

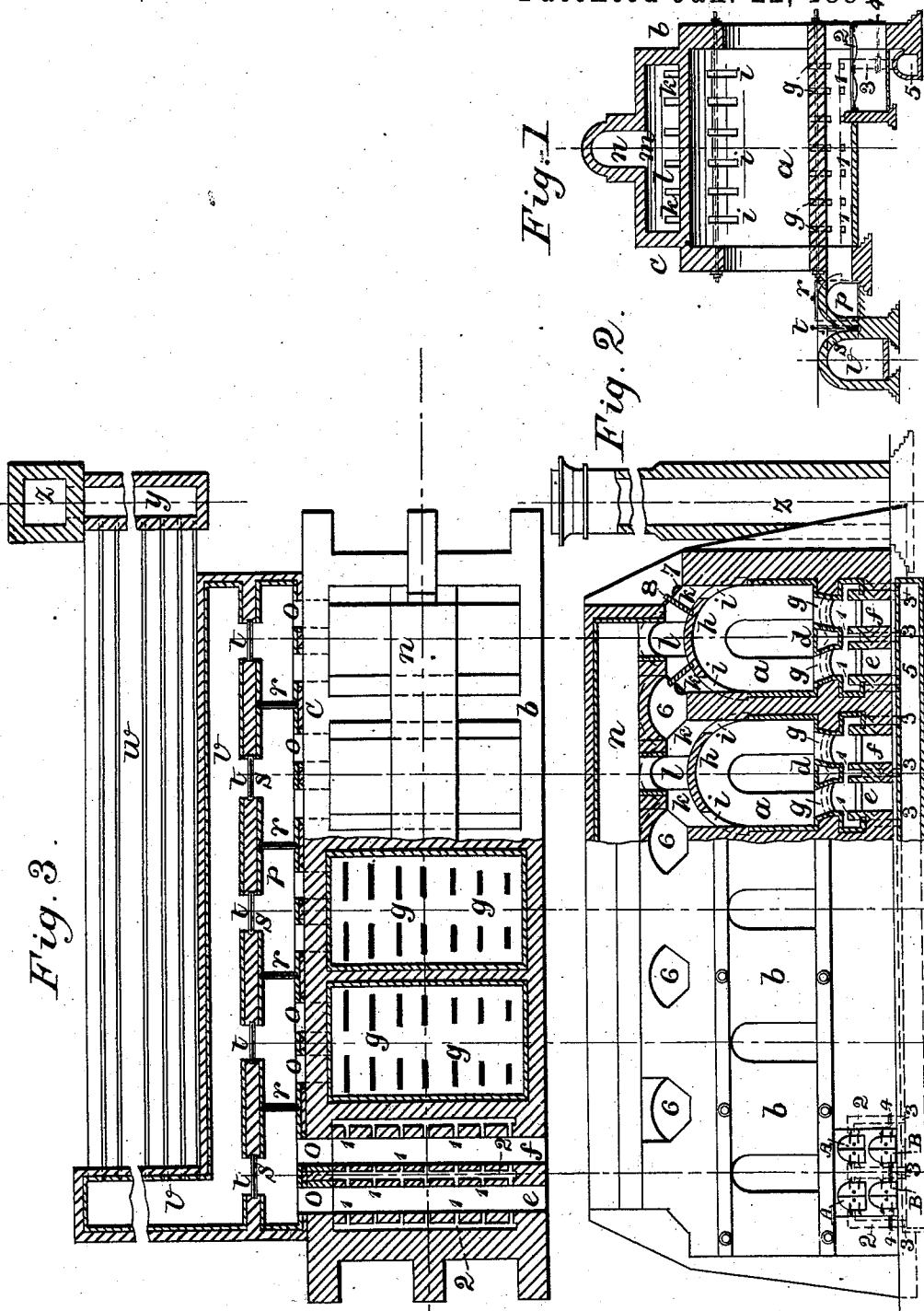
(No Model.)

J. P. CRAMP.

KILN.

No. 292,413.

Patented Jan. 22, 1884.



Witnesses:
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UNITED STATES PATENT OFFICE.

JACOB PEARSON CRAMP, OF FINEDON, COUNTY OF NORTHAMPTON, ENGLAND.

KILN.

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To all whom it may concern:

Be it known that I, JACOB PEARSON CRAMP, a citizen of Great Britain, residing at Finedon, in the county of Northampton, England, 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in kilns used for burning bricks, tiles, pipes, lime, or other articles, and it has for its object improved methods of constructing such kilns, so that the heat can be readily applied or removed, or its direction altered, as desired, and great economy is effected.

The accompanying drawings are an illustration of my invention, in which Figure 1 is a longitudinal section of a kiln and of the flues and chambers in connection with it. Fig. 2 is a front view, partly in section, of a set of similar kilns: and Fig. 3 is a plan of the same, partly in section, and showing the position of the drying-floors.

Similar letters and figures refer to similar parts throughout the several drawings.

a is the body of the kiln, *b* and *c* being its front and back, provided with openings or doorways, as shown in Fig. 2.

d is the floor of the kiln, beneath which are arranged two fire-places, *e* and *f*, or chambers in which gas can be burned, transverse openings *g g g g* being made through the floor *d* into the body of the kiln *a*. These openings are shown in Fig. 3, varying in size. In the arched roof *h* of the kiln, openings are also made at *i i i i*, communicating through the passages *k k* with the longitudinal flue or chamber *l*, an opening at the top of which communicates at *m* with the transverse flue or chamber *n*, which is in similar communication with all the other kilns in the set. The front ends of the fire-places, or the continuation of them under the floor, communicate through the openings *o* with the transverse flue *p*, which is provided with dampers *r* between each kiln, and the flue *p* itself commu-

nicates through the openings *s*, also provided with dampers *t*, with the flue *v*. The latter flue, *v*, is shown communicating with a series of passages or channels, *w*, which pass under the floor of the drying-shed, and they eventually lead into the flue *y*, which passes to the chimney *z*; or the flue *v* may pass directly to the chimney *z*. In the sides of the fire-places, openings or air-passages *1 1 1 1* are made, passing into longitudinal chambers *2 2 2 2*, the front ends of which communicate by the descending passages *3 3 3 3*, provided with dampers at *4*, with the transverse lower connecting chamber or flue, *5*, which thus connects together all the chambers or passages *2* at the sides of the fire-places. Both the fire-places themselves and the ash-pits below them can be closed, when desired, by doors, as shown at *A B*. Openings or passages above the kilns are shown at *6 6 6*, by which access can be had, when desired, to the movable covers *7 7* and movable stops or plates *8 8* in the passages *k*, by which the communication between the kilns and the longitudinal flues *l* can be cut off and regulated. Pyrometers for ascertaining the heat of the kiln may be introduced through the covers *7*, or through suitable openings in other parts of the kilns.

It will be seen that by means of the transverse flue *n* and the passages *l k* and plates *7* and stops *8* connected with it, the upper part of any one of the kilns can be connected with or cut off from the upper part of any or all of the other kilns, as desired, and by means of the lateral openings, *1 1 1*, flues *2*, descending passages *3*, dampers *4*, and lower transverse chamber, *5*, the interior of any one of the kilns can be made to communicate through the fire-places with the interior of any or all of the remaining kilns. At the same time the communication with the flues *p* and *v*, and ultimately (through the drying-floor) with the chimney *z*, can be made to pass through any or all of the fire-places by means of the dampers *r* and *t*.

The action of the apparatus constructed and arranged as described is as follows: One or more of the kilns being filled with bricks, tiles, or other articles which are to be burned, and the fire under such kiln being lighted, the heat passes into the kiln through the aper-

- tures *g* in its floor, and thence from the kiln through the apertures *i* in the roof *h* into the passage *l*, above and into the transverse flue *n*, from whence, by a proper regulation and adjustment of the dampers *r t*, plates 8, and doors A B, it may be made to descend through either of the other kilns into the fire-place below, and thence into the flues *p r*, leading to the drying-floor and chimney.
- 10 When one or more kilns are thoroughly heated and the bricks or other articles contained in them sufficiently burned, cold air may be admitted to them from the openings or passages 6 by removing the plates 7, and the air so admitted, after circulating through 15 the kiln and becoming thoroughly heated, may be made to pass down through the openings *g* in the floor *d* of the kilns, and through the passages 1, 2, and 3 and the dampers 4, into the transverse flue 5, and thence up in 20 the same way into one or more of the other kilns, part of its heat being thus utilized before it is finally allowed to pass to the drying-floor and chimneys.
- 25 The openings at 1 1 between each pair of fire-places may be made entirely separate, and each provided with a damper, instead of both communicating with a single passage and damper, as shown.
- 30 By means of the method of arrangement described and shown, any one of the kilns may be worked independently of the other kilns, or any two or more of the kilns may be worked in connection, the several flues, passages, and dampers enabling the course through which 35 the heated air and gases travel to be varied, modified, and regulated, as desired, to suit conditions and circumstances varying from time to time.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, in the kilns, of the fire-places *e* and *f* and the openings *g* in the floor *d* with the openings *i* in the roof *h*, the passages *k k*, the longitudinal flue *l* above the roof, and the transverse flue *n* above the flue *l*, communicating with all the kilns, substantially as set forth and shown.

2. The combination of the passages *k k* and the longitudinal flue *l* above the roof with the openings 6, the covers 7, and the stops or plates 8, by which the communication between the kiln *a* and the flues *l* and *n* can be cut off and regulated, substantially as set forth and shown.

3. The combination, in the kilns, of the openings 1 1 1 1 in the sides of the fire-places *e* and *f*, the longitudinal chambers 2 2 2 2, the descending passages 3 3 3 3, the dampers 4, the transverse lower flue, 5, and the doors A B, substantially as set forth and shown, and for the purposes specified.

4. In combination with the kilns *a* and the fire-places *e* and *f*, the openings *o*, transverse flue *p*, dampers *r*, openings *s*, dampers *t*, and flue *v*, by which communication with the chimney *z* may be made directly from each fire-place, or through any or all of the other fire-places and kilns, substantially as set forth and specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JACOB PEARSON CRAMP.

Witnesses:

EDMUND EDWARDS,
ARTHUR E. EDWARDS.