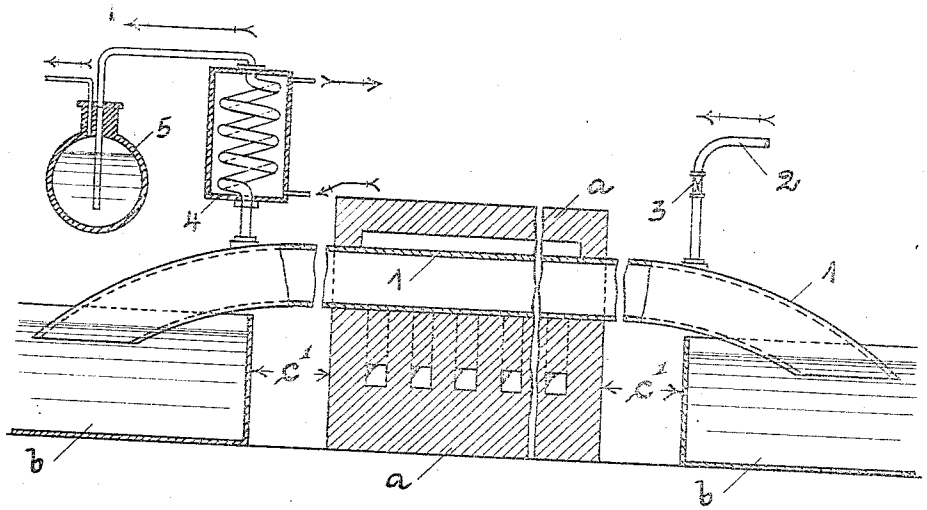
F. KAMMERER.

ANNEALING APPARATUS.

APPLICATION FILED OCT. 10, 1912.

1,133,647.

Patented Mar. 30, 1915.



Witnesses.

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UNITED STATES PATENT OFFICE.

FRIEDRICH KAMMERER, OF PFORZHEIM, GERMANY.

ANNEALING APPARATUS.

Specification of Letters Patent. Patented Mar. 30, 1915.

1,133,347.

Application filed October 10, 1912. Serial No. 724,944.

To all whom it may concern:

Be it known that I, FRIEDRICH KAMMERER, a subject of the German Emperor, residing at Pforzheim, in Germany, have invented certain new and useful Improvements in Annealing Apparatus, of which the following is a specification.

The invention relates to apparatus for annealing metal objects, more particularly highly polished jewelry, in a non-oxidizing atmosphere.

My improved apparatus differs from previous devices for this purpose by the fact that the ends of the retort chamber project from the heating furnace or even to such an extent that they remain quite cool, the distance between the oven and the seals or the liquid through which the work enters and passes out being greater than, or at least equal to, the length of the furnace. Moreover, I connect to one end of the apparatus a cooler and a hydraulic seal through which the gases pass out of the retort.

In my improved apparatus the annealed articles cool off to a large extent in the cold gas between the oven and the outlet, and by this means I am enabled to obtain annealed objects with a high polish. The cooler and hydraulic seal referred to also enable the air in the retort to be expelled by the incoming non-oxidizing gas, so that all danger of explosions is avoided, and the hydraulic seal also prevents fresh air from being sucked in when the oven is cooling off.

The invention is illustrated in the accompanying drawing, which is a sectional elevation showing the principal parts of the apparatus partly in section, and partly broken away.

The apparatus shown comprises an annealing oven *a*, with a retort 1 therein, and this retort can be filled with gas, for example hydrogen or pure coal gas, through a feed pipe 2 controlled by a cock 3. The gases issuing from the retort are condensed by passing through a cooler 4 from which they are discharged through a hydraulic seal 5. A quartz glass muffle of the well known type is preferably used as retort. The ends of the retort are immersed in sealing tanks *b*. Each of these tanks *b* is separated from the oven *a* by a distance *c'* at least equal to the length of that part of the retort which lies within the oven, so that the ends of the retort project far enough beyond the furnace to remain quite cool, and the annealed articles consequently cool off considerably before dropping into the sealing liquid.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

Annealing apparatus comprising a heating appliance, sealing appliances adapted for the passage of the work therethrough, arranged at opposite sides of said heating appliance, a retort arranged partly within said heating appliance and with its ends extending from same to said sealing appliances the distance of each of the latter from said heating appliance being at least equal to the length of that part of the retort which lies within said heating appliance, means for introducing a gas into said retort at one side of said heating appliance, a gas-cooler connected to said retort at the other side of said heating appliance, and means enabling gas to issue from said cooler to the atmosphere without admitting air.

In witness whereof I have signed this specification in the presence of two witnesses.

FRIEDRICH KAMMERER.

Witnesses:
JOSEPH PFEIFFER,
LUDWIG KRAUSS.