L. H. VOGEL & J. BURROWS.

REFRIGERATOR.

APPLICATION FILED JAN. 20, 1910.

1,143,243.

Patented June 15, 1915.

2 SHEETS—SHEET 1.

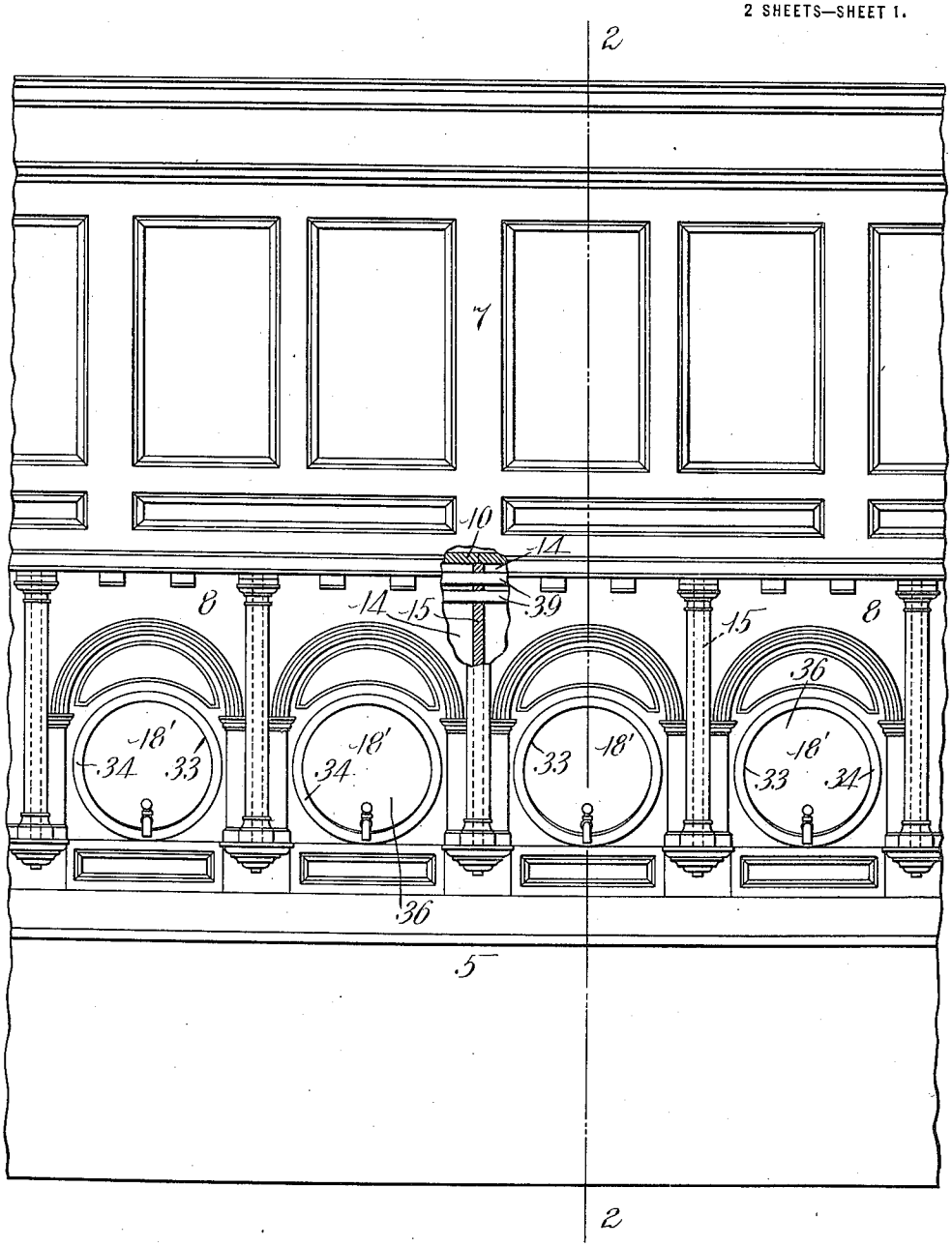


Fig. 1.

Witnesses.
Franklin & Low.
Leonard A Powell

Inventors.
John Burrows
and Leopold H. Vogel
by their attorney. Charles S Fooks.

L. H. VOGEL & J. BURROWS.

REFRIGERATOR.

APPLICATION FILED JAN. 20, 1910.

1,143,243.

Patented June 15, 1915.

2 SHEETS—SHEET 2.

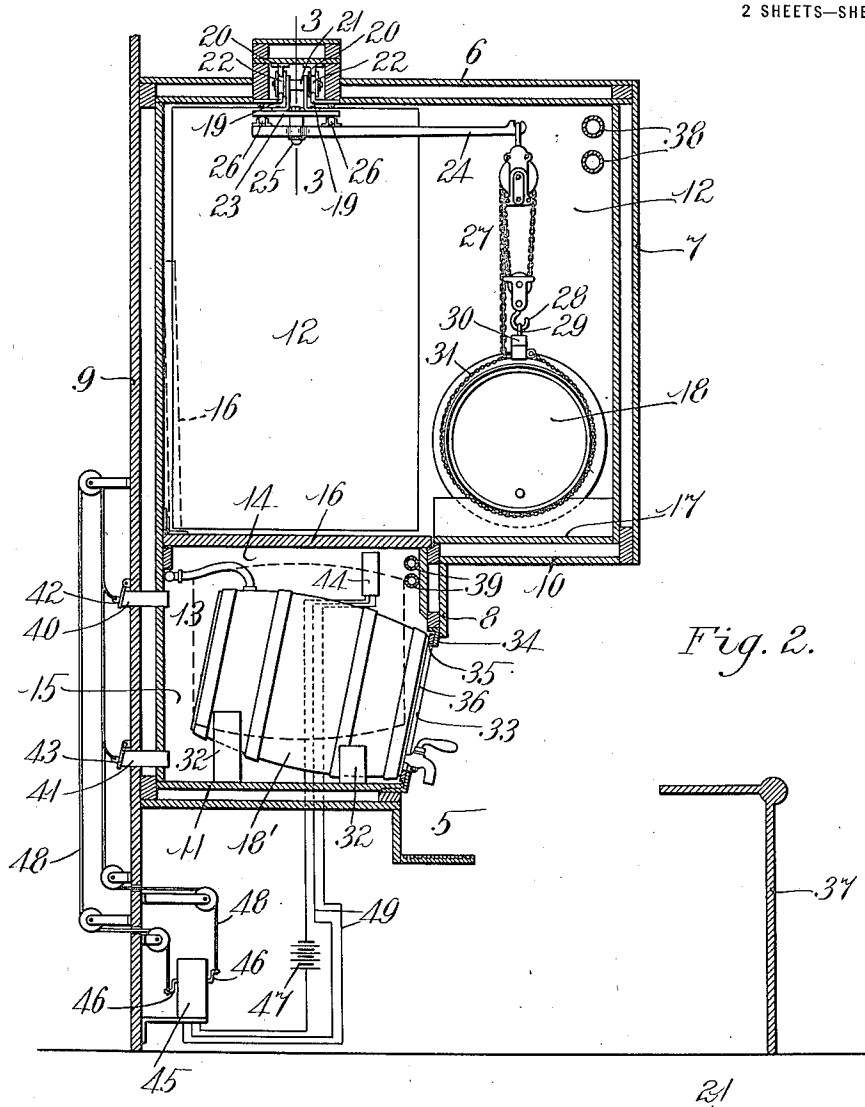


Fig. 2.

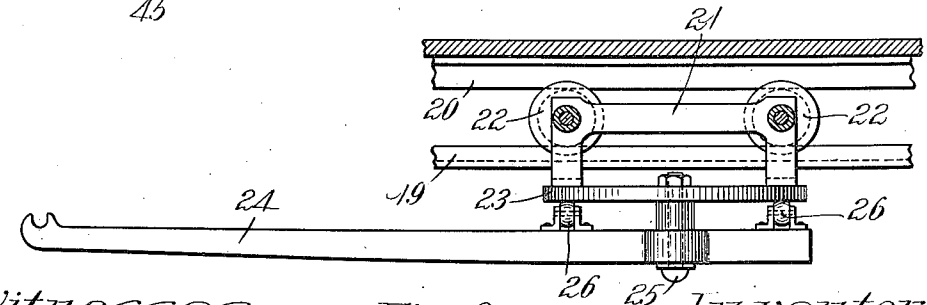


Fig. 3

Witnesses.
Franklin & Low
Leonard A. Powell

Inventors.
John Burrows
and Leopold H. Vogel
by their attorney Charles V. Goodwin.

UNITED STATES PATENT OFFICE.

LEOPOLD H. VOGEL AND JOHN BURROWS, OF BOSTON, MASSACHUSETTS.

REFRIGERATOR.

1,143,243. Specification of Letters Patent. Patented June 15, 1915.

Application filed January 20, 1910. Serial No. 539,152.

To all whom it may concern:

Be it known that we, LEOPOLD H. VOGEL and JOHN BURROWS, citizens of the United States, both residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Refrigerators, of which the following is a specification.

This invention relates to an improved refrigerator to be used in connection with a bar for serving liquors and the like.

The object of the invention is to provide a refrigerator in which barrels, casks or kegs of beer, ale, porter or other liquids may be contained, with the heads of the barrels or casks exposed to the view of the customer.

The object of the invention is further to provide a refrigerator in which a large number of barrels or casks of liquor may be stored and cooled, said refrigerator being constructed with a storage chamber adapted to hold said barrels, this storage chamber being located above a serving chamber, and the serving chamber, in large bars, being subdivided into a plurality of compartments, each of which is adapted to hold one of said barrels or casks, and above each serving chamber in the floor of the storage chamber is provided a trap door, and also a suitable means is provided in the storage chamber for handling the barrels and taking out the empty barrels from the serving chamber and supplying in their place full barrels from the storage chamber, all of the apparatus being so arranged that it is out of sight from the outside of the refrigerator and can be easily handled to remove the empty barrels and replace them by full barrels without disturbing the contents thereof to any undue extent, and also to perform all of these operations without disturbing or interfering with the business of the establishment, that is, the changing of the barrels is carried on entirely within the refrigerator and does not interfere with the bar tenders in their services behind the serving bar.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claim thereof.

Referring to the drawings: Figure 1 is a front elevation of a portion of a refrigerator constructed in accordance with our invention. Fig. 2 is a transverse sectional elevation of the same taken on line 2—2 of Fig. 1. Fig. 3 is a transverse sectional elevation taken on line 3—3 of Fig. 2.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 5 is the refrigerator, the same being formed preferably of double walls with an air space or suitable packing interposed between the walls, said walls consisting of a top 6, a front 7, a front 8, a back 9, a floor 10 and a floor 11. The interior of the refrigerator is divided into two chambers, viz., a storage chamber 12 and a serving chamber 13. The serving chamber, in turn, is divided into a plurality of compartments 14, 14 by vertical partition walls 15, 15, each of said compartments 14 separated from the storage chamber 12 by a trap door 16 which is adapted to be lifted up and through which the casks or barrels of liquor and the like can be lowered from the storage chamber into the serving chamber. It will be seen by reference to Fig. 2 that the storage chamber has a portion of the floor 17 located at one side of the trap doors 16, 16, forming a convenient place for the storage of the barrels or casks 18, 18. The trap doors 16, 16 are normally left closed, as shown in said Fig. 2, and these trap doors form a walk or passageway along which the attendant or porter of the refrigerator can walk while performing his duties.

Preferably along the top 6 of the storage chamber extends two tracks 19 and 20, the tracks 20 being located above the tracks 19 and between these tracks is located a carriage 21 provided with wheels 22, 22, said carriage being provided at the bottom thereof with a track or table 23. An arm 24 is pivoted to a stud 25 which is fastened to the carriage 21 and said arm has rotatably mounted thereon trucks 26, 26 arranged to bear against the under face of the annular track 23. The arm 24 is provided at its outer end with a suitable hoisting apparatus 27, and from this construction it will be seen that the arm 24 can be swung over one of the barrels and the hook 28 of the hoisting chain attached to an eye 29 fastened to a bar 30, which bar is detachably connected by chains 31, 31 to the barrel 18. Then, by manipulating the hoisting apparatus the barrel can be raised and the arm 24 swung to bring the barrel over the trap door which previously has been opened. Again, by manipulating the hoisting apparatus, the

barrel can be lowered to the position shown in dotted lines into one of the compartments of the serving chamber 13. Said serving chamber is provided on its floor with cradle blocks 32, 32 so formed and constructed as to allow the cask 18′ to tip at an angle, as illustrated in Fig. 2.

The front wall 8 of the serving chamber has a series of openings 33, 33 formed therein, one of said openings being provided for each of the compartments 14 of the serving chamber 13. Each of the openings 33 is preferably provided with an annular flange 34 which is preferably formed of iron and is angular in cross section and has provided upon the inner face of the substantially vertical flange thereof a rubber gasket or packing ring 35 against which the end 36 of the barrel 18′ rests when the said barrel is in the position illustrated in Fig. 2, and thus it will be seen that the head of the barrel closes the opening 33, prevents the air from entering the refrigerator and is itself fully exposed to the view of the customer standing in front of the refrigerator and outside the serving bar 37.

The refrigerator, as a whole, may be cooled by any suitable means, either by pipes 38, 39 with ammonia or by ice, if preferred. It is often desirable that beer or ale should be cooled to different temperatures to suit different tastes or to suit different manufactures and qualities of liquor, and to accomplish this result, we provide ventilating pipes 40 and 41 entering the top and bottom, respectively, of each of the compartments 14, said ventilating pipes being provided, respectively, with valves 42 and 43, whereby warm air from the exterior of the refrigerator may be admitted to any one of the compartments to modify the temperature therein, and by the use of a thermostat these valves 42 and 43 are automatically opened or closed as may be required to keep the temperature of the chamber at the degree at which the thermostat is set within each of the compartments, so as to suit varying tastes of customers or varying requirements of the liquors contained within said compartments.

In Fig. 2 the thermostat 44 is illustrated in one of the compartments, the same being located at the extreme right hand side of said compartment, as viewed from the front of the refrigerator, in order that the barrel may not strike the same when it is being lowered into the compartment. This thermostat is in electric circuit with a motor 45 which is provided with crank-arms 46, 46 and operated by a battery 47. The crank-arms 46, 46 are connected to a cord 48 which, in turn, is connected to the valves or dampers 42, 43. The wires 49 of the electric circuit are shown in Fig. 2, outside of the refrigerator, for the sake of clearness in illustration, but, of course, in practice these wires would be concealed within the walls of the refrigerator.

Any suitable form of thermostat and connections to the valves 42 and 43 may be used, but in the form illustrated in Fig. 2 the thermostat closes the circuit when the temperature rises above or falls below the desired degree and the operation of the motor opens or closes the valves 42 and 43, thus either admitting warm air to the interior of the compartment or shutting off the admission of such warm air.

Having thus specifically and to some extent in general described the operation of our refrigerator, we will now proceed to describe the general operation of the same: Assuming the parts to be in the position illustrated in Fig. 2 and the barrel 18′ to be empty while the barrel 18 is full, the refrigerator attendant lifts the trap door 16 to the position illustrated in dotted lines (Fig. 2) and attaches the hook 28 to the eye 29. He then manipulates the hoisting apparatus to lift the barrel 18′ out of the serving chamber and into the storage chamber, it being understood that the spigot has first been removed from the head of the empty barrel. Having lifted the empty barrel into the storage chamber, the attendant moves the hoisting apparatus, together with the empty barrel suspended thereon, lengthwise of the refrigerator, over the trap doors, until he comes to that portion of the storage chamber at which he desires to deposit said empty package. He then swings the arm 24 over to the position illustrated in full lines (Fig. 2). He then lowers the barrel into position on that portion of the floor which extends longitudinally of the refrigerator and beside the trap doors and detaches the hoisting apparatus from the empty barrel. He then attaches the hoisting apparatus 27, by means of the hook 28, eye 29, bar 30 and chains 31, 31 to the full barrel 18. He then carefully raises the full barrel 18 by the use of the hoisting apparatus, until said barrel swings free of its resting place in the storage chamber. He then swings the arm from its position as shown in full lines (Fig. 2), to such a position that the barrel will hang over the trap door and moves the hoisting apparatus, together with the full barrel 18 thereon, lengthwise of the refrigerator over the trap doors until he brings it in position directly over the empty compartment in the refrigerator, the trap door of which at that time is still open. The hoisting apparatus is then manipulated to lower the barrel to the position illustrated in dotted lines in one of the compartments of the serving chamber, and as the rear end of the barrel strikes the left hand portion of the cradle 32 (Fig. 2) a continued lowering of the front end of the barrel causes it to

assume the inclined position shown in Fig. 2, the final positioning of the barrel and setting the head of the same against the rubber gasket 35 being assisted by the bar tender, who also inserts the spigot in the barrel.

It will thus be seen that the barrels can be very gently, quickly and handily manipulated to remove the empty barrels from the serving chamber and to supply their place with full barrels; that all of this work can be done by the attendant within the refrigerator and without causing inconvenience to the bar tenders during busy hours. It will be seen that all of the operation hereinbefore described of changing the empty barrel for a full one has been accomplished without riling the contents of the barrel.

The present method of operating refrigerators of the class described is as follows: Two rows of barrels are required in most places to take care of the day's business, one of these rows of barrels being in a convenient position to serve from. The other row of barrels is placed at rest in a position below the above mentioned row of barrels, which makes it very inconvenient for the clerk, who is obliged to stoop each time he draws a glass of beer or ale, and being in an unnatural position at the time he is liable to cause more or less waste by "spillage." These two rows of barrels, as aforesaid, are necessary for the reason that ales and beers (ale in particular) should be at rest at least twenty-four hours before the cask is served from to allow the hops to settle, so that a brilliant and proper glass of ale may be served from said package. Should this supply not be sufficient for the day's business, it is necessary to either take from a separate chest or order from the brewery a barrel or hogshead of ale sufficiently cold to be served from. Said package must be placed in position from the front of said refrigerator, causing great annoyance to the bar tenders and inconvenience to the customers while being placed in position. Said barrel being placed in position is ready to serve from, but a particularly brilliant glass of ale cannot be served from the same, for the reason that the contents have not had time to settle. The great advantage derived from the apparatus shown, however, from a financial and business point of view is the fact that the beer or ale or other liquor can be drawn direct from the wood, with the head of the barrel exposed to the view of the customer at the time when his beer or ale or other liquor is drawn from the barrel. It will also be seen that our improved refrigerator will utilize space with the greatest economy.

It will be seen that by the construction of the arm 24 and its connection with the carriage 21, that the weight of the barrel upon the hoisting apparatus will be taken care of by the trucks 26, 26 and by the double tracks 19 and 20 in such a manner as to prevent said carriage from tilting or tipping and also to prevent undue transverse strain being brought upon the arm 24 and upon its pivotal stud 25.

Having thus described our invention, what we claim and desire by Letters Patent to secure is:

A refrigerator having a serving chamber subdivided into a plurality of compartments, each compartment adapted to hold a cask or the like, there being an aperture in one of the walls of each of said compartments adapted to be closed by the end of a cask, said refrigerator also having a storage chamber located above said serving chamber and extending longitudinally of said chamber, a floor to said storage chamber, trap doors in said floor between each of said compartments and said storage chamber, a portion of said floor at one side of said trap doors adapted to hold a plurality of casks or the like, and hoisting means adapted to select a cask from said plurality of casks and deposit the same into one of said compartments.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

LEOPOLD H. VOGEL.
JOHN BURROWS.

Witnesses:
CHARLES S. GOODING,
LOUIS A. JONES.