

(No Model.)

W. WEWERS.

HEAT-BARRIER PLATE FOR STOVE OR RANGE FIREBACKS.

No. 541,404.

Patented June 18, 1895.

Fig. 1.

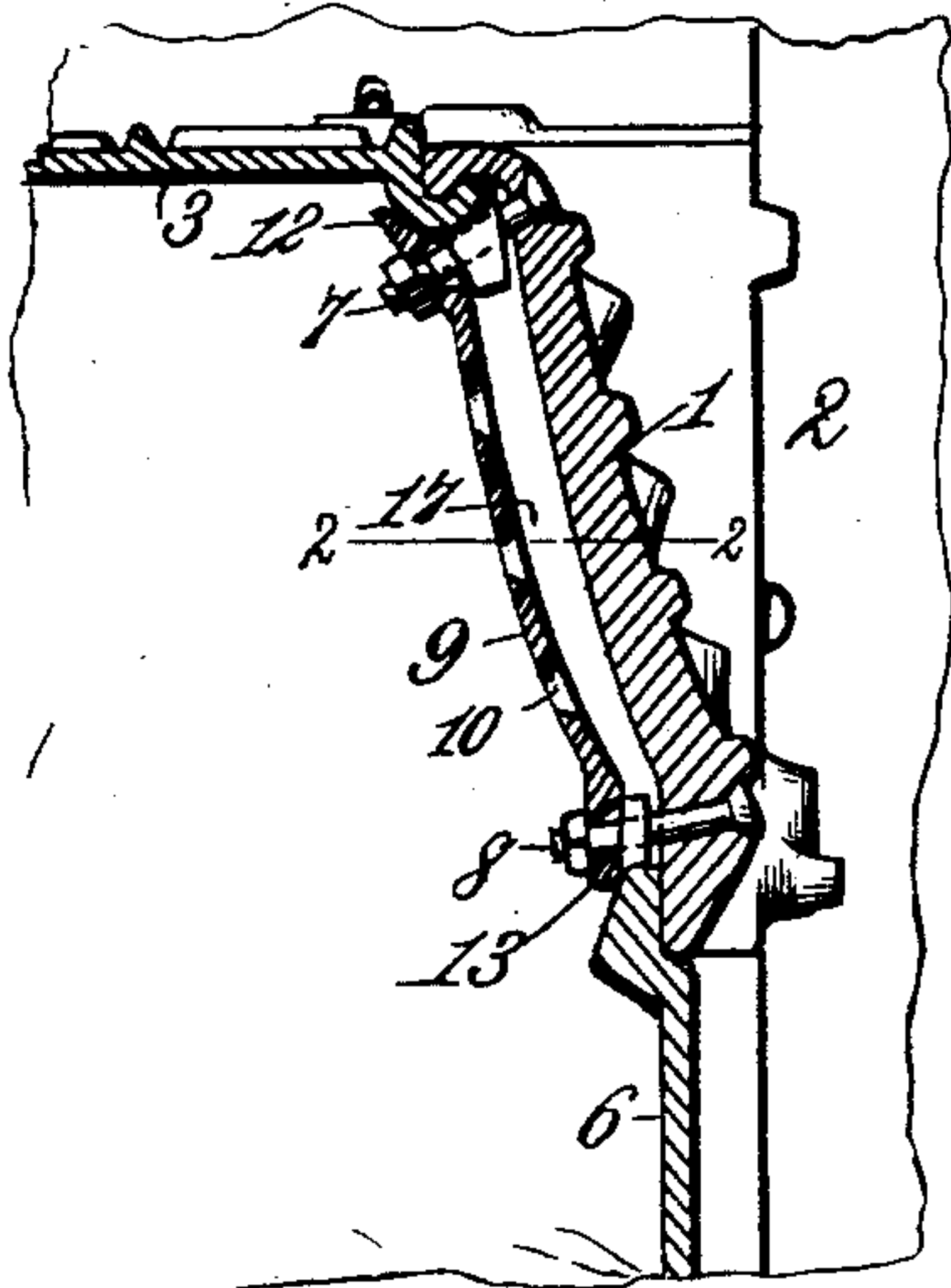


Fig. 2.

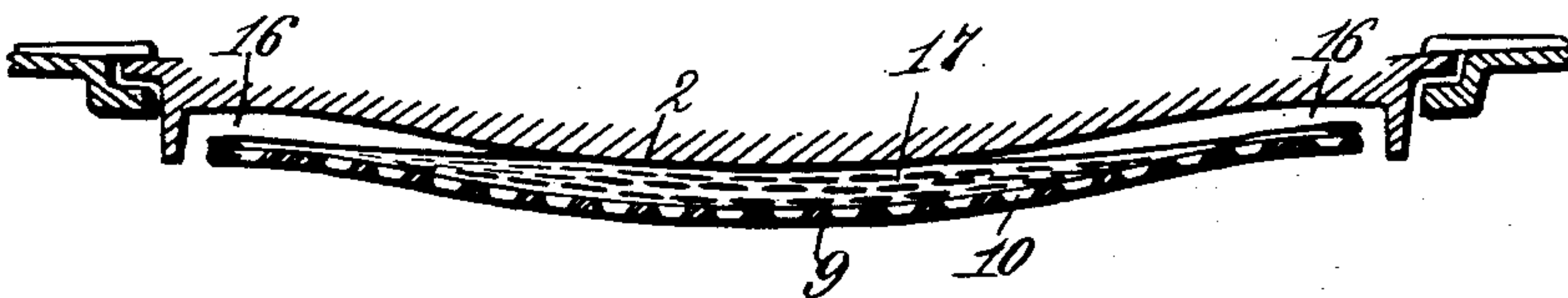
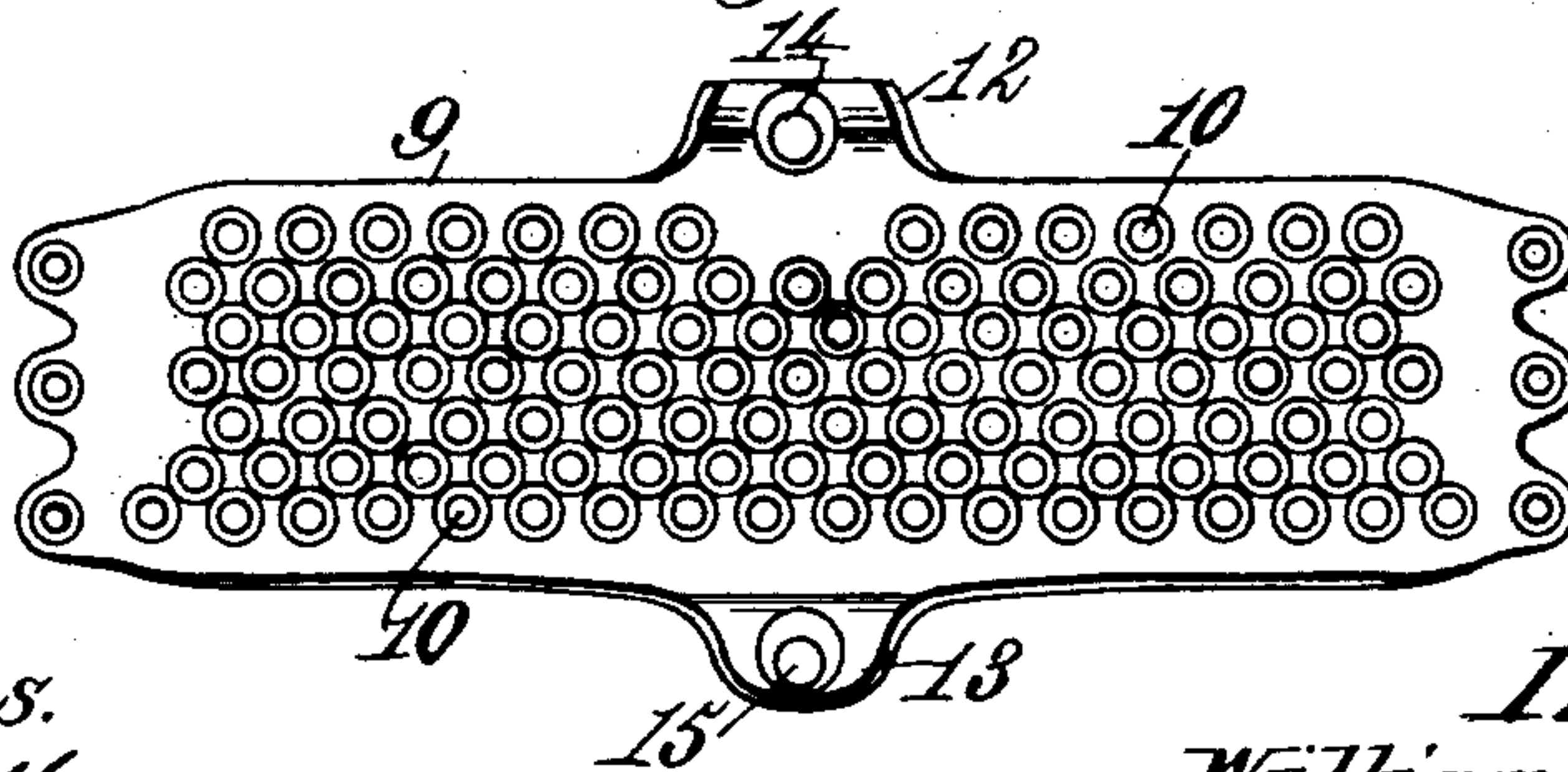


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM WEWERS, OF QUINCY, ILLINOIS, ASSIGNOR TO THE GEM CITY
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HEAT-BARRIER PLATE FOR STOVE OR RANGE FIREBACKS.

SPECIFICATION forming part of Letters Patent No. 541,404, dated June 18, 1895.

Application filed March 14, 1895. Serial No. 541,737. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WEWERS, a citizen of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented new and useful Improvements in Heat-Barrier Plates for Stove or Range Firebacks, of which the following is a specification.

This invention relates to that class of cook stoves or ranges wherein a front fire-box is separated from the oven-chamber by a single metallic plate which constitutes a fire-back. In stoves or ranges of this character the intense heat radiated from the fire-back burns or overheats the surface of the bread, or other article in the oven, and obviously this is a serious objection.

The chief object of my present invention is to provide new and improved means for impeding or obstructing the direct radiation of the intense heat from the single plate, metal fire-back upon the bread, or other article being baked or cooked in the oven.

The invention also has for its object to provide a new and improved barrier which will impede or obstruct the direct radiation of the intense heat of the fire-back upon the article in the oven-chamber, but will not unduly confine the heat in close proximity to and thus eventually destroy the fire-back, as is the case with those stoves or ranges having an extended, imperforate, metallic surface located near the fire-back and perforated only at its upper and lower edges to secure a circulation of air against the hot fire-back and through the oven-chamber.

The invention also has for its object to impede or obstruct the direct radiation of the intense heat from the fire-back upon the article in the oven by a metallic barrier-plate possessing such characteristics that it can be conveniently and rapidly removed for repairs, or whenever circumstances render it desirable or necessary to detach the plate, or for the substitution therefor of a new barrier-plate whenever occasion demands.

The invention also has for its object to provide a barrier which will impede or obstruct the direct radiation of the heat of the fire-back upon the article in the oven, but will occupy very little space, and thus render it

possible to utilize all available oven space while the plate can be entirely removed without in any manner leaving the oven incomplete.

To accomplish all these objects my invention involves the features of construction and the combination or arrangement of parts hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a vertical central sectional view through the fire-box of a cook stove or range, showing a portion of the oven-chamber. Fig. 2 is a horizontal sectional view taken on the line 2 2, Fig. 1; and Fig. 3 is a detail front elevation of the improved barrier-plate.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates the single, metallic plate constituting the fire-back of the fire-box 2.

The oven, of which a portion only is shown in Fig. 1, is composed partly of a top-plate 3, and short, front plate 6. The single, metallic plate 1, constituting the fire-back, is secured to the edges of the top plate 3 and short, front plate 6 of the oven-chamber through the medium of bolts 7 and 8, located about centrally between the vertical edges or ends of the fire-back. The bolts 7 and 8 serve also to detachably secure in position the improved barrier-plate 9, which, as clearly shown in Fig. 3, is composed of a rectangular piece of metal, curved longitudinally, and formed with numerous perforations 10 throughout its entire body portion, which perforations constitute heat passages for the passage of heat transversely through the plate.

The barrier-plate is preferably composed of a single casting, and the numerous perforations are formed during the casting operation. The plate is provided about centrally between its ends with upwardly and downwardly projecting ears or lugs 12 and 13 having bolt-holes 14 and 15, through which the bolts 7 and 8 are adapted to extend, for the purpose of securing the barrier-plate in position in rear of the fire-back. The lower ear or lug 13 lies nearly in the plane of the body of the plate,

so that its bolt-hole 15 can properly receive the plate 8, but the upper lug 12 is extended at an obtuse angle to the body of the barrier-plate, in order to place it in such position that
 5 its bolt-hole can properly receive the bolt 7. The longitudinal curvature of the perforated barrier-plate places the end portions 16 thereof against, or near to, the fire-back, while the
 10 main body portion of the plate swells rearwardly, or in a direction away from the fire-back, and thus provides a chamber 17 which diminishes in dimensions from the center of the barrier-plate toward the extremities 16 thereof.

15 The perforations in the barrier-plate are very numerous, and are disposed throughout the body of the plate from the upper to the lower edge portions, and from one end to the opposite end. The numerous perforations are
 20 very important, in that while the barrier-plate impedes or obstructs the direct radiation of the intense heat of the fire-back, it does not unduly confine the heat in proximity to the fire-back.

25 It has been heretofore proposed to place a plate in rear of a fire-back, but the main body of the plate in the prior construction was imperforate, and consequently an extended imperforate surface in rear of the fire-back was
 30 the result. The prior plate, of the character alluded to, was designed to secure a circulation of air against the hot fire-back and through the oven-chamber. In a large measure, an extended imperforate surface confines
 35 the heat in close proximity to the fire-back and eventually destroys the latter, or damages it seriously. Further, in the prior construction, the plate is a permanent fixture of the stove, and in fact an integral portion either
 40 of the fire-back or of the oven wall, and consequently the plate could not be removed and replaced, or detached for the substitution therefor of a new plate if occasion should demand.

45 In my invention the longitudinal, curved barrier-plate, with its numerous perforations and projecting ears or lugs, is susceptible of being conveniently and rapidly removed for repairs, or whenever circumstances require
 50 the detachment thereof for any purpose whatever, or for the substitution therefor of a new barrier-plate if occasion should demand.

The improved barrier-plate invented by me occupies very little space, and consequently
 55 all available oven-space is utilized. If the improved barrier-plate is detached, it in no way leaves the oven incomplete. It is an independent fixture, and not a permanent part of either the fire-back or the oven wall. It
 60 can be cast as a separate article and applied to a stove already in existence.

I have illustrated the improved barrier-plate as formed with projecting ears or lugs at its upper and lower edges about midway
 65 between its length, for the purpose of receiving bolts 7 and 8, which aid in securing the fire-back in position. I do not, however,

confine myself to this particular means of detachably securing the barrier-plate in position, as many simple ways of supporting the
 70 barrier-plate, so that it can be attached and detached, will suggest themselves without further explanation. The construction illustrated in the drawings, however, is much preferable to any other which occurs to me, in
 75 that the ears or lugs, constructed and arranged in the manner described and shown, render it possible to detachably secure the barrier-plate in position through the medium
 80 of the bolts which serve to secure the detachable fire-back in place.

As the barrier-plate is composed of a single casting it can be very economically manufactured, and the numerous perforations can
 85 be made during the casting operation, so that no expense follows the provision of the many perforations necessary to secure the desired result.

The profusely perforated barrier-plate impedes or obstructs the direct radiation of
 90 intense heat from the fire-back upon the bread, or other article being baked or cooked in the oven, so that the bread, or other article, will not be burned, or overheated on the top surface, or at the sides or ends most exposed to
 95 ward the fire-back.

The perforations in the barrier-plate are counter-sunk to facilitate the casting of the barrier-plate, and to render it more efficient
 100 in its heat impeding or obstructing action.

A serious objection to a single plate fire-back, which constitutes a part of the front wall of the oven-chamber, resides in the fact
 105 that intense heat is radiated from the fire-back directly upon the top surface, or the sides or end of the article nearest the fire-back, and therefore the article is burned or overheated at such points. I have discovered that
 110 my improved barrier-plate, possessing the characteristics set forth, effectually avoids the objections stated. I also find that unless the barrier-plate is provided with numerous perforations throughout its body portion it will
 115 not accomplish the desired result, in that it confines the intense heat too constantly near the fire-back and eventually destroys, or seriously damages the latter.

Having thus described my invention, what I claim is—

1. The combination with the single plate
 120 fire-back, and the oven-chamber of a stove or range, of a removable and replaceable cast metal barrier-plate, constructed entirely separate from the walls of the oven-chamber, arranged in rear of the fire-back and formed
 125 with numerous perforations throughout its body portion for impeding or obstructing the radiation of intense heat from the fire-back without unduly confining the heat in proximity thereto, and devices for detachably
 130 securing the barrier-plate in position, substantially as described.

2. The combination with the walls of an oven-chamber, a fire-back, and bolts securing

the fire-back to a wall of the oven-chamber, of a barrier-plate secured in position by the bolts which secure the fire-back, and constructed with numerous perforations throughout its body portion for impeding or obstructing the radiation of heat from the fire-back without unduly confining the heat in proximity to such fire-back, substantially as described.

3. The combination with the fire-back of a cook stove or range, of a longitudinally curved cast metal barrier-plate constructed entirely separate from the walls of the stove and oven-chamber, detachably supported in rear of the fire-back and formed with numerous perforations throughout its body portion for impeding or obstructing the radiation of intense heat from the fire-back without unduly confining the heat in proximity thereto, substantially as described.

4. The combination with the fire-back of a cook stove or range, of a longitudinally-

curved, profusely-perforated barrier-plate arranged in rear of the fire-back, and formed integral at its upper and lower portions with ears or lugs having bolt-holes to engage bolts which detachably secure the plate in position, substantially as described.

5. The combination with a fire-back, oven walls, and bolts securing the fire-back in position, of a longitudinally-curved, profusely-perforated barrier-plate arranged in rear of the fire-back, and having projecting ears or lugs containing bolt-holes to receive the bolts which secure the fire-back in place, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM WEWERS.

Witnesses:

WM. H. HEIDBREDER,
HERM. HOENER.