

No. 632,356.

Patented Sept. 5, 1899.

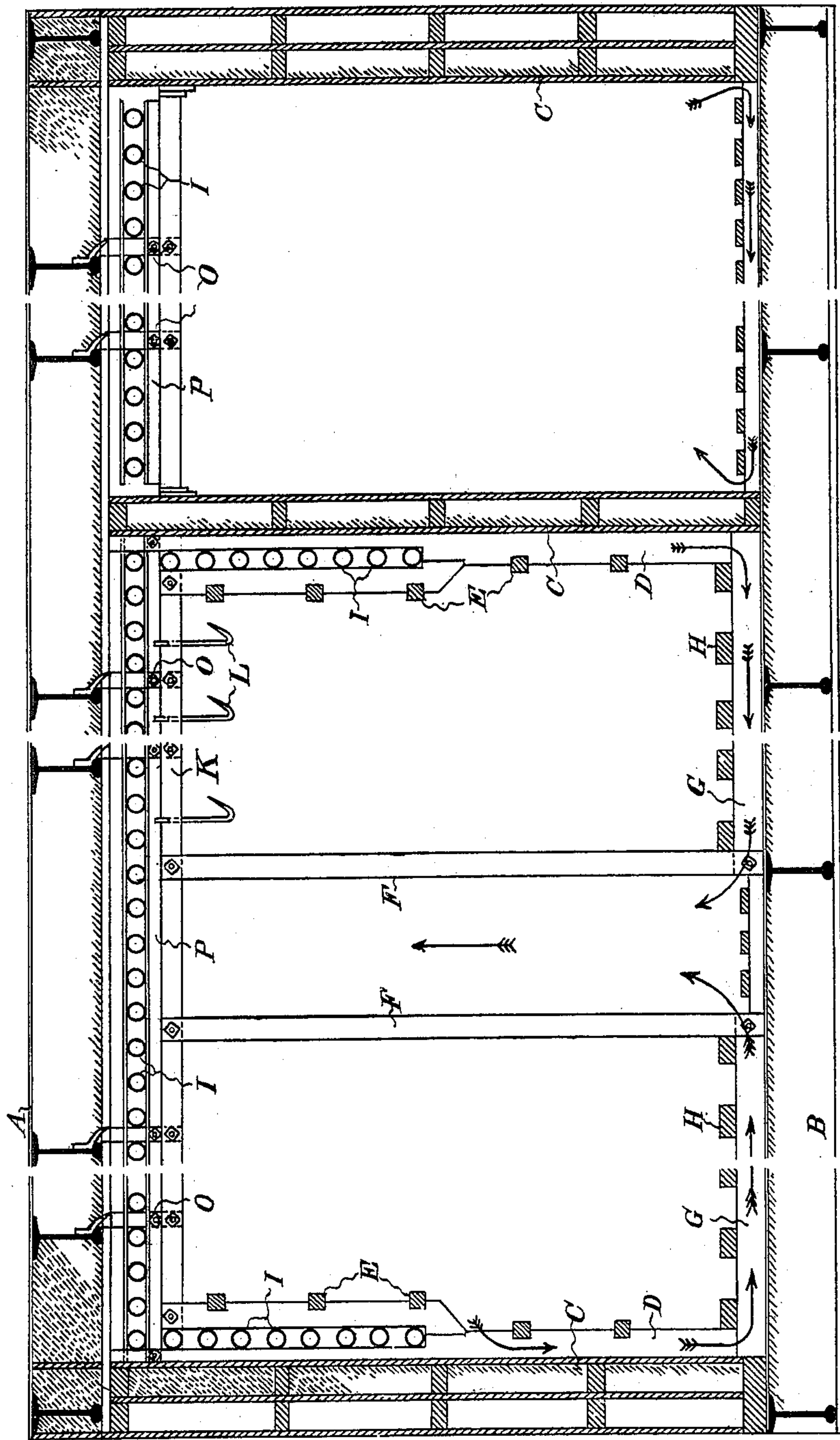
J. T. LUDLOW.  
COLD STORAGE APPARATUS.

(Application filed May 22, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses,

J. H. Morse  
C. A. Brandau

Inventor,  
James T. Ludlow  
By Dewey Strong & Co.  
attys

No. 632,356.

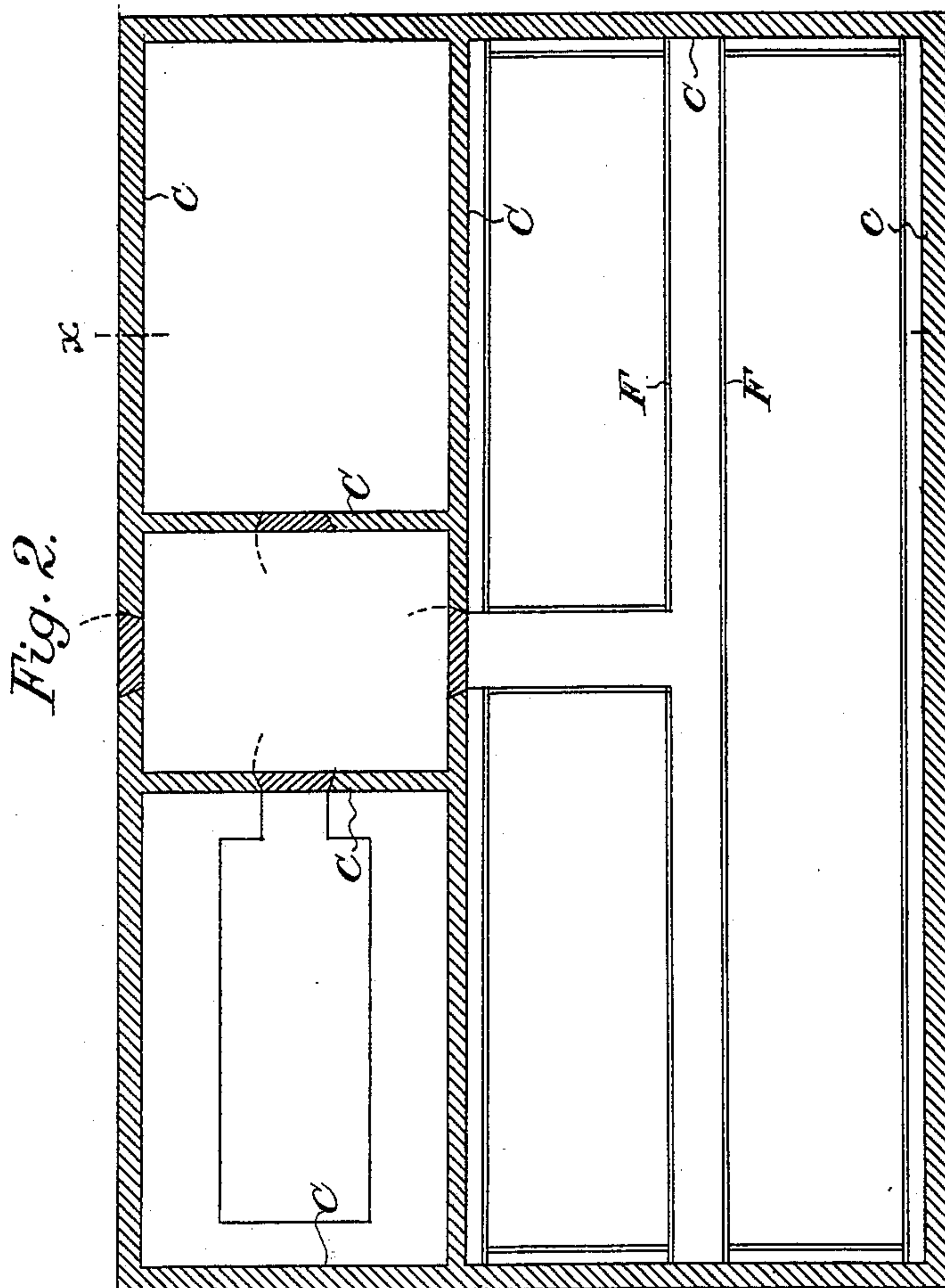
Patented Sept. 5, 1899.

J. T. LUDLOW.  
COLD STORAGE APPARATUS.

(Application filed May 22, 1899.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses,

*J. H. Morse*  
*C. A. Brandau*

*Inventor,*  
*James T. Ludlow,*  
*By Duvey Thorny Co. atty.*



# UNITED STATES PATENT OFFICE.

JAMES T. LUDLOW, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE  
VULCAN IRON WORKS, OF SAME PLACE.

## COLD-STORAGE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 632,356, dated September 5, 1899.

Application filed May 22, 1899. Serial No. 717,741. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES T. LUDLOW, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Cold-Storage Apparatus; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an apparatus which is chiefly designed for the cold storage of meats and like substances.

It consists, essentially, in the construction of a cold-storage room in which meat may be either hung up or packed in bulk, as desired, and means by which I secure a convenient method of changing from one system to the other and to secure a natural and even circulation of cold air around the outside of the bulk of packed meat.

The accompanying drawings illustrate my invention.

Figure 1 is a vertical section on the line X X, Fig. 2. Fig. 2 is a plan.

This apparatus is especially designed to be used on shipboard, but may be otherwise applied, if desired.

The room as here shown is built between the decks A B of a vessel and has vertical partitions C, made of tongue-and-grooved lumber, with interspaces filled with mineral wool or other suitable non-conducting packing. Vertical stanchions D are fixed along these walls, and transversely across these stanchions are fastened the horizontal bars or cleats E, with spaces between them and forming spaces between themselves and the walls, so that the contents of the room will be kept out of actual contact with the walls and will provide spaces or channels through which air may circulate, as will be hereinafter described. Intermediate vertical stanchions F are fixed at points to provide for air-circulating spaces and also passages through which access may be had to points within the room, if the latter be large, and between the various storage-spaces, these stanchions also having sufficient air-space between them. Upon the floor are laid joists G, and transversely across these are the bars or slats H, forming an open grille at the bottom which, connecting with the sides and intermediate spaces, forms connecting-passages

through which the cold air may be circulated around the contents of the rooms. In the present case I have shown the refrigerating-pipes I extending along the ceiling of the room and down the sides a short distance within the interspaces along the walls and between them and the gratings. Beneath these pipes are bars K, adapted to support the hooks L, upon which meat may be hung when it is desired to carry it suspended in this manner. The hooks are movable upon the bars to place the meat as may be desired. The refrigerating-pipes and the bars are suspended by means of hangers O, which are bolted to the deck beams, depending as shown, and the bars P, by which the refrigerating-pipes are supported, are bolted to these hangers, and below the bars P the bars K, upon which the hooks L depend, are also bolted to the same hangers O, thus forming a convenient structure for supporting these parts. The meat may either be hung upon the hooks, as shown, or it may be packed in solid mass in the spaces interior to the stanchions which form the air-passages around the walls. The air, being constantly cooled by contact with the cold pipes, will pass down around the sides of the room and thence along the floor-spaces or channels to the central passages, which, being larger, will form an upward draft, so that the air will be thoroughly circulated around and through the meat while the apparatus is in operation.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a cold-storage apparatus, rooms having close non-conducting walls, vertical stanchions removably fixed adjacent to said walls, transverse bars fixed to said stanchions with interspaces between them, the upper portion of said channels being enlarged to receive the refrigerating-pipes, a double series of removable stanchions fixed intermediate between the end walls of the room forming an open space between them, to give access to points within the room, parallel bars fixed near the ceiling of the room having hooks movable thereon for the hanging of meats, stringers laid upon the floors of the rooms, with transverse interspaced bars whereby an open circulating-space is formed at the ends, sides

and bottoms connecting with the intermediate open spaces of larger size, refrigerating-pipes extending over the ceiling of the room and partially inclosing the upper part thereof substantially as described.

2. In a cold-storage apparatus, rooms having non-conducting walls with stanchions and cross-bars removably fixed near said walls to form spaces between the walls and the bars, other stanchions fixed intermediate between the ends of the rooms forming an open space larger than those contiguous to the walls and through which access may be had, stringers with transverse bars upon the floors of the rooms whereby the end and central spaces are connected, refrigerating-pipes disposed along

the ceiling and around the upper parts of the inclosed packing-spaces, parallel bars situated below the lines of pipes with hanging-hooks thereon and hanging-bars having the upper ends fixed to the deck-beams and transverse bars bolted thereto forming supports for the refrigerating-pipes, the lower end of said hangers also forming supports for the hook-carrying bars.

In witness whereof I have hereunto set my hand.

JAMES T. LUDLOW.

Witnesses:

S. H. NOURSE,  
GEO. H. STRONG.