This invention relates to improvements in the construction of certain parts of the side walls of an underfeed stoker. Such walls constitute passages or conduits for the air which is delivered to the fuel at or near the top of the side walls. The upper edges of the walls are commonly covered by tuyère blocks which close the upper end of the air passage in the wall and direct the distribution of air to the fuel.

It is one object of my invention to provide improved tuyère blocks for such purposes, together with improved fastening devices therefor, to the end that the blocks may be easily removed and replaced when desired and that they may be more effective in operation.

Another object is to provide an improved support for the tuyère blocks, said support resting upon the side bar of the retort wall, and being effective to admit air to the fuel, as well as supporting the tuyère blocks and conducting air thereto. In connection with this latter object, an important feature of my invention relates to the provision of air admitting plates in said support, by the removal and replacing of which the flow of air through said support may be adjusted.

My invention further relates to arrangements and combinations of parts which will be hereinafter described, and more particularly pointed out in the appended claims. A preferred form of my invention is shown in the drawings in which:

**Fig. 1** is a side elevation of a portion of a retort side wall;  
**Fig. 2** is a plan view of the parts shown in **Fig. 1**;  
**Fig. 3** is an end elevation of several tuyère blocks;  
**Fig. 4** is a sectional elevation taken along the line 4–4 in **Fig. 1**;  
**Fig. 5** is a perspective view of one of the tuyère block supports, with the parts separated, and  
**Fig. 6** is a perspective view of one of the tuyère blocks.

Referring to the drawings, I have shown a portion of a retort side wall for an underfeed stoker, said wall comprising a side bar 10 upon which are mounted tuyère blocks 11 and the supports therefor.

Each tuyère block 11 is of substantially rectangular shape, with its diagonally opposite end portions bevelled, and with one outer corner rounded off as shown in Figures 2 and 6 to provide a continuous air delivering surface extending from one corner of the block to the diagonally opposite corner thereof. The block 11 is of hollow or box-like form with its lower face open, and is provided with notches or air openings 12 around the lower edge of its continuous outer face. A pocket 13 is formed in each block to receive the head of a bolt 14 or 15 by which the block is held in position. The bottom of the pocket 13 is commonly disposed at an oblique angle to the face of the block, as the fastening bolts 14 and 15 conveniently extend into or through the side bar 10 at the angle indicated in **Fig. 1**. Openings 16 in the side bar may be provided to receive the nuts of the short bolts 14 wherever the use of such bolts is desired.

Each bolt 14 or 15 commonly extends through two tuyère blocks and a second hole or opening 17 is provided near the rear edge of each block through which the bolts may pass. A rectangular opening 18 near the rear inner corner of the block permits passage of air through each block to the block resting thereon.

In my improved construction, the tuyère blocks do not rest directly upon the side bars, but are mounted upon tuyère block supports 20, each support comprising a casing 21, upper and lower air admitting plates 22, and a spacing plate 23. The casing 21 is open at its upper and front sides, and is also provided with an elongated opening 24 in the rear portion of the bottom. Three suitable bolt openings 25 are also provided to receive the bolts 14 or 15.

The plates 22 and 23 are of the same width as the bottom plate of the casing 21, and when in position they leave an open air passage to the tuyère blocks at the rear of the casing, as clearly shown in **Fig. 4**. The blocks 22 are provided with transverse ribs 26 on one face of each block, and the parts are commonly assembled with the ribs 26 engaging the opposite sides of a spacing plate 23.

Air admitting openings are thus provided through the tuyère block supports to the fuel in the retort, the size of which air openings is determined by the height and section of the ribs 26. It is my intention to pro-
vide plates 22 having ribs of different heights and sections so that the air admitted through the supports may be easily adjusted by selecting the most suitable plates 22.

The plates 22 and 23 are all provided with bolt openings corresponding to the openings 25 for the passage of the bolts 14 or 18.

Having thus described the details of construction of my improved structure, the advantages thereof will be readily apparent. The tuyère blocks 11 are securely mounted upon the supports 20, and a clear air passage is provided through the supports to the tuyère blocks. The supports also provide for admission of additional air to the fuel near the top of the side wall, and the amount of air thus admitted may be determined by proper selection of the plates 22. Any one of the tuyère blocks or of the plates in the support may be removed by taking out the bolts extending through those particular parts, without disturbing the arrangement of any other part of the stoker.

Having thus described my invention, it will be evident that changes and modifications can be made therein by those skilled in the art within the spirit and scope thereof as set forth in the claims, and I do not wish to be otherwise limited to the details herein disclosed, but what I claim is:

1. In an underfeed stoker, a side bar, tuyère block supports mounted thereon, said supports each comprising a casing open at one side, an air admitting plate provided with ribs or corrugations on its surface mounted in said casing, said casing and plate being so arranged as to permit the feeding of air laterally to the fuel in the retort and tuyère blocks disposed above said supports, said blocks being assembled in overlapping relation to form a substantially continuous inclined air admitting structure receiving air from said side bar through said supports.

2. In an underfeed stoker, a plurality of tuyère blocks and a tuyère block support comprising a casing and an air admitting plate removably mounted therein and supporting said blocks.

3. In an underfeed stoker, a plurality of tuyère blocks and a tuyère block support comprising a casing and air-admitting plates removably mounted therein and supporting said blocks.

4. In an underfeed stoker, a retort side bar, tuyère block supports mounted thereon and each comprising a casing and air-admitting plates disposed therein, a plurality of tuyère blocks resting on said supports, and means to secure said parts together.

5. In an underfeed stoker, a tuyère block support comprising a casing, upper and lower air-admitting plates, and a spacing plate disposed between said air-admitting plates.

6. In an underfeed stoker, a tuyère block support comprising a casing having an open top and side and an air opening in the bottom thereof, a pair of plates having ribbed air-admitting surfaces, and a spacing plate separating said air-admitting plates.

7. In an underfeed stoker, a tuyère block support comprising a box-like casing open at the top and one side and having an air passage through the bottom, air-admitting plates positioned within said casing, said plates being of less width than the casing and being transversely ribbed, and a spacing plate disposed between said first mentioned plates and engaged by said transverse ribs.

8. In an underfeed stoker having a side wall, a tuyère block support forming itself a direct air-admitting portion of the side wall of said stoker comprising removably mounted transversely ribbed air-admitting plates.

9. In an underfeed stoker having a side wall, a tuyère block support forming itself a direct air-admitting portion of the side wall of said stoker comprising removably mounted transversely ribbed air-admitting plates, and a spacing plate separating adjacent ribbed surfaces of said plates.

10. In an underfeed stoker having a side wall, a plurality of tuyère blocks, and a tuyère block support therefor forming in itself a direct air-admitting portion of the side wall of said stoker having air passages discharging laterally from said side wall into said stoker retort below the tuyère blocks.

11. In an underfeed stoker having a side wall, a plurality of tuyère blocks and a tuyère block support therefor forming in itself a direct air-admitting portion of the side wall of said stoker having air passages discharging laterally from said side wall into said stoker retort and having an additional air passage delivering air to the tuyère blocks.

In testimony whereof I have hereunto affixed my signature.

ROBERT SANFORD RILEY.