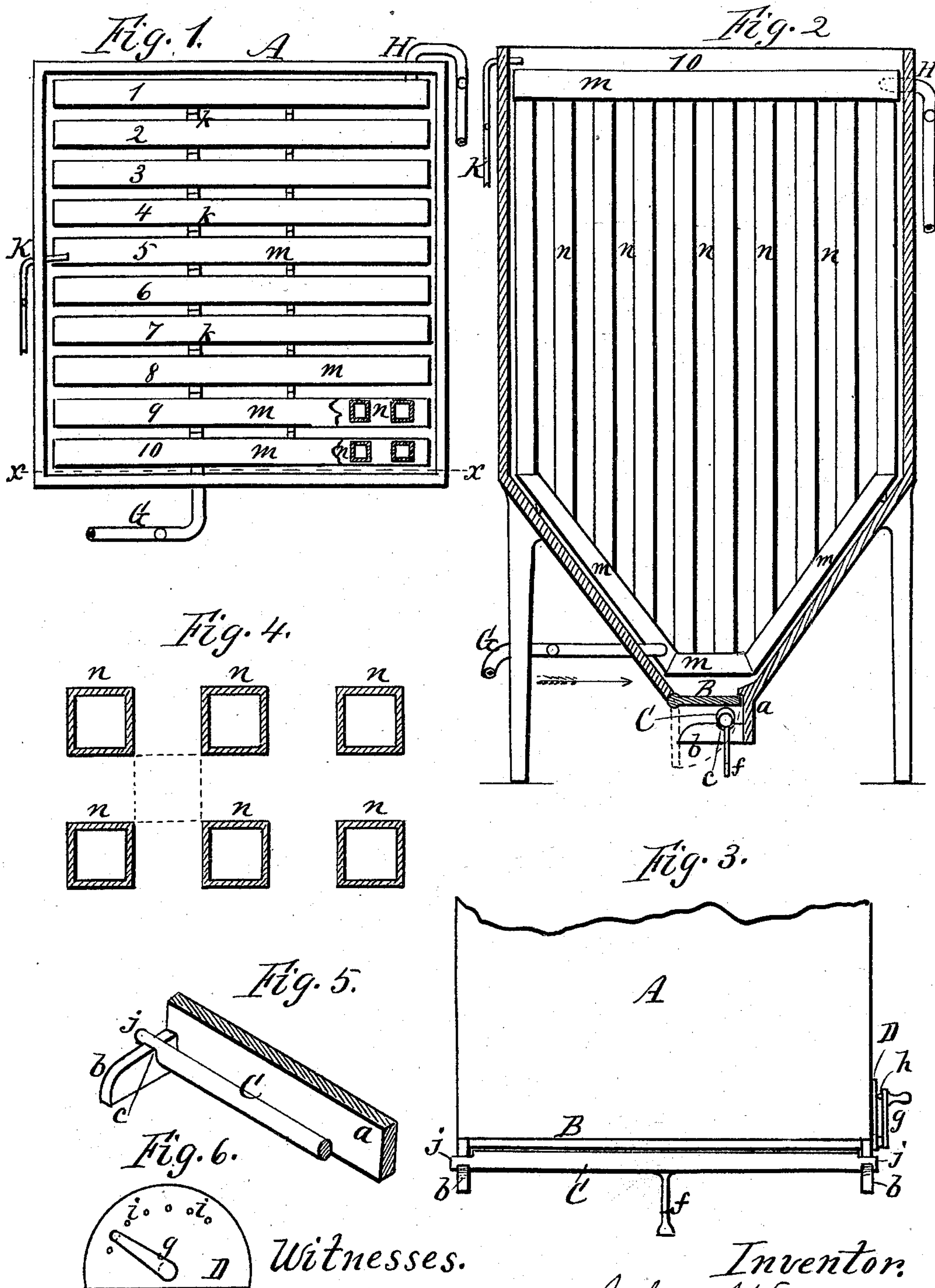


(No Model.)

J. WERNER.
SYRUP COOLER.

No. 561,297.

Patented June 2, 1896.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN WERNER, OF ROCHESTER, NEW YORK.

SYRUP-COOLER.

SPECIFICATION forming part of Letters Patent No. 561,297, dated June 2, 1896.

Application filed January 13, 1896. Serial No. 575,361. (No model.)

To all whom it may concern:

Be it known that I, JOHN WERNER, of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Syrup-Coolers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings accompanying this application.

My improvement relates to syrup-cooling tanks for confectioners' use, and are of that kind where the syrup is fed down through the tank over and around cold-water pipes which are arranged in layers therein.

The invention consists in the construction and arrangement of parts hereinafter described, and embraced in the claims.

In the drawings, Figure 1 is a plan view of the tank. Fig. 2 is a vertical cross-section in line *x x* of Fig. 1. Fig. 3 is an elevation of the lower end of the tank, looking in the direction of the arrow in Fig. 2. Fig. 4 is a diagram, on an enlarged scale, showing the arrangement of the square cooling-pipes inside the tank. Fig. 5 is a perspective view showing the eccentric-rod and its connections at the bottom of the tank. Fig. 6 is an elevation of the devices for adjusting and holding the valve at the bottom of the tank.

A indicates the tank, consisting of a square or rectangular body and a hopper-shaped bottom. At the outlet of this bottom is a valve B, consisting of a flat plate extending the whole width of the tank and pivoted on one side so as open downward. On the side of the tank opposite from the hinge of the valve is a vertical lip *a*, which also extends the whole width of the tank and serves to turn the syrup downward as it escapes and prevents it from gushing out laterally. At each end of the lip is cast an outwardly-projecting flange *b*, open at its top for the passage of the eccentric-rod, and in each flange is a half-round socket *c* to receive the journal on the end of the eccentric-rod.

C is the eccentric-rod. It consists of a long bar, the eccentric portion of which extends the whole width of the tank, and has short journals *j j* at the ends, which rest in the half-round sockets *c c* of the flanges *b b*, before described. The eccentric-rod is inserted in place under the valve by sliding it bodily in

over the outer open ends of the flanges *b b* and is removed from place at each drawing of the syrup, so that there is no impediment under the valve and the rod itself does not become smeared. When in place and tightened up, the rod bears against the under side of the valve its whole length and makes it perfectly tight. By this construction it is sought to use a long valve and produce an eccentric that bears the whole length of the valve, also to produce an eccentric which is removable from place when the syrup is discharged, thereby leaving a perfectly free opening for the discharge. Heretofore it has been difficult to provide such free opening, and as the syrup hardens when cooled and sticks in place there has been much difficulty in cleaning. In this tank the hopper-bottom inclines only on two sides, and the discharge is the whole width of the tank.

The eccentric-rod C has a crank *f*, which is pushed down by the foot to turn the eccentric up to bear against the valve. The axis of the valve extends out beyond the case and has a fixed arm *g* on its end provided with a stud *h*, that engages with any one of a set of holes or depressions *i i* in a segment-plate D. By this means the valve can be set to open more or less throat for the discharge of the syrup.

The cooling attachment consists of a series of separate pipe-sections 1 2 3 4, &c., set vertically in the tank at suitable distances apart to leave passages between and connected by nipples *k k*, that allow flow of water from one section to another. The water enters through feed-pipe G and escapes through pipe H, said pipes being provided with suitable cocks. Each of the sections 1 2 3 4, &c., consists of head-pipes *m m*, making the circuit around the interior of the tank, and vertical connecting-pipes *n n*, which open into the heads. These connecting-pipes differ from ordinary pipes of the kind by being square in cross-section, and being so disposed and at such distance apart that the spaces between the squares of each section and between those of any two sections shall be the same size as the squares of the pipes themselves. This is clearly shown in the diagram Fig. 4, in which the spaces between the squares are indicated in dotted lines at the left. By this means not

only is a greater radiating-surface produced in the pipes than in round ones, but the spaces between the pipes are uniformly and evenly divided, and the cooling action is equally distributed throughout. In addition to this the square sides of the pipes present surfaces that are more easily cleaned than round ones.

In case it is desired to heat instead of cool the syrup, steam may be let on through pipe H and discharged through pipe G in the reverse direction from that where cooling is done. K is a steam-pipe entering through the top of the tank and used for cleaning purposes. In such case a cover is placed over the top of the tank. The steam-pipe is provided with a suitable cock.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a syrup-cooler, the combination, with the hopper-shaped tank, of the flat valve

hinged to its bottom, the eccentric-rod located under the valve and tightening it in place, and the flanges at the sides of the tank serving as bearings for the rod, the spaces between the flanges and the bottom of the tank being open to allow the rod to be bodily inserted and removed as specified.

2. In a syrup-cooler, the combination, with the tank, of pipe-sections, composed of headers and vertical connecting-pipes the latter being made square in cross-section, the spaces between the pipe-sections and between the pipes of each section, being the same as the diameter of the pipes, as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN WERNER.

Witnesses:

R. F. OSGOOD,
A. W. SMITH.