2 Sheets—Sheet 1.

E. S. GOBIET.

COKE-OVEN.

No. 171,371. Patented Dec. 21, 1875.

Fig. 1.

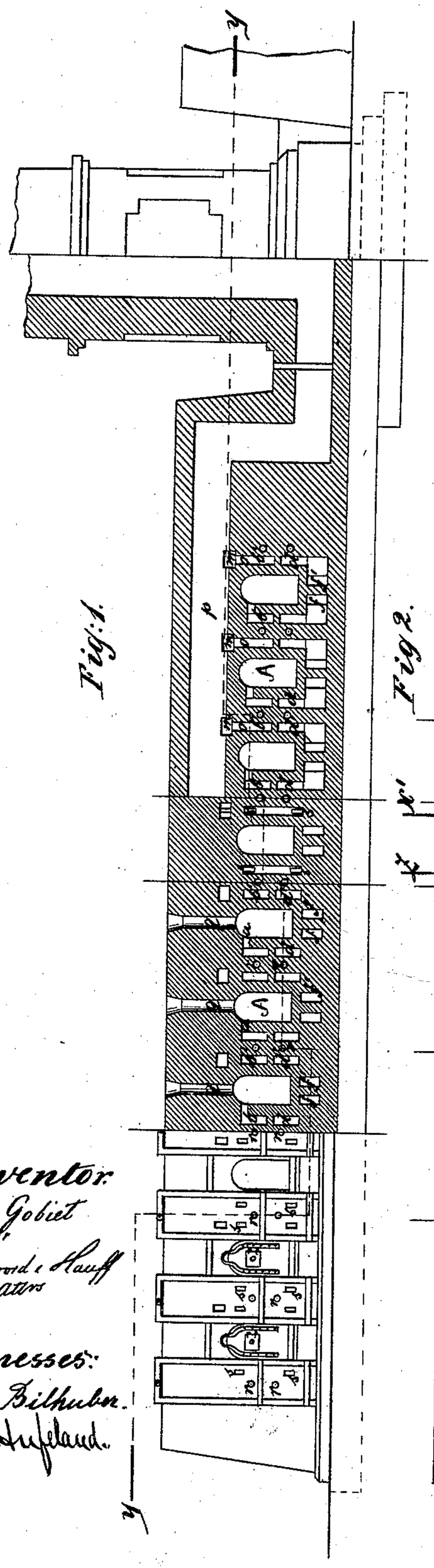
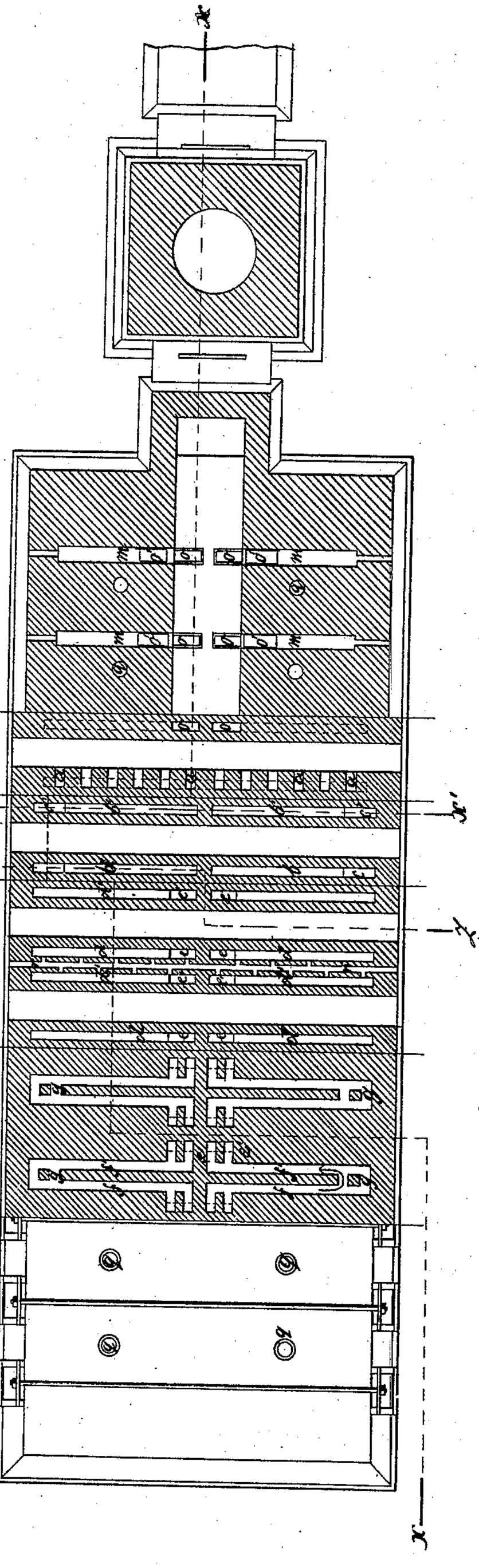


Fig 2.



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by
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2 Sheets—Sheet 2.

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Fig: 3.

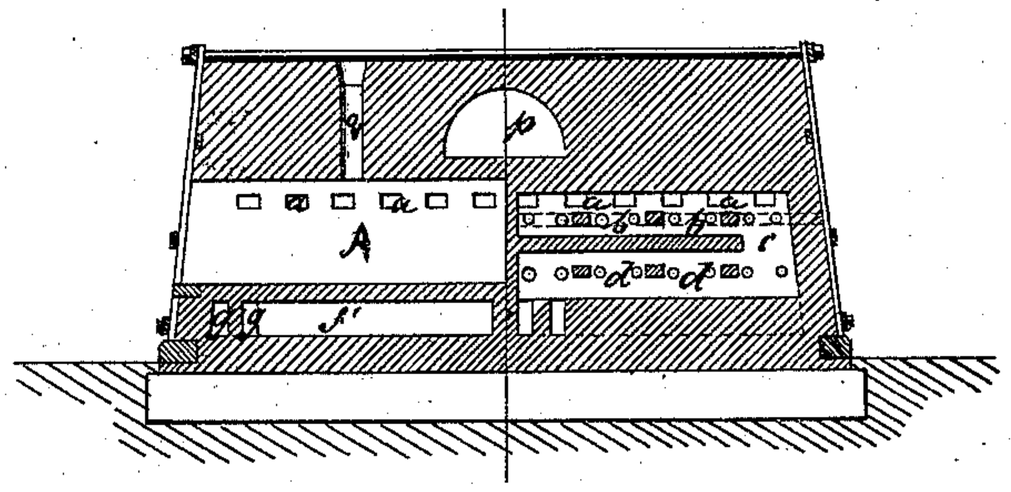
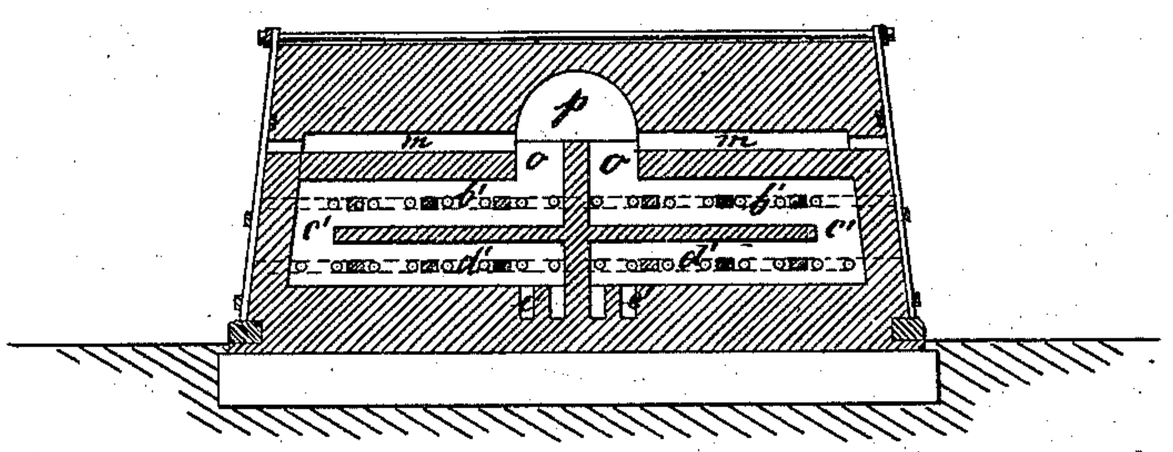


Fig: 4.



Witnesses:
Ernst Bilhuber.
Otto Stuffland.

Inventor:
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UNITED STATES PATENT OFFICE.

EMIL S. GOBIET, OF MÄHRISCH OSTERAU, AUSTRIA.

IMPROVEMENT IN COKE-OVENS.

Specification forming part of Letters Patent No. **171,371**, dated December 21, 1875; application filed November 27, 1875.

To all whom it may concern:

Be it known that I, EMIL S. GOBIET, of Mährisch Osterau, in the Empire of Austria, have invented a certain new and Improved Coke-Oven, of which the following is a specication:

This invention is illustrated in the accompanying drawing, in which Figure 1 represents a longitudinal vertical section in the plane *x x*, Fig. 2. Fig. 2 is a horizontal section in the plane *y y*, Fig. 1. Fig. 3 is a transverse section in the plane *z z*, Fig. 2. Fig. 4 is a similar section in the plane *x' x'*, Fig. 2.

Similar letters indicate corresponding parts.

This invention consists in combining with a coke-oven a series of side flues, bottom flues, and top flues, the side flues being made to communicate with the interior of the oven in such a manner that the heated gases which escape from the oven envelop said oven from all sides, and thereby a uniform heat is produced, and the formation of coke is materially facilitated.

In carrying out my invention I generally arrange the ovens in groups of ten or more, and I connect two such groups to a common chimney. In large factories I arrange two rows of these groups, so that room is left between them for the discharging-machine, which is supplied by both rows. In each group are a series of ovens, A, which are entirely independent one from the other, and which have nothing in common, except the main flue *p* above, and the partition-walls between, each other, so that each oven can be used separately, if desired. Each oven is provided with two supply-funnels, *q*, which extend down through the top, and which are provided with cast-iron covers lined with fire-clay, so that they can be closed immediately after the oven has been charged. Previous to introducing the coals the ovens are heated to a white heat, and as the coals pass into these heated ovens they evolve a quantity of gas, which is immediately ignited, and passes in a burning condition all around each oven, so as to envelop the same in a complete sheet of fire, and heat it uniformly at all points. The gases which rise in one of the ovens escape through the lateral channels *a a* into the upper side flues *b b*, which extend along one side of the oven, and which communicate through channels *c c*, at their outer ends, with the lower side flues *d d*. From these lower flues the burning gases pass through channels *e e* into the bottom flues *f*, the channels *e e* being situated at the inner ends of the side flues *d d*, so that the burning gases must travel through the flues *b d* in a zigzag course. The flues *f* are situated beneath the sole of the oven, and they extend from the center toward the outside of the walls, inclosing the ovens where said flues connect by channels *g* with the return-flues *f'*, which communicate at their inner ends by ascending channels *e' e'* with the lower side flues *d' d'*. From the outer ends of these lower side flues the burning gases ascend through channels *c' c'* into the upper side flues *b' b'*, which communicate at their inner ends through ascending channels *o o* with the main flue *p*.

By referring to the drawing it will be seen that the side flues *b b d d* are situated on one, and the side flues *b' b' d' d'* on the opposite, side of each oven, so that the burning gases in passing through these flues will heat each oven uniformly from all sides, and no additional fuel is required to keep up the required heat in the ovens. From each of the junctions of the ascending channels *o o* with the main flue *p* extends a lateral flue, *m*, toward the outside of the brick wall inclosing the ovens, where the same is closed by a suitable cover. Through these lateral flues *m* access can be had to the ascending channels *o o*, and the circulation of the burning gases can be regulated by suitable dampers *o'*, which, when used, will act on the channels *o o*, and which can be operated through the flues *m m*.

In order to keep up the heat of the ovens to the required degree it is desirable to effect the operations of charging and discharging the ovens in the shortest possible time. The ovens are charged by means of carts which run on iron tracks resting on the top of the wall which incloses the ovens, said carts being of sufficient capacity to contain enough coal for charging one-half of each oven; and since each oven is provided with two supply-funnels, a sufficient quantity of coal can be introduced into the same by opening both funnels simultaneously, and dumping a load of coals into each at the same time. For the purpose of discharging the ovens I use a ma-

chine which runs on a track at the side of the structure, and which is provided with a plunger fitting the ovens. This machine, however, forms the subject-matter of a separate application for a patent, and I will not describe it any further in this present specification. The ovens A A are provided with doors at both ends, said doors being made of cast-iron and lined with fire-clay. These doors are raised and lowered by a block and fall, or by a windlass, and each of them is provided with a small door working on hinges, to enable the fireman to spread the coals in the oven after they have been dumped.

In each of the partition-walls, between the adjoining ovens, are two sets of air-flues, *r r*, which communicate with the side flues *b b' d d'* for the purpose of introducing the requisite quantity of oxygen to support combustion. In said partition-walls are also openings *s s* for the purpose of observing the process of combustion, and to clean out the flues, if necessary. These openings have to be kept closed as much as possible. By these means the ovens, after they have been once heated up, can be kept going for an indefinite time without requiring any additional fuel to heat them, and if one or more of the ovens should become defective they can be thrown out of operation and repaired without disturbing the action of the remaining ovens—in fact, each oven can be run independent of all the rest, if desired.

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

1. The combination of side flues *b b' d d'* and bottom flues *f f'*, the flues *a*, with each other and with an oven A, substantially as shown and described.

2. The combination of a series of ovens, A, with side flues *b b' d d'*, bottom flues *f f'*, ascending flues *o*, the flues *a*, and a common main flue, *p*, substantially as set forth.

3. The combination of air-channels *r r* with the side flues *b b' d d'*, the flues *a*, and with an oven A, said channels serving to admit the requisite quantity of oxygen to support combustion, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 23d day of October, 1875.

E. S. GOBIET. [L. S.]

Witnesses:

WILLIAM HUNING,

CARL BARSCHIG.