(No Model.)

V. L. EMERSON.

STEAM HEATING PIPE FOR DRY KILNS.

No. 565,856. Patented Aug. 11, 1896.

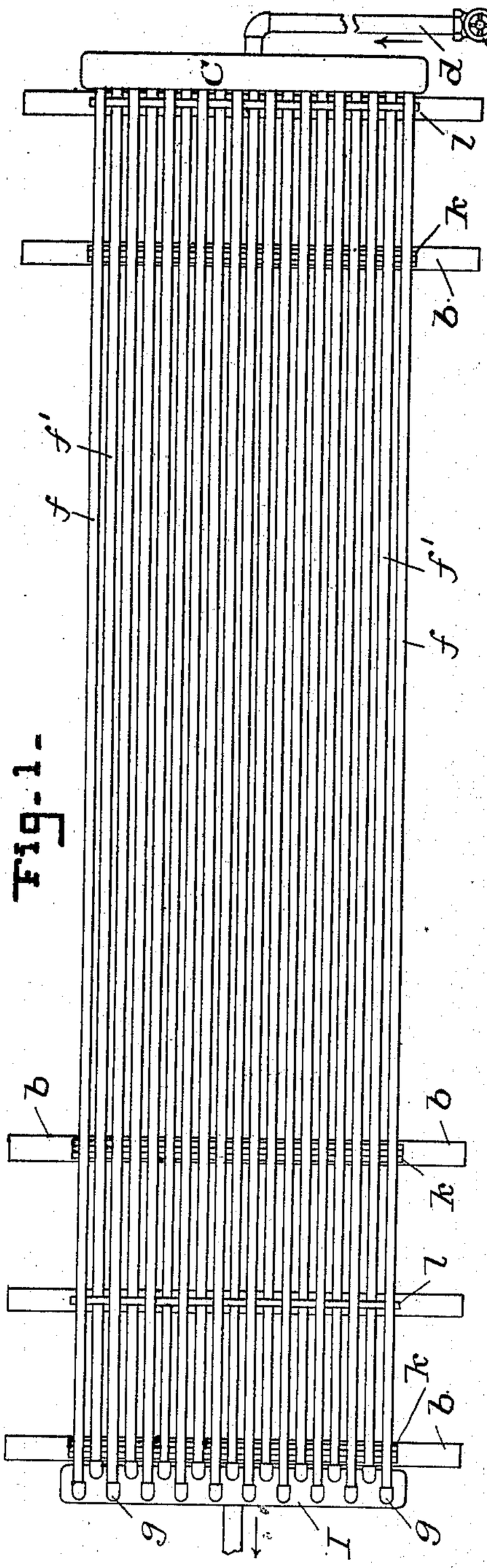

Fig. 1.

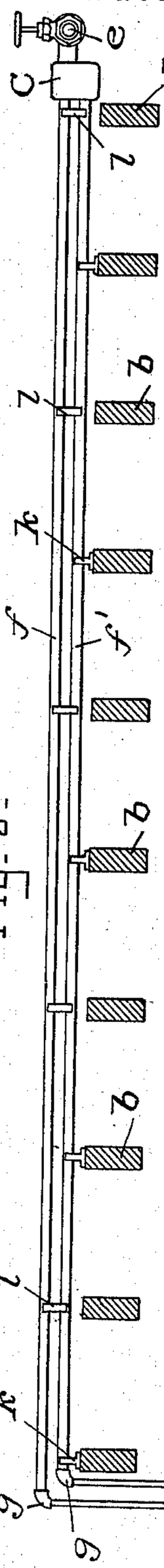

Fig. 2.

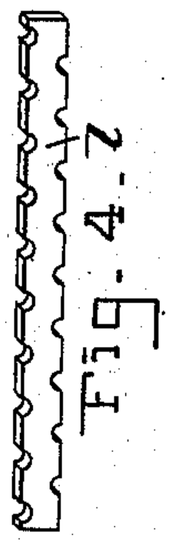

Fig. 4.

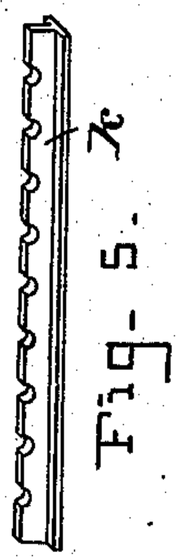

Fig. 5.

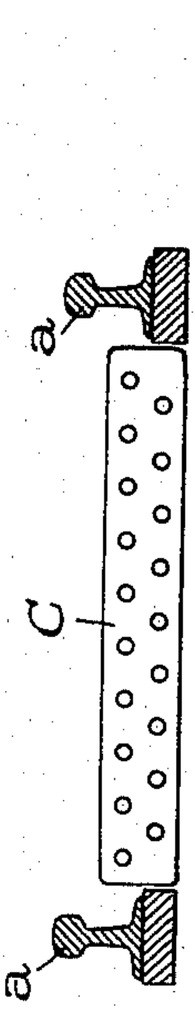

Fig. 3.

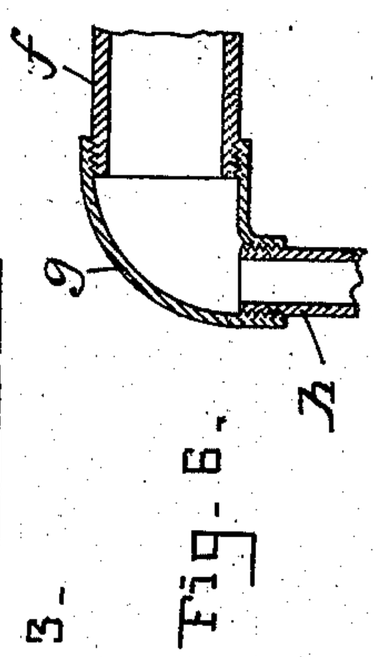

Fig. 6.

WITNESSES :-

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STEAM HEATING-PIPE FOR DRY-KILNS.

SPECIFICATION forming part of Letters Patent No. 565,856, dated August 11, 1896.

Application filed April 23, 1896. Serial No. 588,696. (No model.)

To all whom it may concern:

Be it known that I, VICTOR L. EMERSON, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Steam Heating-Pipes for Dry-Kilns, of which the following is a specification.

This invention relates to improvements in steam heating-pipes for dry-kilns.

The objects of the invention are to provide for the expansion and contraction of the heating-pipe occasioned by heating and cooling; to provide for baffling the outflow of steam and confine it in the pipes, and also to provide for the drainage of water of condensation from each pipe.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the system of pipes according to my invention. Fig. 2 is a side elevation of same. Fig. 3 is a view of the manifold, showing the pipe-holes and indicating the position of the two series of pipes and the position of the track-rails. Figs. 4 and 5 are views of the pipe-supports. Fig. 6 shows a section of the baffle-joint.

This system of pipes is for use in a house or dry-kiln where car-tracks are laid, and the longitudinal pipes are to be placed between two rails of the car-track and extend parallel with them. The pipes must have position low enough to allow the very low trucks of a lumber-drier to pass over them. The car-track rails *a* rest on the joist *b*, and I support my system of pipes wholly above said joists.

The steam-manifold C is a header in a horizontal position, and is supplied with steam by a pipe *d*, having a controlling-valve *e*. This valve is located at a convenient point at one side of the car-track, where it will not interfere with the passage of the small trucks.

The desideratum is to employ the greatest exposure of small pipe in a horizontal plane between the two track-rails *a*. To this end I employ two series of horizontal heating-pipes, one above the other, and have one end of both series attached to the same manifold, to baffle or throttle the other end of each heating-pipe, in order to confine the steam therein. To this end I provide reducing elbows and connect with each a drainage-pipe of smaller diameter than the heating-pipe, so as to be flexible, said small drainage-pipe extending downward.

Two series *f f'* of horizontal steam heating-pipes, one series above the other, are connected with the supply-manifold C, which is between the two track-rails. The pipes *f* of the upper series are above the spaces between the pipe *f'* of the lower series, so that when looking at the pipe-holes of the two series in the manifold (see Fig. 3) they have a "staggered" appearance. All of these two series of pipes extend longitudinally with respect to and parallel with the track-rails, and both series of pipes are above the joists *b*, which support the load of lumber resting on the trucks upon the tracks, and all the pipes are slightly inclined, the ends of the pipes at the supply-manifold C being the higher ends. In practice these heating-pipes are preferably one inch in diameter.

A reducing-elbow joint *g* is at the other end of each of the heating-pipes *f f'*, and a small pipe *h* (in practice about three-eighths of an inch in diameter) connects with said reducing elbow and extends downward at an angle with respect to the heating-pipes *f f'*, and all of said small pipes enter a manifold I to drain off the water of condensation. The reducing elbows *g* serve as baffle-joints or throttles and hinder the flow of the steam and confines it. Thus each single pipe *f* or *f'* is an expansion-chamber into which live steam enters and expands. The small pipes *h*, connected with the reduced elbows *g* at an angle, are large enough to carry off the water of condensation, and, being small, are flexible and readily yielding and provide for unequal expansion and serve to allow the heating-pipes *f f'* to elongate or shorten by the effects of heat or cold.

The lower series of heating-pipes *f'* are supported at intervals by base cross-bars *k*, (see Fig. 5,) which have a broad base to rest on one of the joists *b* and a notched top to take under the lower pipes *f'*. The upper series of heating-pipes *f* are supported at intervals by cross-bars *l*, (see Fig. 4,) which have notches at the bottom as well as at the top. These two kinds of cross-bars *k l* alternate

with each other at intervals along the heating-pipes, so that in no case do both bars come at the same point. This leaves the heating-pipes as much freedom as possible for expansion and contraction.

By the two horizontal series of heating-pipes, one above the other, the pipe ends of both series connected with the same supply-manifold, and the reducing elbows or baffle-joints at the other end of each pipe, I am able to secure the pipe-heating chambers all above the joists, instead of some above and some below, as heretofore, and also secure a most effective radiation and a short circuit of drainage, *i. e.*, each series has independent drainage. My construction produces a certain maximum effective service with less piping. By my arrangement of pipes no heating-pipe is below the joists or timbers which carry the load on the car-tracks, and these timbers therefore will not become charred.

Having thus described my invention, I claim—

1. In a system of steam heating-pipes for dry-kilns, the combination of two series of horizontal heating-pipes, one above the other, and both attached to the same supply-header and each of said pipes having at its terminal a baffle-joint, and a drainage-pipe leading from each baffle-joint and projecting downward from the said heating-pipes.

2. In a system of steam heating-pipes for dry-kilns, the combination of two series of horizontal heating-pipes, one above the other, and both attached to the same supply-header, and each of said pipes having at its terminal a baffle-joint; a drainage-pipe smaller relatively than the said heating-pipe and connected with each of said pipes and extending downward therefrom, and a manifold with which all of the said small drain-pipes connect.

In testimony whereof I affix my signature in the presence of two witnesses.

VICTOR L. EMERSON.

Witnesses:

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