

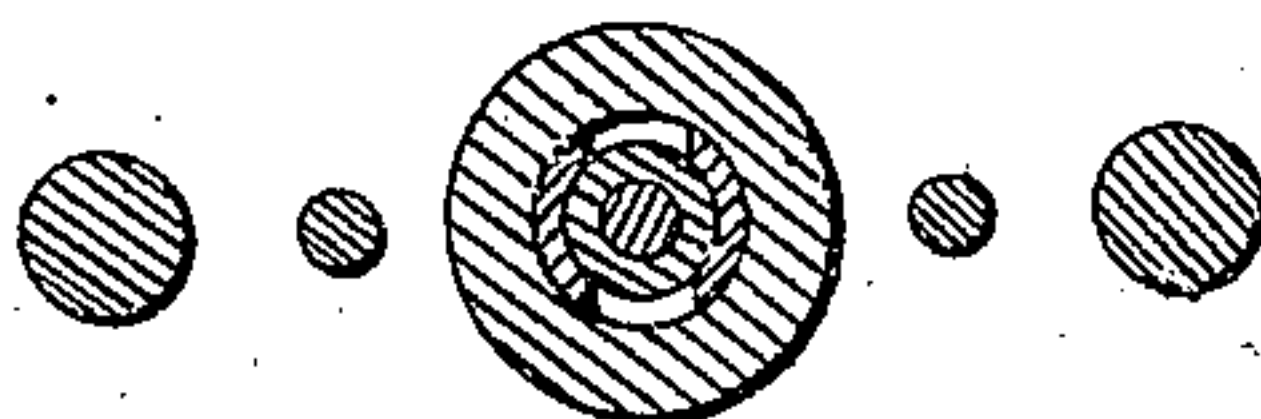
S. E. CHUBBUCK.

MACHINE FOR MAKING TIN LINED LEAD PIPE.

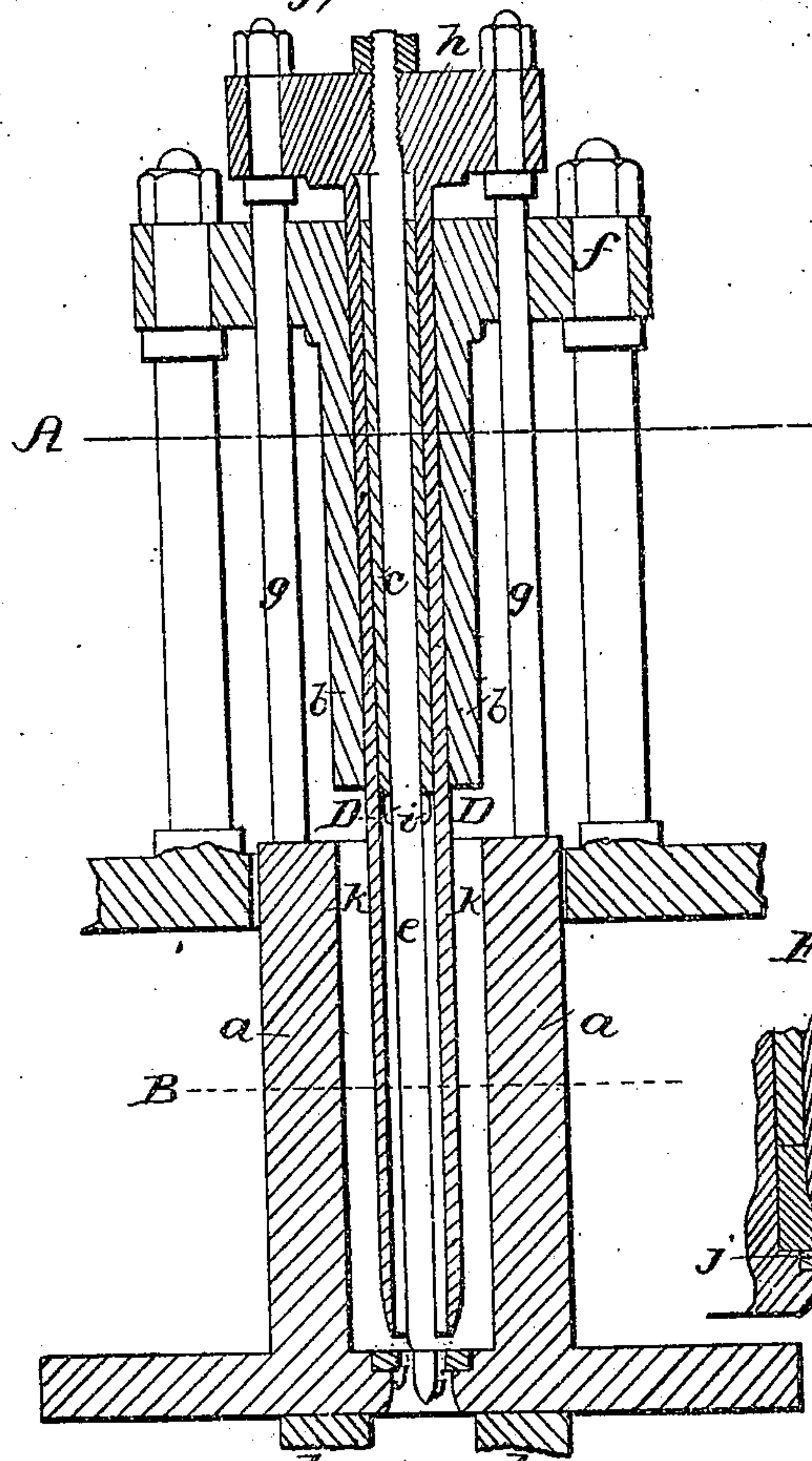
No. 79,548.

Patented July 7, 1868.

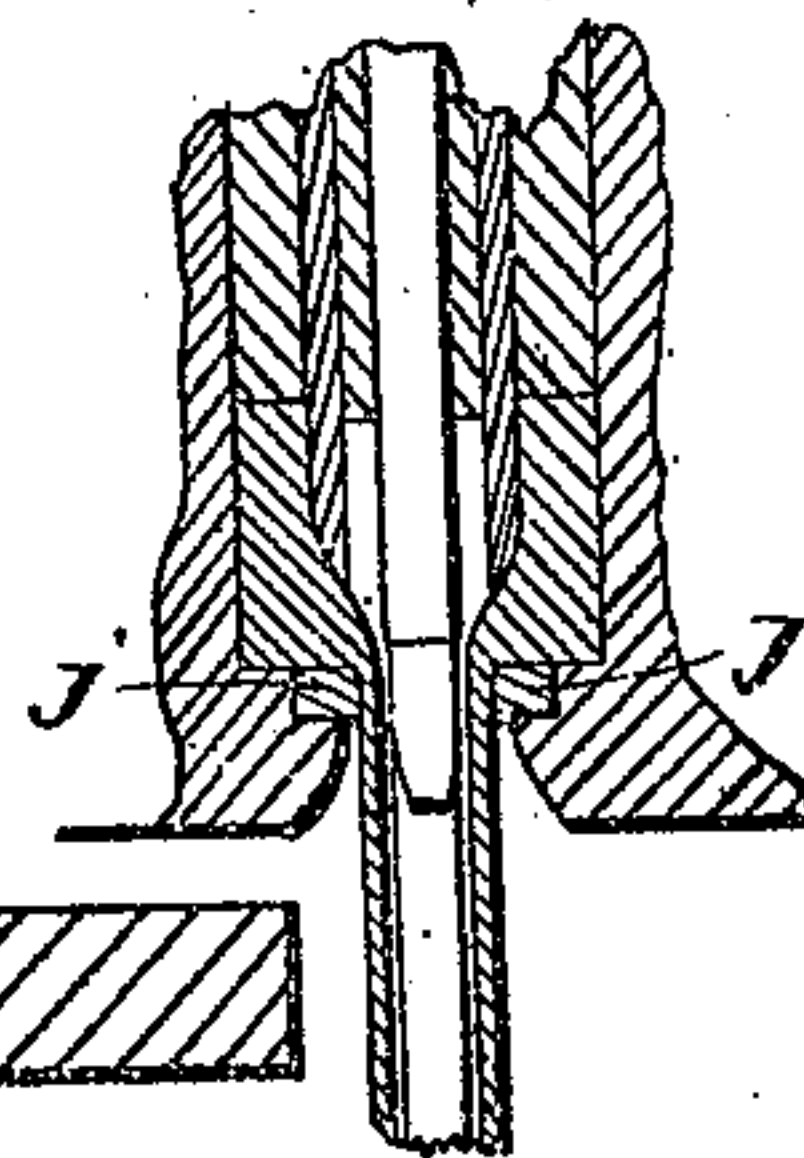
Fig; 3.



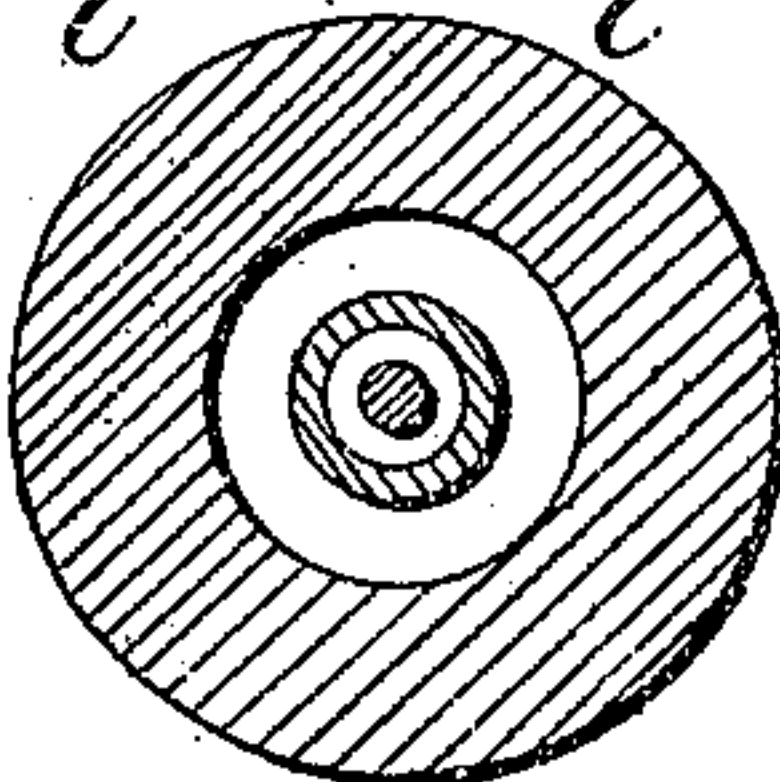
Fig; 1.



Fig; 2.



Fig; 4.



Witnesses;
J. D. Spaulding
D. W. Coffin

Inventor;
S. E. Chubbuck

UNITED STATES PATENT OFFICE.

S. E. CHUBBUCK, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO J. H. CHADWICK, OF SAME PLACE.

IMPROVED MACHINE FOR MAKING TIN-LINED LEAD PIPE.

Specification forming part of Letters Patent No. 79,548, dated July 7, 1868.

To all whom it may concern:

Be it known that I, S. E. CHUBBUCK, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Machinery for Making Compound Pipe; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

With reference to the accompanying drawings, Figure 1 is a sectional view of those parts of a machine to which my improvements relate. Fig. 2 is a similar sectional view, showing the material introduced and the pipe in process of making. Fig. 3 is a section at line A. Fig. 4 is a section at line B.

In the drawings, *a* is the cylinder to receive the material, and *b c* the ram or follower.

D is an annular partition, stationary with reference to the cylinder *a*, and dividing the space within cylinder *a* and around mandrel *e* proportionately to the required relative thickness of the two metals to compose the pipe. The two parts *b* and *c* of the ram or follower are firmly secured to each other or to a suitable cross-head, *f*, while the annular partition *D* is firmly secured by any suitable means, as rods *g* and head *h*, to the cylinder *a*.

The operation is as follows: Any suitable stopper is placed in die *j* and the lower end of the space between partition *D* and mandrel *e*, after which the different metals, in a fused or melted state, are poured, the one which forms the inner or lining portion through the opening *i* in the partition into the space within the partition *D*, and around mandrel *e*, and the other, for the exterior portion of the pipe, into the space *k* surrounding partition *D* and within the cylinder, after which, hydraulic or other pressure being applied at *l*, the ram or follower *b c* being stationary or the reverse, pressure being applied to ram or follower *b c*, and the cylinder *a* being stationary—in either case the metals are forced out through the die *j* in properly-proportioned compound pipe. After the

first discharge, the ram or follower *b c* not being forced quite to the bottom of the cylinder, the opening will be already stopped for receiving another charge when the ram is withdrawn.

The withdrawing of the ram, as well as its inward movement, may also be effected by means of the usual hydraulic or other pressure.

The metals being separated while in a fused state by the partition *d*, there is no danger of their intermixing in an objectionable manner.

The advantage of a considerable saving of time is also secured in being enabled to introduce both metals at once, or without changing the relation of any of the parts.

The materials for the construction of my improved machinery may be iron, steel, or other metals, as may appear most suitable for the several parts to those conversant with and practicing the art.

I do not claim the cylinder, ram, or mandrel of themselves separately, nor the same as a combination, for both devices and their combination are old and well known; nor do I claim a sheath or annular partition as a means simply of preventing the lead, when poured, from coming in contact with the tin, for this is accomplished in the machine patented to John Farrell, February 25, 1868, in which a sheath is used to protect the tin from the injurious effects of the hot lead, but which, after the lead has been poured, is entirely removed from the machine, thus leaving a void space between the two ingots, and the latter to that extent unsupported; but

What I do claim is—

1. The combination of the annular fixed partition *D* with the cylinder, ram, and die, when all are arranged in relation one to another as and so as to operate in the manner described.

2. The construction and adaptation one to the other and to the mandrel of the ram and annular partition *D*, as shown and described.

S. E. CHUBBUCK.

Witnesses:

I. D. SPAULDING,

D. N. B. COFFIN, Jr.