Elbridge Wheeler,

Reduction of Hollow Objects of Metal.

117494

PATENTED JUL 25 1871

Fig. 1

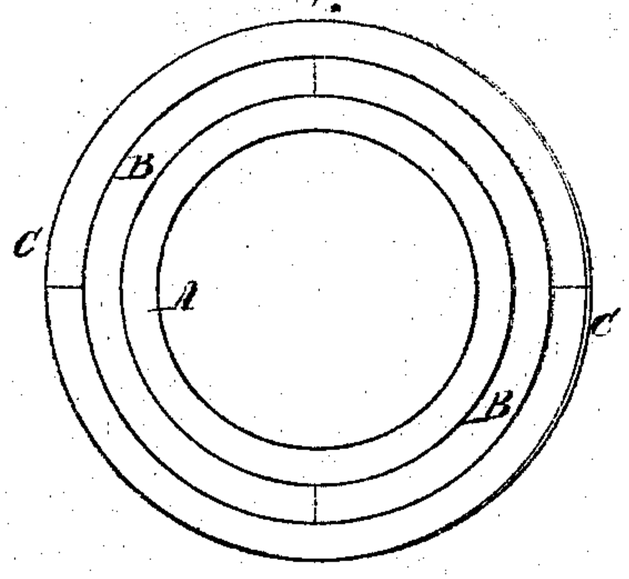


Fig. 2.

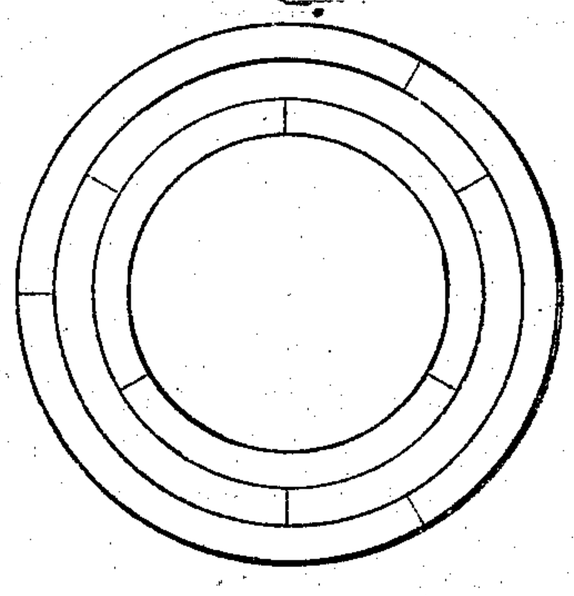


Fig. 3.

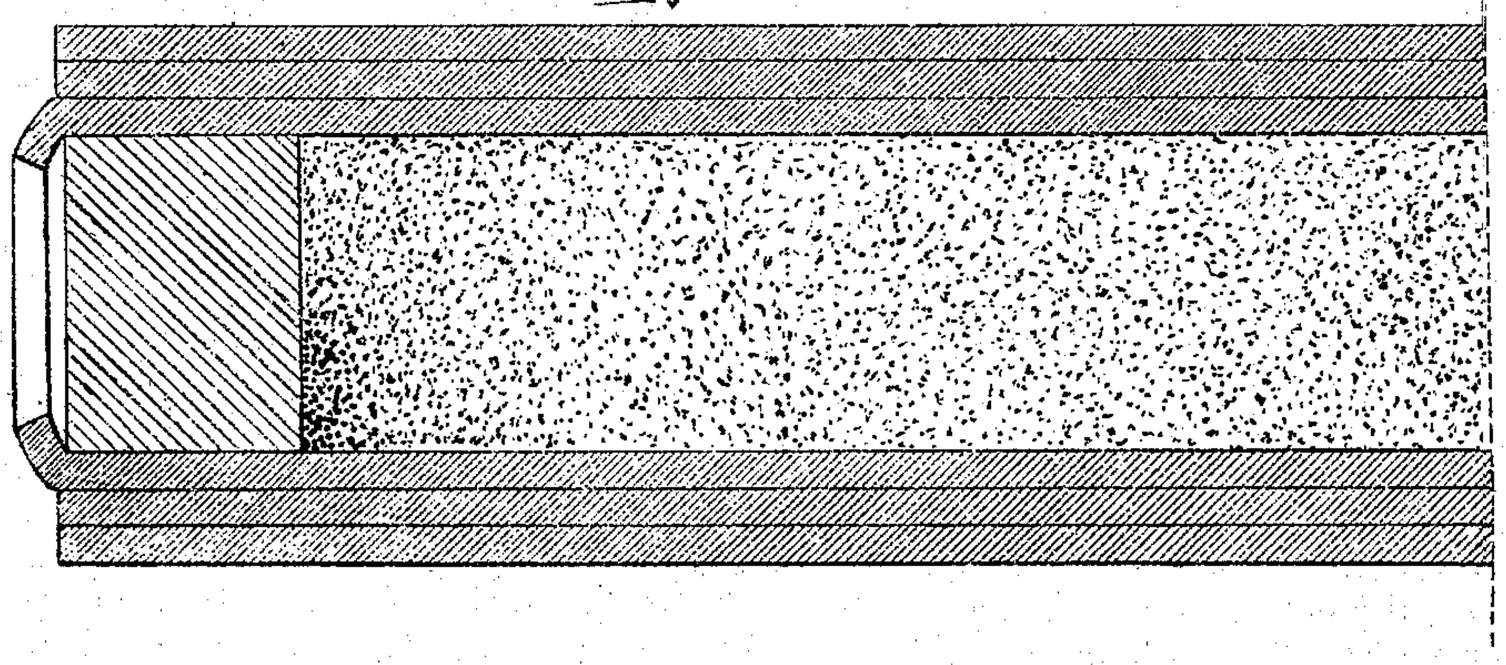
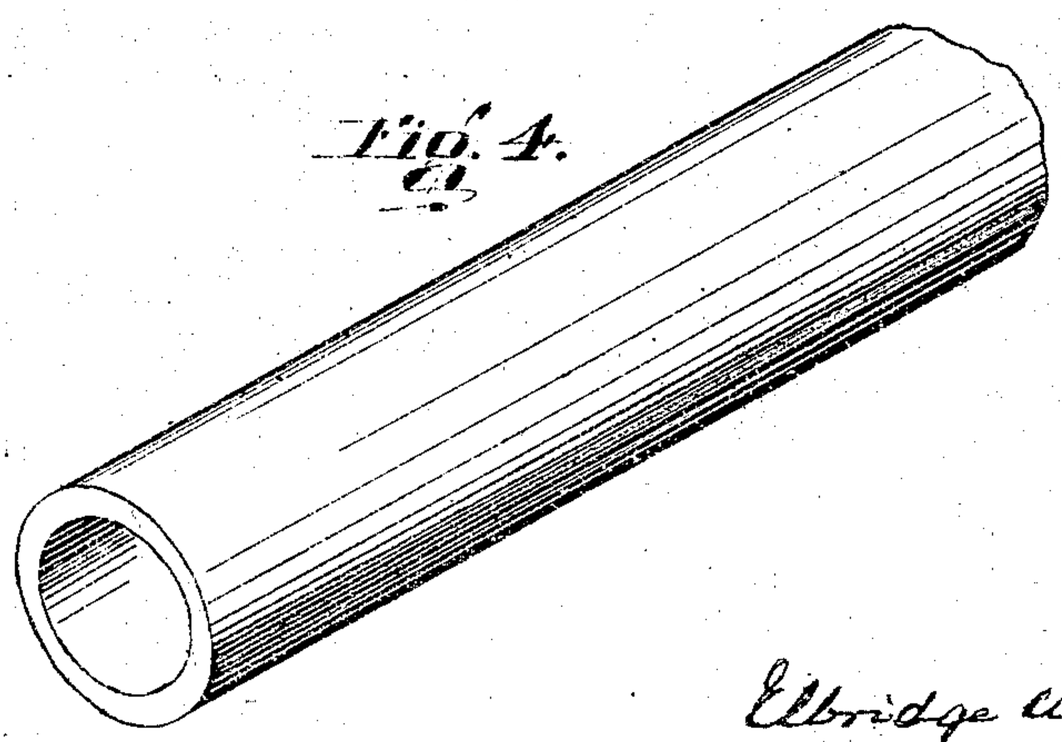


Fig. 4.



Witnesses:
Wm. A. Steel
John S. Parker

Elbridge Wheeler
by his Attys.
Howson and Sons

UNITED STATES PATENT OFFICE.

ELBRIDGE WHEELER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN THE MODES OF REDUCING THE DIAMETERS OF TUBINGS.

Specification forming part of Letters Patent No. 117,494, dated July 25, 1871.

To all whom it may concern:

Be it known that I, ELBRIDGE WHEELER, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented an Improvement in the Reduction of Hollow Objects of Metal, of which the following is a specification:

My invention relates to the reduction of hollow objects of metal by rolling the same while they are filled with a refractory powder; and my invention consists in the use of powdered soap-stone, plumbago, or asbestus, as fully described hereafter.

Figures 1 and 2 are views of hollow sectional piles, which may be used in carrying out my invention; Fig. 3, a longitudinal section of a hollow pile filled with soap-stone; and Fig. 4, a perspective view of part of a tube produced in accordance with my invention.

The hollow pile represented in Fig. 1 is composed of an inner complete tube, A, an intermediate sectional tube, B, and an outer sectional tube, C. When this pile has to be converted into a strong but light pipe or column it is preferable to make the intermediate tube of steel, and the outer and inner tubes of iron. In some cases the inner tube of the pile may be in sections, as shown in Fig. 2. One end of this tubular pile having been plugged, as shown in Fig. 3, the interior is filled with powdered soap-stone, and after the opposite end has been plugged the pipe is heated and then submitted to the action of rolls until it is reduced to the desired diameter, after which the plugs may be removed or the plugged ends cut off. The result will be a pipe or tube having its interior concentric with the exterior, the metal being of nearly uniform thickness throughout if the pile be properly arranged in the first instance. As the pile is being reduced by the rolls the soap-stone will be contracted in the same proportion as the metal is contracted; hence a pipe or tube of any desired diameter or thickness of metal may be produced by a proper proportioning of the pile. In place of filling the pile with loose soap-stone, a soap-stone core, which will become quickly powdered by the action of the rolls, may be molded for introduction into a coherent mass into the pile.

The above-described tubular pile, if the intermediate tube be of steel, is well adapted for the production of gas and water-pipes, columns, girders, hollow axles, hollow railroad rails, and other objects; but the pile, however, may consist of a single piece of metal, or of any desired number of sections, and may be of any shape best adapted to the formation of the tubular object which has to be produced.

In reducing hollow objects of metal by similar processes, it has heretofore been the practice to employ sand or earthy substance, which, owing to the heat and pressure, become condensed into a mass which it is difficult to remove. I have found that soap-stone, plumbago, or asbestus, while they are as refractory and yielding as sand or earth, always retain their powdered condition, so that they can be removed with but little if any trouble, being, in fact, self-delivering from the tube.

I claim—

The process of reducing hollow objects of metal by the use of soap-stone, asbestus, or plumbago, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ELBRIDGE WHEELER.

Witnesses:

WM. A. STEEL,

F. B. RICHARDS.