

No. 700,990.

Patented May 27, 1902.

J. STOCKER, Dec'd.
E. E. STOCKER, Administratrix.
LIQUID COOLING APPARATUS.

(Application filed July 31, 1899.)

(No Model.)

Fig. I.

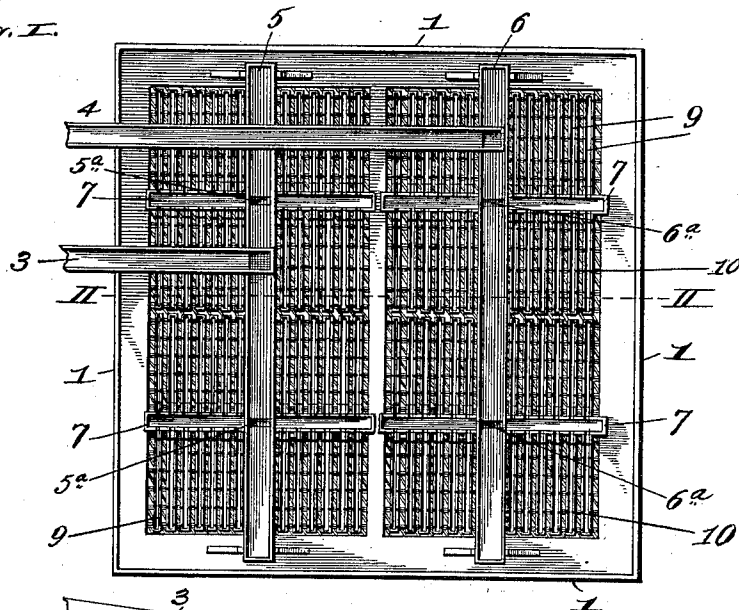
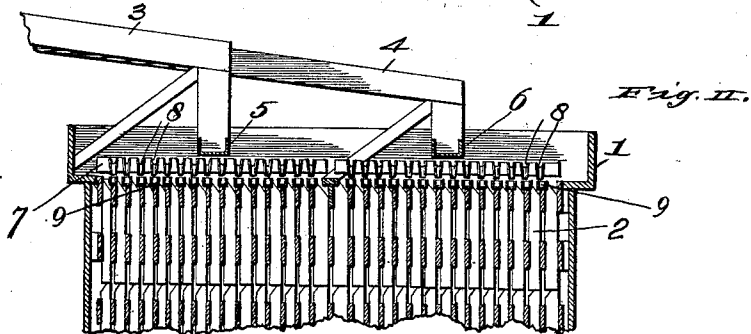


Fig. III.

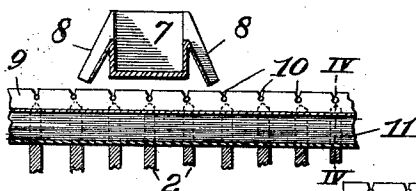
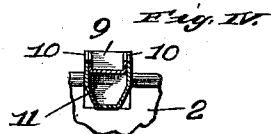


Fig. V.

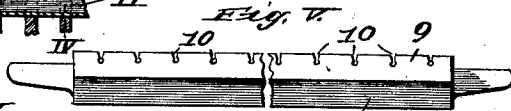
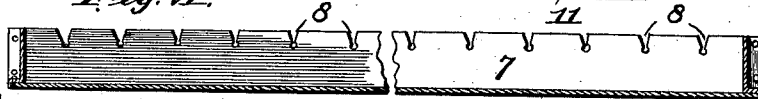


Fig. VI.



WITNESSES

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EVA ELIZABETH STOCKER, OF ST. LOUIS, MISSOURI, ADMINISTRATRIX OF
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LIQUID-COOLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 700,990, dated May 27, 1902.

Application filed July 31, 1899. Serial No. 725,684. (No model.)

To all whom it may concern:

Be it known that JOHN STOCKER, deceased, late a citizen of the United States, and a resident of the city of St. Louis, in the State of Missouri, did invent a certain new and useful Improvement in Liquid-Cooling Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The object of the invention herein described is to provide a novel and effective construction and arrangement of feeding-troughs in liquid-cooling apparatus comprising towers containing series of crossing partitions over which a quantity of liquid is designed to be flowed, while currents of air are directed through the tower, passing between the partitions against the flow of the liquid for the purpose of cooling the liquid.

The device is of the character utilized in breweries, artificial-ice plants, &c., in which it is necessary or desirable to reduce the temperature of large quantities of liquid.

The invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a top or plan view of the cooling apparatus. Fig. II is a vertical cross-sectional view taken on the line II II, Fig. I. Fig. III is an enlarged sectional view taken through one of the main delivery-troughs and one of the distributing-troughs. Fig. IV is a cross-sectional view taken on line IV IV, Fig. III. Fig. V is a detail side view of one of the distributing-troughs. Fig. VI is a longitudinal sectional view of one of the delivery-troughs.

1 designates the walls of the cooling-tower, which extend from a suitable base to any desirable height. Within the walls of the tower are a series of checker-work partitions 2, arranged crosswise throughout the tower, onto and over which the liquid to be cooled is designed to flow in a downwardly course from the top of the tower to its base, while cold air is forced upwardly through the tower against the flow of liquid for the purpose of lowering the temperature of the liquid.

The novel features embraced in the present improvement consist in the construction

and arrangement of the troughs by which the liquid is conveyed to and distributed onto the checker-work partitions of the tower in an even manner, so that all parts of the tower receive a like quantity of liquid and a uniform cooling operation is derived with more efficiency.

3 and 4 designate conveying-troughs in which the liquid to be cooled is conveyed to receiving-troughs 5 and 6, mounted in suitable supports at the top of the tower. The troughs 5 and 6 are provided with outlets 5^a and 6^a, (see Fig. I,) through which the liquid may flow from said receiving-troughs into the delivery-trough 7, located beneath the troughs 5 and 6 and extending transversely thereto. The delivery-troughs 7 are provided at each side with a series of spouts 8, leading from their side walls in downwardly direction, as clearly seen in Figs. II and III. These spouts 8 are open on one side, as shown in said figures, to avoid clogging or stopping up of the same.

9 designates distributing-troughs, arranged in series extending transversely of the troughs 7 and beneath them, in such positions that the liquid flowing from the troughs 7 through the spouts 8 is discharged into said distributing-troughs. The distributing-troughs 9 are mounted in supporting-frames 11, and throughout the side walls of the troughs are series of notches 10, through which the liquid may flow from the troughs 9 and be distributed onto the checker-work partitions 2 at the top of the tower, the notches 10 being all arranged directly over the uppermost partitions 2, so that all the liquid flowing there-through is distributed onto the checker-work partitions instead of flowing between them. It will be clearly seen that by this arrangement of the various troughs the liquid is evenly and uniformly distributed across the upper end of the cooling-tower and that therefore there is a uniform amount of liquid delivered to the checker-work partitions throughout the extent of the tower, and the cool air forced upwardly through the partitions exerts its cooling influence against the liquid in every portion of the tower, and by reason of the liquid being flowed thinly over the partitions the cold air acts more effectually.

ally to cool it much more efficiently than is the case in towers of similar character in which the liquid is not properly distributed. Thereby the temperature of the liquid acted
5 upon is rendered much lower, owing to the uniform thin streams in which it flows being more readily and completely affected by the cold air.

Having now described the invention, what
10 is claimed as novel is—

In a liquid-cooling apparatus, the combination of a tower containing checker-work partitions, liquid-distributing troughs arranged at the upper end of said tower and provided
15 with notches to permit the flow of liquid there-

from onto said partitions, delivery-troughs arranged transversely of said distributing-troughs and provided with spouts arranged to deliver liquid into said distributing-troughs, said spouts open on one side thereof to prevent clogging of the same, and liquid-receiving troughs arranged transversely of said delivery-troughs and provided with outlets adapted to discharge into said delivery-troughs. 20

EVA ELIZABETH STOCKER,
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In presence of—

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