R. E. SCHROEDER.

Brick Kiln.

No. 9,285.

2 Sheets—Sheet 1.

Patented Sept. 28, 1852.

Fig. 1.

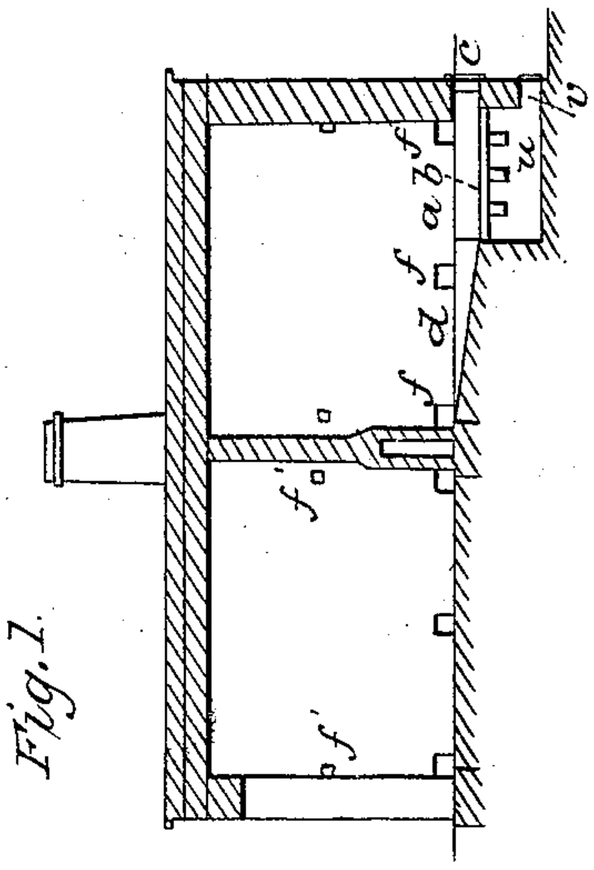


Fig. 2.

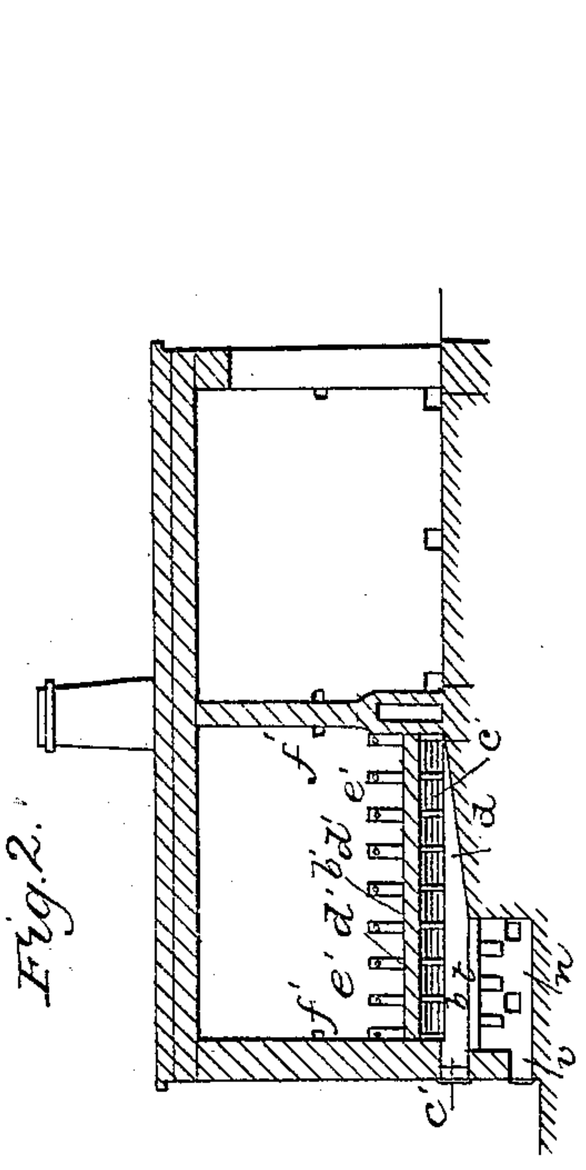
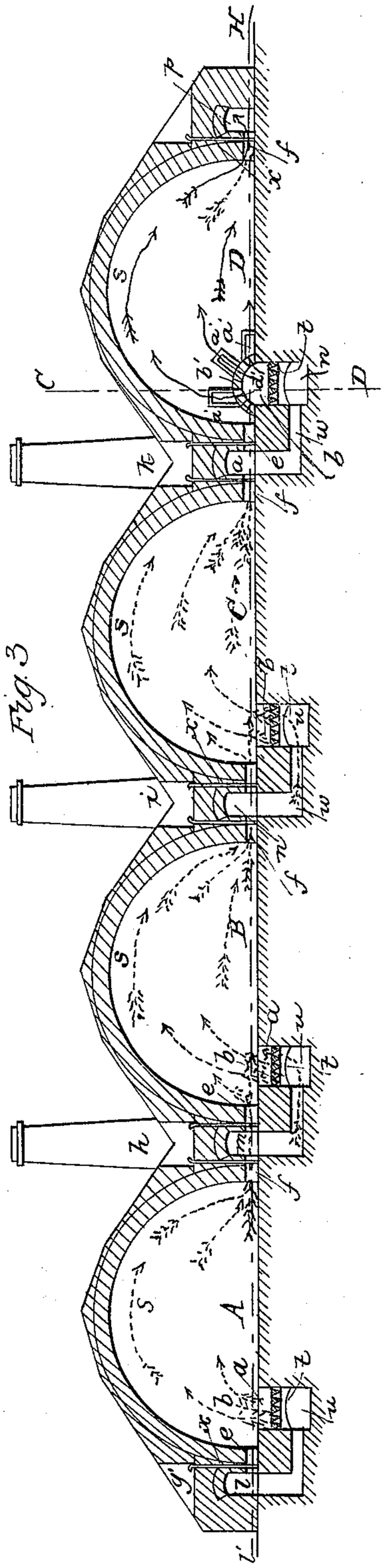


Fig. 3



2 Sheets—Sheet 2.

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Fig. 4

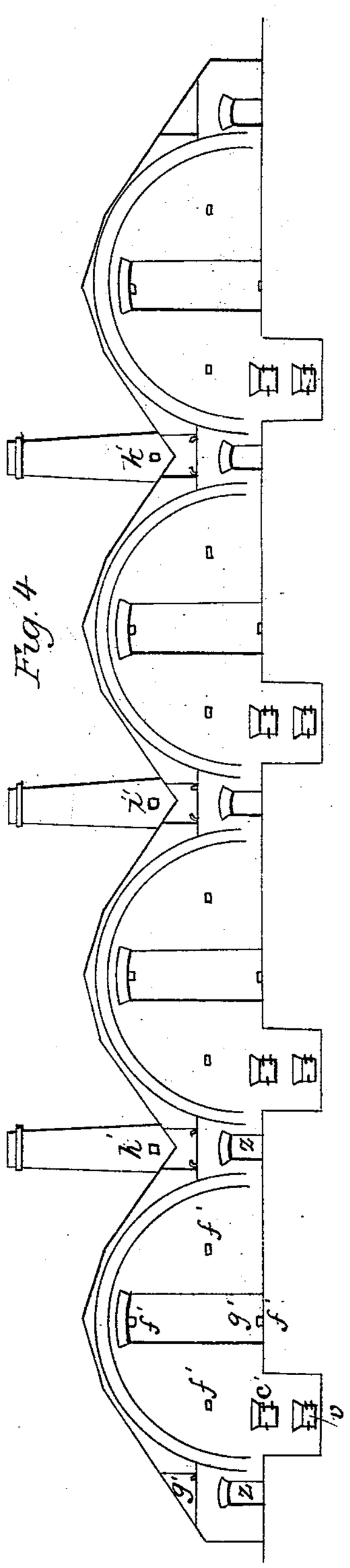
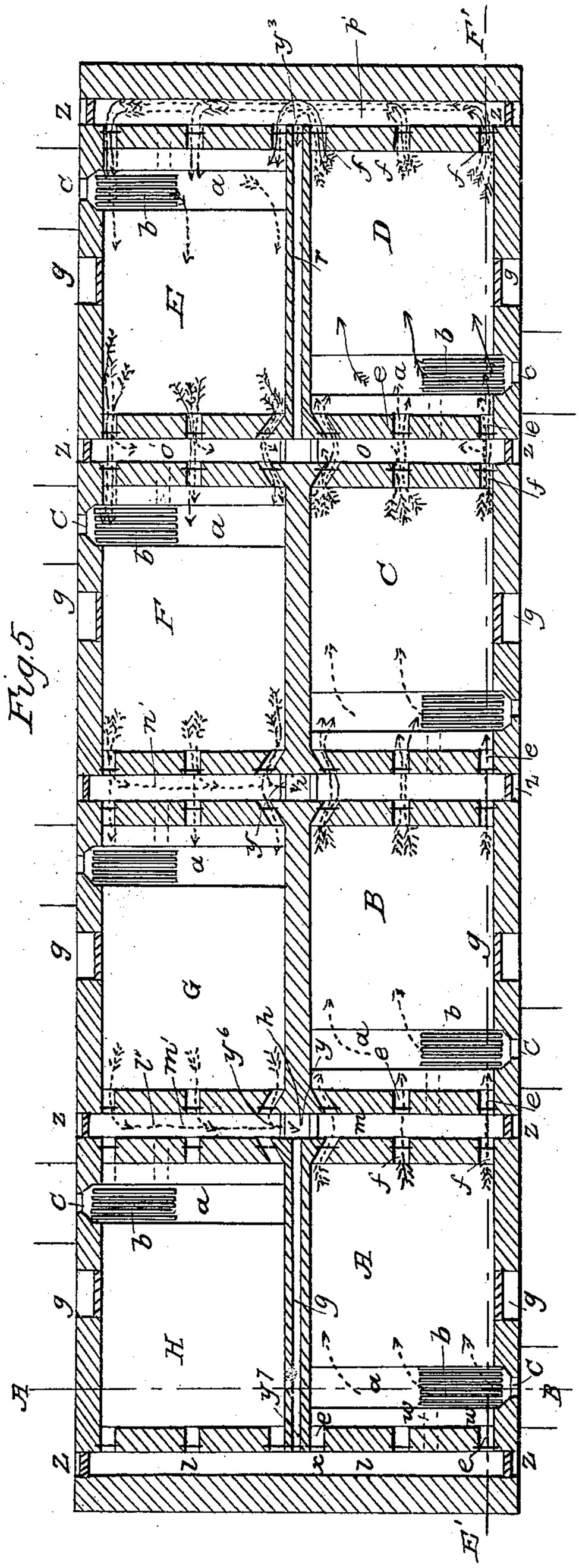


Fig. 5



UNITED STATES PATENT OFFICE.

RICHARD E. SCHROEDER, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN BRICK-KILNS.

Specification forming part of Letters Patent No. **9,285**, dated September 28, 1852.

To all whom it may concern:

Be it known that I, RICHARD E. SCHROEDER, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in the Construction of Stationary Brick-Kilns; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and letters marked thereon, forming a part of this specification.

Figure 1 is a transverse section through the compartment A in the center of the fire-place *a* in the plane represented by dotted line A′ B′; Fig. 2, a transverse section through the compartment D, showing a section of the fire-place for burning coals, in the direction of the dotted line C′ D′; Fig. 3, a longitudinal section through the whole kiln through the channels *f f* and fire-places in the direction of the dotted line E′ F′; Fig. 4, a front elevation of the same; Fig. 5, a horizontal section through the whole kiln above grates in the direction of the dotted line G′ H′. In each of these figures where the same parts are shown they are designated by the same letters of refence.

My invention consists in constructing and arranging a stationary brick-kiln of masonry composed of eight or more compartments or chambers, each being provided with a fire-place and connected with each other by flues and channels of communication, so arranged with dampers as to regulate the passage of heat from one chamber to the other, as hereinafter more fully described, whereby heat is economized to a very material extent.

It also consists in the improved manner of constructing fire-places in said chambers for burning coals, whereby the intense heat arising from a fire made of coals is prevented from fusing the brick immediately around said fire-place; but the heat is diffused gradually through all the brick.

By the ordinary method of burning brick it is a well-known fact that a vast amount of heat is lost, it being allowed to pass off after acting upon the bricks to which it is immediately applied, whereas with my improved construction of stationary kiln the greater portion of this waste heat is retained within the kiln and usefully applied to drying and baking brick preparatory to burning.

It will be seen that my kiln possesses the advantage of burning brick continuously, the brick being first gradually heated and baked before receiving the intense heat by filling one compartment after another with brick and removing those that have been burned. Thus the processes of molding, baking, and burning can be carried on simultaneously.

As thus represented, my kiln is composed of eight equal departments. Each of these compartments is inclosed by masonry, the roofs of which are first arched and then surmounted by linear surfaces, for the purpose hereinafter mentioned. Through the whole are channels of communication, by which the heat may be conducted from one compartment into another, and finally into the chimneys, as before stated.

I fill the three compartments A, B, and C with bricks through the doors *g*. The bricks are deposited as in any other kiln, and more closely in some parts than in others, according to the current of the flame. The doors are then closed with bricks and plastered with clay. In the fore part of the fire-places *a* are grates *b*, made of fire-proof material and supported by the structures *t*.

u are ash-pits, from which ashes are taken out by the openings *v*.

The fire is fed through the doors *c′ c′*, the rear part *d* being an inclined plane.

When I begin to burn, I start the fire on the fire-place of compartment A. The flues *e* in A are closed by the dampers therein; but the flues *f* in A, and *e* and *f* in B and C are open. The chimney-dampers *y* and *y′* in channels *m* and *n* are closed. So are dampers *e* in compartmet D and chimney-dampers *y‴* and *y⁗*. Chimney-dampers *y″* are open. The smoke and heat from the fire-place *a* of department A has thus to pass through A, *m*, B, *n*, C, and *o*, and is discharged through chimney *k*, as the red arrows show.

To effect a draft at the starting of the kiln, I place a few iron bars across the interior of chimney *k* by the hole *k′*, and kindle on them a small fire, closing the hole *k′*. The chimney becomes warm, and then a fire being built in fire-place *a* of compartment A a draft is easily produced. The iron bars are then removed. I continue the fire in compartment A until I see through the several peep-holes *f′* that the bricks are sufficiently burned. In the meantime compartment D is filled with

unburned bricks. As soon as the burning in A is done I start the fire in the fire-place of B. The bricks in B have already become highly heated during the burning of A. The door *c* to the fire-place *a* in B is now always kept closed, except when fuel is applied to the fire. *v* is also kept closed and the feeding of the fire with air is now done through *w*. The air thus passing through the heated bricks will produce nearly twice the amount of caloric (with the same quantity of fuel) as if fed with cold air. I then open dampers *e* and *f* of D and damper *y'''* in channel *r* and close damper *y''*, thus directing the draft through B C D, as the yellow arrows show. In the same manner I proceed from one department to another throughout. The doors *z* of channels *l l' m m' n n' o o' p p'* are closed with bricks and only opened for the purpose of cleaning.

a' represents a fire-place for coals. It is arched over with fire-proof material to prevent the melting of the bricks immediately above. The arch has several apertures *c'*, through which the flame passes into the kiln. Should the bricks be easily fusible, tubes *d' d'*, also of fire-proof material, may be attached to the apertures *c'*. The tops of these tubes are closed and the flame is allowed to escape into the kiln through holes, with which their ends opposite the arch are pierced. The flame being thus dispersed, it will have no injurious effect upon the bricks nearest the arch.

The roof of the kiln may be used as a convenient place in all weather to dry the bricks before burning.

The kiln may be constructed of any dimensions. If the compartments are made from six by eight to ten by fourteen feet in size, their heights should be from six to eight feet, the size of the flues *e* and *f* from six to eight inches square, and the channels *l l' m m' n n' o o' p p'* from fourteen to twenty inches square. The same proportions, or thereabout, above mentioned should always be observed. The dampers should be made of cast-iron half an inch thick. The handles by which they are moved are shown by *x x x*.

Having thus fully described the construction and operation of my improved kiln in the several processes of burning brick, I would state that I do not claim constructing a stationary kiln of masonry; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

So arranging the several compartments of the kiln, each provided with a fire-place, in a circuit and connecting them with each other and with the fire-places and chimneys by means of flues and dampers that one compartment after another may be charged with fresh brick and the brick be successively dried and heated by the waste heat, burned, cooled down, and removed, substantially as in the manner herein fully set forth.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

RICHARD E. SCHROEDER.

Witnesses:
THO. DONOHO,
GEO. R. WEST.