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E. J. WIRFS.

REFRIGERATOR OR COLD STORAGE ROOM.

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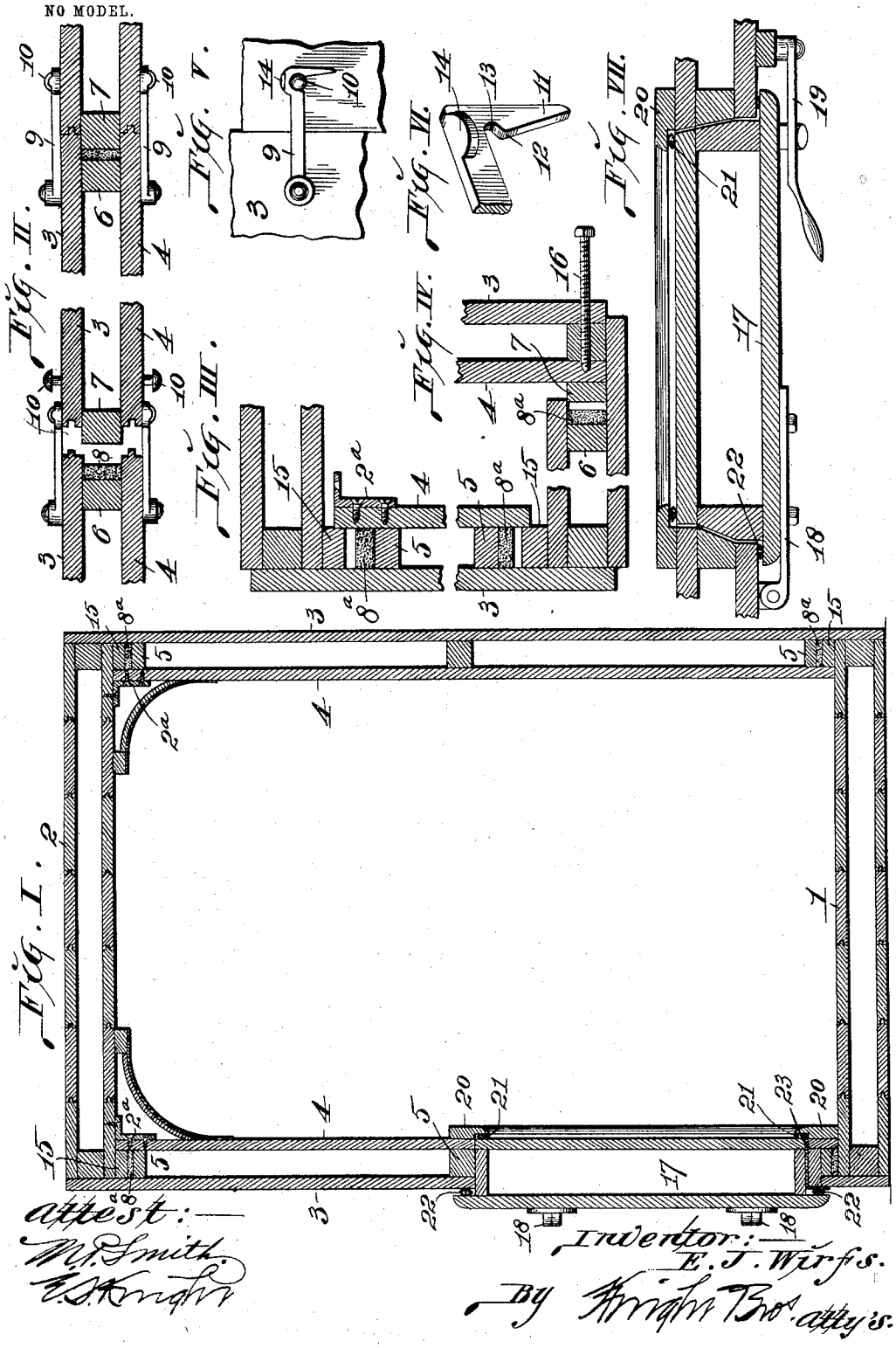
NO MODEL.



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No. 738,510. Patented September 8, 1903.

UNITED STATES PATENT OFFICE.

EDWARD J. WIRFS, OF ST. LOUIS, MISSOURI.

REFRIGERATOR OR COLD-STORAGE ROOM.

SPECIFICATION forming part of Letters Patent No. 738,510, dated September 8, 1903.

Application filed August 1, 1902. Serial No. 117,954. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. WIRFS, a citizen of the United States, residing in the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Refrigerators or Cold-Storage Rooms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an improvement in refrigerators and cold-storage rooms of the class used by butchers, packers, provision dealers, hotels, &c.; also, permanent structures for general cold-storage purposes. The improvements are calculated to overcome the defects found at present in all sectional refrigerators, which defects I will first point out and then set forth my remedy for them in my improvements.

When refrigerator-walls have been made sectional, a proper joint has not been obtained where the walls meet at the corners nor at bottom and top, and interstices or openings are so formed that however small cause leakages of cold air and transfer of heat, thereby causing greater ice consumption, besides defeating the advantage of an air-tight chamber in which an even temperature is maintained and which is not subject to changes of temperature, as is caused greatly by leaky joints of the sections. I overcome the above-mentioned defect by forming male and female joints in the refrigerator-walls with suitable packing between the mating sections.

To keep the top of sectional refrigerators from warping or opening at sealed joints from any cause, I provide an inverted-L-shaped casting fastened to the side and top refrigerator-walls in such manner as to hold the top section in place under all conditions.

Owing to the great difference in temperature between the interior and exterior of refrigerators, the doors soon swell and bind. I overcome this by using doors having points of contact inside and outside of wall proper. To carry out this improvement, I employ a gasket, which is compressed when the door or window is closed.

My invention consists in features of novelty hereinbefore named and in details of construction hereinafter fully set forth and claimed.

Figure I is a vertical section of a refrigerator-wall constructed in accordance with my invention. Fig. II is an enlarged horizontal section of one of the walls of the refrigerator, the meeting sections being shown in one instance separated and in another instance associated with the packing between them compressed. Fig. III is an enlarged section, partly broken out, illustrating the joints between the top and bottom sections and the vertical wall-sections. Fig. IV is a horizontal section taken through one corner of the refrigerator. Fig. V is a side view showing one of the hooks by which the wall-sections are connected. Fig. VI is a perspective view of the hook seen in Fig. V. Fig. VII is an enlarged horizontal section taken through a portion of the refrigerator-wall and the door of the refrigerator.

1 designates the bottom, and 2 the top, of my refrigerator.

The vertical sides of the refrigerator are of sectional form, and each section is composed of an outer wall 3 and an inner wall 4, which are supported and bound together by horizontal timbers 5, located between them. (See Figs. I and III.) 6 and 7 are vertical studs positioned between the walls 3 and 4 at the edges of the mating sections of the sides of the refrigerator. (See Fig. II.) The studs 6 are in each instance situated at a short distance from the edges of the section-walls 3 and 4, between which they are positioned to form grooves at the abutting edges of the sections, and lying against each stud in said groove is a layer 8 of felt packing material. The studs 7 project beyond the edges of the walls 3 and 4 of the sections in which they are positioned and are adapted when the sections are brought together to enter between the walls 3 and 4 of the opposing sections into the groove in front of the studs 6 and bear against the packing layers 8. By this arrangement it will be seen that male and female joints are produced with interposed packing by which an adequate closure is effected when the sections are drawn together by suitable means and without the requirement of an additional agent to seal the joint. I prefer to connect the vertical

wall-sections by hooks 9 applied thereto. These hooks are pivoted to one of the wall-sections, as seen in Figs. II and VI, and they are adapted to be thrown into engagement with pins 10, seated in the opposing section. Each hook is provided with a tapered point 11, having an inclined cam-face 12, that terminates at a notch 13 at the angle of the hook. When the mating wall-sections are assembled and the joints between them are to be closed, the hooks 9 are thrown over the pins 10 and forced downwardly preferably by striking them with a hammer, for the reception of which the hooks are provided with lugs 14, against which the hammer is struck. As the hooks are forced down, the cams 12 have their points ride against the pins 10, with the result that the sections are drawn tightly together, and as the terminations of the cams are reached the pins enter notches 13 in the hooks and serve to hold the hooks from escape. Where the side wall-sections are joined at their corners with the sections of the meeting sides of the refrigerator, studs 6 are located in the rear of the inner wall-sections, as seen in Fig. IV, and a corner stud 7 is utilized to enter between the walls of the opposing side section and bear against the packing layer 8^a.

The horizontal timbers 5 between the vertical sides of the refrigerator are located between the walls 3 and 4 at a sufficient distance from the top and bottom edges of the inner walls to provide grooves in which layers 8^a of felt packing material are seated (see Figs. I and III) and into which top and bottom pressure-strips 15 enter to bear against the layers of packing and compress them, thereby providing male and female joints both between the top and bottom of the refrigerator and the side walls in a similar manner to that hereinbefore described in regard to side walls. The weight of the side walls and of the top of the refrigerator provides sufficient pressure upon the layers of packing to close the joints, and therefore the hooks 9 or any other means of closing the joints are unnecessary. The sides of the refrigerator are connected at the corners by lag-screws 16, which are inserted through the walls of the sides and enter into the studs of the coincident sides, as seen in Fig. IV. By the use of these screws the packing-layers at the corners of the refrigerator may be tightly compressed, as will be readily understood.

2^a designates angle-brackets secured in the upper corners of the refrigerator to the sides and top, whereby the parts are securely held together and warping is effectually avoided.

17 designates the door of the refrigerator, which is mounted on hinges 18. (See Figs. I and VII.)

19 is a latch by which the door is held in closed position.

20 is a rim secured to the inside of the refrigerator-wall and projecting over the doorway therein, and 21 represents packing-strips secured to the rim 20. 22 represents packing-strips secured to the outside wall to receive the rim of the door 17. When the door is closed, as seen in Fig. VII, its inner face bears against the packing-strips 21 and the rim at its outer side bears against the packing-strips 22, thereby producing double air-tight joints to exclude the entrance of warm air or the escape of cold air through the interstices between the walls and the door.

23 (see Fig. I) is a wear-plate located in the doorway to serve as a threshold that will withstand the wear incident to the passage of persons through the doorway.

I am aware that it is not new to introduce rubber packing in the joints between the sections of a refrigerator-wall, and I do not claim such as my invention. The packing that I use is of felt, such material being adopted by reason of its unliability to deteriorate, as does rubber when used for any considerable period. In the use of rubber as a packing material it is not only liable to deteriorate, but is also liable to become hard, and when such conditions occur the packing is rendered worthless and of no utility, whereas by the use of felt I furnish a packing that will retain its natural condition throughout the period of its use.

I claim as my invention—

A refrigerator composed of sections, each having inner and outer walls, horizontal timbers located between the walls to bind them together, vertical studs on mating sections being on one situated a short distance in from the edge to form a groove, while on the other projecting beyond the edge to enter the groove of the adjacent section and break the joint between the two sections, layers of packing fitted into the groove, pins carried by one of said sections, and hooks rigid throughout their length provided with cam edges and notches at their upper ends of said cam edges securing said sections together.

EDWARD J. WIRFS.

In presence of—
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M. P. SMITH.