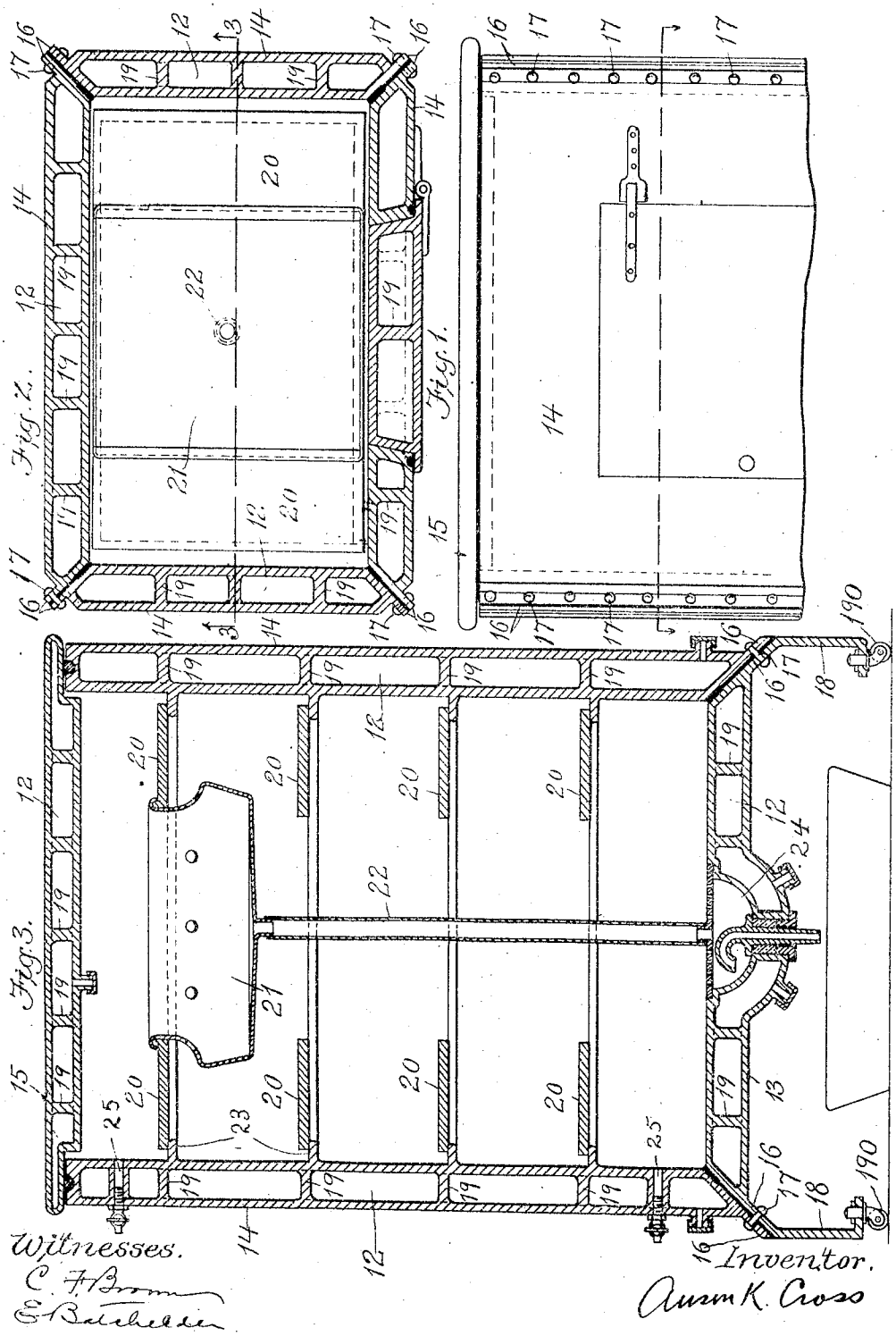
A. K. CROSS.

REFRIGERATOR.

APPLICATION FILED JULY 3, 1907.

951,058. Patented Mar. 1, 1910.



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REFRIGERATOR.

951,058. Specification of Letters Patent. Patented Mar. 1, 1910.

Application filed July 3, 1907. Serial No. 382,068.

To all whom it may concern:

Be it known that I, ANSON K. CROSS, of Winthrop, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Refrigerators, of which the following is a specification.

This invention relates to refrigerators or cold storage receptacles, the walls of which are rendered non-conductors of heat by means of air-tight spaces or chambers in said walls from which chambers, air is exhausted to form a vacuum space practically surrounding the storage chamber and preventing heat from being conducted through the walls of the receptacle so that a low temperature may be maintained in the receptacle with a minimum consumption of ice.

Heretofore it has been proposed to provide a vacuum space or chamber surrounding a storage space, the vacuum space being practically continuous so that, in the event of leakage of air into the vacuum space at any point in the wall of the refrigerator, the entire vacuum will be destroyed.

My invention has for its object to minimize the loss or impairment of the vacuum by leakage at any given point in the wall of a refrigerator of the class to which my invention relates, and to this end it consists in a refrigerator comprising hollow wall sections, each having a space from which air is adapted to be exhausted, the spaces of the sections being independent of each other so that, in the event of leakage of air at any one point in the refrigerator wall, the disturbance of the vacuum will be confined to the section in which the leakage occurs, the vacuum being maintained at all other parts.

Of the accompanying drawings forming a part of this specification, Figure 1 represents a front elevation of a refrigerator embodying my invention. Fig. 2 represents a section on the line 2—2 of Fig. 1. Fig. 3 represents a section on the line 3—3 of Fig. 2.

The same numerals of reference indicate the same parts in all the figures.

In the drawings which illustrate one embodiment of my invention selected for purposes of illustration, I have shown a storage space or receptacle, the walls of which are composed of sections which are independent of each other, each section being hollow and containing an air-tight space 12. Each space is complete within itself, and the space 12 of each section is adapted to be independently exhausted of air and hermetically closed so that leakage of air into any section will not affect the vacuum in any other section or sections. Each section is exhausted by any suitable means to form a vacuum, each section being hermetically closed after the exhaustion of the air.

As here shown, each of the side walls of the receptacle is composed of a single section, namely, a horizontal bottom section 13, vertical side sections 14, and a horizontal top section 15. These sections may be of any suitable material or materials, and are suitably connected to form a storage chamber of substantially air-tight construction. As here shown, the bottom and side sections are provided with beveled edges 16 which are preferably the sides of flanges formed on said sections, as shown in Figs. 2 and 3, said flanges being connected by bolts 17. Suitable packing strips may be interposed between the beveled edges 16 to form air-tight joints. The bottom section 13 is shown as provided with downwardly projecting legs 18 having casters 190. The top section 15 is preferably hinged to one of the side sections so that it constitutes a top or cover which may be raised to permit access to the interior of the receptacle. The sections may be provided internally with stay-bolts 19 to prevent the sides of the sections from being forced together by atmospheric pressure. The interior of the receptacle may be provided with suitable shelves 20 and with an ice receptacle 21, here shown as a pan, detachably supported by the upper shelves and provided with a waste pipe 22 adapted to conduct away the water resulting from the melting of the ice, said waste pipe leading to a trapped outlet in the bottom section 13. Suitable ventilating means may be employed to ventilate the interior of the receptacle if desired. The sections may be of any suitable material, for example, each section may be cast from aluminum or other suitable metal.

It is obvious that the number of sections forming the walls of the storage receptacle may be greater than that here shown, and I do not limit myself to a construction in which each side wall is made as a single part.

The air may be exhausted from the sections in any suitable way and any suitable

means may be employed for hermetically sealing each section after the air has been exhausted from it.

The storage chamber may be either portable or fixed.

A cold storage chamber or structure of any desired size may be made in accordance with my invention.

A structure embodying my invention as above described, may have an outer casing or an inner casing or lining, or both, of wood or other suitable material.

As shown in Fig. 3, the inner walls of the side sections are formed with integral ledges or ears 23 on which the shelves 20 may be removably supported. This integral structure provides a support for the shelves for regulating any internal attachments to be made to the sections, as by nails or screws or other means which might tend to weaken the inner walls of the sections so as to produce leaks. As also shown in Fig. 3, the bottom section not only has integral legs 18 but is formed with an integrally depressed portion 24 to receive drippings or water of condensation. This depression forms an integral cup 24 from which the drippings or water may be drawn through the medium of any suitable outlet pipe. The ventilating tubes or pipes 25 are also formed integrally with the inner and outer walls of the sections so that the presence of said pipes or tubes will not tend to weaken the walls of the sections and result in leakage of air.

I claim:

1. A refrigerator comprising hollow wall sections, each of which is cast in one piece, and incloses an independent vacuum chamber, each section having an air outlet adapted to be hermetically sealed, the chambers being exhausted and sealed before the sections are assembled, said sections being provided with internal means for supporting their sides against atmospheric pressure, and being connected together to form a storage receptacle.

2. A refrigerator comprising hollow wall sections each of which is an independent vacuum chamber, said sections being operatively connected to form a storage receptacle, the lower or bottom section having integral legs projecting downward to support the bottom section above the floor.

3. A refrigerator comprising hollow wall sections each of which is an independent vacuum chamber, said sections being operatively connected to form a storage receptacle, the lower section having an integrally formed depression or cup shape portion to receive drippings or water of condensation.

4. A refrigerator comprising hollow wall sections each of which is an independent vacuum chamber, said sections being operatively connected to form a storage receptacle, the said sections having integral ledges adapted to support removable shelves.

5. A refrigerator comprising hollow wall sections each of which is an independent vacuum chamber, said sections being operatively connected to form a storage receptacle, one of said sections having pipes or tubes extending entirely through it and integral with both the inner and outer walls of the said section.

6. A refrigerator comprising hollow wall sections each of which is an independent vacuum chamber, said sections being operatively connected to form a storage receptacle, said sections having beveled edges formed with integral extensions or flanges which are bolted together outside of the refrigerator.

In testimony whereof I have affixed my signature, in presence of two witnesses.

ANSON K. CROSS.

Witnesses:
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P. W. Pezzetti.