

UNITED STATES PATENT OFFICE.

WILLIAM R. WALTON, OF ANSONIA, CONNECTICUT, ASSIGNOR TO THE
ANSONIA BRASS AND COPPER COMPANY, OF SAME PLACE.

METHOD OF MANUFACTURING BRASS KETTLES.

SPECIFICATION forming part of Letters Patent No. 407,501, dated July 23, 1889.

Application filed May 6, 1889. Serial No. 309,795. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM R. WALTON, of Ansonia, in the county of New Haven and State of Connecticut, have invented an Improvement in the Method of Manufacturing Brass Kettles, of which the following is a specification.

In the manufacture of brass kettles it has heretofore been usual to make use of a disk of sheet-brass of the proper size, and to spin the same up into the shape of the kettle by successive operations upon a form or shape, the blank kettle being annealed between one spinning operation and the next, because in the spinning operation the metal is rendered hard, and it would break if acted upon without the intermediate annealing. This machine and method of manufacture are described in Letters Patent No. 8,589 granted to Hiram W. Hayden. In other cases the sheet-metal disk has been stamped up in dies to partially shape the same, and then the sides of the kettle-blank have been reduced by a spinning operation to take out the wrinkle and to thin the metal. Dies adapted to this object are represented in Letters Patent No. 14,887, granted May 13, 1856, to Frederick J. Seymour.

It is usual between one spinning operation and the next to pickle the article in dilute sulphuric acid to remove oxide and stains produced in the annealing operation, and any remaining acid is removed by rinsing the article in water. After the last spinning operation the metal is trimmed and a wire introduced at the rim, and in some instances the surface is finished in a lathe and the bail-ears are applied for receiving the bail. Under all circumstances it is desirable to spin the article after the last annealing operation, to give the sides of the kettle the proper stiffness and elasticity, the bottom of the kettle remaining nearly the original thickness of the sheet metal and the sides being materially reduced in thickness. After the kettle has been otherwise finished the same has sometimes been tinned. In this case a flux composed of dilute muriate of zinc is applied to the inside of the kettle, and then tin in a melted state is introduced into such kettle and adheres to the surface of the brass and the surplus tin is

poured out and the surface wiped by hand, preferably with a bunch of flax-fiber, to render the tinning uniform.

It has been found in practice that the introduction of the melted tin after the last spinning operation is liable to injure the metal, because of the sudden and unequal expansion resulting from the heat of the melted tin, the metal at this stage of the process being in a hard and stiff condition, resulting from the spinning or drawing operation; hence these tinned kettles are often found to contain flaws or cracks.

My present improvement relates to the method of manufacturing brass kettles for preventing the aforesaid difficulty of injuring the metal of the kettle in the tinning operation.

In carrying out my improvement the blank kettle is manufactured in the ordinary manner, up to the last annealing operation, by either of the processes before described. After the last annealing operation, and before the final spinning or drawing operation, the blank kettle is carefully cleansed to remove any oxide or stain, and rinsed for removing any traces of acid, and then a suitable flux—such as a dilute solution of muriate of zinc—is introduced in the inside, and then the melted tin is poured into the kettle and adheres to the inner surface thereof, and the surplus tin is poured out and the tin spread uniformly by a suitable wiper, or the tin may be applied by any of the well-known methods used in tinning metals; and I find that by applying the tinning to the metal in its annealed condition there is no risk of the metal cracking under the strain due to the expansion from the heat of the tin, and the kettle-blank at this stage is placed upon a suitable form and the final spinning or drawing operation applied to the same for hardening the metal and rendering the same stiff and elastic, and in this operation the tinning is not in any manner injured, but, on the contrary, the tinning is consolidated, smoothed, and brightened in cases where a smooth metallic chuck or form is made use of within the kettle, and the final spinning operation may be performed by rolls on the inside and on the outside of the kettle, as have heretofore been made use

of in the manufacture of kettles. Under all
circumstances the kettle, when finished by
the final spinning operation, is in a condition
for being trimmed, wired, and bailed, the tin
5 upon the inside of the kettle being rendered
smooth and uniform by the spinning opera-
tion, and by my process the risk of injury
during the tinning is entirely avoided.

I claim as my invention—

10 The method herein specified of tinning and
finishing brass kettles, consisting in anneal-
ing the kettle when ready for the final spin-

ning or finishing operation, removing oxide
or stain from the surface of the brass, then
tinning the interior of the kettle, and then 15
spinning or otherwise finishing the kettle to
harden and stiffen the metal and leave the
blank in a condition ready for trimming,
wiring, and bailing, substantially as set forth.

Signed by me this 29th day of April, 1889.

WILLIAM R. WALTON.

Witnesses:

FRANKLIN BURTON,

FRANKLIN R. JOHNSON.