may be transported across the Atlantic in a perfectly fresh condition.

Having thus described our invention, what we claim as new, and desire to secure, is—

1. A refrigerator-barrel provided with one or more interior diaphragms, *a*, forming an annular preserving-chamber, B, an ice chamber at one or both ends of such barrel, and a central tubular chamber communicating with the ice chamber or chambers, but closed from communication with the preserving-chamber, the melted ice being allowed free access to such tubular chamber.

2. A refrigerator-barrel having a single preserving-chamber and an ice-chamber at one or both ends, such chambers being non-communicating and having independent openings for the admission of their respective contents.

3. In combination with the barrel having the compartments, as described, the cylinder *h*, provided with the flange *i* bolted to the head, having screw-threads upon its exterior, and cap D, having lugs, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEO. A. LENZ.

JOHN A. SAUER.

Witnesses:

F. L. MIDDLETON,

E. A. DICK.