

(No Model.)

W. McPHERSON.

DRIER.

No. 387,243.

Patented Aug. 7, 1888.

FIG. 1.

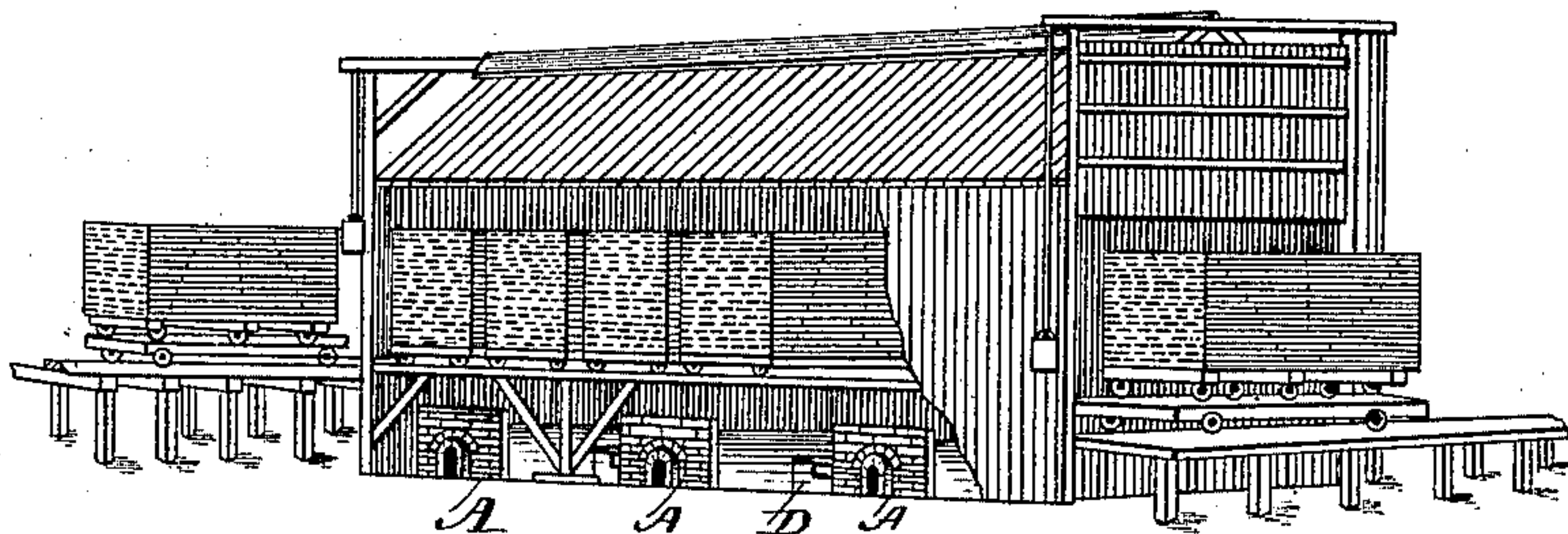


FIG. 2.

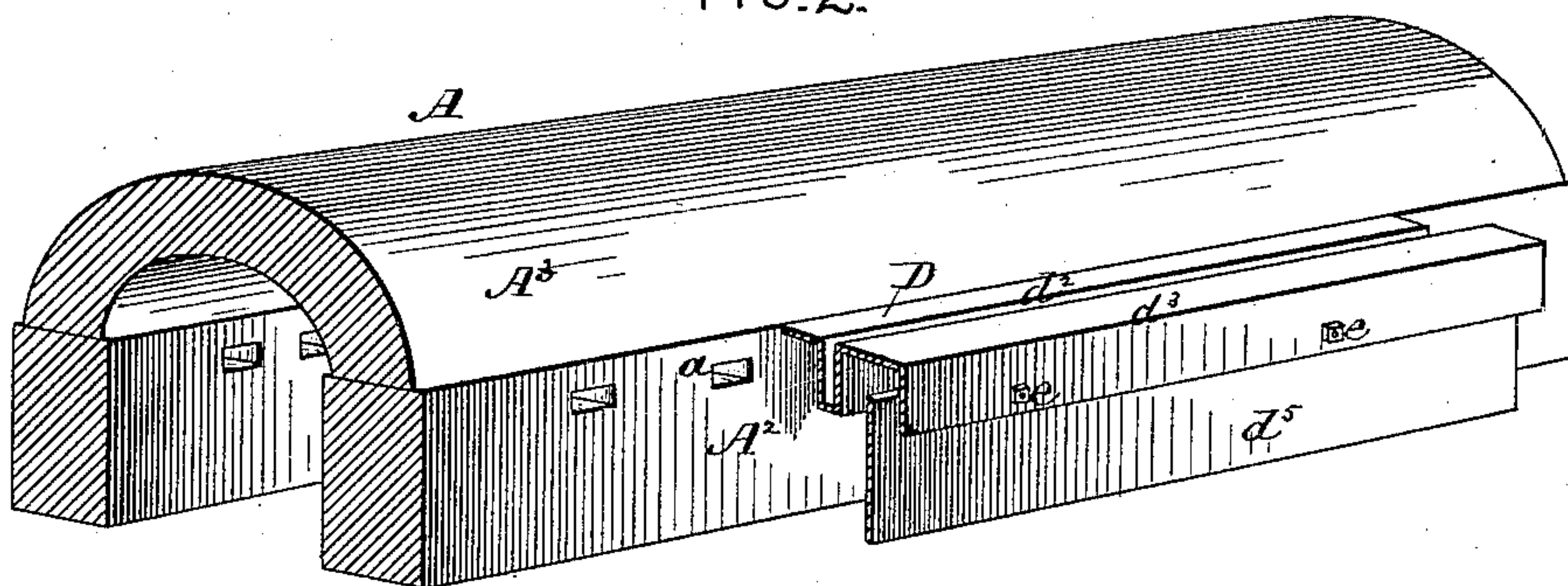


FIG. 3.

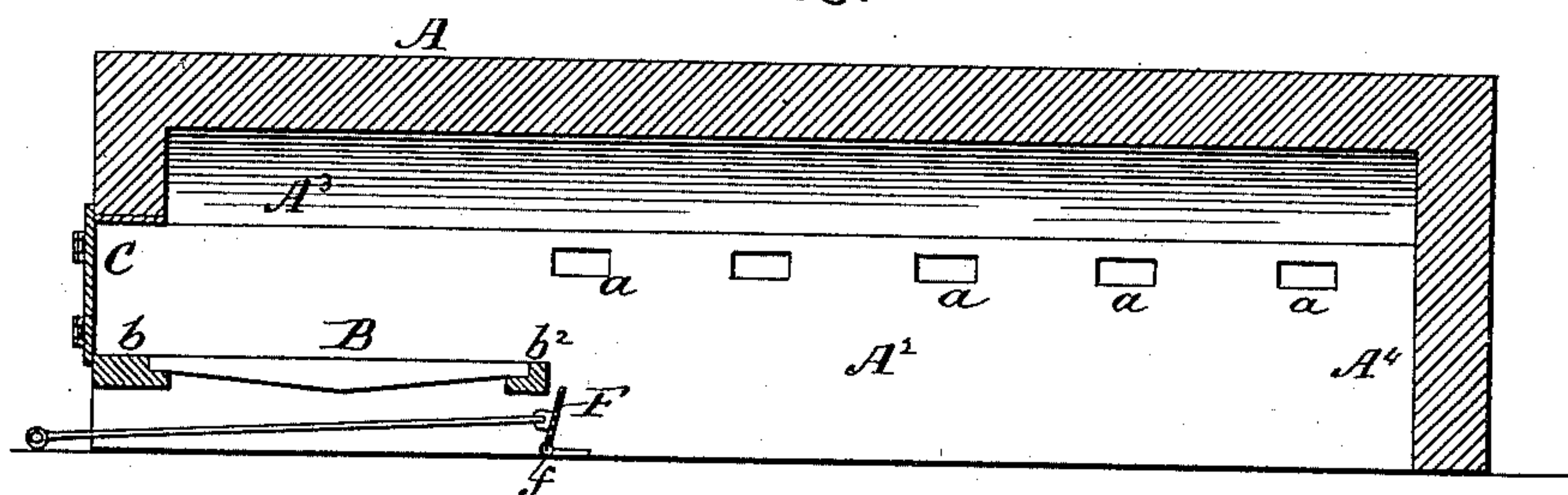
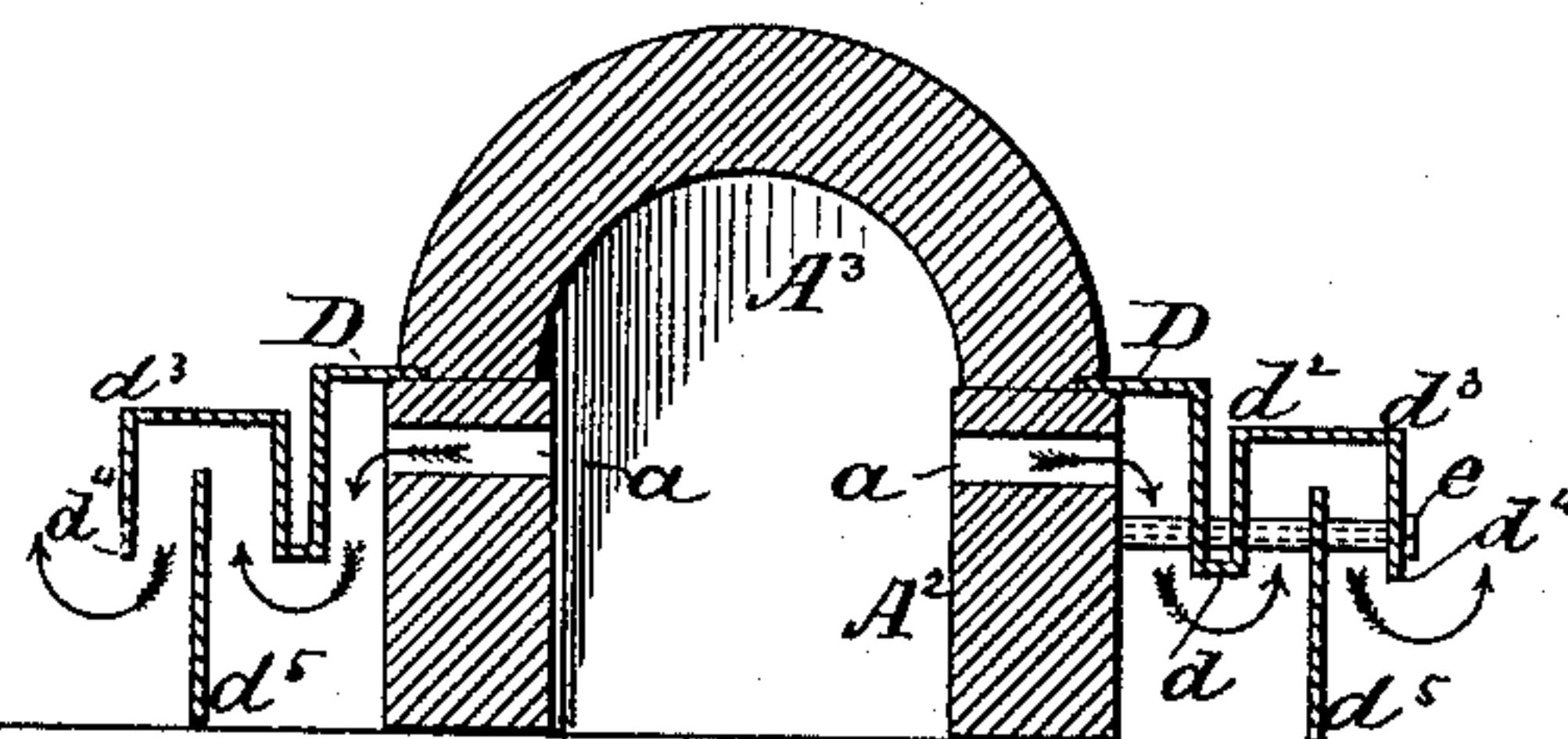


FIG. 4.



ATTEST-

Harry L. Amer.  
J. J. Masson

INVENTOR-

Wallace McPherson.  
by E. E. Masson,  
att'y.



# UNITED STATES PATENT OFFICE.

WALLACE MCPHERSON, OF TEXARKANA, TEXAS.

## DRIER.

SPECIFICATION forming part of Letters Patent No. 387,243, dated August 7, 1888.

Application filed April 2, 1888. Serial No. 269,292. (No model.)

*To all whom it may concern:*

Be it known that I, WALLACE MCPHERSON, a citizen of the United States of America, residing at Texarkana, in the county of Bowie and State of Texas, have invented certain new and useful Improvements in Driers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in driers for lumber and other material in which hot air mixed with smoke and other products of combustion is conducted and admitted into the drying-chamber to utilize the greatest amount of caloric given by burning fuel; and the objects of my improvement are to provide, with stackless arches having a closed top and openings in the side, a series of spark-arresting plates located opposite said openings, to deflect downward all the sparks that may escape through said openings, and thereby secure perfect safety in the use of that class of driers. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a lumber-drier provided with arches and spark-arresters constructed in accordance with my invention. Fig. 2 is a perspective view on a larger scale of a portion of one of the arches with the spark-arresting plates on the side thereof. Fig. 3 is a longitudinal vertical section of one of the arches. Fig. 4 is a transverse vertical section of one of the arches and of the spark-arresters on the sides thereof.

In the drawings, A represents a furnace and flue, consisting of side walls,  $A^2$ , and a stackless arch having a closed top,  $A^3$ , and a closed rear end,  $A^4$ . Under the front portion of the arch is placed a grate, B, resting on suitable supports,  $b$  and  $b^2$ , extending across the arch.

The front of the furnace is provided with a door, C, that closes the opening through which the fuel is introduced therein, and the side walls,  $A^2$ , have series of small openings  $a$ , through which the products of combustion escape from under the arch. As the openings  $a$  are on a lower level than the base of the arch, nearly all the sparks produced by light combustibles fall upon the floor of the flue and become extinguished before the current of air carries them to the side openings,  $a$ ; but, as

occasionally a few sparks may reach the outside of said openings, I have attached some sheet-metal spark-arresters to the sides of the arch. These spark-arresters consist of metal plates D, of suitable length, secured end to end to the sides of the furnace and extending the whole length thereof opposite the side openings,  $a$ . The plates D extend horizontally about four inches from the side walls and then downward to a point,  $d$ , on a lower level than the bottom of the openings  $a$ , and at that point the plate is bent up again to a point,  $d^2$ , a few inches lower than the inner edge of the plate D, from which point it extends again substantially horizontally for about eight inches. It is then bent down again at  $d^3$ , and its lower edge,  $d^4$ , is left substantially on the same level as the point  $d$ . Half-way between the vertical portions terminating down at  $d$  and  $d^4$  is secured a vertical plate,  $d^5$ , that has its lower edge resting upon the ground or floor of the drier, and having its upper edge about four inches from the under side of the plate D, so as to cause the products of combustion to follow an up-and-down course twice over before issuing from the bottom of the spark-arresting plates, and the up-and-down zigzag can be repeated by doubling the width of the plate D and the bends made therefrom. The plate  $d^5$  is retained vertically by means of bolts  $e$  passing at long distances apart through said plate and through the bent-down portions of the plate D and into the side walls,  $A^2$ . Thimbles are placed upon said bolts on each side of the plate  $d^5$ , to retain said plate and the plate D at proper distances apart.

To regulate the amount of fresh air admitted into the drier with the hot air and products of combustion rising from over the grate, a damper, F, is hinged at  $f$  to the floor under the rear end of the grate, and is controlled by a rod,  $f^2$ , extending to the front of the furnace; and by this means and the amount of fuel consumed the temperature within the drier is regulated.

Having now fully described my invention, I claim—

1. In a drier, the combination of a furnace and flue having a closing wall at its rear end, an arch its whole length, and side walls having openings below the base of said arch, with

spark-arresters opposite said openings, and consisting of a vertical plate,  $d^5$ , and a horizontal plate, D, bent lengthwise and having vertical partitions on each side of the plate  $d^5$ , with a  
5 passage on top of the latter, substantially as and for the purpose described.

2. The combination of a furnace and flue having an arch its whole length, and side walls having openings below the base of said arch,  
10 with spark - arresters, as described, opposite

said openings, a grate at one end of the furnace, and a damper under the rear end of said grate, substantially as and for the purpose described.

In testimony whereof I affix my signature in 15 presence of two witnesses.

WALLACE McPHERSON.

Witnesses:

W. E. SNODGRASS,  
JAMES ROBINSON.