(No Model.)

# C. F. T. KANDELER.

## BURNING BRICK.

No. 283,402. Patented Aug. 21, 1883.

Fig. 3

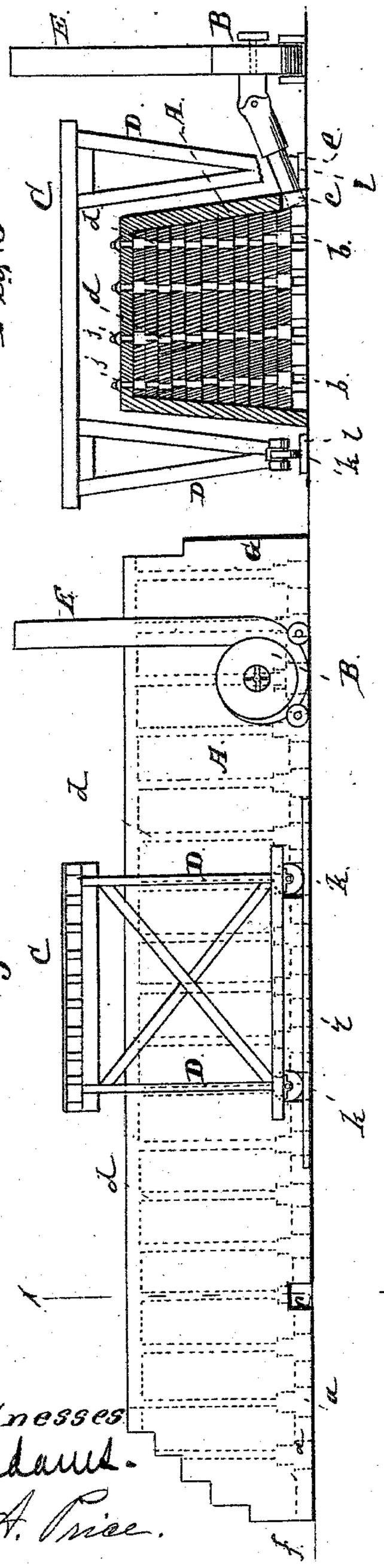



Fig. 4.

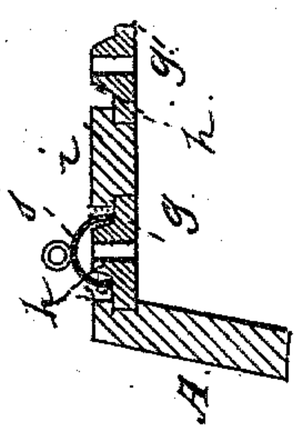
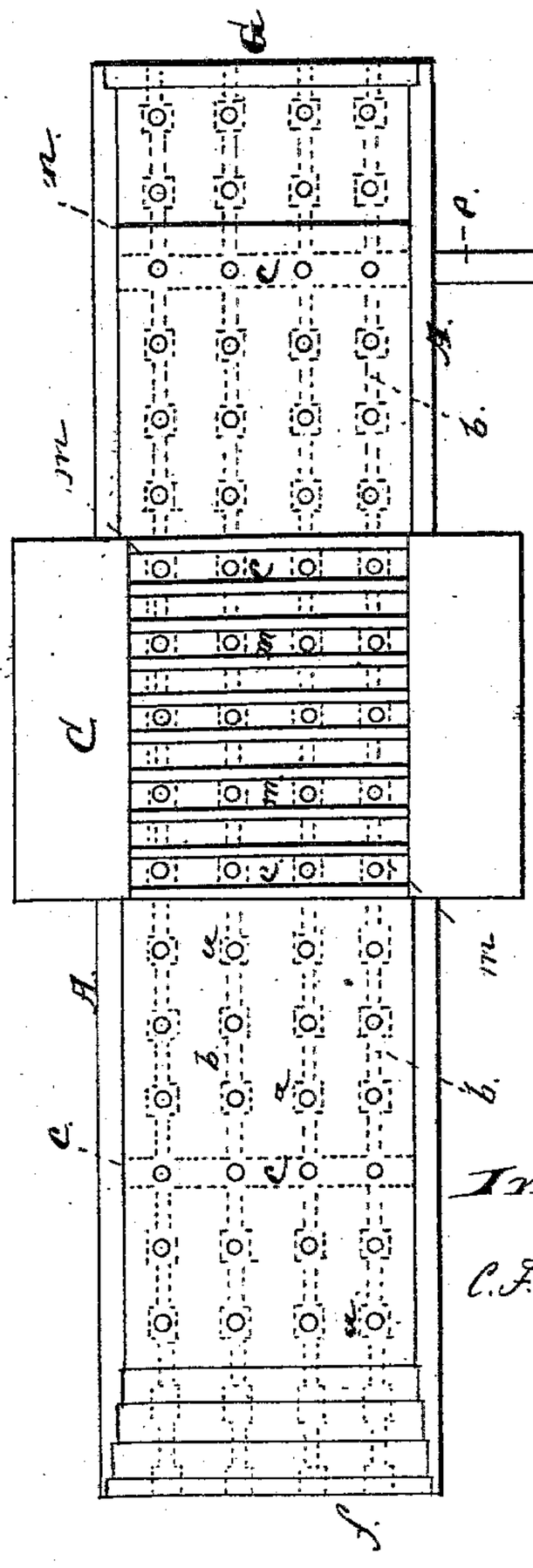



Fig. 1.




Fig. 2




Witnesses
A. H. Adams.
B. A. Price.

Inventor:
C. F. Theodor Kandeler.

# UNITED STATES PATENT OFFICE.

C. F. THEODOR KANDELER, OF CHICAGO, ILLINOIS.

## BURNING BRICK.

SPECIFICATION forming part of Letters Patent No. 283,402, dated August 21, 1883.

Application filed May 5, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, C. F. THEODOR KANDELER, residing at Chicago, in the county of Cook and State of Illinois, and a subject of the Emperor of Germany, have invented new and useful Improvements in Burning Brick, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation. Fig. 2 is a plan. Fig. 3 is a cross-section. Fig. 4 is a detail.

The objects of my invention are to provide an improved method of and devices for burning brick progressively, which I accomplish by providing at first a long kiln, or a kiln made in sections, with suitable fire-places and heat and fuel passages, so constructed that during the burning process the heat from one end of the kiln will be drawn through a long kiln or through a number of sections by means of a fan, which is to be moved as the work progresses, thereby utilizing heat and economizing fuel.

An important feature of my invention is the building of additional sections of kiln from time to time, and thus progressively continuing the process. I cover the kiln with stone or other material placed directly thereon, and provide improved means for closing the openings for fuel at the top. When a part of the kiln is ready to be burned, the end to which sections are to be added is to be temporarily closed by means of wood or other material which can be removed easily. I also provide a movable stage or platform over the kiln to facilitate the feeding of the fuel.

That which I claim as new will appear from the appended claims.

In the drawings, A represents a kiln of brick piled ready to be burned. In laying up the brick in the kiln a suitable number of fire-places, *a*, and passages *b*, for heat and smoke, are to be provided.

*c* are transverse passages, into which the longitudinal passages *b* open.

*d* are vertical passages, extending from the places for the fire upward through the body of the kiln, through which fuel may be introduced.

B is a suction-fan.

*e* is a tube one end of which communicates with one of the cross-passages *c*, and the other end opens into the fan. That portion of the kiln which is between two of the cross-passages *c* may be considered as a section of the kiln.

The sides, ends, and top of the kiln are to be closed, except that openings *f* are to be provided at the front end for the admission of air for the fires, and the passages *d* extend up through the top.

I cover the top of the kiln with blocks of stone or other suitable material. The stones which are over the openings *d* have holes through them, and each has a projecting rim around such hole, as shown in Fig. 4.

*g* represents such stones, and *h* the encircling rim.

*i* are stones between the stones *g*, and, as shown, are provided with shoulders overlapping *g*.

*j* are caps which cover the openings through the stones *g*, each having a handle. The covering is placed directly upon the material in the kiln. By filling the spaces around the rim *h* with sand the edges of the caps *j*, when in place, will enter such sand, which will act as a seal, preventing the escape of heat or smoke from the fires through the passages *d*.

C is a platform supported upon suitable standards, D, which platform extends over the top of the kiln, and is carried out to a considerable distance upon one side, to provide a place for the storage of fuel. The platform is supported upon wheels *k*, which travel upon a track, *l*, one on each side of the kiln. Through that portion of the platform which is directly over the kiln are openings *m*. As shown, there are five of these openings *m*, the distance between them being equal to the distance between two transverse rows of the openings *d*, so that the four openings *m* can at the same time be brought over four rows of the transverse openings *d*.

The stage or platform is designed as a place for fuel and to receive the men who feed the fires, and it may be covered, if desired, for the protection of the workmen.

The operation is as follows: Suppose the kiln to have been built from the left-hand end, as shown in Fig. 2, to the line *n*. The end of the kiln at *n* is to be well closed, as well as the sides and top and all of the front, except passages or openings *f* at the bottom. The bricks, if green, can now be dried by building suit-

able fires in the cross-passages *c*. When the bricks have been sufficiently dried, the fan is to be connected with a cross-passage *c*, as shown in Fig. 2, and the ends of the remaining passages *c* are to be closed. Fires are then to be built in the passages at the front end of the kiln, and, the fan being in operation, the heat and smoke will be drawn through all of the sections forward of the fan, the smoke being discharged through the smoke-pipe E. At first fire will be supplied only to the furnaces or fire-places near to the front end of the kiln, and when the fires are built there will be intense heat, and, all the heat being drawn through the kiln by the fan, all the heat, or nearly all, will be utilized in heating the brick. Workmen, by removing the caps *j*, can see the condition of the fires within the kiln and the condition of the brick, and through the opening *d* can replenish the fires. When the bricks at the front of the kiln have been sufficiently burned, fires are to be started in the adjoining places provided therefor, and as often as it may be necessary the stage or platform is to be moved along toward the fan. After the fires have been allowed to go out in the front part of the kiln the heat from the cooling brick will be drawn by the fan through the fires, and thus the heat remaining in the brick after being burned will be largely utilized. This process of building new fires in the places, *a*, prepared therefor in the kiln, and moving the stage along as the burning of the sections one after another is completed, is to be continued until all the sections have been burned. At the same time additional sections may, if desired, be built beyond the fan, one of which, (marked G,) as shown, is partially completed. When a sufficient number of new sections have been prepared, and all of those before built have been burned, the fan can be moved forward and placed again in position ready for continuing the operation as to the new sections, communication being opened by the removal of the wall at the line *n*.

There are many advantages resulting from the use of my method and devices as compared with other ways of burning brick, among which may be mentioned the following: There will be great saving both in fuel and labor, nearly all the heat being utilized. The draft and the intensity of the fire can be better regulated. The burned brick can remain stored where burned without handling until wanted for use without interfering with the progress of the work. Additional sections can be added to the kiln while those already built are being burned.

I have only referred to the burning of brick; but there are other articles or materials to the burning of which my method and improved devices are applicable, and I do not intend to limit myself to their use in burning brick alone.

In burning the added sections it will be usually advisable to move the fan only one section at a time; otherwise too much moisture may be drawn from the undried brick to the fan.

New sections may be added in a straight line, or the kiln may be curved. I cover the joints in the top of the kiln with clay.

I am aware that annular furnaces are in use for burning brick, the same being provided with a continuous compartment, into different portions of which bricks are introduced from time to time. The kiln proper in this case being always the same, I do not claim this construction.

I am not aware that a kiln has ever been used which could be extended indefinitely by adding new sections thereto.

Drying-fires will not be required except at first. A crane may be combined with the platform for elevating fuel. The platform might be supported wholly upon one side of the kiln, extending over the same.

F, Fig. 2, indicates the position which an engine may occupy to drive the fan.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. The process of burning material in a progressive burning and cooling kiln, and adding sections of new kiln, together with side walls and covering, to the kiln while a portion is being burned, substantially as and for the purpose specified.

2. In combination with a progressive burning and cooling kiln, a platform over and above the top of the kiln, for the purposes specified.

C. F. THEODOR KANDELER.

Witnesses:

E. A. WEST,

ALBERT H. ADAMS.