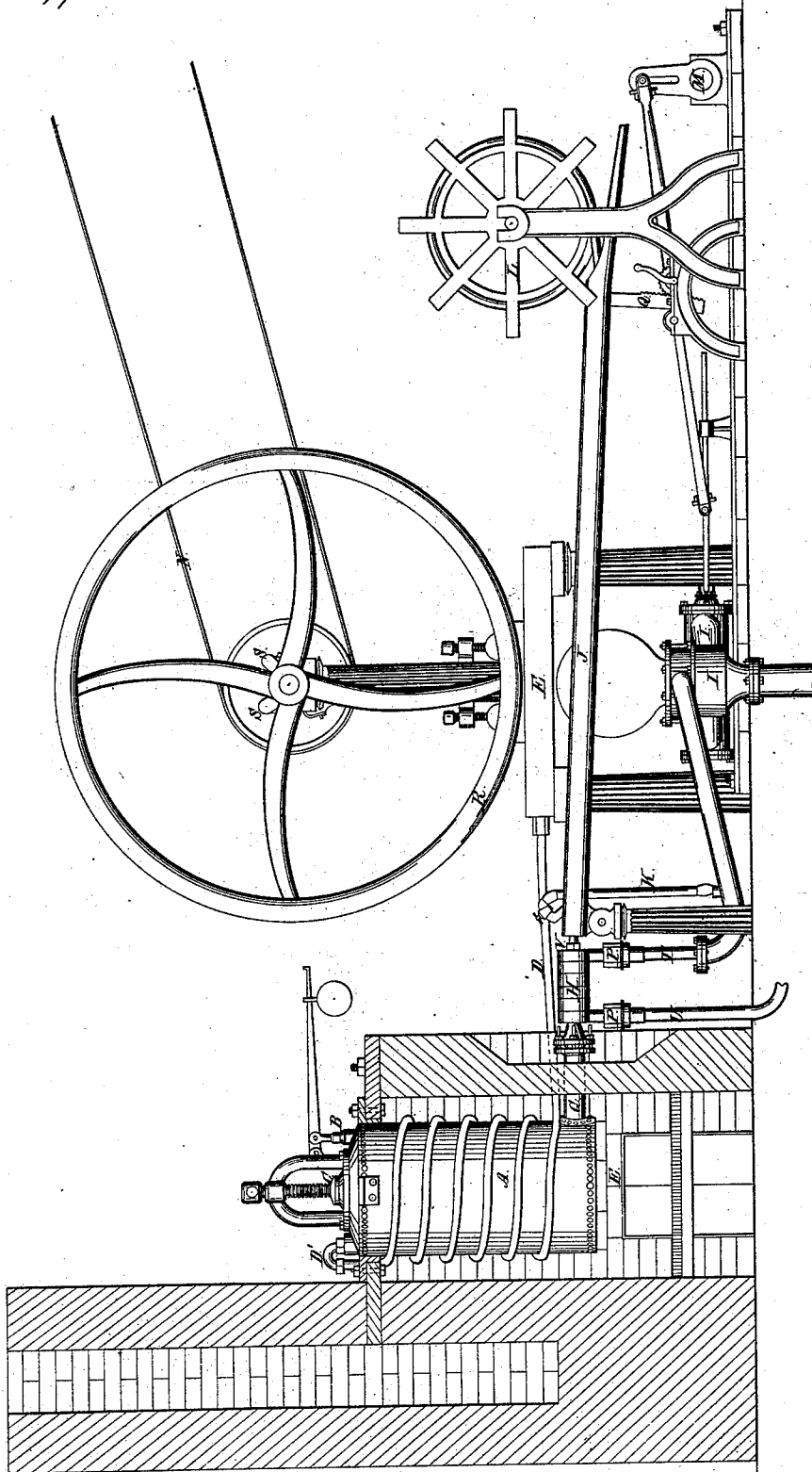


*G. F. Sellers.*

*Making Lead Pipe.*

*N<sup>o</sup> 1,908.*

*Patented Dec. 17, 1840.*



# UNITED STATES PATENT OFFICE.

GEO. E. SELLERS, OF UPPER DARBY TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA.

## MACHINERY FOR MAKING PIPES CONTINUOUSLY FROM LEAD, &c.

Specification of Letters Patent No. 1,908, dated December 17, 1840.

*To all whom it may concern:*

Be it known that I, GEORGE ESCOL SELLERS, of the township of Upper Darby, in the county of Delaware and State of Pennsylvania, have invented certain improvements in apparatus for manufacturing pipes of lead and of other metals of equal or nearly equal fusibility, by means of which apparatus such pipes are cast of any required length with greater facility than by any of the methods heretofore essayed for that purpose; and I do hereby declare that the following is a full and exact description thereof.

My apparatus is similar in some respects to such as has heretofore been employed for the casting of pipes of lead; that is to say, the melted metal is to be forced from the retort, or vessel, in which it is kept in a fused state, through a hollow nozzle, tube, or former, the interior diameter of which is the same with that of the external diameter of the pipe intended to be formed, and which has within it a fixed core of iron of the size of the bore of the tube to be manufactured. But although I proceed on a general principle, or mode, of construction which has been long known, I have devised certain improvements in the apparatus, by which it is rendered more effective than upon the plans heretofore attempted to be carried into operation.

In the accompanying drawing, A, is a retort, or melting pot, of iron, under which there is a fire chamber, or furnace, as at E, which extends up around the melting pot. The upper end of this melting pot is closed by a firmly fitting top, or head, which is furnished with a safety valve B, and also with a closely fitted stopper, or valve C, which after the vessel A has been filled with lead, is to be firmly screwed or otherwise fastened down.

To make pressure upon the surface of the melted metal for the purpose of forcing it through the nozzle, or former, and over the core, I force air into the upper part of the melting pot, by means of air pumps worked by steam, or other adequate power, which air may be heated by passing the pipe by which it is conveyed through the furnace in such way as may be deemed most expedient. Instead of employing heated air for making pressure upon the surface of the lead, I intend, sometimes, to effect this by the pressure of a column of the metal used, on the

hydrostatic principle. In this case, I insert an iron tube standing vertically, into the upper part of the melting pot, of sufficient length to give the required pressure, which, from the great specific gravity of the lead, may be contained within a heated flue of a manageable height. This pipe must be so inclosed as that it shall be acted upon by the heat of the furnace, so as to keep the metal within it in a fused state, and its upper end must form, or be connected with, a reservoir of the fused metal, sufficient to keep up the supply. When thus constructed, the safety valve B will not be required.

D, D, is the iron pipe, or tube, connected with the air pumps by which air is to be forced into the melting pot. This tube is represented in the drawing as passing into the furnace, and as being wound spirally around the melting pot, and finally entering through the top thereof, at D'; but as air has a small capacity for heat, and as it passes but slowly into the melting pot, it may be heated to the required temperature without the exposure of so large a surface of the pipe as is here represented, and might, I am well assured, be employed by merely passing it directly into the upper part of the melting pot.

F, is the seat, or basis, upon which the air-pumps are placed; N, a band passing around a whirl upon a crank, or eccentric shaft, for working the pistons.

R, is a fly wheel on said shaft, and S, S, cranks. There may be two, or more, barrels and pistons, to supply, and keep up the necessary pressure of the air, and as these are constructed and used in all respects in the ordinary way, they do not require to be described.

I, is a water pump, by which cold water is to be supplied for cooling the nozzle, or former, into which the lead passes from the melting pot.

M, the crank shaft of a steam-engine, water wheel, or other motive power, by which this pump may be worked.

T, is a pump leading from the cold water pump to a flat pipe, or tube, H, which surrounds the nozzle, or tubular former, thus supplying the cold water at its outer end, and causing it to pass off at its inner end, through the pipe U. The coupling boxes P, P, serve to connect these pipes.

G, is a pipe leading from the melting pot to the nozzle, or pipe former. The nozzle,

with its core, is connected to the pipe G, by flanches and screws, as seen at O, admitting, with the aid of the coupling boxes P, P, of the ready change of this part for the making of pipes of different sizes.

5 In order to confine the melted metal within the melting pot until it is desired that it should flow out, I form stoppers which consist of an iron tube of such external diameter as to fit exactly within the nozzle, and of such bore as to fit precisely on to the core within it. The outer end of this is seen at V. It may be confined in place by means of a screw, or wedge, on removing which it will be forced out by the internal pressure, and followed by the pipe as it is formed. A piece of the lead pipe itself makes a good and sufficient stopper provided the water be kept running through the tube H.

20 J, is a trough into which the pipe passes on its way to the reel L, on which it is to be wound. This trough is to be supplied with cold water by means of the pipe K; it may be raised, or lowered, by means of a

rack and pinion, as at Q, or in any other convenient way. The reel L, may be made to revolve so as to take up the pipe as it is formed, a slip band, or other analogous device being adapted to prevent its straining too heavily upon the pipe.

30 Having thus fully described the manner in which I construct my apparatus for manufacturing pipes of lead, or other metal, what I claim therein as constituting my invention, and desire to secure by Letters Patent, is—

1. The manner of forcing the lead from the melting pot by means of the pressure of air, in the manner herein set forth.

2. I also claim the manner of cooling the nozzle, or former, by the circulation of cold water around it, in the manner herein fully made known.

GEO. ESCOL SELLERS.

Witnesses:

JAMES A. FREEMAN,  
CHAS. SELLERS.