

# RANKIN & GRASSMUCK.

## Beer Cooler.

No. 85,477.

Patented Dec. 29, 1868.

Fig: 1.

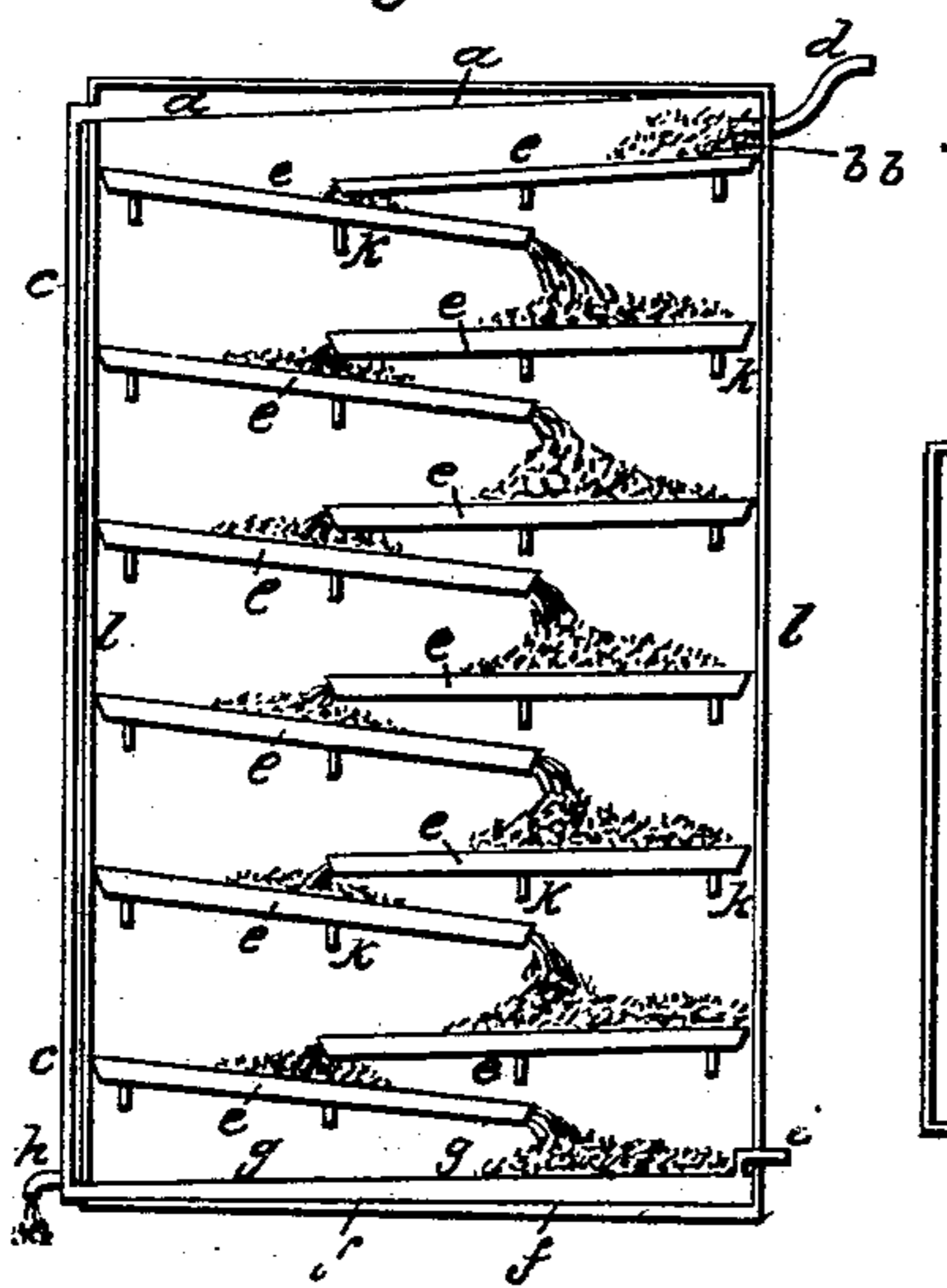


Fig: 2.

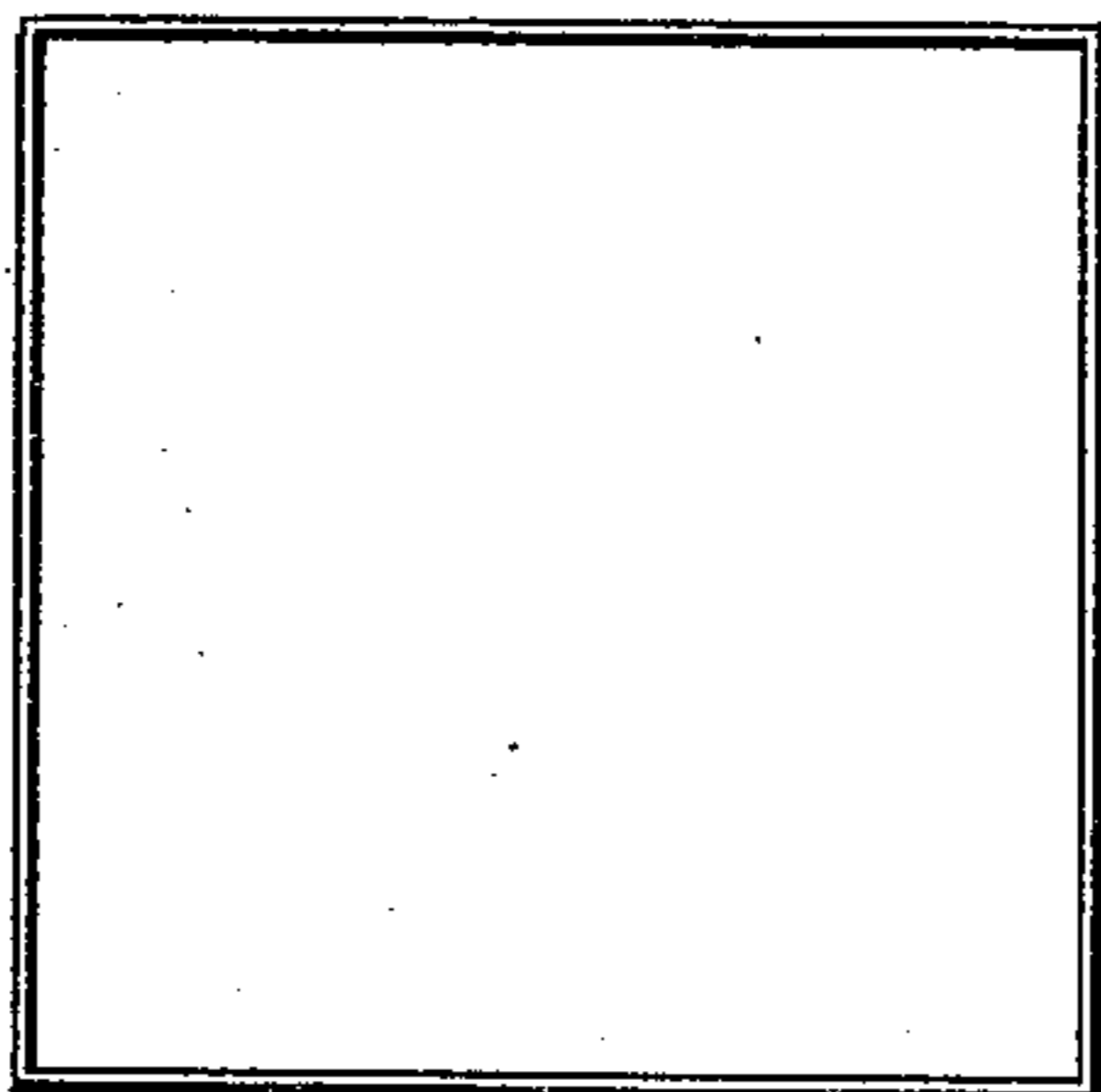
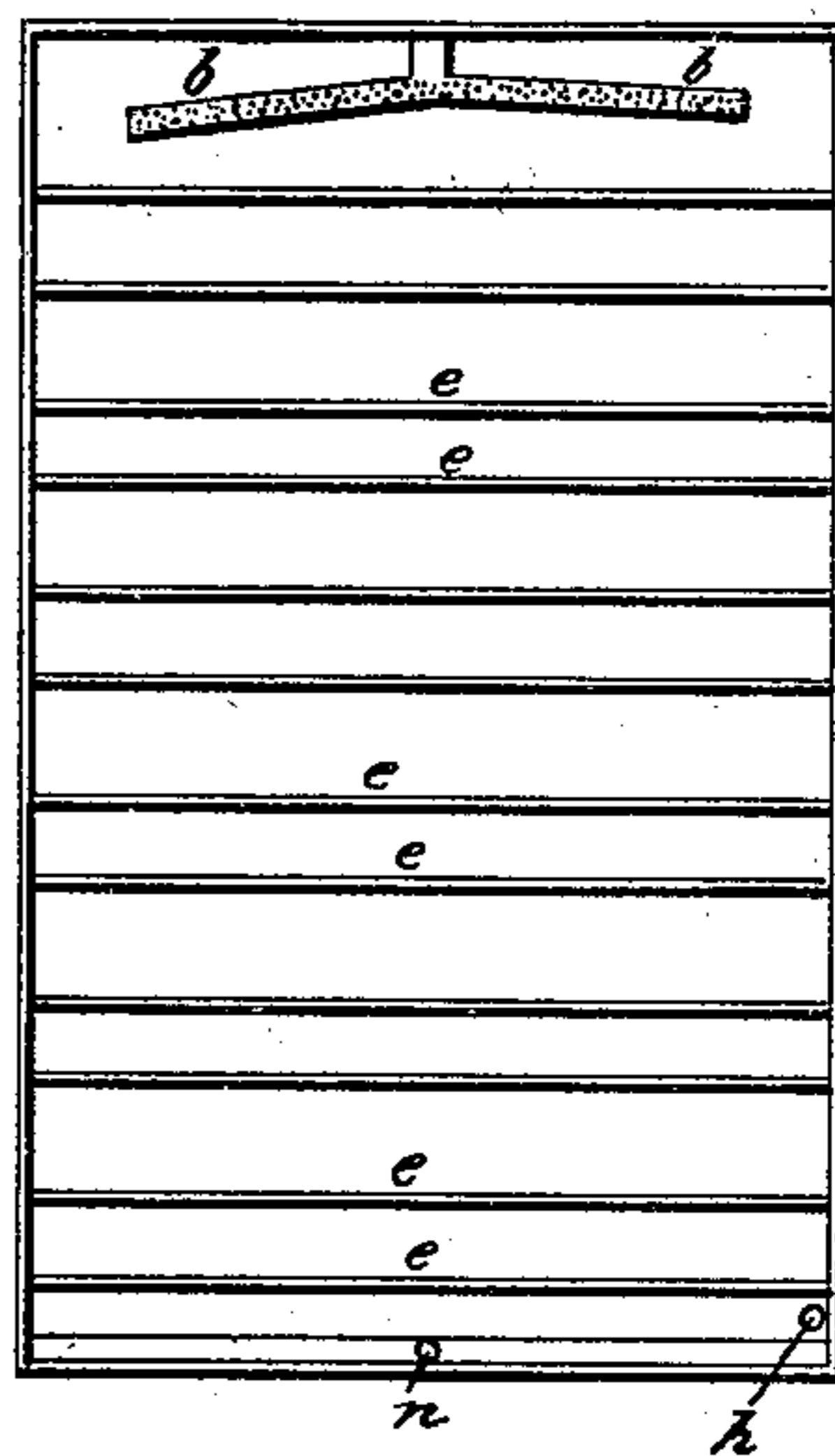


Fig: 3.



Witnesses:

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Charles W. Grassmuck.

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THOMAS L. RANKIN, OF NEW RICHMOND, OHIO, AND CHARLES W. GRASSMUCK, OF PERU, ILLINOIS.

Letters Patent No. 85,477, dated December 29, 1868.

## IMPROVED BEER-COOLER.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that we, THOMAS L. RANKIN, of New Richmond, in the State of Ohio, and CHARLES W. GRASSMUCK, of the city of Peru, in the county of La Salle, and State of Illinois, have invented a new and useful Apparatus for Cooling Malt-Liquors; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view;

Figure 2, the ground-plan; and

Figure 3 is a front view.

The nature of our invention consists in an apparatus by which malt-liquors can be more readily and economically cooled; and whereby the atmospheric impurities, absorbed in cooling malt-liquors, can be excluded at will; and whereby the liquor is made to melt all the ice used in cooling, and voluntarily to conduct the ice-water thus made to a chamber, over which or under which the liquor is passed in finding its way out of the cooler, thus giving the greatest possible benefit to the liquor from all the material used for the purpose of cooling.

Figs. 1, 2, and 3 are sectional views of air-tight chamber, in which the liquor is cooled, securing the liquor against absorbing any of the impurities so often destructive of malt-liquors, when cooled in the ordinary way of passing it down over copper-pipes, in the open air, through which pipes a constant stream of ice-water is required to be kept flowing, in the proportion of one hundred barrels of ice-water to thirty barrels of malt-liquor; whereas it is claimed that, by our invention, the same number of barrels of liquor can be cooled without the expense of pumping the one hundred barrels of water for making the ice-water, and with one-half the amount of ice required in the ordinary way.

Fig. 1, *a a* is an inclined floor, over cooling-chamber, to be constructed of good conducting-material, through which the cold is applied from above, either by placing ice alone on said floor, or refrigerating-mixtures.

Fig. 1, *c c* is pipe, that conducts the ice-water from floor *a a* to receiving-chamber *f f*.

Fig. 1, *b b* is end of distributing-pipe, which extends each way from supply-pipe *d*, minutely perforated, from which the liquor is thrown and distributed on the cold plane of the first cooling-pan.

Fig. 1, *d*, supply-pipe, conducting liquor from vat to cooler.

Fig. 1, *e e*, galvanized iron cooling-pans, (more or less in number,) over which the liquor is passed, in minute streams, and thrown into the cold air as many times, and thus conducted over a succession of dripping-pans, elevated slightly at one side, and minutely perforated at the lower side, through which the liquor passes to the next pan, with a fall of about one and one-half foot from pan to pan, until it reaches the galvanized iron gathering-floor *g g*.

These pans, being made of good conducting-material, will in nowise obstruct the natural currents of heat and cold, produced by applying the cold from above. The pans to be of a size, ordinarily, to extend two-

thirds the way across the chamber; size of pans, ordinarily, to be from three feet by eight feet, to four by six.

Fig. 1, *g g*, inclined gathering-floor, on which the liquor falls, and passes over to outlet *h*; this floor to be made of galvanized iron or other good conducting-material, and is the top covering to ice-water chamber *f f*, the water of said chamber being immediately in contact with the iron of said floor, over which the liquor passes, finally giving entire and complete benefit of all the ice-water made by the operation of the warm liquor in the cooling-pans above.

Fig. 1, *f f*, ice-water chamber, over which the liquor is passed. This is constructed so that the outlet is higher than the inlet, the warmest water always rising to the highest elevation, and passing off first, leaving the coolest where the liquor last passes over the floor; and in sections where ice is expensive, it can be so constructed that the liquor is again passed under ice-water chamber, over a floor so nearly in contact with said chamber that the minutest sheet of liquor, in passing through, will be in contact with the cold iron at the bottom of the chamber, thus obtaining the entire benefit of all the ice that is melted in the operation, in the simplest, cheapest, and most compact manner possible.

Fig. 1, *h*, outlet for liquor.

Fig. 1, *i*, outlet for ice-water.

Fig. 1, *k*, bars supporting cooling-pans.

Fig. 1, *ll*, galvanized iron lining of cooling-chamber.

Fig. 3, *b b*, distributing-pipe; *e e*, cooling-pans; *h*, outlet for beer; *n*, outlet for drawing off ice-water from chamber.

The whole of the foregoing-described metal chamber, containing the cooling-pans and ice, to be encased in a wooden wall or other material, constructed with a space, one foot or more, around said chamber, said space to be filled with some good non-conducting substance, with thick packed doors, to close over the air-tight metal door of chamber.

What we claim by our invention, and desire to secure by Letters Patent, is—

1. An air-tight chamber for cooling beer, provided with a series of trays of galvanized metal, which extend obliquely beyond the vertical centre, from one side of the chamber towards the other, in opposite directions, one above the other, and having their ends perforated, all substantially as set forth.

2. In combination with the above, we claim the inclined ice-chamber *a*, over said trays, which communicates with a vertical chamber, *c*, leading into a cold-water space, *f*, under the trays, and so formed that its narrowest part is near the chamber *c*, and with a conducting-pipe, *b*, for the overflow, all substantially as shown and described.

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Witnesses:

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