

R. C. PENFIELD.
 BRICK STACKING.
 APPLICATION FILED FEB. 9, 1911.

1,013,683.

Patented Jan. 2, 1912.
 2 SHEETS-SHEET 1.

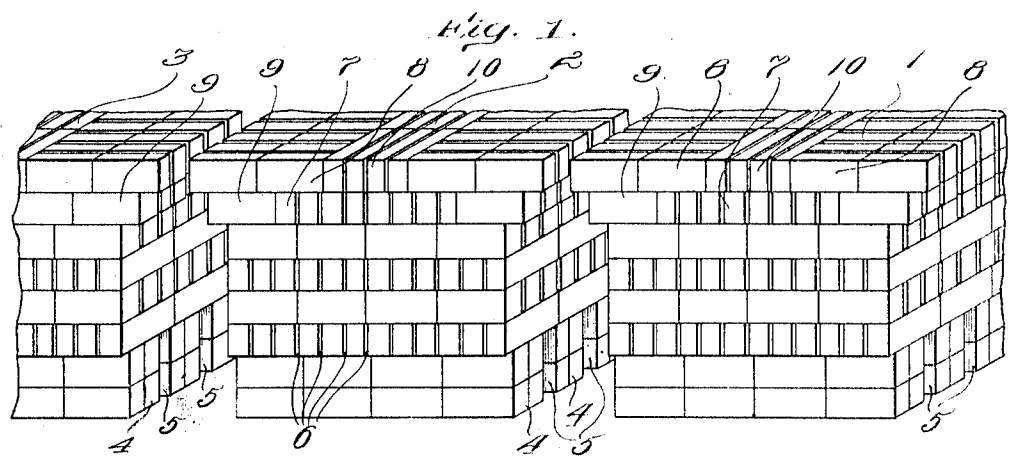
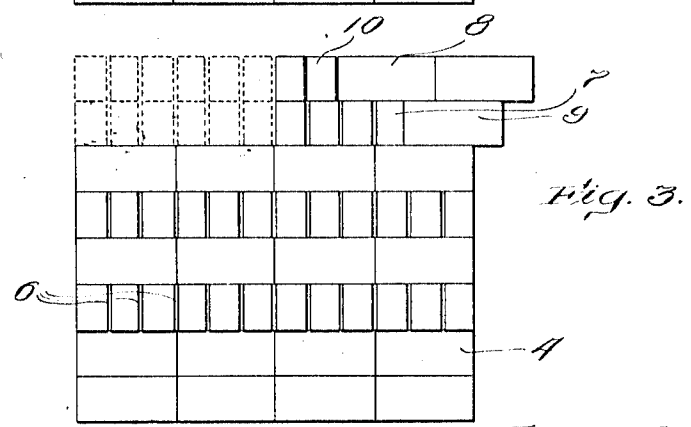
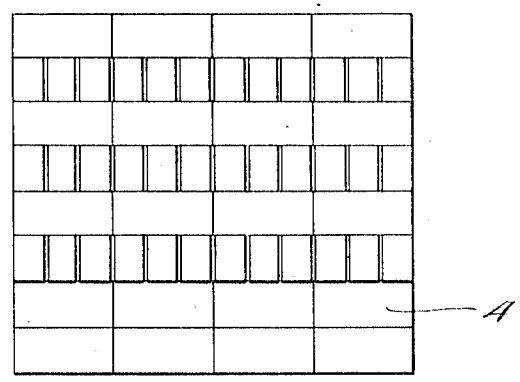


Fig. 2.



Witnesses:
 C. L. Rogers.
 Anna Kelly.

Inventor
 R. C. Penfield.
 by
 Geo. S. Merrill
 Att'y

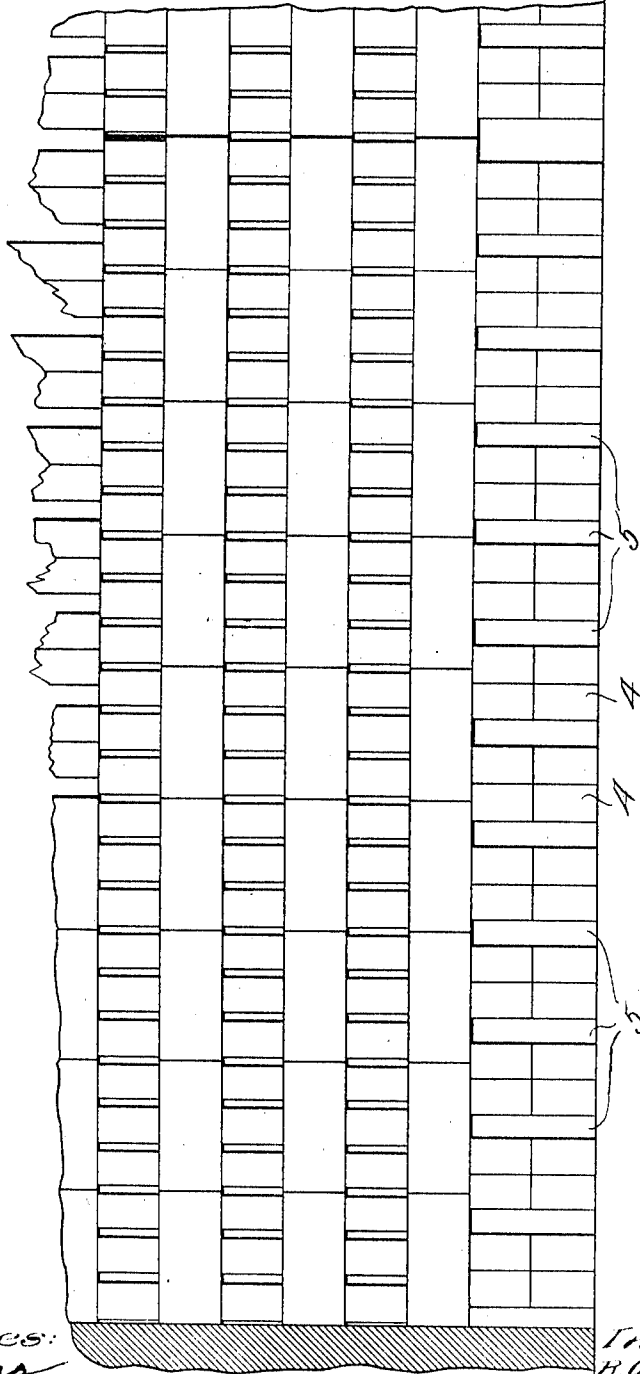
1,013,683.

R. C. PENFIELD.
BRICK STACKING.
APPLICATION FILED FEB. 9, 1911.

Patented Jan. 2, 1912.

2 SHEETS—SHEET 2.

Fig. 4.



Witnesses:
C. L. Rogers
Anna Kelly.

Inventor:
R. C. Penfield.
by Geo. J. Maxwell
Att'y.

UNITED STATES PATENT OFFICE.

RAYMOND C. PENFIELD, OF NEW YORK, N. Y.

BRICK-STACKING.

1,013,683.

Specification of Letters Patent.

Patented Jan. 2, 1912.

Application filed February 9, 1911. Serial No. 607,649.

To all whom it may concern:

Be it known that I, RAYMOND C. PENFIELD, a citizen of the United States, and a resident of the city, county, and State of New York, have invented an Improvement in Brick-Stacking, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The stacking of green bricks in arch arrangement for kiln burning, and in properly spaced apart relation, so as to permit the circulation of heat throughout the mass, as heretofore performed by hand has been a slow, laborious operation; further as ordinarily stacked, difficulty has been experienced in effecting a proper circulation of heat through the bottom portions of the legs and between the arches comprising the brick stacks.

The present invention consists in a stack arrangement of bricks which can be readily handled *en masse* by a mechanical brick setting mechanism of a type to which the public is now being introduced, this arrangement being at the same time of a nature providing for the free and complete circulation of heat transversely through the legs between the bottoms of the several arches into contact with all the bricks and up into the center of the legs.

The invention will be understood from the following description taken in connection with the accompanying drawings wherein a preferred embodiment is set forth.

Referring to the drawings; Figure 1 is an end perspective showing the bricks stacked to form several arches, in accordance with my invention; Fig. 2, is an end view of a unit of bricks as deposited by the handling mechanism. Fig. 3, is a like view showing the bricks of the top layers partly re-arranged to form arches according to my invention; and Fig. 4, is a side elevation of a portion of one of the arch legs.

The several legs 1, 2, 3, etc., to be arranged to form the arches of the kiln are made up by the deposit of units of bricks by the brick setting machine. This machine for illustration is supposed to deposit units, nine bricks long, four bricks deep, and eight bricks high, the bricks being laid so that the unit is rectangular, *i. e.*, it has a rectangular base, rectangular sides and rectangular ends; the top courses of bricks being later re-arranged and pulled

out to form the jets of the arch as later described. The several units to permit of their proper handling by the brick setting machine, have their two bottom courses arranged with bricks in pairs close together, and two high as shown at 4, this leaving spaces 5 of about one and one-half inches between pairs to receive the lifting fingers which may be arranged to also clamp laterally these bottom courses. Spaces 5 thus constitute openings of substantial size transversely through the bottom of the legs at frequent intervals, and as the several arches are arranged side by side in proper spaced apart relation, it is apparent that said passages 5 constitute heat circulation connections not only through each leg, but through the bottom of all the several legs forming the kiln stacks thus allowing the heat to circulate freely through all parts of the bottoms of the arches and therefrom through the regular spaces 6, between the bricks of the stack up into the center of the leg. The legs thus formed by the deposit of rectangular units, are spaced apart the proper distance, so that the opening between them can be arched over by re-arrangement of the top courses as now to be explained. The two top courses, 7, 8, of each unit are re-arranged to arch over the openings between the legs; the outer bricks 9, of course 7 are turned at right-angles to their former position, and pulled out part way as shown, then the bricks of the top course 8 are pulled out each way from the middle, to project beyond those beneath at 9, and the middle space thus formed filled in with additional bricks 10 which are obtained from any convenient source or separately brought to the kiln. Thus I provide an arrangement of brick stack, which can be handled in large units readily and expeditiously by a mechanical setter, this arrangement, at the same time permitting a complete and perfect circulation of the heat through the bottoms of the several arches and into all portions of the legs.

Having now described the invention, what I claim as new and desire to secure by Letters Patent, is as follows:

1. In a kiln having bricks formed to provide parallel fuel arches, a brick stack for burning extending between adjacent fuel arches with the bricks in separated relation and containing through passages adjacent the bottom to further promote heat circulation.

tion through the bottom of the stack, the layers directly over said passages being laid alternately lengthwise and crosswise of the stack whereby the stack is tied together so as to be transportable in units.

2. A series of brick stacks for kiln burning, arranged with intervening burning arches, the bricks being arranged in separated relation and having provision to further promote free circulation of, heat through the bottoms of all the stacks, alternate layers above the stack bottoms being laid lengthwise of the stack whereby the stack portions are tied together so as to be transportable in units by a mechanical lifter.

3. In a kiln having bricks formed to provide parallel fuel arches, a unit of bricks corresponding in width to the distance between arches, arranged in separated relation for kiln burning, the bottom portion thereof having the bricks massed in pairs two high to leave straight, parallel openings between pairs entirely across the bottom of the stack to promote circulation and adapted to receive the fingers of a mechanical lifter to transport said unit bodily to position.

4. A unit of bricks in separated relation for kiln burning, the two bottom courses extending in the same direction and massed together in pairs two high to leave enlarged openings between pairs to promote circulation and receive the fingers of a mechanical lifter, and the layers next above said bottom courses extending alternately lengthwise and crosswise of the unit whereby it is tied together and may be bodily transported by such mechanical lifter.

5. A plurality of brick stacks arranged side by side for kiln burning, the bottom portions of the stacks having the bricks bunched in pairs two high to provide enlarged openings, whereby connection for continuous heat circulation between the several stacks is provided and spaces provided to receive the fingers of a mechanical lifter so that the stacks may be bodily transported in units.

6. The method of forming a brick arch for kiln burning which consists in depositing rectangular units of bricks in separated relation and in re-arranging with the bricks in alternate layers extending at right angles to each other and drawing out the top portion to form an arch.

7. The herein described method of building an arch-burning kiln, consisting of piling a stack of bricks in a rectangular unit, the body thereof having the bricks in separated relation suitable for burning purposes, and the lower bricks being spaced transversely of the unit to constitute heat transmission passages, turning certain of the top courses to extend transversely of the unit,

and pulling said top courses outwardly into an overhanging position to constitute a portion of the top of an arch of the kiln.

8. The herein described method of building an arch-burning kiln, consisting of piling a stack of bricks in a rectangular unit, the body thereof having the bricks in separated relation suitable for burning purposes, and the lower bricks being spaced transversely of the unit to constitute heat transmission passages, turning certain of the top courses to extend transversely of the unit, and pulling outward the turned bricks and the course above said turned bricks into an overhanging position, with the uppermost course of outwardly pulled bricks extending beyond the outwardly pulled turned bricks, to constitute a portion of the top of the arch.

9. The herein described method of building an arch-burning kiln, consisting of piling a stack of bricks in a rectangular unit, the body thereof having the bricks in separated relation suitable for burning purposes, and the lower bricks being spaced transversely of the unit to constitute heat transmission passages, turning certain of the top courses to extend transversely of the unit, and pulling outward the turned bricks and the course above said turned bricks into an overhanging position, with the uppermost course of outwardly pulled bricks extending beyond the outwardly pulled turned bricks, to constitute a portion of the top of the arch, then filling in with extra bricks the intermediate spaces in the top of the unit which are formed by the pulling out of bricks of said top courses.

10. The herein described method of building an arch-burning kiln, consisting of piling a stack of bricks in a rectangular unit, the body thereof having the bricks in separated relation suitable for burning purposes, and the lower bricks being spaced transversely of the unit to constitute heat transmission passages, transporting to final position in the kiln the unit in aforesaid stacked relation, turning certain of the top courses to extend transversely of the unit, and pulling said top courses outwardly into an overhanging position to constitute a portion of the top of an arch of the kiln.

11. The herein described method of building an arch-burning kiln, consisting of stacking the bricks in rectangular units in burning formation, transporting said rectangular units into proper position to constitute the pillars or brick bodies between adjacent arches, turning the outer bricks of certain of the top courses on adjacent sides of said two adjacent units to extend transversely of the unit, and pulling these turned bricks and other adjacent course bricks of said adjacent units toward each other to form thereby the top of an arch, the upright

walls of which are formed by the adjacent sides of said two adjacent units.

12. The herein described method of building an arch-burning kiln, consisting of
5 stacking the bricks in rectangular units in burning formation, transporting said rectangular units into proper position to constitute the pillars or brick bodies between adjacent arches, providing transverse bottom
10 passages from arch to arch for free heat circulation, turning the outer bricks of certain of the top courses on adjacent sides of said two adjacent units to extend trans-

versely of the unit, and pulling these turned bricks and other adjacent course bricks of
said adjacent units toward each other to
form thereby the top of an arch, the upright
walls of which are formed by the adjacent
sides of said two adjacent units. 15

In testimony whereof, I have signed my
name to this specification, in the presence
of two subscribing witnesses. 20

RAYMOND C. PENFIELD.

Witnesses:

S. H. SMART,
C. P. MERTENS.