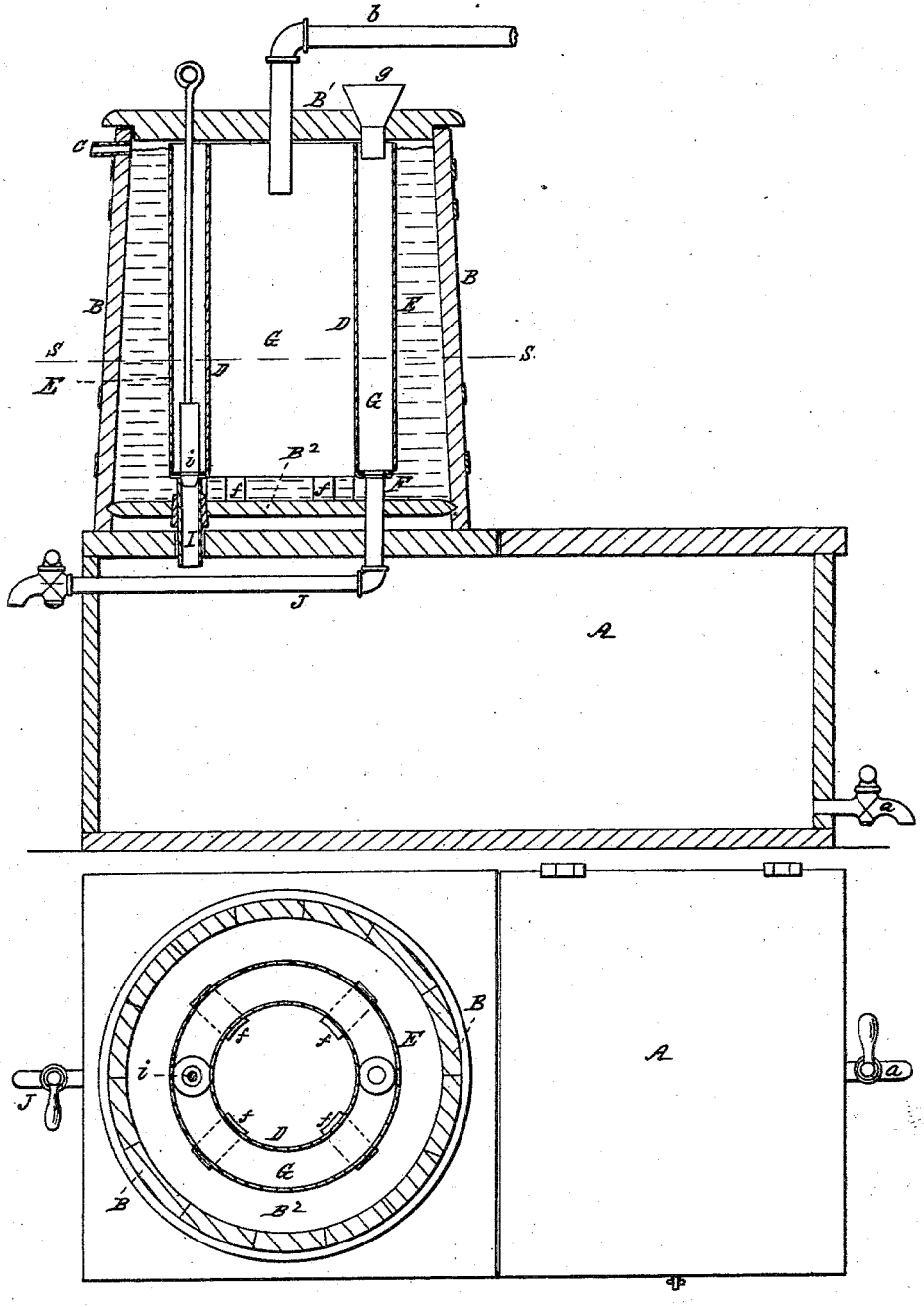
F. W. TILTON.

Apparatus for Cooling Sirup, &c.

No. 49,664. Patented Aug. 29, 1865.



Witnesses:

Wm. S. Sampson.

Kimball W. Stetson

Inventor:

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N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

FREDERICK W. TILTON, OF BRISTOL STATION, ILLINOIS.

IMPROVED APPARATUS FOR COOLING SIRUP, &c.

Specification forming part of Letters Patent No. **49,664**, dated August 29, 1865.

To all whom it may concern:

Be it known that I, FREDERICK W. TILTON, of Bristol Station, in the county of Kendall, and in the State of Illinois, have invented certain new and useful Improvements in Coolers for Fluids, adapted more especially for cooling sorghum-sirup and the like material on small farms; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 is a central vertical section, and Fig. 2 is a horizontal section on the line S S in Fig. 1.

Similar letters of reference indicate like parts in both of the figures.

My invention may be very cheaply constructed, and the necessary cleaning and repairs may be effected with very little skill. The principal portion may be made of wood, and the fluid to be cooled is presented to the cold water very efficiently and without any necessary exposure to the atmosphere.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation by the aid of the drawings and of the letters of reference marked thereon.

A is capacious reservoir adapted to contain and store a considerable quantity of the cooled sirup.

B is a tank fitted with a close cover, B′, through which latter a supply of cold water is received through the pipe *b* in the center of the tank. B^2 is a tight bottom.

C is an overflow-pipe leading from the side of the tank near the top, as represented.

D is the interior, and E the exterior, of an annular vessel, G, into which the sirup to be cooled is received through a pipe or funnel, *g*, as represented. This vessel G extends nearly to the bottom of the tank B, and is provided with a tight bottom, F, which is supported on blocks *f*, so as to allow a movement of the water radially outward from the center of the tank B to the periphery at that point.

I is a short pipe opening into the bottom of the annular vessel G, and leading the cooled fluid therefrom down into the reservoir A whenever the plug *i* is raised.

J is a longer pipe leading from the bottom of the same vessel G and adapted to discharge the sirup at will through the cock *j* into any suitable vessel temporarily provided.

The vessel G may be made of ordinary tinned iron or of galvanized iron, according as the apparatus is required to be of greater or less capacity. Thin brass or copper and many other materials may be available; but the great advantage of my invention is its economy, and I find very thin iron coated with a proper metal to resist oxidation answers the purpose very well.

When the water in the tank B and the hot fluid in the vessel G are at the same level there is no strain whatever on the sheets D and E, and when the level differs very greatly is when the sirup is entirely discharged from the vessel G. The cylindrical form of the sheets enables them to resist a considerable pressure without any stays or bracing. Stays of any kind are objectionable on account of the obstruction they present to the cleaning of the interior.

The core B′ is adapted to be readily lifted off to give access to the interior. I usually make it in two parts, hinged together, and introduce the pipe *b* and the funnel or corresponding sirup-pipe *g* and the plug-rod *i* in one portion, so as to leave the other portion free to be lifted without any incumbrance.

There may be a small annular cover in one or more pieces fitted in the top of the vessel G, to stiffen and steady the cylindrical sheets D and E and allow ready removal, if desired.

I have tested one of these coolers with great success, and believe that they can be produced at a price which will make them a very important article of trade, especially in regions where sorghum is cultivated.

The reservoir A is provided with a suitable emptying-cock, *a*, and the whole may be usefully made of such size as will be very conveniently portable.

It will be observed that as the water is admitted in the center and is discharged at the surface on the outside of the vessel G that the

lightest, and consequently the warmest, water only will be discharged, and that the water, while passing through the cooler, will be presented to a great surface for receiving heat from the warmer liquid within.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

1. The annular vessel G, supported in the tank B at a little distance from the bottom and arranged relatively to the receiving-pipe *b* and to the discharging-pipe C, substantially in the manner and for the purposes herein set forth.

2. The combination of the annular vessel G, the tank B, cold-water induction *b*, and eduction C with the sirup-reservoir A and pipes I and J and suitable controlling means *i j*, substantially as herein specified.

FREDERICK W. TILTON.

Witnesses:

ALBERT M. HOBBS,
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