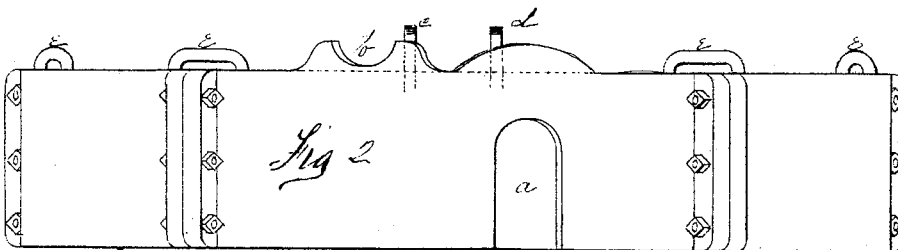
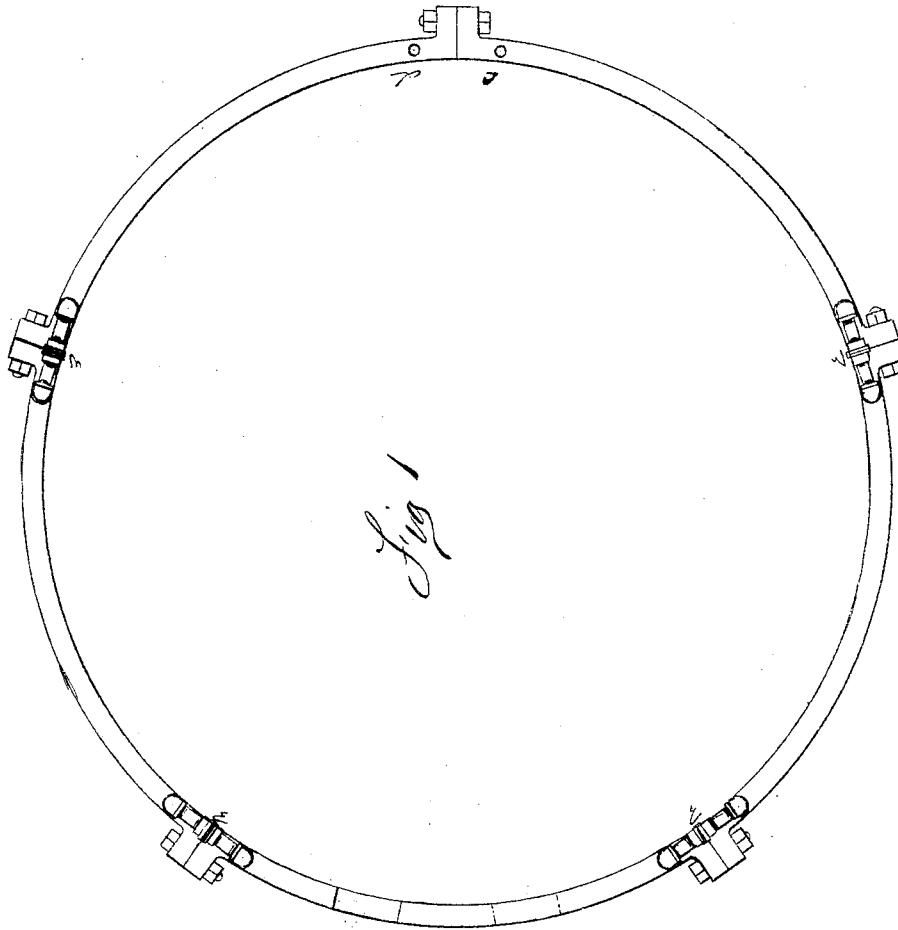


H. W. ELLICOTT.  
PROTECTING THE HEARTHS OF FURNACES.

No. 110,639.

Patented Jan. 3, 1871.



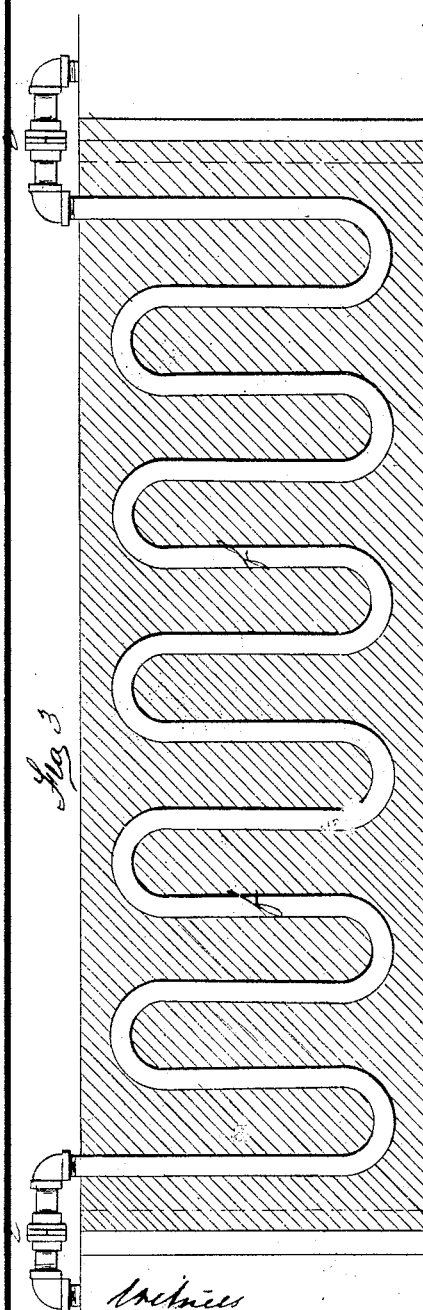
Witness  
Benj. C. Barrelet Jr.  
Jos. C. Harris Jr.

H. W. Ellicott

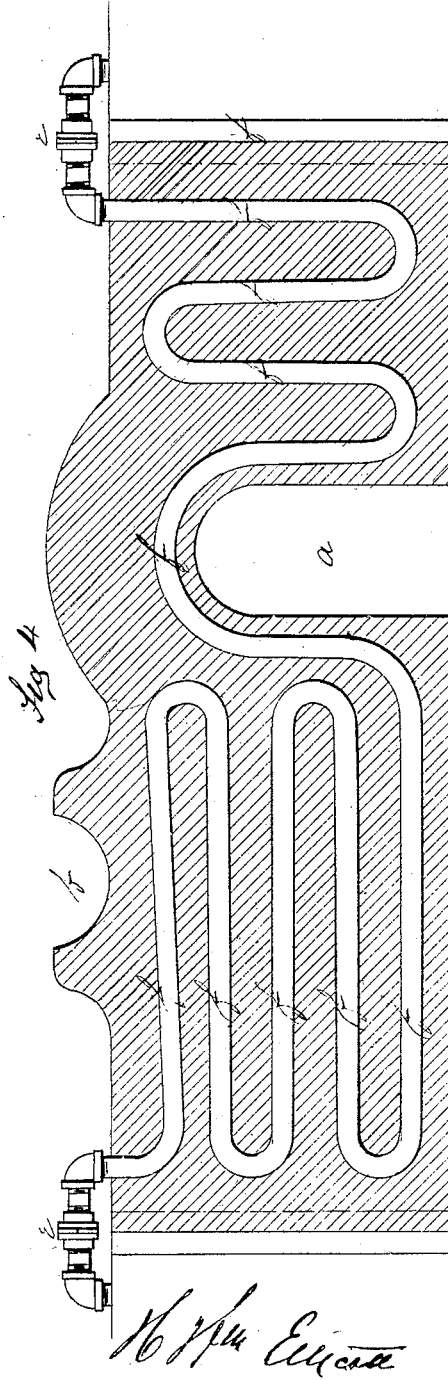
H. W. ELLICOTT.  
PROTECTING THE HEARTHS OF FURNACES.

No. 110,639.

Patented Jan. 3, 1871.



*Inventor*  
*Jos. L. Hamer*  
*By O. Barroll Jr.*



*H. W. Ellcott*

# United States Patent Office.

HENRY WILLIAM ELLICOTT, OF BALTIMORE, MARYLAND.

Letters Patent No. 110,639, dated January 3, 1871.

## IMPROVEMENT IN PROTECTING THE HEARTHS OF FURNACES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, HENRY WILLIAM ELLICOTT, of the city of Baltimore and State of Maryland, have invented certain new and useful Improvements in Furnaces; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon.

Figure 1 is the top view of segments bolted together with pipes connected.

Figure 2 is a front elevation of segments, showing the notch *a* and cinder-run *b* together with inlet-pipe *c* and outlet-pipe *d*.

*e e e* represents the coupling-pipe.

Figure 3 is one of the side elevations showing the serpentine form of pipe in its passage through those segments with couplings *e e*.

Figure 4 is front elevation, with form of pipe for that particular segment, with couplings *e e*.

The nature of this invention consists in encircling the hearth or any part thereof, with a band or plates in segments or otherwise, of iron or any other material, cooled by water or air passed through pipes of serpentine or other form, by which means the outside of the hearth is kept sufficiently cool to resist the wear and tear inside, and the molten metal being confined to near the fusing-point, it remains so liquid that an increased quantity of ore can be smelted, and the hearth itself kept a shape calculated to last longer and do its work better than any yet designed.

To enable others skilled in the art of manufacturing iron to use this invention, I will proceed to describe the same, reference being had to the accompanying drawings and letters of reference marked thereon.

Fig. 1 represents a top view of the segments bolted together, and the pipes coupled, and inlet-pipe *c*, outlet *d*, *e e e* being the coupling-pipe.

Fig. 2 is the front elevation, showing inlet-pipe *c*, outlet-pipe *d*, notch *a*, and cinder-run *b* together, with coupling-pipe *e e e*.

Fig. 3 shows one of the side segments and serpentine pipe *e* in those particular segments, though not necessarily, any other form of cooling being equally good; but not so with fig. 4, this particular form of pipe being found best, not only for the protection of the notch *a*, but from the fact that the nearly-constant discharge of cinder through the aperture *b* causes that part of this segment to be liable to greater heat than any other segment, and, consequently, requires a little more protection.

What I claim for my invention, and desire to secure by Letters Patent, is—

Encircling the hearth of furnaces with water or air by means of pipes or otherwise, for the purposes and use expressed.

HENRY WILLIAM ELLICOTT.

Witnesses :

WM. J. KING,  
JAMES P. ELLICOTT.