

No. 701,693.

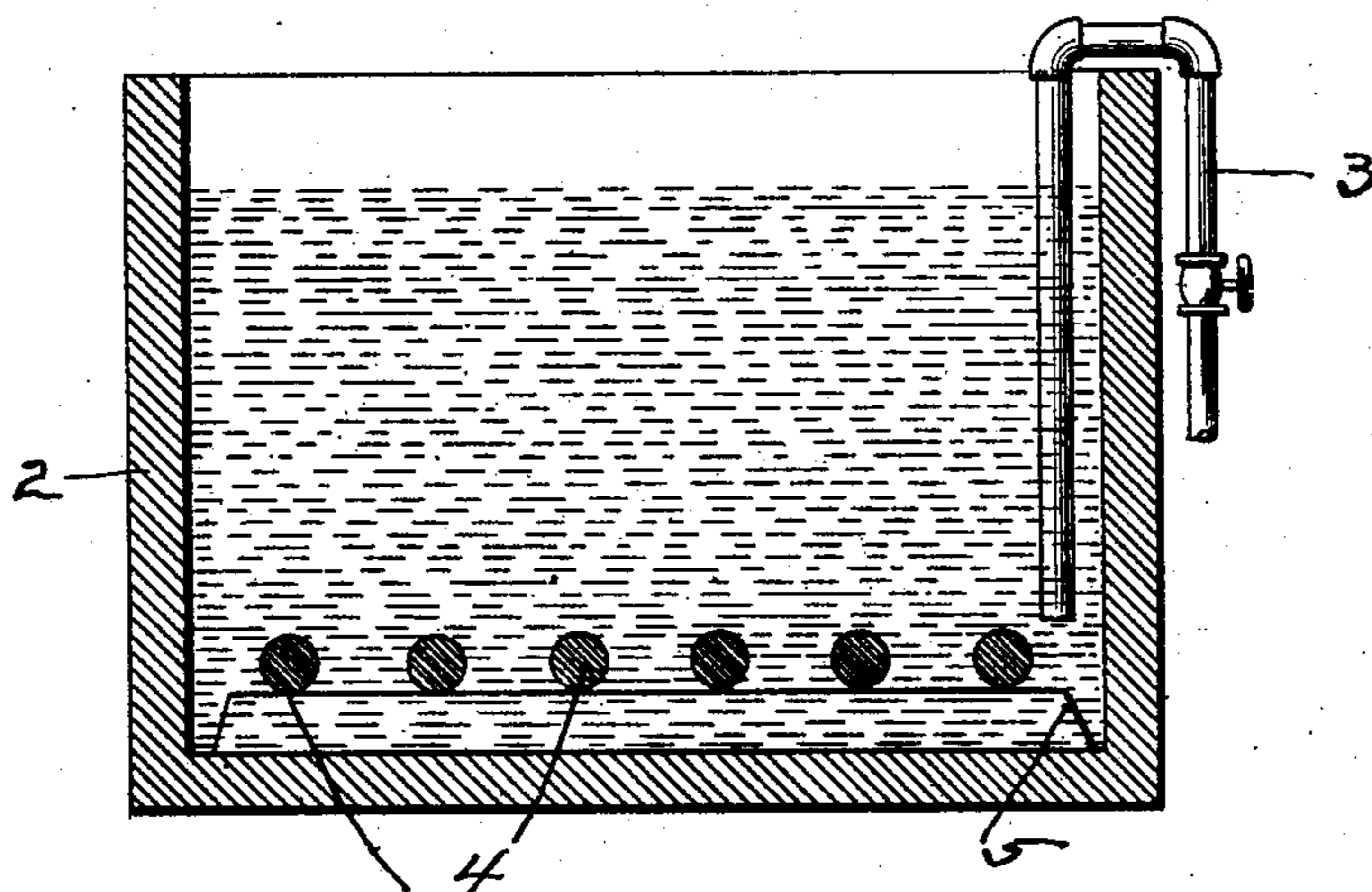
Patented June 3, 1902.

G. H. EVERSON.

METHOD OF HEATING MANDRELS FOR ROLLING TUBES.

(Application filed Apr. 19, 1901.)

(No Model.)



WITNESSES:

J. R. Keller
E. A. Goshik

INVENTOR.

G. H. Everson
Thos. J. Verbit
att'y.

UNITED STATES PATENT OFFICE.

GEORGE H. EVERSON, OF PITTSBURG, PENNSYLVANIA.

METHOD OF HEATING MANDRELS FOR ROLLING TUBES.

SPECIFICATION forming part of Letters Patent No. 701,693, dated June 3, 1902.

Application filed April 19, 1901. Serial No. 56,576. (No specimens.)

To all whom it may concern:

Be it known that I, GEORGE H. EVERSON, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Methods of Heating Mandrels for Use in Rolling Tubes, of which the following is a specification, reference being had therein to the accompanying drawing.

In practicing the method of rolling tubes patented to me June 10, 1890, No. 430,008, it has been found advantageous to use heated mandrels, as they are more readily removable from the tubes at the completion of the rolling operation, owing to their appreciable contraction incident to cooling. With cold mandrels the tubes frequently become so tightly fixed thereon that it is with great difficulty that the mandrels are removed. Also in the rolling of hot tubes a cold mandrel is liable to injuriously chill the metal—an objection not encountered in using a heated mandrel.

It has been proposed heretofore to roll tubes on heated mandrels; but so far as I am informed no effective way has been provided for heating them. The temper of mandrels must be preserved, (otherwise they will flatten between the rolls,) and their essentially smooth surfaces must be maintained to avoid imperfections in the finished tubes and difficulty in removing the mandrels therefrom. A mandrel cannot be properly heated in a muffle or other furnace or by the direct heat of a fire—that is, heated uniformly—without destroying its temper and for the further reason that its surface becomes oxidized, and hence rough and unfit for the reducing and finishing operation. It is impossible to heat the mandrel by the means stated without injuring the same. To obviate these difficulties, I submerge the mandrels in water the temperature of which is maintained, preferably, at the boiling-point, and permit them to remain therein until they attain, preferably,

the same temperature as the water from center to circumference. In this way an absolutely uniform temperature is obtained without impairing the temper of the mandrels and without injury to their essentially smooth surfaces.

In the accompanying drawing I have illustrated in cross-section a tank or tub 2, which may be employed in practicing my improved method, containing a suitable quantity of water which may be heated by steam introduced through one or more pipes 3 or in any other preferred manner. The mandrels 4 are preferably sustained above the tank-bottom on cross-supports 5 and being thus completely surrounded or enveloped by the water are heated in the effective manner above indicated.

I claim—

1. The method of heating mandrels, preparatory to the rolling of tubes, without impairing their temper or their essentially smooth surface, consisting in maintaining the mandrels in a bath of heated water until the requisite degree of heat is attained.

2. The method of heating tube-rolling mandrels without impairing their temper or their essentially smooth surface, consisting in maintaining the mandrels in a bath of heated water until they attain the same degree of heat as the water.

3. The method of heating tube-rolling mandrels without impairing their temper or their essentially smooth surface, consisting in maintaining the mandrels in a bath of heated water until, from center to circumference, they attain the same degree of heat as the water.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE H. EVERSON.

Witnesses:

J. M. NESBIT,
ALEX. S. MABON.