No. 891,660. PATENTED JUNE 23, 1908.

C. H. BOECK.

PROVISION RACK.

APPLICATION FILED JAN. 10, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

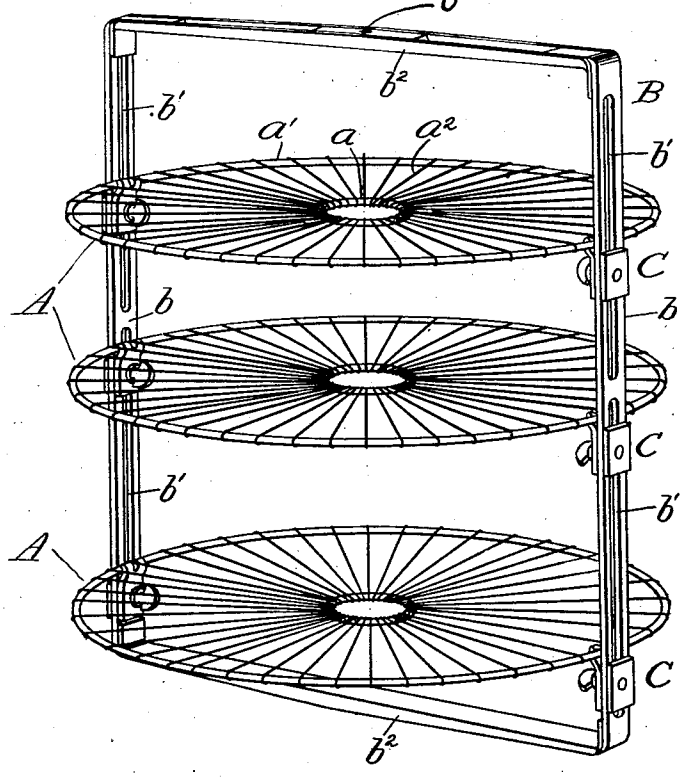


Fig. 2.

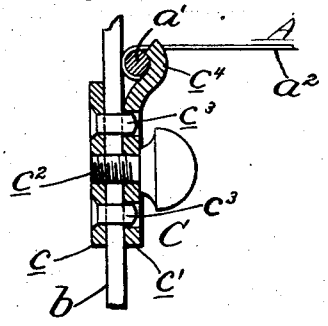
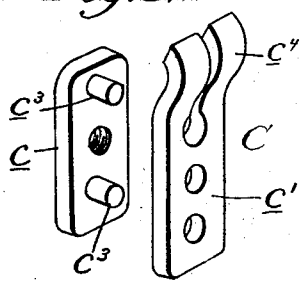


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

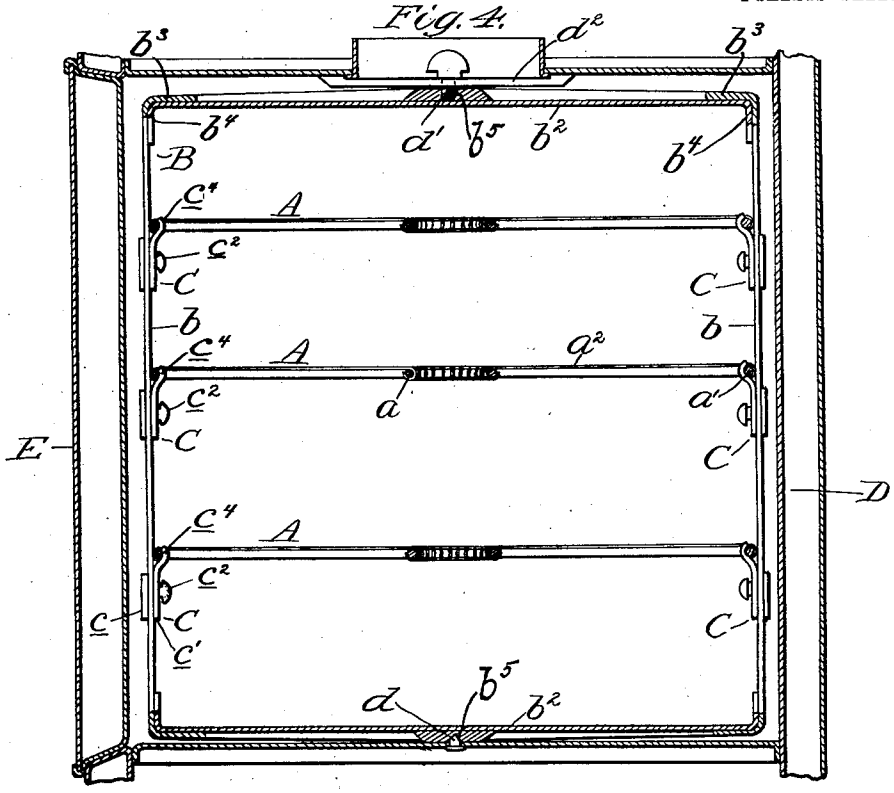
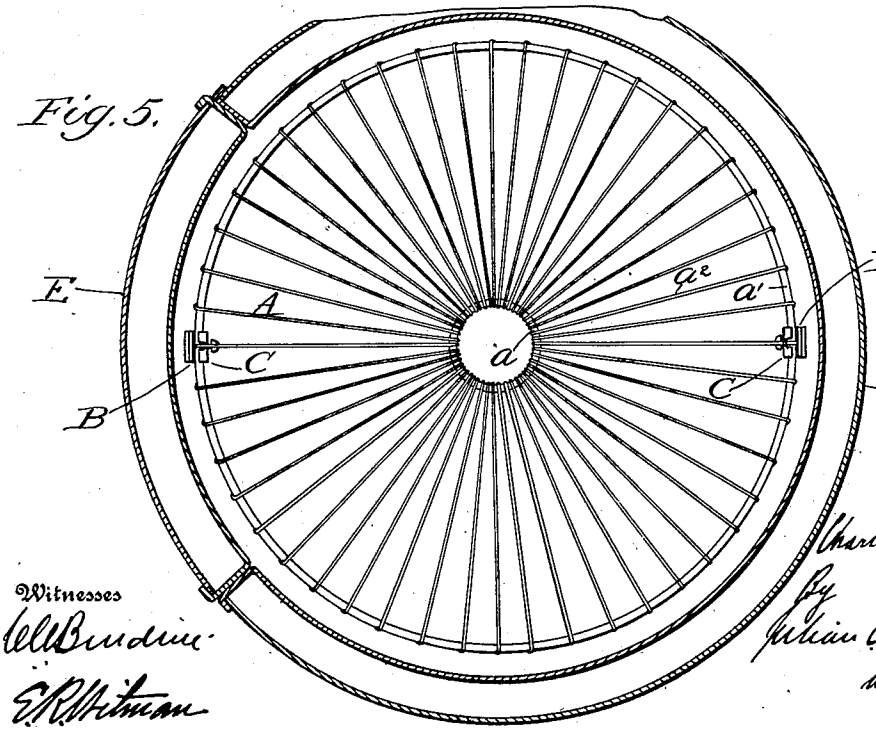


Fig. 5.



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UNITED STATES PATENT OFFICE.

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PROVISION-RACK.

No. 891,660. Specification of Letters Patent. Patented June 23, 1908.

Application filed January 10, 1907. Serial No. 351,707.

To all whom it may concern:

Be it known that I, CHARLES H. BOECK, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Provision-Racks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to supporting shelves for refrigerators, provision-safes, and other storage receptacles.

The object is to provide an efficient and practicable construction of rack with shelf or shelves, having the combined qualities of lightness, simplicity and strength, as well as neatness of design, and permitting the shelves to be conveniently revolved so as to be more readily accessible from the door or opening of the refrigerator or other casing, and allowing the shelves to be easily adjusted up and down to render them adaptable for different requirements, and also to be easily detached and replaced for cleansing or other purposes.

The invention will hereinafter be fully described with reference to the accompanying drawings (hereby made a part of this specification), and then more particularly pointed out in the claims which follow this description.

In said drawings, Figure 1 is a perspective view of a rack and shelves embodying my invention. Fig. 2 is an enlarged detail section of one of the clamps for securing a shelf to the side members of the rack. Fig. 3 is an enlarged detail perspective of one of the clamps with its members unassembled. Fig. 4 is a central vertical section through the provision-chamber of a refrigerator, showing the rack and shelves mounted thereon, the rack being shown partly in elevation and partly in section. Fig. 5 is a horizontal section of the subject-matter of Fig. 4.

As shown in the drawings, the provision-shelves A are placed one above another within an upright rack B. The rack is in the form of a rectangular frame, pivotally mounted or adapted to be pivotally mounted so as to be revoluble about a substantially central vertical axis, the top and bottom members of said frame having suitable provision for making pivotal connections or bearings with the support or supports for the rack.

The construction of one of the shelves A is as follows: It resembles a wheel in general form, comprising inner and outer rings a and a' respectively, preferably stout metal rings made of continuous round rods or heavy wires; said rings being connected by a series of radiating fine rods or taut wires a^2, the ends of which are rigidly joined to the rings, preferably by bending the said ends of the rods or wires over and around the rings a and a'. This construction is exceedingly light, and at the same time strong and rigid, due to the tension of the plurality of rods or wires radiating in all directions from the central ring a of the shelf. The shelf also possesses a certain amount of elasticity, and is practically non-breakable.

Each shelf A is held in the revoluble rack B by means of clamps C adjustably-engaging the side members b of the rack, and engaging the rim or outer ring a of the shelf in such manner as to permit detachment thereof. The side members b of the rack or frame B are shown slotted, as indicated at b', and the clamps C respectively comprise a pair of co-acting outside and inside clamp-members c, and c' embracing the said side-members b between them, and drawn together by a thumb-screw c^2, the head of which is located at the inside of the rack to avoid any obstruction or projection on the outside. One of said clamp-members also has lugs or pins c^3 projecting from its face and extending through the slot b' and through openings therefor in the other clamp-member, whereby the clamp is prevented from turning on the side-member b of the rack, while the two members of the clamp are also kept in proper relation. The inner clamp-members c' are formed or provided with claws c^4, which engage and overlie the rim or outer ring a' of the shelf from the inner side thereof; the said claws c^4 being shown bifurcated so as to straddle the radial rods or spokes a^2 of the shelf. The word "claw" is intended to include any suitable curved finger or other device, carried by the inner clamp-member c', to engage the marginal shoulder constituted by the outer ring a' of the shelf. When the shelf is thus engaged by the claws c^4, and the thumb-screws c^3 are tightened, the clamps C are rigidly attached to the side-members b of the rack, while the shelf is also held rigid and

without possibility of becoming displaced. To adjust the shelf vertically, the thumb-screws c^3 of the clamps at the opposite sides of the shelf are loosened and the shelf is then moved up and down to desired position, whereupon the thumb-screws are again tightened. The loosening of the thumb-screws c^3 for this purpose will not release the shelf, or cause accidental detachment of the shelf from its clamps, since the claws c^4 of the clamps engage the outer ring a' of the shelf in such manner that the clamps have to be separated to a considerable extent before the shelf can be detached.

The rack B, like the shelf, is preferably though not essentially made of metal, and, for the sake of lightness and strength, the top and bottom members b^2 of the rack may comprise channel-beams or bars, having their extremities respectively bent downward and upward at the corners of the rack, as indicated at b^3, the said bent extremities b^3 being fitted against the inner sides of the side-members b, whose extremities are respectively bent inward as at b^4 and fitted in the ends of the said channeled top and bottom members. As thus constructed and assembled, the parts of the rack-frame may be secured by welding or by fastenings. The rack may also be made from a single metallic strip bent into rectangular form.

For the purpose of illustration, Fig. 4 represents the rack with its shelves mounted in the provision-chamber of a refrigerator, denoted by the letter D. The top and bottom members b^2 of the rack are shown provided medially with sockets b^5, the lower one of which is engaged by a pintle or stud d on the floor of the provision-chamber, while the upper one is engaged by the end of an adjustable screw d' tapped through a suitable holder d^2 at or near the ceiling of the provision-chamber, thus constituting the pivotal bearings for the rack. In this instance, the holder d^2 is shown as a cross-bar or spider arranged in or under a central opening in the ceiling of the provision-chamber, which opening is intended to permit the descent of cold air down into the provision-chamber from the ice-chamber above the same. The refrigerator is shown cylindrical, and the rack pivotally-supported at substantially the center thereof is adapted to revolve with its side-members close to the inside refrigerator walls, so that the circular shelves A within the rack occupy practically the full cross-sectional capacity of the provision-chamber. Upon opening the refrigerator door E, the rack can be readily revolved so as to bring all sides of the provision-shelves foremost, to facilitate the arrangement of food or other articles on the shelves or the removal of the same, obviating the necessity of reaching across the width of the shelves; while the shelves can be adjusted vertically, or can be detached and replaced, as may be desired, by proper manipulation of the clamps C, as hereinbefore explained.

It will be noted that the construction of the shelves A is such as to present practically no obstruction to the descent of cold air and the free circulation of air currents through the shelves and throughout the entire provision-chamber. The shelves are also adapted to receive a central rod or drip-pipe, as in those refrigerators wherein the shelves are arranged around a drip-pipe. However, one of the advantages of this rack and mode of mounting the shelves therein is that there is no need of a central drip-pipe or pivot-post for supporting the shelves; hence the drip-pipe from the ice-chamber can be located out of the way; example, it can be located in the annular dead-air space between the outer and inner refrigerator walls, as explained in my concurrently filed application Serial No. 351,706. Heretofore, it has frequently been thought necessary to mount the provision-shelves of an upright refrigerator upon a central post, and for this purpose the drip-pipe has customarily been utilized. The present construction provides an improved means for obviating the need of such central pivot-post, thereby leaving the whole area of the shelves unobstructed to receive provisions or other articles.

While my improvements are especially intended for use in refrigerators or other storage receptacles, it will be understood that the invention is susceptible of general utility, for the purpose of supporting food or other articles in various kinds of receptacles or cases intended for storage, display, preserving or for the purpose of treating the articles. The rack may also be pivotally mounted in any suitable manner, as by providing pintles or spindles on the top and bottom members of the rack adapted to fit in suitable bearings for the same.

While the shelves are preferably circular, they may of course be made polygonal, and the terms "ring" and "rings" as used herein, and in the following claims, are to be construed as including either polygonal or annular forms thereof.

Various modifications in details may be included within the scope of my invention.

I claim:

1. A rack for storage and other receptacles, comprising an upright rectangular frame adapted to be pivotally-mounted to revolve about a substantially central vertical axis, a horizontal shelf or shelves arranged therein, and clamps detachably-engaging the rim or marginal portion of said shelf or each of the shelves and adjustably-engaging the side-members of said frame.

2. A rack for storage and other receptacles comprising a frame having upright side-members, a shelf therein having a shoulder

at its rim or outer portion, and devices attached to said side-members of the frame having claws detachably embracing the said shoulder on the shelf.

3. A rack comprising a frame having upright side-members longitudinally slotted, a shelf arranged therein, and clamps supporting said shelf and comprising coacting clamp-members embracing said side-members of the frame and having a thumb-screw securing them together, one clamp-member also having a projection extending through the slotted side-member of the frame and into a hole or socket therefor in the other clamp-member.

4. A rack comprising a frame having upright side-members, a shelf arranged therein comprising outer and inner rings with radial rods or wires connecting them, and devices on said side-members of the frame having adjustable claws for engaging the outer ring of said shelf.

5. A rack for storage and other receptacles comprising an upright rectangular frame and one or more horizontal shelves therein each consisting of concentric inner and outer rings and radial wires or rods rigidly connecting the same, and devices on the side members of said frame engaging the outer ring or rings of said shelf or shelves and thereby holding the same.

6. The frame for supporting shelves comprising side-bars and channeled top and bottom bars, the ends of the side-bars being bent inward and fitted in the ends of said channeled bars at the corners of the frame, and the ends of said channeled bars being bent respectively downward and upward and fitted against the inside faces of said side-bars.

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

CHARLES H. BOECK.

Witnesses:

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WM. P. HANNAFORD.