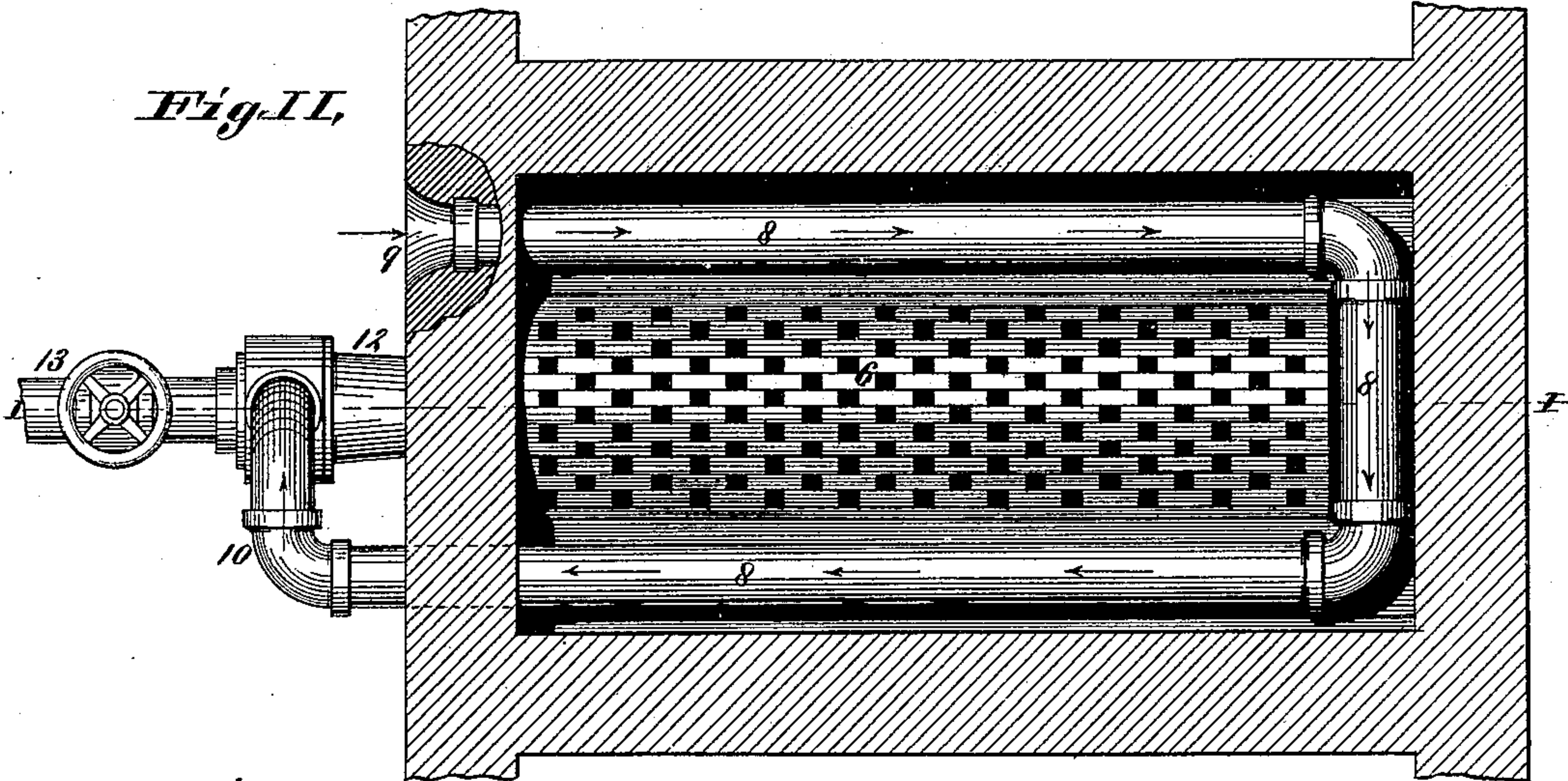
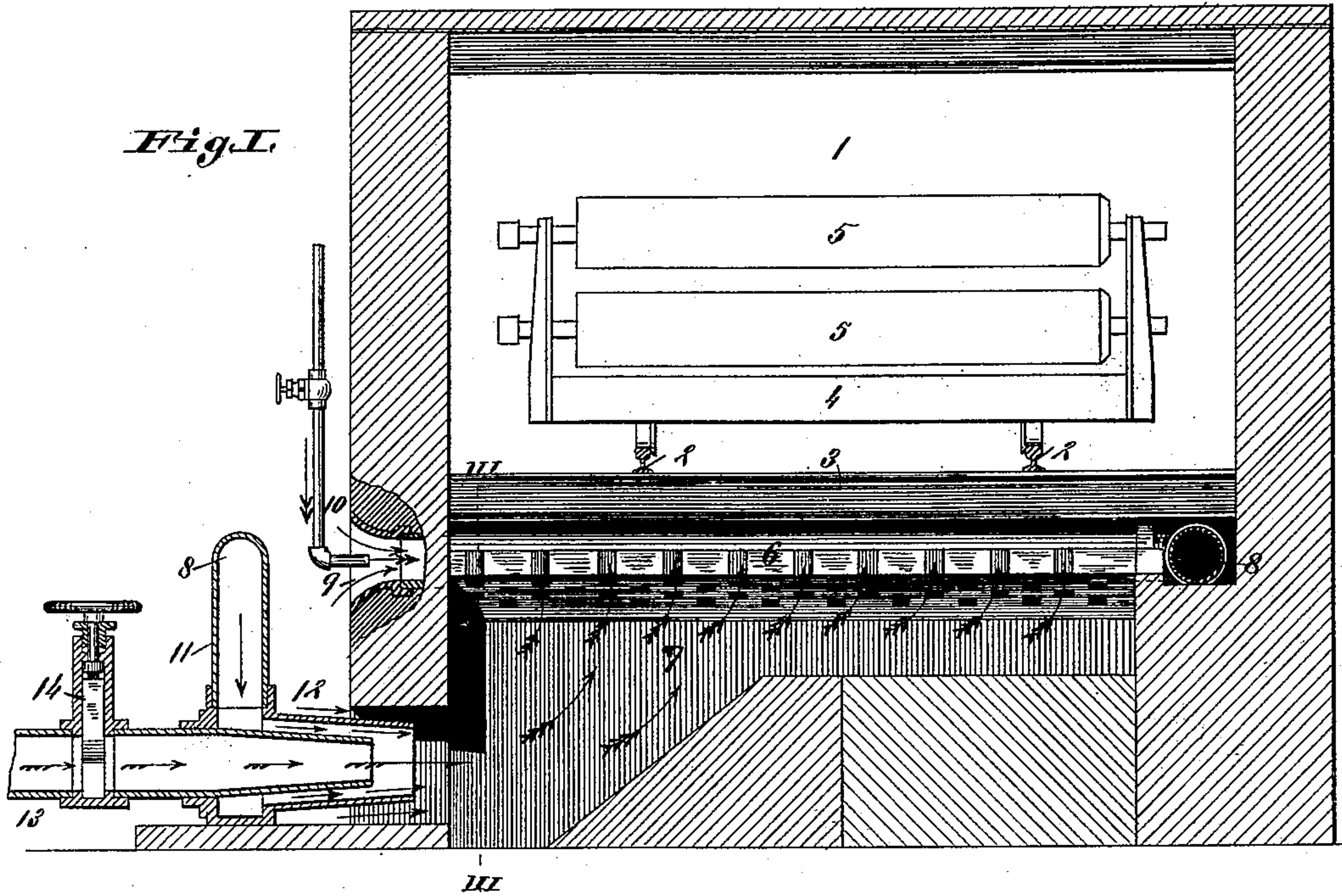


(No Model.)

P. McARTHUR.  
DRYING OVEN.

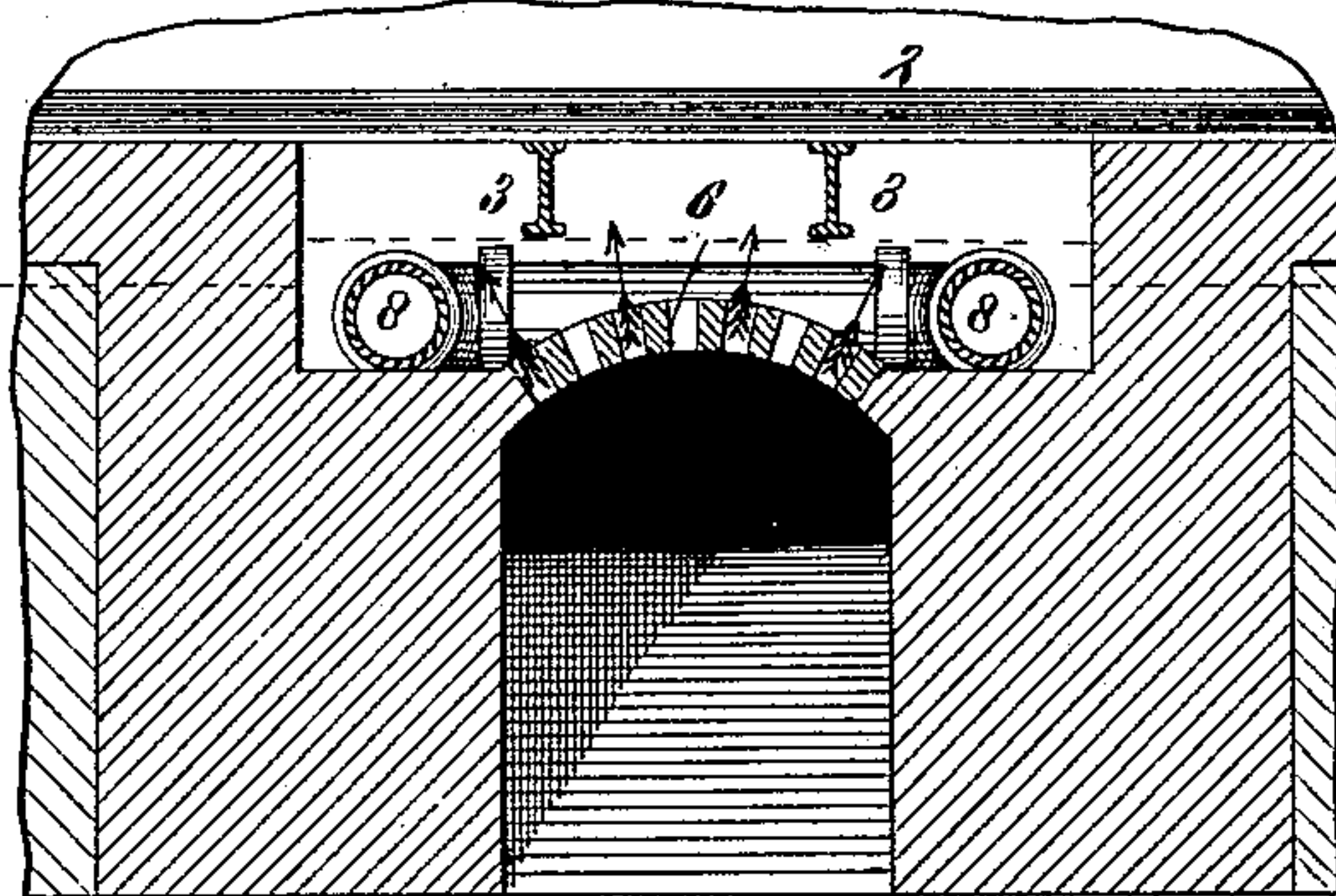
No. 405,220.

Patented June 11, 1889.



*Fig. III.*

*Attest,*  
Charles Pickles,  
E. Arthur



*Inventor,*  
Peter M. Arthur  
by Knight Bros  
attys



# UNITED STATES PATENT OFFICE.

PETER MCARTHUR, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE SHICKLE,  
HARRISON & HOWARD IRON COMPANY, OF SAME PLACE.

## DRYING-OVEN.

SPECIFICATION forming part of Letters Patent No. 405,220, dated June 11, 1889.

Application filed June 26, 1888. Serial No. 278,219. (No model.)

*To all whom it may concern:*

Be it known that I, PETER MCARTHUR, of the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Ovens for Drying Cores used in Casting Water-Pipes, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure I is a vertical longitudinal section through my improved oven, taken on line I I, Fig. II. Fig. II is a horizontal longitudinal section taken on line II II, Fig. III. Fig. III is a detail vertical transverse section taken on line III III, Fig. I.

My invention relates to an improved oven to be used for the purpose of drying cores and molds employed in the manufacture of water, gas, and other cast pipe; and my invention consists in features of novelty, hereinafter fully described, and pointed out in the claims.

Referring to the drawings, 1 represents the drying-chamber, which is provided with a track 2, supported on cross rails or bars 3, and upon which the truck 4, carrying the cores 5, as usual, is run into the oven. At the bottom of the oven or drying-chamber is a perforated arch 6, beneath which is the combustion-chamber 7. In the bottom of the drying-chamber is a combined air and steam pipe 8, which has an open and preferably a flaring end 9, into which enters a short distance a steam-pipe 10. (See Fig. I.) The pipe 8 rests upon the bottom of the drying-chamber outside of the arch 6, (see Fig. III,) and the arch preferably extends upward above the lower line of the pipe, so that the heat issuing through the perforations in the arch from the combustion-chamber 7, as shown by the arrows in Figs. I and III, will come in contact with and cause the pipe 8 to be thoroughly heated. The pipe 8 passes along one side of the drying-chamber to the rear end of the drying-chamber, (see Fig. II,) thence it crosses over at the back of the drying-chamber to the other side, and thence forward to the front again, from which it protrudes in an extension 11, that is turned downward, as shown in Fig. I, and unites with an injector 12, with which connects a gas-pipe 13, pro-

vided with a regulating-valve 14, of any suitable construction. The gas, steam, and air pass through the injector, as shown by the half-featherless arrows in Fig. I, into the combustion-chamber 7, where they are commingled, and being ignited the heat and products of combustion pass up through the perforated arch, as stated.

There are several advantages arising from the use of an oven thus constructed for drying cores over an oven arranged in the usual way, among which might be mentioned—

First. It will be understood that the dampness that exists in these cores before they are dried has a natural tendency to settle, and this dampness tends to cool off the oven and prevents the rapid and thorough drying of the cores. With my improved oven the draft created by the injecting of the fuel into the combustion-chamber carries this dampness upward, instead of allowing it to settle, and carries it off, obviating the objection just stated.

Second. The fact that this dampness is not allowed to settle in the bottom of the drying-chamber quickens the drying of the cores and results in a great saving of fuel, and accordingly of expense in drying the cores.

By heating the steam and air to a high temperature while it is passing through the pipe 8 it is injected into the combustion-chamber in a very warm condition, and thus the dampness escaping from the cores is much quicker absorbed than with the use of an oven constructed in the old manner.

I claim as my invention—

1. In an oven for drying cores, &c., the combination of a drying-chamber, a combustion-chamber located beneath the drying-chamber with a communication between them, air and gas pipe discharging into the combustion-chamber, and a force-pipe which creates an upward draft through the drying-chamber to carry off the moisture from the cores, substantially as set forth.

2. In an oven for drying cores, &c., the combination of the drying-chamber, combustion-chamber located beneath the drying-chamber, perforated arch between the chambers, combined air and force pipe arranged within the



drying-chamber around the perforated arch, and a gas-pipe having an injector at one end to force a flame into the combustion-chamber, said air and steam pipe having connection  
5 with said injector, substantially as and for the purpose set forth.

3. In a drying-oven, the combination of the drying-chamber, combustion-chamber arranged beneath the drying-chamber, perforated arch between the chambers, combined  
10 air and steam pipe having a flaring end 9 and arranged at the bottom of the drying-chamber, steam-pipe 10, arranged in the mouth of the combined air and steam pipe, extension  
15 11 on the combined air and steam pipe, injector 12, and gas-pipe 13, provided with a regulating-valve, all substantially as and for the purpose set forth.

4. In a drying-oven for cores, &c., the combination of the drying-chamber, perforated  
20

arch, combustion-chamber beneath the arch, combined air and steam pipe surrounding the perforated arch, injector with which the combined air and steam pipe communicates, and a gas-pipe communicating with said in- 25  
jector, substantially as and for the purpose set forth.

5. In a drying-oven for cores, &c., the combination of the drying-chamber, perforated arch, combustion-chamber beneath the arch, 30  
combined air and steam pipe surrounding the arch, and the apex of the arch extending up above the pipe, injector with which the combined air and steam pipe communicates, and a gas-pipe communicating with said injector, 35  
substantially as and for the purpose set forth.

PETER MCARTHUR.

In presence of—

JOS. WAHLE,

EDWD. S. KNIGHT.