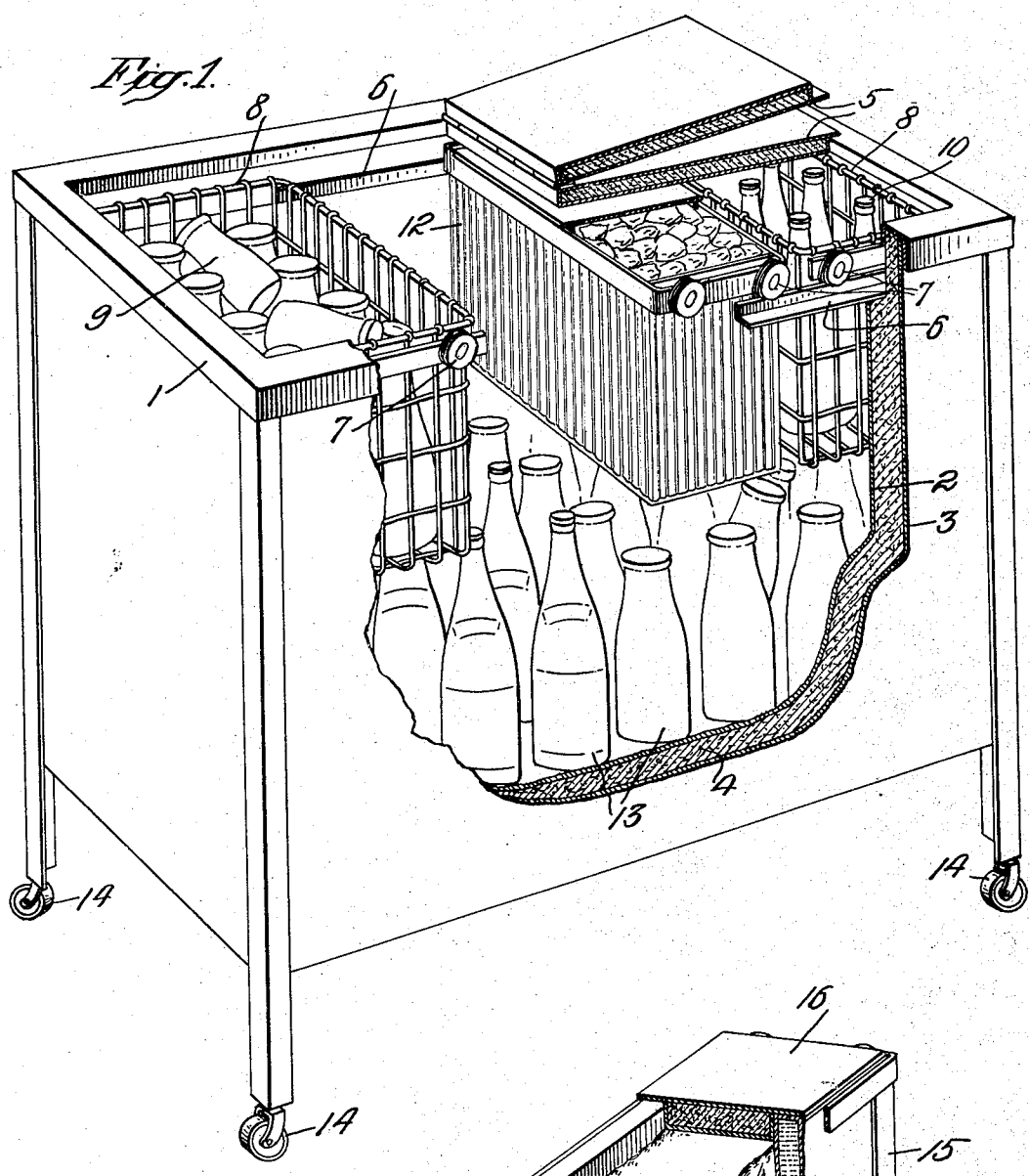
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COLD STORAGE CABINET

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Fig. 1.



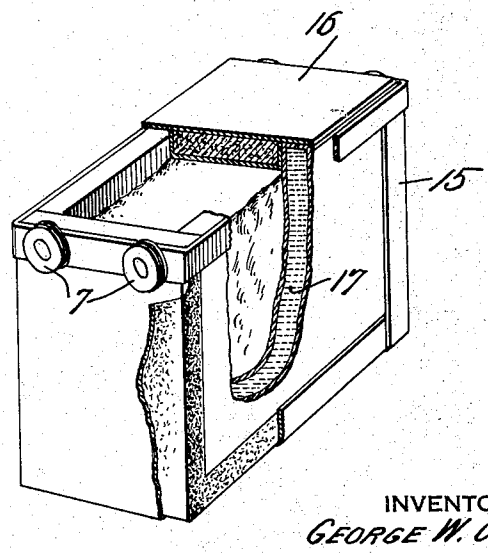



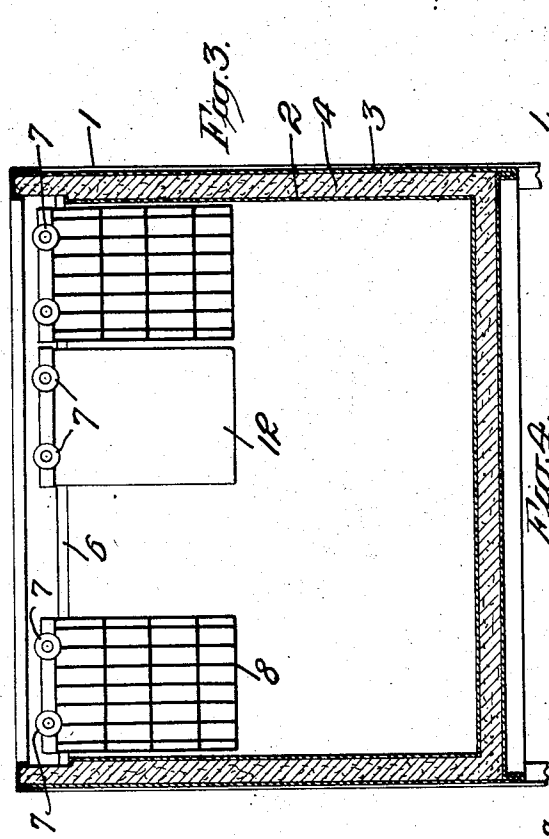

Fig. 5.

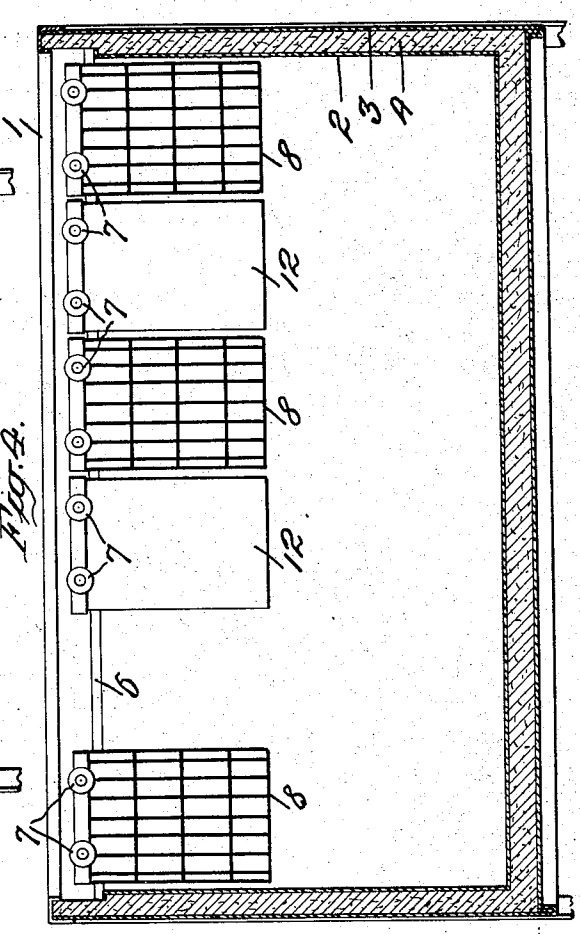
INVENTOR
GEORGE W. COCKS
BY J. S. Wooster
ATTORNEY

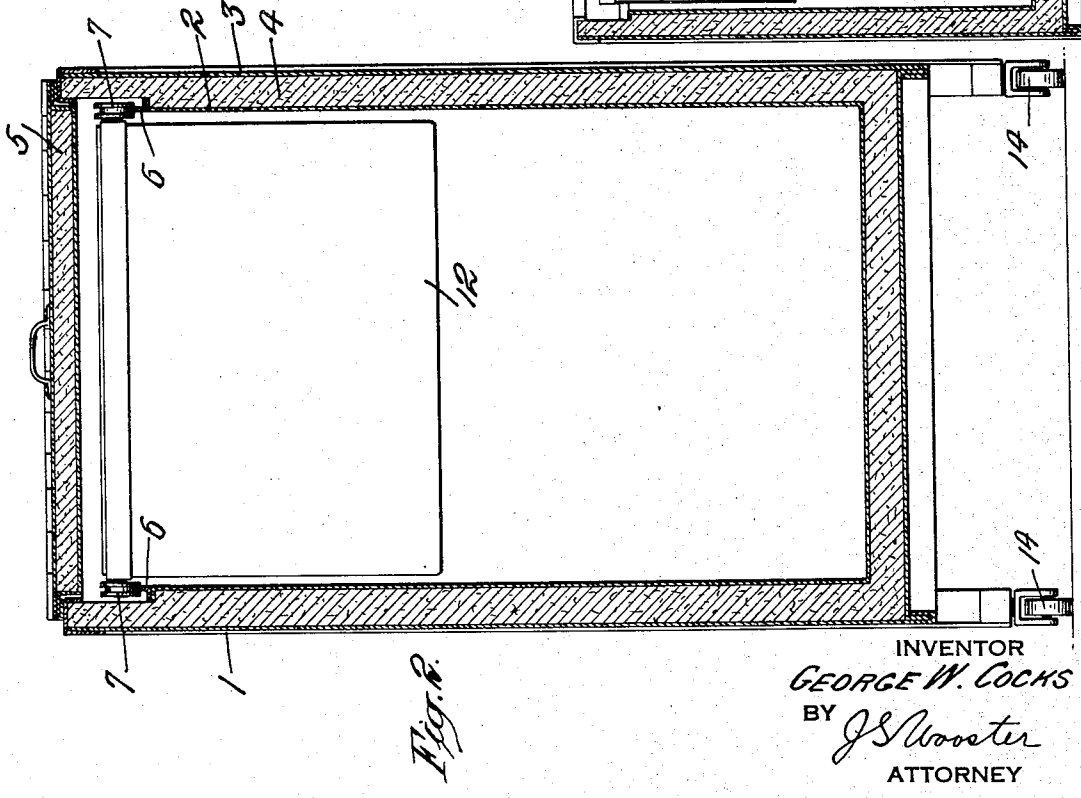
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Fig. 6.

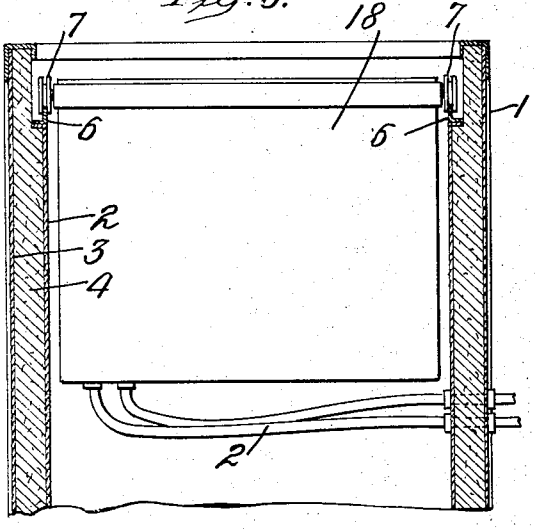



Fig. 8.

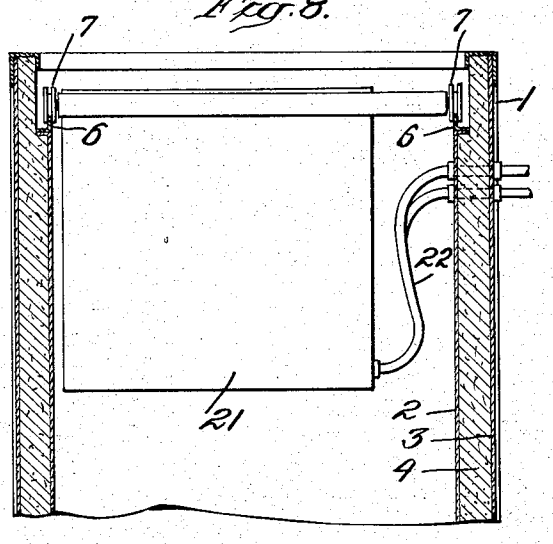



Fig. 7.

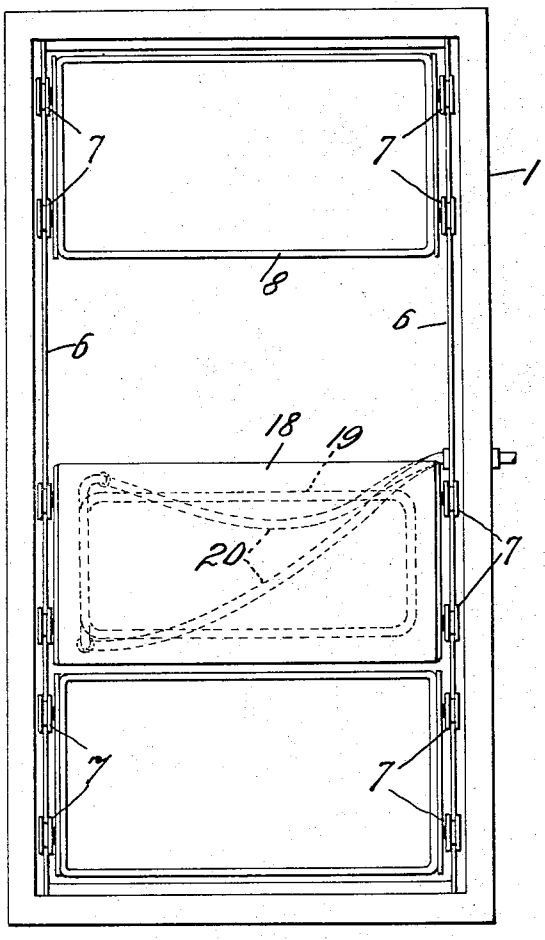
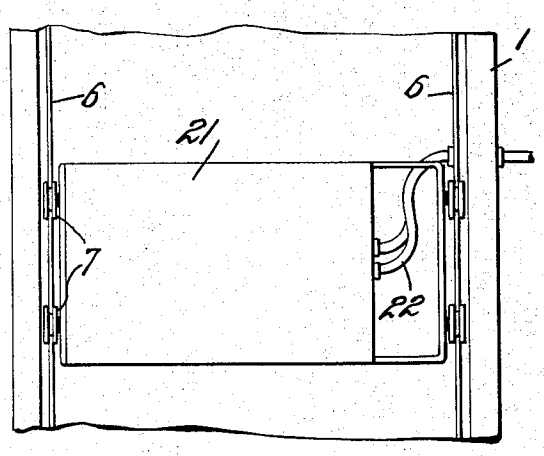



Fig. 9.




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# UNITED STATES PATENT OFFICE

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## COLD STORAGE CABINET

George W. Cocks, Upper Montclair, N. J.

Application October 29, 1934, Serial No. 750,561

2 Claims. (Cl. 62—89)

This invention relates to refrigerated cabinets for the storage of foods, etc., and has for its object to provide increased capacity, convenience and accessibility in cabinets of this type and to permit various refrigerating means to be used interchangeably therein without altering the construction of the cabinet itself.

My improved cabinet comprises an insulated cold storage area which is arranged into upper and lower tiers. The upper tier consists of movable receptacles or carriers suspended on roller bearings which ride on tracks running the full length of the cabinet. The number of receptacles is determined by dividing the interior length of the cabinet into any desired number of sections and providing receptacles for all but one section. This leaves a blank space in the upper tier which allows access to any desired portion of the lower area or tier simply by moving the carrier immediately above such portion toward the blank space. According to a feature of the invention, one or more of the receptacles in the upper tier are used for carrying a refrigerant and the remaining receptacles are for storing food products, soft drinks, ice cream, etc., the refrigerant carrier or carriers preferably being so located as to insure maximum uniform cooling of the entire contents of the cabinet.

The bottom storage area of the cabinet may comprise a single large section, or it may be divided by partitions spaced to provide compartments of any desired dimensions for the purpose of segregating the contents into different flavors, sizes, etc., or product carriers or racks of any suitable type may be employed. Various means of refrigeration may be used interchangeably in a cabinet constructed in this manner, such for example, as ice, ice and salt, dry ice, cold cans, or mechanical refrigeration. In any case the refrigerant carrier is movably mounted in a row with the product receptacles, and I preferably arrange a refrigerant carrier between adjacent product carriers to insure maximum uniform cooling of the contents. These different means of refrigeration allow for the selection of the one which costs the least in any particular locality or at any particular time, or the one that meets the temperature requirements for a particular product. In all cases the substitution is made by simply lifting out one refrigerant carrier and substituting another, without requiring any change in the construction of the cabinet itself.

These and other features and advantages of the invention will be described in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view of a cold storage cabinet embodying the invention with parts broken away to show the interior construction;

Fig. 2 is a transverse section thereof;

Fig. 3 is a longitudinal section on a reduced scale;

Fig. 4 is a longitudinal section similar to Fig. 3, showing a slight modification of the invention;

Fig. 5 is a broken perspective view of a modified refrigerant carrier;

Fig. 6 is a transverse section similar to Fig. 2, showing another modification of the invention;

Fig. 7 is a plan view thereof;

Fig. 8 is a transverse section showing still another modification of the invention; and

Fig. 9 is a fragmentary plan view thereof.

In the drawings, 1 represents the cabinet or box composed of interior and exterior plates 2 3, separated by heat insulation 4 as shown in Figs. 1 to 3. The top of the cabinet is open and is provided with hinged covers 5 which are also provided with heat insulation similar to the bottom and side walls. Opposite longitudinal rails 6 are mounted at the sides of the cabinet above the bottom thereof, these rails, in the form illustrated, being mounted slightly below the top of the cabinet and forming a track for the roller bearings 7 of a plurality of carriers which are thereby adapted to move lengthwise of the cabinet.

In the from shown in Figs. 1 to 3, movable receptacles 8 comprise wire baskets adapted for storing food products, etc., such as milk and cream bottles 9 and soft drink bottles 10. Between these receptacles is arranged a refrigerant carrier 12 having a suitable cover and provided with corrugated metal or fin-type surfaces to give more rapid heat transfer. The receptacle 12 is especially suited for the use of ice or a mixture of ice and salt, the use of salt providing a greater cooling capacity and lower temperature. In this manner the cabinet is divided into an upper tier comprising the movable receptacles for the food products, etc., and the refrigerant, and a lower cooling area which extends from the bottom of the cabinet to the upper tier, the lower cooling area being adapted for the storage of any number of different products such as milk and soda bottles 13 as in Fig. 1.

The total space occupied by the receptacles 8 and 12 is less than the length of the cabinet, the number of such receptacles preferably being determined by dividing the interior length of the cabinet into a given number of sections and providing receptacles for all but one section, thus leaving a blank space in the upper tier which

allows access to any portion of the lower storage area. To gain access to any part of the lower area, the receptacle 8 or 12 immediately above it is moved toward the blank space, thus exposing the desired portion to the lower storage area and permitting the contents to be withdrawn. The cabinet shown in the drawings is mounted on rollers 14, enabling it to be moved from place to place, although it may be stationary or built into a counter, soda fountain or the like if desired.

In the case of larger cabinets employing three or more product carriers 8, I preferably provide additional refrigerant carriers 12 arranged between adjacent carriers 8 as shown in Fig. 4, such arrangement insuring maximum efficiency and uniform cooling of the entire contents of the cabinet. In all cases receptacles 8 and 12 may easily be lifted off the tracks 6 and removed from the cabinet for cleaning, replacement, etc. In this manner the receptacle or receptacles 12, containing the ice or ice and salt mixture, may be withdrawn and replaced by other refrigeration means such as cold cans or a suitable dry ice receptacle.

Fig. 5 shows a carrier for dry ice comprising a box 15 having insulated bottom and side walls and an insulated removable cover 16. The longitudinal side walls are double, providing a space 17 containing a suitable liquid chemical which is adapted to freeze at a lower temperature than ice. The dry ice is placed in the box 15 and freezes the liquid chemical. This construction provides a storage of latent heat which continues to cool the cabinet after the dry ice has disappeared. It also prevents excessively low temperatures within the cabinet which would occur if the dry ice were used without the liquid chemical interception.

Figs. 6 and 7 illustrate a modification of the invention employing a refrigerant carrier 18 containing suitable refrigerating coils 19 which are connected by means of flexible tubes 20 with an exterior source of mechanical refrigeration, permitting the carrier 18 to be moved back and forth on the tracks 6 without interfering with the flow of refrigerant through the tubes 20.

In Figs. 8 and 9 the refrigerant carrier 21 is similar to the carrier 18 except that it is of reduced size in a transverse direction, providing a space between the carrier and the adjacent inner wall 2 of the cabinet to accommodate the flexible connecting tubes 22 which pass through the vertical wall of the carrier. The flexible tubes 20 and 22 of Figs. 6 to 9 may be disconnected from the side of the cabinet, permitting the refrigerant carriers 18 and 21 to be removed as in the other forms of the invention.

Heretofore, food products, beverages, milk, beer, etc., have been largely stored in association with ice alone in ice boxes, subject to temperatures higher than desirable. In the case of bottled beverages, unsanitary and unsatisfactory water baths have also been in use. My invention eliminates all of these objections and provides many important advantages including that of accessibility, since none of the contents need ever be removed to obtain access to any article in any part of the storage space. My improved means of refrigeration also provides a dry, sanitary storage area within the cabinet. The inner lining, sides and bottom of the cabinet are smooth and easily kept clean; having no drain, there is never any danger of spoiled products from a clogged drain, overflow or bad odors resulting therefrom. My improved structure furthermore permits no cold water to run away. This is a saving in refrigeration, since ice water resulting from ice melting is at all times present against the full inner surfaces of the refrigerant carrier and makes possible a more rapid heat transfer.

Another advantage of my cabinet is that either ice or a plurality of refrigerated water baths may be provided in the movable receptacles or in the lower portion of the box, or both, where desired; or refrigerated water baths may be provided in the upper tier while the lower area may be kept dry and refrigerated from above as previously described. In any such case access may be had to the contents in either the upper or lower level by the same selective movement described above.

The invention is capable of various modifications and adaptations not specifically described but included within the scope of the appended claims.

The invention claimed is:

1. A cold storage cabinet comprising an insulated box having an open top and closed sides and bottom forming an insulated space for articles to be cooled, a plurality of horizontally movable receptacles mounted above the bottom of said box to leave a lower storage space in said box beneath said receptacles, said receptacles being movable substantially parallel to the bottom of said box, the aggregate length of said receptacles being less than the length of the top of said box to permit selective horizontal movement of said receptacles to expose any desired portion of the lower storage space of said box, at least one of said receptacles comprising a refrigerant carrier containing refrigerating coils, flexible tubes connected to said refrigerating coils and means for connecting said tubes to a source of refrigeration outside said box, and top covering means providing access to said box.

2. A cold storage cabinet comprising an insulated box having an open top and closed sides and bottom forming an insulated space for articles to be cooled, a plurality of horizontally movable receptacles mounted above the bottom of said box for carrying food products and the like, horizontally movable refrigerant receptacles each containing refrigerating coils and each mounted between two of the food receptacles, said receptacles being mounted to leave a lower storage space in said box beneath said receptacles, said receptacles being movable substantially parallel to the bottom of said box, flexible tubes connected to said refrigerating coils and means for connecting said tubes to a source of refrigeration outside said box, the aggregate length of said receptacles being less than the length of the top of said box to permit selective horizontal movement of said receptacles to expose any desired portion of the lower storage space of said box, and top covering means providing access to said box.

GEORGE W. COCKS.