J. E. GRANNISS.

Improvement in Machines for Making Tin Lined Lead Pipe.

No. 124,568. Patented March 12, 1872.

Fig. 1.

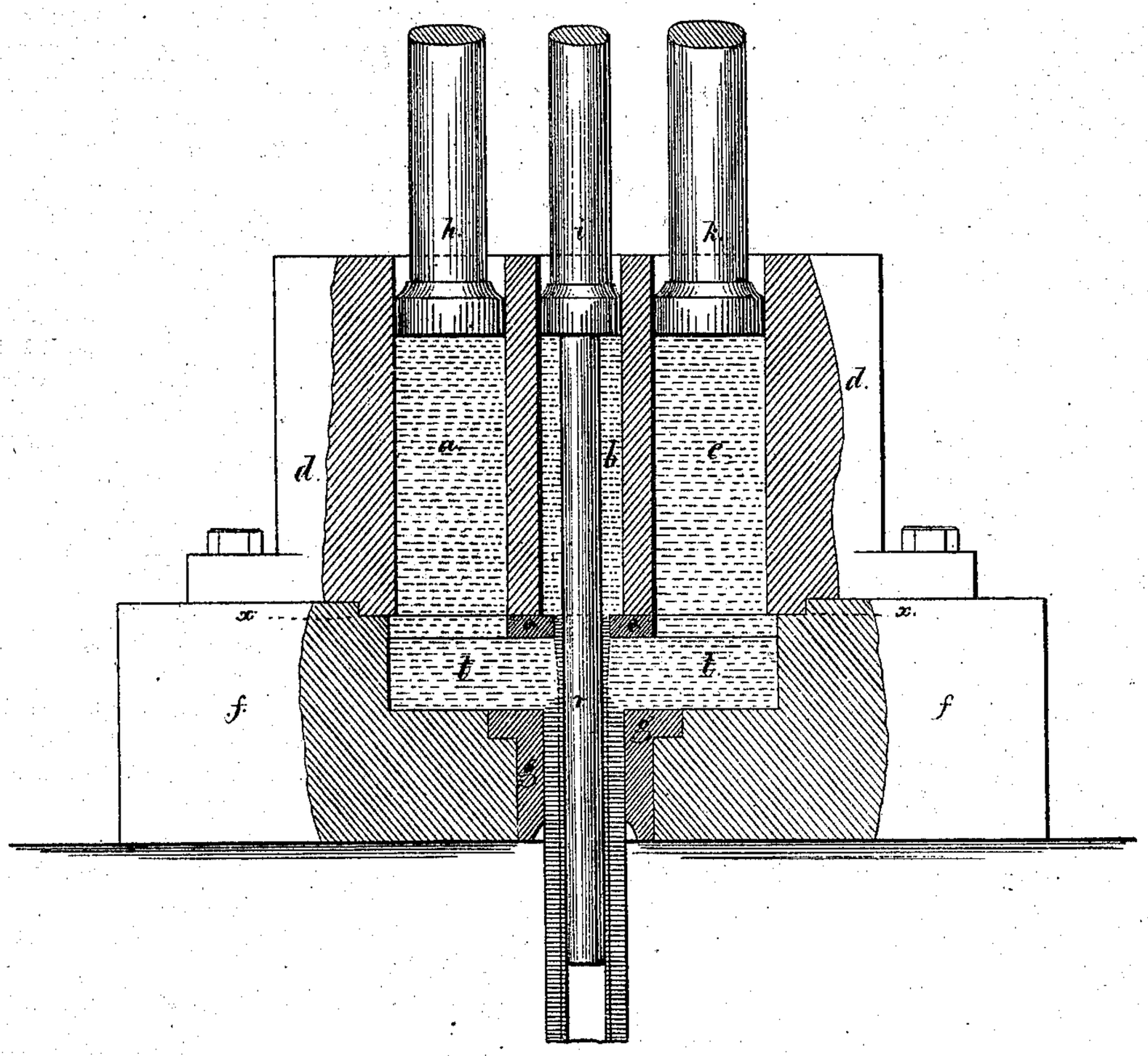
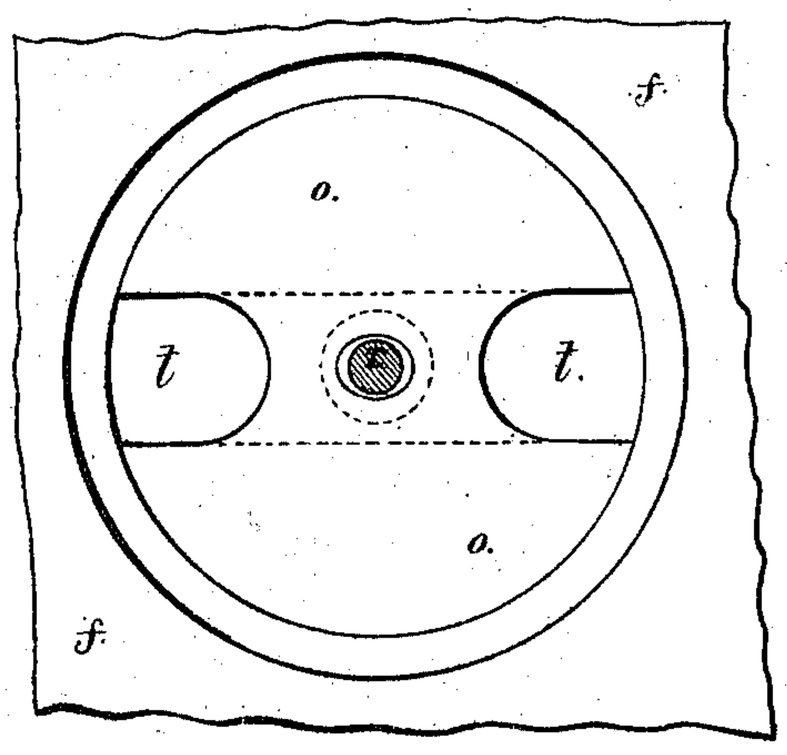


Fig. R.



Witnesses

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124,568

UNITED STATES PATENT OFFICE.

JAMES E. GRANNISS, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINES FOR MAKING TIN-LINED LEAD PIPE.

Specification forming part of Letters Patent No. 124,568, dated March 12, 1872.

To all whom it may concern:

Be it known that I, JAMES E. GRANNISS, of the city and State of New York, have invented and made an Improvement in Machines for Making Tin-Lined Pipe; and the following is declared to be a correct description of the same.

In Letters Patent No. 89,326 a machine is shown for making tin-lined lead pipe, in which there are three cylinders and rams actuated simultaneously, the center one containing the tin, and those at the sides the lead, and these operating together produce a pipe with a body of lead and a lining of tin; but in consequence of the lead pressing upon the tin from opposite sides the reduction thereof is very irregular, and the lining will be much thicker in some places than in others. The object of my invention is to render the lining more uniform and the pipe of equal strength throughout. To accomplish this object I employ a die at the end of the cylinder, through which and around the core the tin is pressed to form a thin pipe, and then the lead casing is pressed around this tin lining. In this manner the tin can be made uniform and the pipe of equal strength throughout. I remark that the temperature of the metal must be sufficiently high to promote a union of the tin and lead; otherwise they can be afterward separated if the pipe is cut open longitudinally.

In the drawing, Figure 1 is a vertical section of the pipe-press, and Fig. 2 is a plan of the die at the line *x x*.

The cylindrical openings *a b c* in the metal block *d* are to be of the desired size and shape. The block *d* is fastened to the bed-plate *f*, in which are passage-ways *t* from the cylinders *a* and *c* to the die *g* that forms the outside of the pipe. The rams or plungers *h i k* are made to fit the cylinders *a b c*, and are moved by competent power to force the lead from the cylinders *a c* and the tin from the cylinder *b* in a manner corresponding generally with that set forth in the aforesaid patent. The die *o* is applied at the end of the cylinder *b*, and the opening therein is of the desired size and shape to make the tin or other pipe around the core *r*. It is preferable to make the die *o* of an elliptical shape, so that the thickest portions of the tubular lining come where the force of the lead pressing against the same from the passages *a c* will tend to reduce the thickness of the lining; thereby the thickness of such lining will be rendered uniform or nearly so. The entire apparatus has to be at a sufficient temperature to unite the tin and lead; otherwise the two metals could be separated by splitting the pipe longitudinally.

This invention is designed for making lead pipe with a tin lining, but the pipe may be made of any available soft metal and the lining be of tin or other metal.

I claim as my invention—

The die *o* applied at the cylinder *b*, in combination with the cylinders *a* and *c*, passages *t*, and die *g*, substantially as and for the purposes set forth.

Signed by me this 6th day of February, A. D. 1872.

JAS. E. GRANNISS.

Witnesses:

GEO. T. PINCKNEY,

CHAS. H. SMITH.