2 Sheets—Sheet 1.

S. REYNOLDS.

Annealing Oven.

No. 52,605. Patented Feb. 13, 1866.

Fig. 1.

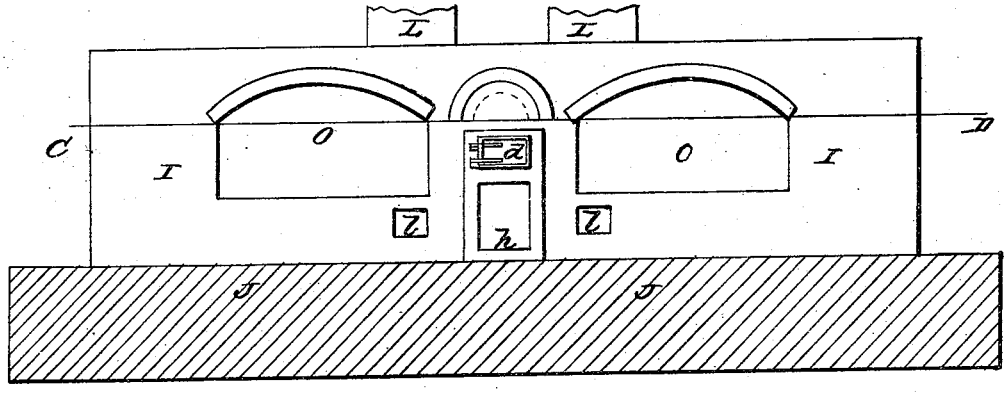
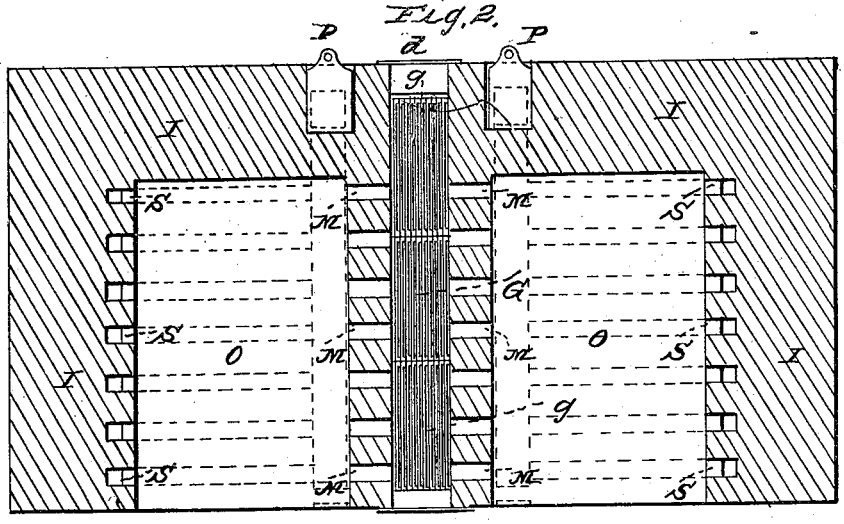


Fig. 2.



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Inventor:
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2 Sheets—Sheet 2.

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Fig. 3.

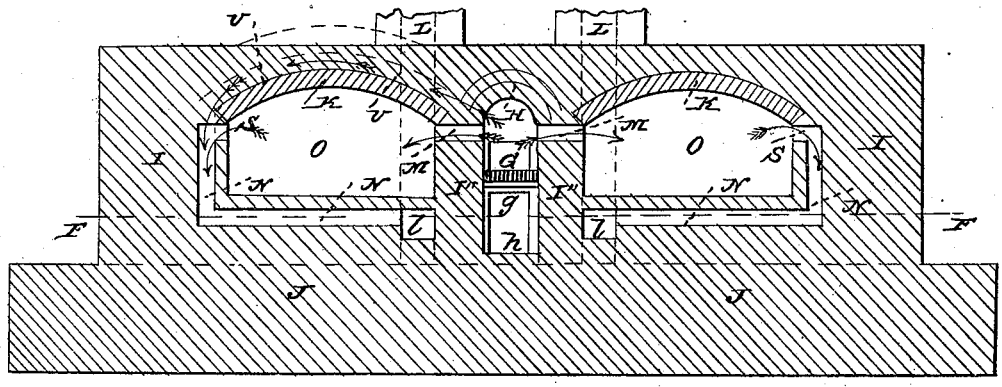
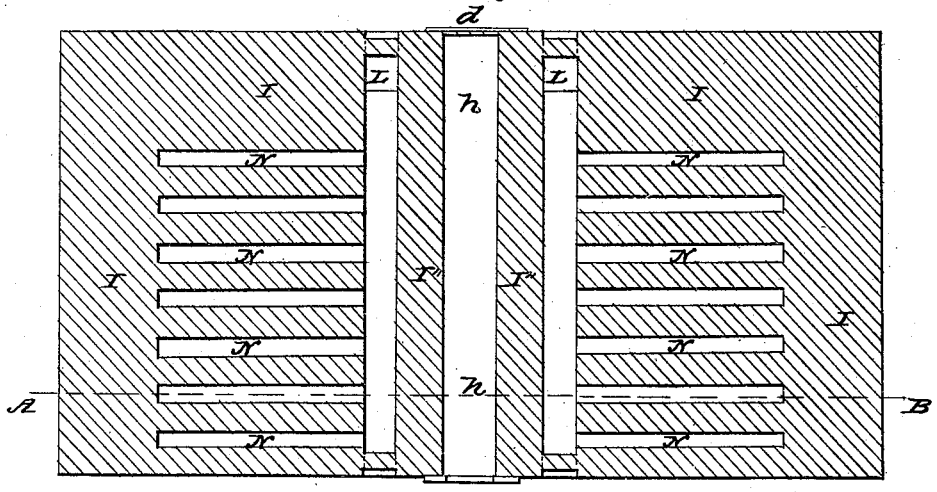


Fig. 4.



Witnesses:
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Inventor:
Samuel Reynolds

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UNITED STATES PATENT OFFICE.

SAMUEL REYNOLDS, OF PITTSBURG, PENNSYLVANIA.

IMPROVED OVEN FOR ANNEALING IRON.

Specification forming part of Letters Patent No. **52,605**, dated February 13, 1866.

To all whom it may concern:

Be it known that I, SAMUEL REYNOLDS, of Pittsburg, in the county of Allegheny, and State of Pennsylvania, have invented a new and Improved Oven for Annealing Iron; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in an oven of improved construction, in which iron can be decarbonized and annealed in less time and with less expenditure of fuel than in those now in use.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 is a front view of the ovens. Fig. 2 is a sectional view, in plan and through the line C D, of Fig. 1. Fig. 3 is a sectional view, in elevation, through the line A B of Fig. 4. Fig. 4 is a sectional view, in plan, through the line E F of Fig. 3.

O O are the ovens. G is the fire-place or furnace, with a grate, *g*, running all its length. *d d* are the doors. H is the arch or roof of the furnace, and *h* is the ash-pit. I I I″ I″ are the walls of masonry and brick-work; J, the massive foundation. K K′ are the arches or roof of the ovens O O. L L are the stacks; *l l*, the smoke-flues to the stacks, and P P′ are dampers to regulate the heat in the ovens O O. M M′ M, &c., are the flues or passages between the fire-furnace G and the inside of the ovens O O. S S S S, &c., are the openings or flues from the ovens O O to the flues N N N, &c. N N N N, &c., are the flues from the openings or flues S S S to the smoke-flue *l l*.

Operation: The ovens being charged in the ordinary way and closed in front by a temporary wall, the fire is lit in the furnace G, the dampers P P left open, and the flame and produce of combustion pass through the flues M M M, &c., directly into the ovens O O, under the arches K K, which acts as reflectors and radiators spreading the heat all over the ovens O O. The excess of flame and incombustible gases escape by the openings S S S S, the flues N N N, the smoke-flues *l l* to the stacks L L, in the direction of the blue arrows, the heat of the ovens O O being regulated by the dampers P P.

In the ovens now in use flues U U are built over the arches K K from the furnace G to the flues N N N for the flame to pass in the direction of the red arrows, and the heat of the flame has to penetrate through the arch K K before it acts, by radiation, in heating the ovens O O. Now, as the heat travels with difficulty downward, and that bricks are bad conductors of heat a large amount of heat is lost upward through the massive masonry.

In my improved ovens all the heat of the fire is thrown in the ovens O O, under the arches K K, which act as reflectors only, and do not receive any undue or useless proportion of heat. I hereby obtain a large saving of fuel, my ovens are brought to the desired heat in less time, the heat can be regulated better, and the ovens can be cooled quicker than is now done.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The flues, openings, or passages S S S.
2. The passages M M M.
3. Passing the fire under the arches K K and directly in the ovens by the flues M M and out of the ovens by the flues S S S, instead of over the arches K K.

SAMUEL REYNOLDS. [L. S.]

Witnesses:

H. W. MINNEMEYER,
H. P. GENGEMBRE.