

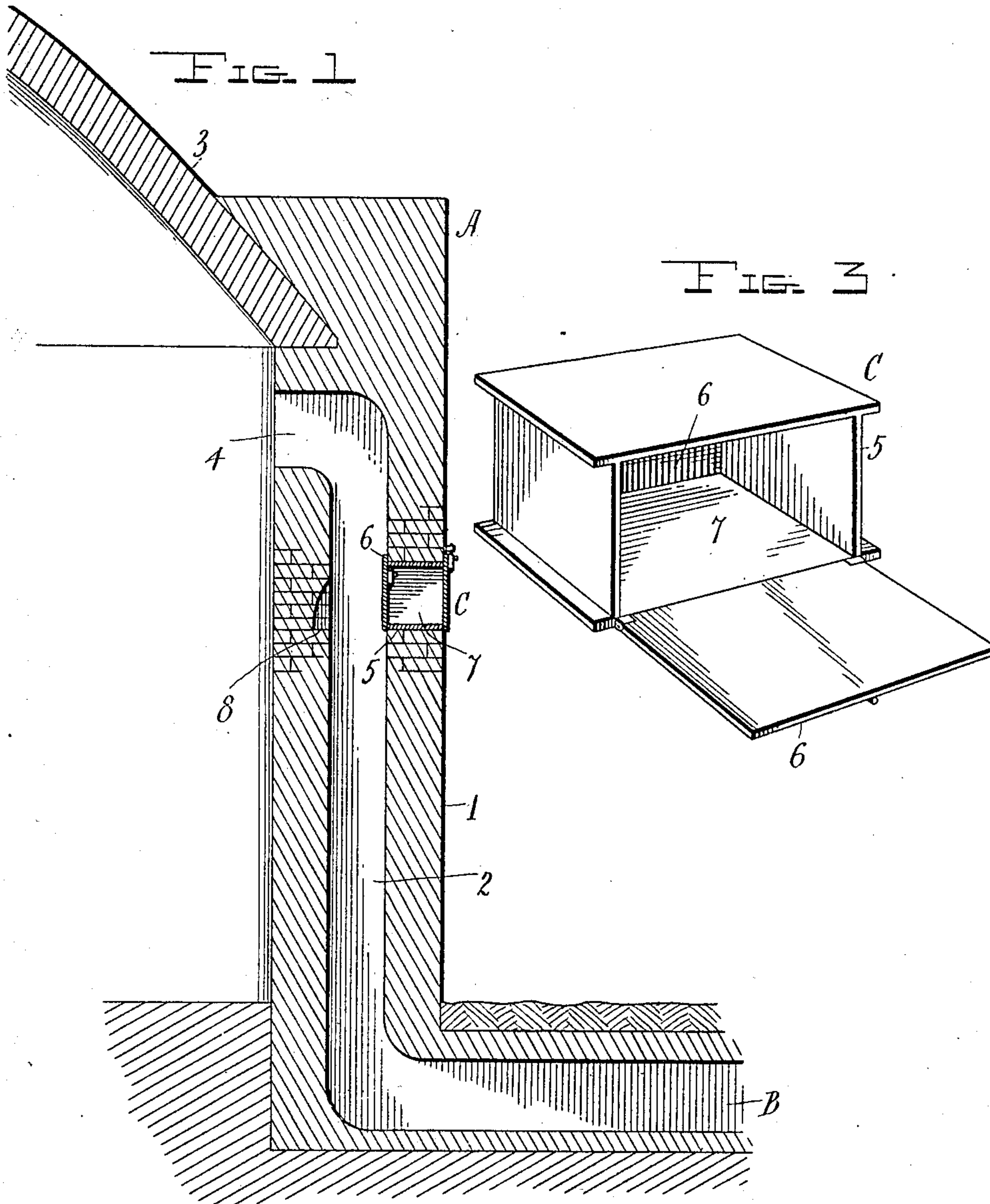
G. E. SNOWDEN.  
KILN.

APPLICATION FILED SEPT. 21, 1908.

916,498.

Patented Mar. 30, 1909.

2 SHEETS—SHEET 1.



Witnesses  
J. L. Perkins  
H. M. McKinley

Inventor  
George E. Snowden  
By *Charles Chandler*  
Attorneys

G. E. SNOWDEN.

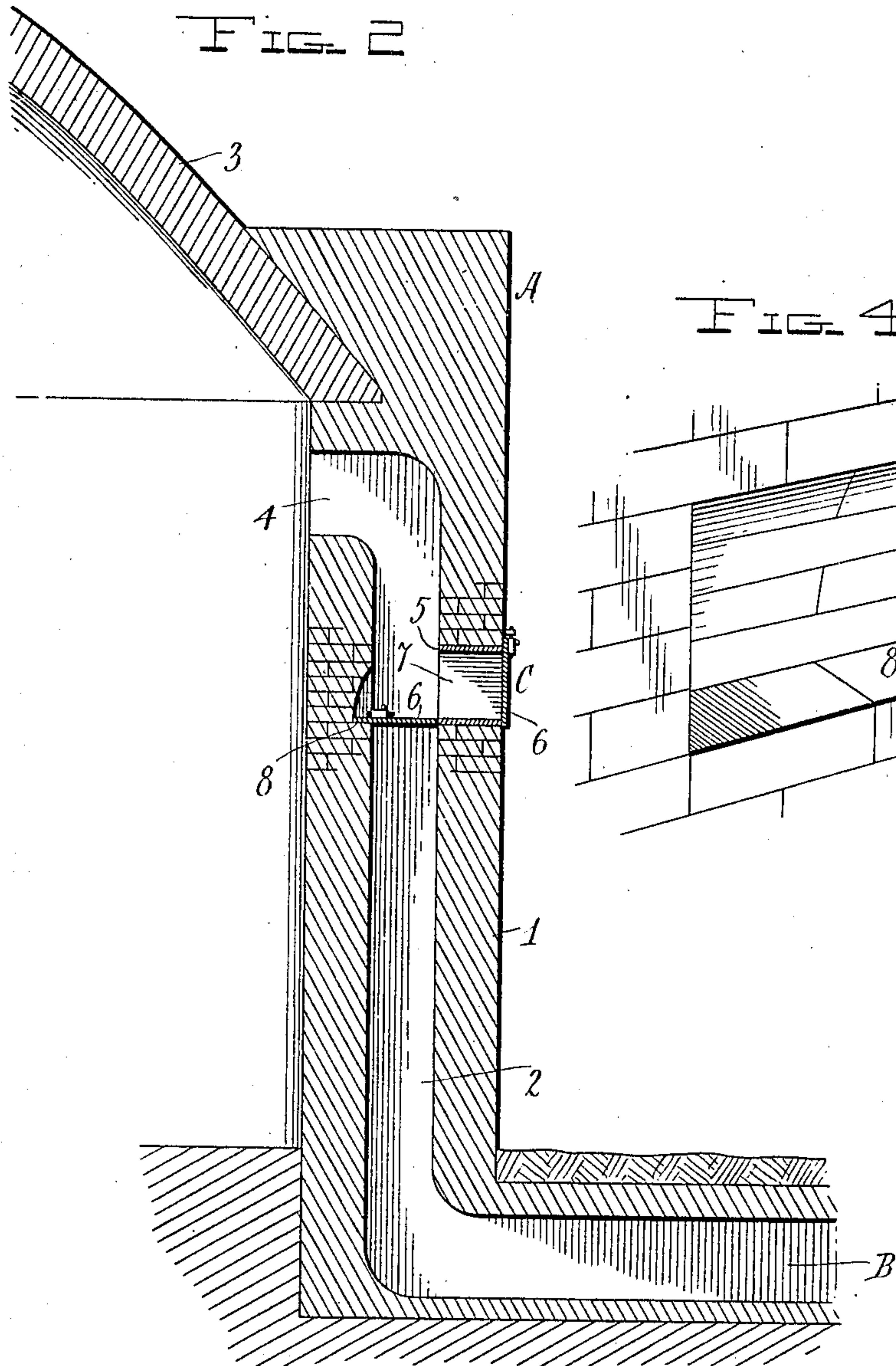
KILN.

APPLICATION FILED SEPT. 21, 1908.

916,498.

Patented Mar. 30, 1909.

2 SHEETS—SHEET 2.



Witnesses

*J. L. Johnson*  
*A. C. McIntire*

Inventor

*George E. Snowden*

By

*Chandler Chandler*

Attorneys



# UNITED STATES PATENT OFFICE.

GEORGE E. SNOWDEN, OF NEW CUMBERLAND, WEST VIRGINIA.

## KILN.

No. 916,498.

Specification of Letters Patent.

Patented March 30, 1909.

Application filed September 21, 1908. Serial No. 453,897.

### *To all whom it may concern:*

Be it known that I, GEORGE E. SNOWDEN, a citizen of the United States, residing at New Cumberland, in the county of Hancock, State of West Virginia, have invented certain new and useful Improvements in Kilns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention has general reference to kilns, its principal object being the production of a greatly improved method of withdrawing the heated air from a kiln at the completion of the burning of a batch of ware, and of conducting the same to the compartment wherein the "green" products are dried preparatory to being fired in the kiln.

In the current practice of the art, it is customary to connect the kiln and drier by an under-ground flue or duct which communicates with the kiln through an opening formed in the foundation wall thereof, the heated air being exhausted from the kiln and forced through the flue by means of a suction fan. This system, however, is seriously defective, in that it is practically impossible to seal the underground flue during the firing of the kiln, and in consequence, the gases, smoke, etc., escape from the latter into the flue and effect an entrance into the drier, rendering it impossible for the workmen to attend to their duties in that section of the plant. Furthermore, the damper or valve ordinarily employed in connection with the flue is situated on the ground level, thus offering obstruction to carts, barrows and other vehicles, as well as being open to accidental displacement and possible injury from various other sources. To overcome these defects, the present invention has been devised, the invention residing, generally, in the formation of a vertical supplemental flue in the side wall of the kiln, said flue serving as a continuation of the main under-ground flue into which it opens at its lower end, while its upper end has communication with the interior of the kiln through an inlet passage formed in the kiln wall toward the top thereof. Connection between the main and supplemental flues is opened and cut out by means of a specially-formed valve consisting of a frame and a pair of hinged wings carried thereby, the frame being

seated in a passage which is formed in the wall and opens outwardly into the atmosphere, such arrangement permitting the inner wing to be lowered and securely fastened in position, to completely seal the supplemental flue, whereafter the outer wing, which was previously lowered to permit access to said inner wing, may be raised and fastened in place.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which corresponding parts or features, as the case may be, are designated by the same reference characters throughout the several views.

Of the said drawings, Figure 1 is a fragmental vertical sectional view of the improved kiln and the underground flue connected therewith, communication between the kiln and flue being open. Fig. 2 is a similar view showing the position of the wings during the firing of the kiln. Fig. 3 is a perspective view of the valve. Fig. 4 is a fragmental detail view illustrating the ledge upon which one of the wings of the valve is arranged to rest.

Referring more particularly to the drawings, A designates, generally, the kiln which may be, in the main, of any preferred construction, B the underground flue which has communication in the ordinary manner with the drier, which latter is not illustrated, since it forms no part of this invention, and C the cut out valve.

The side wall 1 of the kiln has formed therein, a vertical flue 2, hereinafter termed the supplemental flue, which extends almost to the point where the crown 3 of the kiln joins the wall 1. At its lower end, the supplemental flue opens directly into the main flue, extending below the ground and kiln floor levels, as shown. At its upper end, the flue 2 opens into a horizontal passage 4, which is formed in the wall 1 and opens, in turn, into the interior of the kiln, by reason of which construction, it will be observed that the main flue has direct communication with the kiln through the flue 2 and passage 4 which pair of ducts thus serve as continuations of the main flue. The passage 4, however, is located toward the upper end of the kiln wall 1, as shown, and hence, the heated air is drawn not from the bottom of the kiln, as is ordinary the case, but from the top thereof.

Communication between the main and sup-



plemental flues is opened and cut out, or as ordinarily stated, by means of the valve C, which is shown in Fig. 3, as comprising a hollow rectangular frame 5, and a pair of flat wings 6 hinged at their bottom edges to the side edges of the solid frame bottom. This frame, whose end, top and bottom members are solid, is seated in and serves as a lining for a horizontal passage 7 formed in the kiln wall 1 at a convenient height above the ground level, but below the passage 4, the height of the wings being slightly greater than that of the passage 7 and likewise greater than the diameter of the flue 2, the wall of which latter has a portion thereof cut away directly opposite said passage 7, to provide a ledge 8 upon which the inner wing 6 may rest at its free or top edge when lowered into horizontal position. The wings 6 are each provided adjacent their last-mentioned edges with catches 9 of any suitable construction, the catches being carried upon the outer faces of the wings.

During the time that the kiln is being fired, communication between the same and main flue (and hence with the drier) may be completely cut off by lowering the inner wing 6, until it rests upon the ledge 8, in which position, it may be retained in place by means of its catches, access to said wing being had through the hollow lining frame 5. The outer wing may then be raised and fastened, thus sealing the kiln. When, however, the kiln and drier are to be connected, the outer wing is lowered, and the inner wing then raised.

It is to be noted that the construction and arrangement of the flues and passage is such that the supplemental flue forms a direct continuation of the main or underground flue, and that the heated air is taken from the top of the kiln at the completion of the firing, instead of from the bottom, as is ordinarily the custom. Furthermore, it will be apparent that the particular form of valve employed, and its specific position with respect to the supplemental flue renders it possible to effectively seal the kiln during the firing, the importance of which has already been set forth. Finally, it will be seen that the valve is out of the way for which reason it is not exposed to injury, as would be the case, were it located at the ground level, and that it can be readily and quickly operated.

What is claimed is:

1. The combination, with a kiln having a

vertical flue formed in its wall, said flue opening at its upper end into the kiln and having a branch communication intermediate its ends with the atmosphere, of an underground flue communicating directly with the lower end of the vertical flue; and a valve comprising a hollow frame seated in said branch, and a pair of wings hinged to the frame, one of the wings being arranged for vertical movement interiorly of said vertical flue and the other exteriorly thereof, to respectively open and cut out communication between the under ground flue and the vertical flue, and between the latter and the atmosphere.

2. The combination, with a kiln having a vertical flue formed in its wall, said flue opening at its upper end into the kiln and having a branch communication intermediate its ends with the atmosphere, of an underground flue communicating directly with the lower end of the vertical flue; a valve comprising a hollow frame seated in said branch, and a pair of wings hinged to the frame, one of the wings being arranged for vertical movement interiorly of said vertical flue and the other exteriorly thereof to respectively open and cut out communication between the under ground flue and the vertical flue and between the latter and the atmosphere; and means for holding said wings in raised or lowered position.

3. The combination, with a kiln having a vertical flue formed in its wall, said flue opening at its upper end into the kiln and having a branch communication intermediate its ends with the atmosphere, and a ledge opposite said branch, of an underground flue communicating directly with the lower end of the vertical flue; and a valve comprising a hollow frame seated in said branch, and a pair of wings hinged to the frame, one of the wings being operable within said vertical flue and the other wing exteriorly thereof to respectively open and cut out communication between the under ground flue and the vertical flue and between the latter and the atmosphere, the first-mentioned wing being arranged for movement into and out of contact with said ledge.

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

GEORGE E. SNOWDEN.

Witnesses:

W. C. KNIGHT,  
A. W. HANEY.