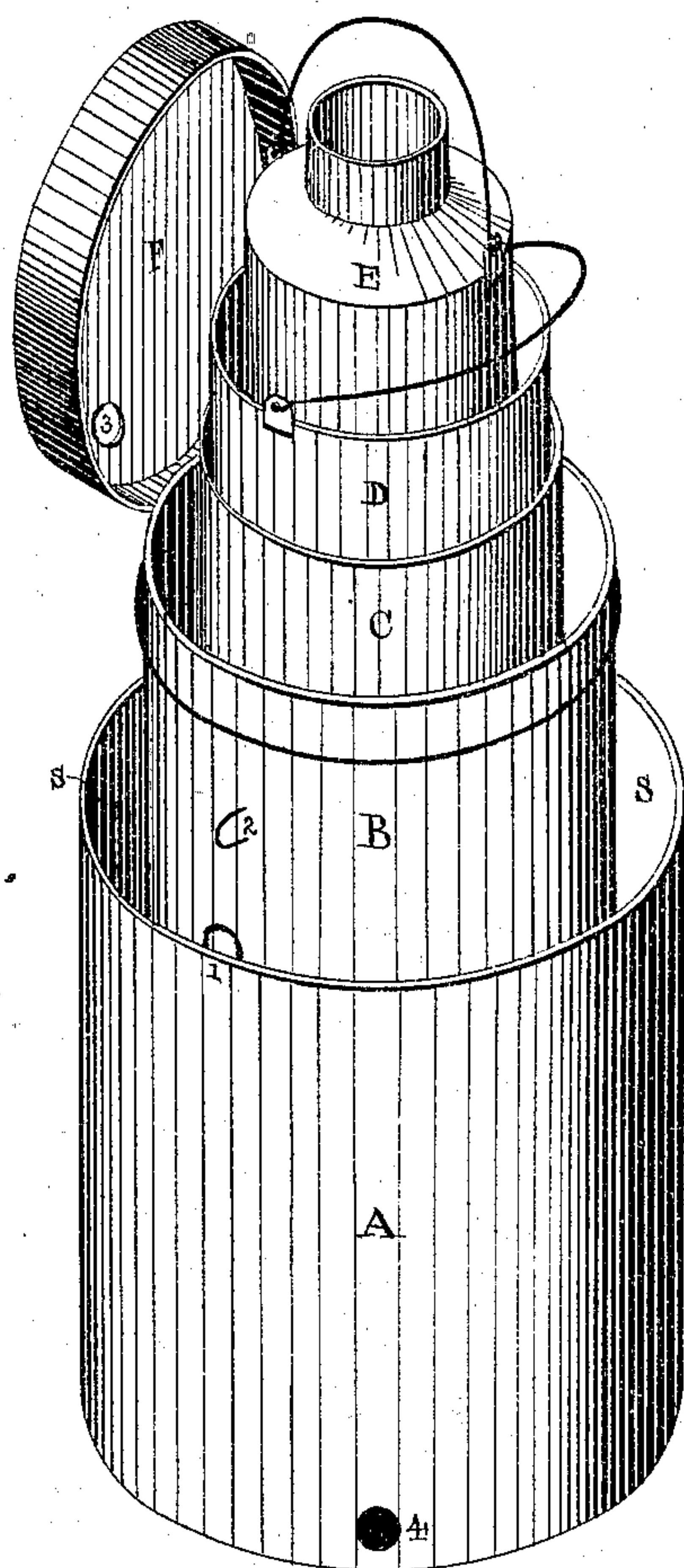


**B. R. DU VAL.**  
**Refrigerators.**

No. 138,488.

Patented May 6, 1873.

Fig 1-



Witnesses.

Jack Carr  
John L Moore

Inventor.

Benjamin Randolph DuVal.

# UNITED STATES PATENT OFFICE.

BENJAMIN RANDOLPH DUVAL, OF PORTSMOUTH, VIRGINIA.

## IMPROVEMENT IN REFRIGERATORS.

Specification forming part of Letters Patent No. **138,488**, dated May 6, 1873; application filed December 9, 1872.

*To all whom it may concern:*

Be it known that I, BENJAMIN RANDOLPH DUVAL, of Portsmouth, in the county of Norfolk and State of Virginia, have invented an Improvement in Refrigerators, which I call a zero refrigerator, of which the following is a specification:

### *Nature and Objects of the Invention.*

My invention relates to a combination of five vessels, in which a freezing mixture of three parts of crushed ice and one part of salt or potash, or other freezing mixtures, may be used, to suit the temperature, as low as zero, and to keep it below the freezing-point, as long as the duly repeated removal of the freezing mixture is continued, and thus to preserve meat and other things in a frozen state.

In the drawing referred to in this specification and making a part of the same, the first of the vessels in the combination is the case A, a water-tight cask, about two inches in diameter larger than the refrigerator B, and nearly as deep, with a loop, Fig. 1, to fasten to Fig. 2. This case A, filled with the freezing mixture which has been poured out of the charger D and the freezer E, after it has been used in them, till nearly up to the freezing-point, keeps out heat till the temperature of the mixture rises to that of the surrounding air. It is then drawn out at the hole, Fig. 4. The second vessel of the combination is the refrigerator B, a water-tight cask set in the case A, with a cushion in the top F, and a thermometer-hole, Fig. 3, and a loop, 2, to fasten to loop 1, on the case A, to hold it down and prevent it from floating. The third ves-

sel, the cold chamber C, is a vessel of tin or wood, about three inches every way smaller than the refrigerator B, and packed in it at S, with feathers, sawdust, or other non-conductors, under and around, and low enough to admit a cushion of feathers or cotton under the top F of refrigerator B. The fourth vessel, the charger D, is a tin vessel fitting in the cold chamber C, in which the freezing mixture is put to chill the cold chamber C and its surroundings with intense cold before putting in the things to be kept frozen, and then to be withdrawn and its contents poured into the case A. The fifth vessel is the freezer E, a vessel of tin, with a mouth and stopper, about one-third the size of the cold chamber C, in which freezing mixture is put. It is then put in the cold chamber C, with the things to be kept frozen, and remains there till the thermometer shows the temperature to be near the freezing-point, when it is to be taken out and the contents poured into the case A, and then it is to be replenished with freezing mixture and put back into the cold chamber C as often as may be necessary.

### *Claim.*

I claim as my invention—

The refrigerator, composed of the outer case or carrier, and series of contained vessels, forming non-conducting and freezing chambers, as and for the purposes specified.

BENJAMIN RANDOLPH DUVAL.

Witnesses:

JAS. F. CARR,  
JOHN L. MOORE.