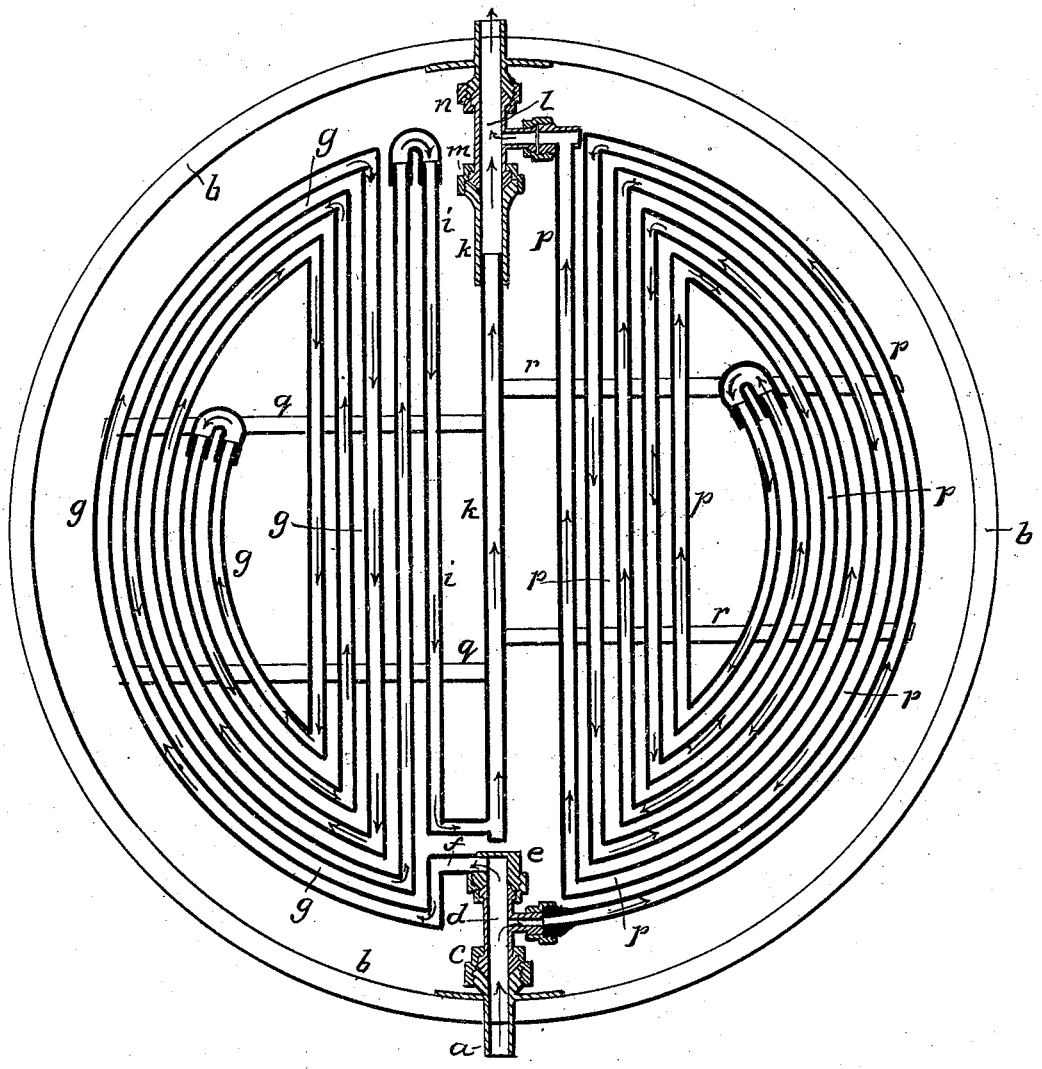
J. TRAGESER.

Coils for Steam Heating Apparatus.

No. 46,509. Patented Feb. 21, 1865.



Witnesses.
Thos. Geo. Harold
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UNITED STATES PATENT OFFICE.

JOHN TRAGESER, OF NEW YORK, N. Y.

IMPROVEMENT IN COILS FOR STEAM-HEATING APPARATUS.

Specification forming part of Letters Patent No. **46,509**, dated February 21, 1865.

To all whom it may concern:

Be it known that I, JOHN TRAGESER, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Coils for Steam Boiling Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawing, making part of this specification, wherein I have represented a sectional plan of said coil as within a brewer's mash-tub.

Steam heating coils have heretofore been made to turn up, for allowing the vessel containing said coil to be cleaned out, and a series of pipes have been arranged in a semicircular form to turn upon a pipe passing from such coil, in which case a separate pipe has been used to each half-circle coil. A coil has also been formed with one pipe across through the center, on which the semicircular coils have been fitted to turn up; but in that case the heat has not been equalized throughout the coil, and said coil has not been flat, but has been formed with one pipe in each half-circle coil crossing above or below the others; hence, when the coil is not in use, condensation will remain in the pipe and burst the same if exposed to frost.

The nature of my said invention consists in an arrangement of pipes forming a flat coil, in which the steam is led back and forth in such a manner that its action in heating the mash or other material is equalized and the semicircular coils rendered capable of being turned upon one line of pipe, forming an axis to the coil and furnishing ingress and egress for the steam. At the same time the parts are kept steam-tight, and expansion or contraction cannot injure the coil.

In the drawings, *a* is a steam-supply pipe passing through the side of the mash-tub *b* or other vessel containing the material to be heated or boiled. This pipe *a* is coupled at *c* to the T-pipe *d*, which in turn is coupled at *e* to the pipe *f*, that extends by the pipes *g* around the circumference of the semicircular coil and back and forth, as shown, terminating at the return-pipe *i*, that brings the steam back to the axial pipe *k*, that is on line with *a* and *f*, but disconnected at this point from them, so as to allow for expansion and contraction. The pipe *k* extends to the T-pipe *l*, coupled at *m* and *n* to the pipe *k* and exit-pipe *o*, respectively. The arms or branches of the T-pipes *d* and *l* are connected by the pipes *p*, that form a flat semicircular coil running back and forth, and curved as shown, so that the action of the steam will be uniform in heating the surrounding mash or other material. The respective semicircular coils are held together by the straps or connections *q* and *r*.

The ends of the T-pipes *d* and *l* are formed with conical seats ground to each other, and held together by the respective couplings so as to be steam-tight, but allow of a turning motion at said parts.

It will now be apparent that when the coil composed of the pipes *p* is turned up for cleaning out the vessel the T-pipes *d* and *l* will also be turned, but when the semicircular coil composed of the pipes *g*, *i*, and *k* is turned up or laid down the motion is at the ends of the pipes *f* and *k*, where they are coupled to *d* and *l*. By this arrangement of pipes the steam circulates through all parts of the coil, and, the pipes all lying level, water of condensation cannot accumulate, expansion and contraction are freely allowed for, and the pipes are led in such a direction that the steam will be very uniform in its heating action throughout the surrounding mash or other material.

The direction of the steam might be reversed, entering at *o* and leaving at *a*.

What I claim, and desire to secure by Letters Patent, is—

1. The arrangement of the pipes *f*, *i*, and *k*, whereby the axial pipe *k* is allowed to expand or contract without injury to the joints, as set forth.

2. The T-pipes *d* and *l*, in combination with the coil *p* and couplings, whereby said coil can be turned up, as specified.

3. The conical ground couplings applied, substantially as specified, to the coils of steam heating or boiling apparatus, so that said coils will be kept steam-tight at the joints and motion allowed for turning said coils up, as set forth.

In witness whereof I have hereunto set my signature this 16th day of January, 1865.

JOHN TRAGESER.

Witnesses:

THOS. GEO. HAROLD,
CHAS. H. SMITH.