

# UNITED STATES PATENT OFFICE.

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## METHOD OF TREATING METAL PIPE.

No. 832,288.

Specification of Letters Patent.

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*To all whom it may concern.*

Be it known that I, GEORGE A. BENNEY, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Methods of Treating Metal Pipe, of which the following is a specification.

My invention refers to an improvement in the method or process of treating pipes for the purpose of adapting them for any use where the pipes are exposed to moisture, acids, or gas.

The invention consists in first cleansing the surface of the pipe, then subjecting it to a pickling operation, then flushing the pipe, then baking the pipe, and then coating it.

Heretofore pipes have been treated by first pickling them to loosen the scale or other adhering matter, which was then removed by any suitable means, as a sand-blast, and then coating the surface with a suitable material, as enamel or paint. I have found that the handling of the pipe after being subjected to the sand-blast, subsequent to the pickling operation, causes oxidation or otherwise so effects the surface as to prevent and largely interfere with the successful application and adherence of the final coating or enameling, and my present improved method is designed to overcome such difficulty and to produce an efficient evenly-coated pipe both in the interior and exterior without loss of time, in the manner hereinafter described.

In carrying out my improved process I first subject the interior of the pipe to a cleansing or scouring operation, as by the use of a sand-blast, for the purpose of removing any adhering particles and of cutting away any projections, fins, &c. The pipe is then immersed in the pickling-vat containing a suitable pickling solution of diluted acid, &c., which thoroughly cleanses the pipe from any adhering particles or foreign matter, and when removed from the tank the pipe is covered with an adhering thin coating or film of the pickling fluid. The pipe is then flushed with hot water in any suitable tank under pressure, either steam or hydraulic, and allowed to remain therein until the pipe is thoroughly washed, when it is removed and

placed in a baking-oven in which it is thoroughly dried and heated to the desired temperature evenly throughout the entire body portion. The pipe is then removed from the oven and immersed in the coating-bath, by which process the coating or enamel is applied while the pipe is still hot from the baking-oven. The pipe is then replaced in the oven until the coating is thoroughly set, when it is ready for use. The advantage of so applying the final coating or enamel is that due to the heated condition of the pipe the enamel or coating will thoroughly fill all pores or interstices and will at the same time be deposited evenly over the whole surface, due to the partial melting effect of the heated pipe. These operations are carried on successively and without loss of intervening time, the pipe being handled by suitable mechanism, and when finally removed from the coating-bath and allowed to cool the covering enamel or paint thoroughly coats the entire surface, both inside and out, and when baked will be found to be of an even thickness throughout. The advantage of first cleansing the interior of the pipe by the sand-blast or other operation and then pickling it is that the cleaned surface of the pipe is not subjected to the handling after the pickling operation, as it is when these steps are reversed, (and up to the time when the pipe is immersed into the flushing-tank of hot water it is protected against oxidation by the covering-film of acid.) The subsequent baking operation prior to the final coating accomplishes the drying and preparation of the pipe in the manner described, and I have found in practice when these steps are carried out as described that the results are highly successful.

Having described my invention, what I claim is—

1. The method of treating the surface of metal pipes consisting in first cleansing the surface of the pipe by a sand-blast, pickling the pipe in a dilute acid solution, flushing the pipe with hot water under pressure, baking the pipe to raise its temperature, and then applying a coating to the treated surface, substantially as described.

2. The method of treating the surface of metal pipes consisting in first cleansing the

surface of the pipe by a sand-blast, pickling  
the pipe in a dilute acid solution, flushing the  
pipe with hot water under pressure, baking  
the pipe to raise its temperature, then apply-  
5 ing a coating to the treated surface, and then  
baking the coated pipe, substantially as set  
forth.

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

GEORGE A. BENNEY.

Witnesses:

CHAS. S. LEPLEY,  
C. M. CLARKE.