

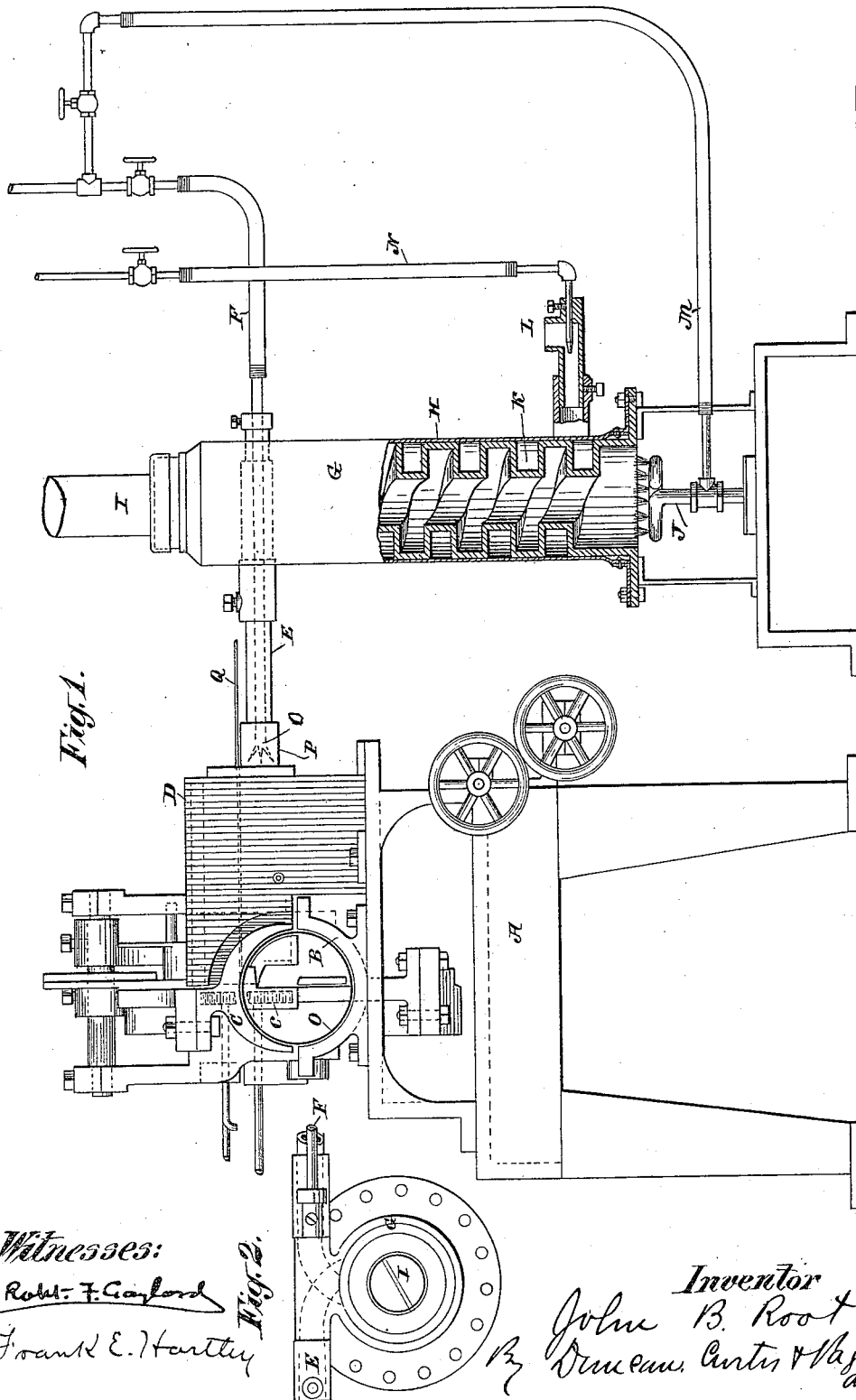
(No Model.)

J. B. ROOT.

MACHINE FOR MAKING METAL PIPES.

No. 346,613.

Patented Aug. 3, 1886.



Witnesses:

Robt. F. Gaylord

Frank E. Hartley

Fig. 2.

Inventor  
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attys.

# UNITED STATES PATENT OFFICE.

JOHN B. ROOT, OF PORT CHESTER, NEW YORK.

## MACHINE FOR MAKING METAL PIPES.

SPECIFICATION forming part of Letters Patent No. 346,613, dated August 3, 1886.

Application filed June 10, 1886. Serial No. 204,821. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN B. ROOT, of Port Chester, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Heating Devices for Spiral-Pipe-Welding Machines, of which the following is a full, clear, and exact description, reference being had to accompanying drawings.

10 The invention relates to machines for forming sheet-metal pipes by spirally winding sheet-metal blanks or strips into cylindrical form, with the opposite edges of such blank overlapping, and welding such edges together.

15 Such a machine, and the form of machine to which the present invention is specially adapted, is shown and fully described in application for United States Letters Patent filed by me November 9, 1885, No. 182,238.

20 In general, such machine consists of spirally-reciprocating blank - pinching mechanism, which draws in the blank or strip of sheet metal, winds it into spiral cylindrical form with its edges overlapping, and forces it through a suitable former, and of a blow-pipe furnace arranged in such relation to the adjoining opposite edges of the blank as to bring them to welding-heat as they pass the same, the welding of such edges together being accomplished by the pinching mechanism, which takes hold upon such overlapping and heated edges with sufficient force to weld them securely together. The furnace connected with this machine consists of a blow-pipe arranged to direct its flame upon the edges of the blank at their joining-point, and it is so surrounded by a case or shell that the heat of the blow-pipe is confined to the edges of the blank.

25 The gases that are used to produce the blow-pipe flame are any suitable form of fuel-gas and air; but a very high heat is requisite for quickly bringing the blanks to a proper welding condition, and it has been found desirable to have a higher heat than is practically possible by the common method of uniting the oxygen of the air with a fuel gas at their ordinary temperatures. I have found that the heat of this welding-flame is greatly increased if the air that is used be heated before it is mixed with the hydrogen or fuel-gas; and the present invention consists in an improved air-

heating stove constructed and adapted for use in conjunction with the blow-pipe furnace of a spiral-pipe-welding machine.

Although this mechanism is specially adapted to use with a welding-machine for making spiral pipe, it is also available for use with other forms of mechanism for welding together sheet-metal plates in which a blow-pipe is employed for heating the edges of the metal to be welded together.

In the drawings, Figure 1 is an elevation view of a spiral-pipe machine and of an air-heating stove therefor; and Fig. 2 is a plan view of said stove, shown detached from the pipe-forming machine.

In these views, A represents the spiral-pipe-forming machine of the above-named application. B is the former thereof.

C C are the clamping or pinching jaws.

D is the shell or case of the furnace, and E is the blow-pipe. This blow-pipe is connected with a receiver or other source of hydrogen or fuel gas by the pipe F.

G is the air-heating stove. It consists of an external shell or case, H, provided with an opening or chimney, I, at the top, and the bottom is also open, where there is located a Bunsen or other similar lamp or heater, J.

Within the shell H and fixed thereto is a spiral flue or passage, K, which leads from the exterior of the shell at L up around the stove, and at the top thereof is connected to the blow-pipe—that is, it is continuous with the chamber or space in the blow-pipe surrounding the pipe F. (See dotted lines on left-hand side of Fig. 2.)

The lamp J is supplied with gas through pipe M from the same source as pipe F.

N is an air-blast pipe connected to any suitable air blowing or compressing mechanism, and serves to induce a strong draft in the flue K L. This pipe N may, however, be connected to the stove, so as to supply all the air needed for the blow-pipe, and particularly when it may be desired to force the air in under high pressure. It will now be plain that when the stove is in operation the lamp at its bottom will heat the spiral passage, so that the air passing through the same may practically be raised in temperature to any desired point. The hot air passes on and mingles with the

fuel-gas at the end O of the gas-pipe F within the refractory chamber or nozzle P, where they burst into an intense flame that is directed upon the edges of the coiled blank Q, such flame being produced with the development of much higher temperature than would be the case if the air were not heated before passing into the blow-pipe.

I am aware that the air as used in various forms of furnaces is heated before its combustion; but the mechanism herein described differs from all such furnaces known to me, in that a blow-pipe flame is employed and is applied directly to the surfaces of the parts to be brought to welding-heat, and, further, in the respect that the air is heated by a portion of the fuel-gas supplied to such blow-pipe.

What is claimed as new is—

1. In combination, a machine for welding together the edges of pipe-blanks, a blow-pipe furnace arranged to bring the edges of the blank to a welding-heat, and an air-heating device constructed and connected with said furnace for the purpose of heating the air before its combustion in the furnace, as and for the purpose set forth.

2. In combination, the pipe-welding machine A, provided with the blow-pipe furnace D E, the air-heating stove G, having the lamp J, and spiral air-passage K, substantially as set forth.

JOHN B. ROOT.

Witnesses:

ROBT. F. GAYLORD,  
ROBERT P. HARLOW.