Jan. 23, 1951 S. M. KASS 2,539,140

COKE BREAKING GRILL

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Fig. 1.

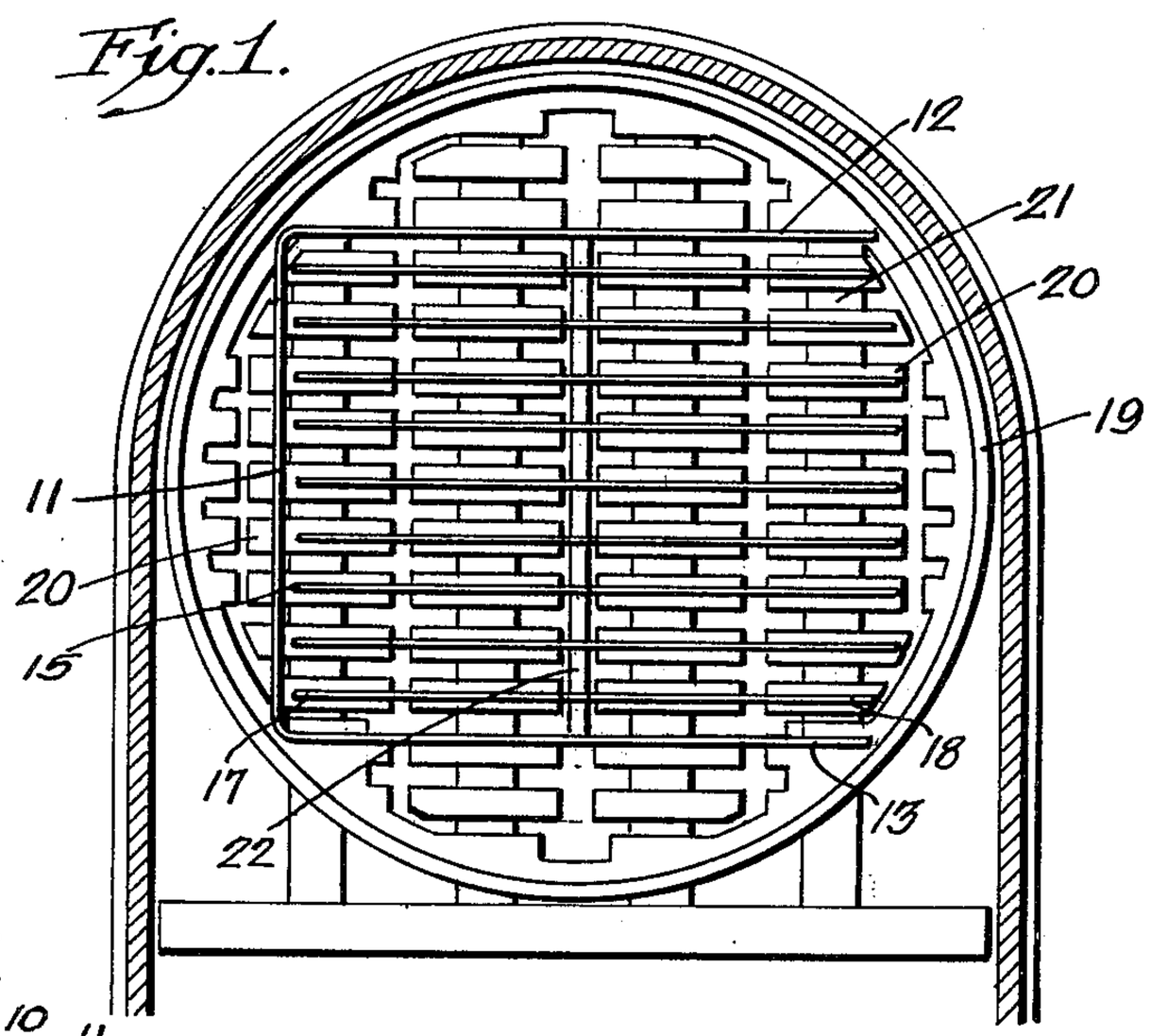


Fig. 2.

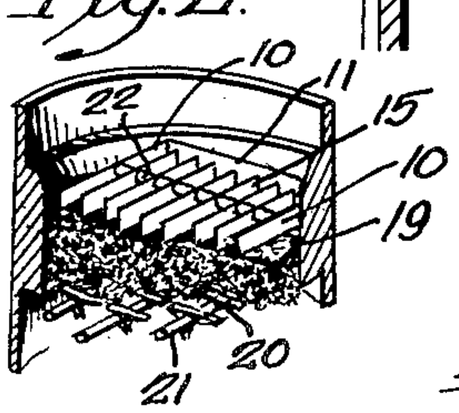
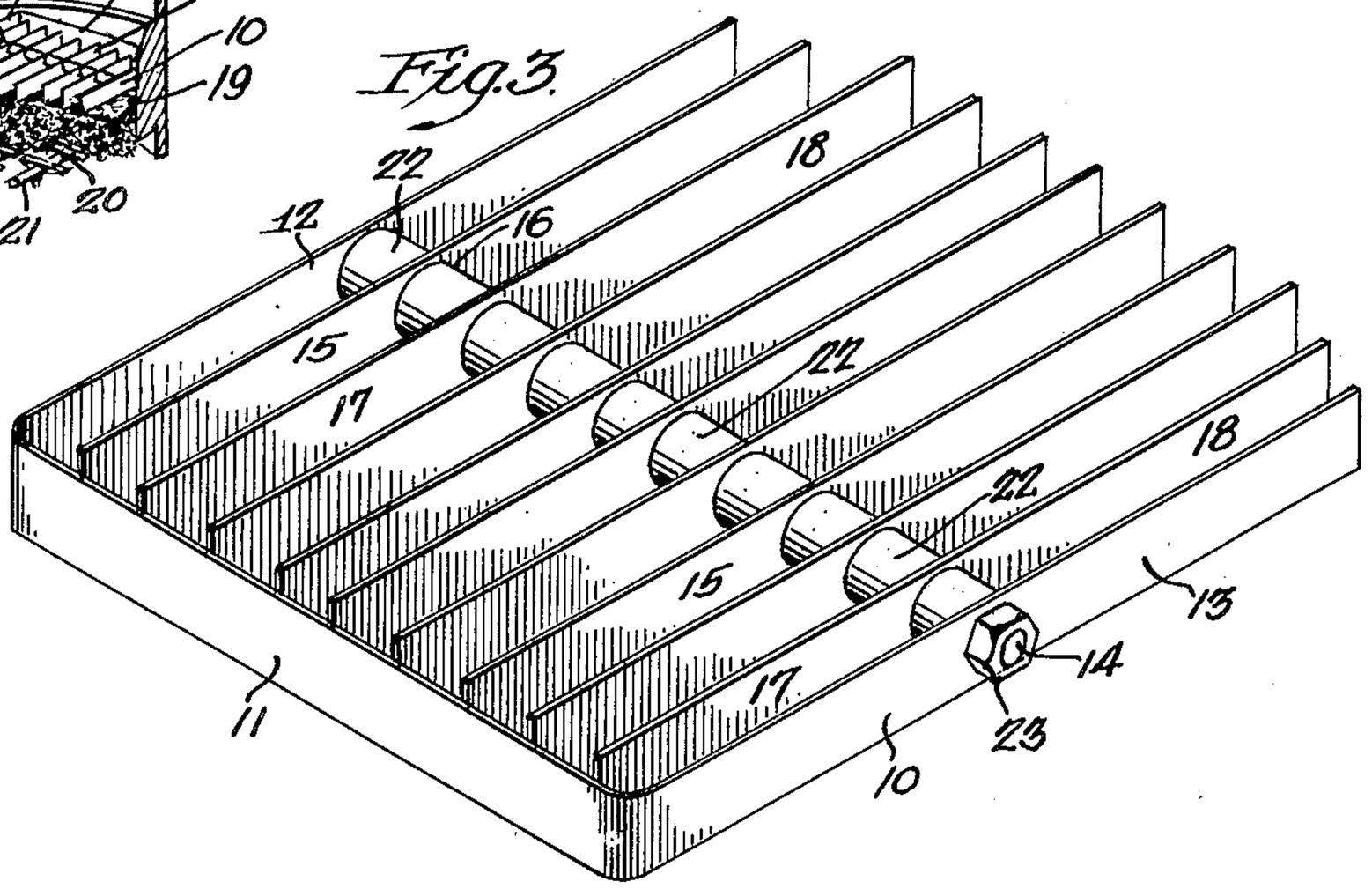


Fig. 3.



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COKE BREAKING GRILL

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2 Claims. (Cl. 126—173)

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My invention relates to a coke breaking grill for coal burning furnaces.

The main purpose of my invention is to provide a coke breaking grill which can be placed in a furnace above or on the usual grate structure.

A further purpose is to construct a coke breaking grill with independently pivoted grill bars.

A further purpose is to provide a coke breaking grill having independently pivoting grill bars attached to a supporting structure which acts as a bearing for the pivoted hinged bars.

A further purpose is to utilize a coke breaking grill in which the grill members are pivoted for swinging movement up and down with respect to a continuous frame member, the whole structure being capable of placement as a unit, within a furnace and above the usual grate of the furnace.

Further purposes appear in the specification and in the claims.

Referring to the drawings:

In Figure 1 I have illustrated a fragmentary sectional plan view of a usual coal burning furnace with my coke breaking grill in place within the fire box of the furnace and above the normal grate structure.

Figure 2 is a fragmentary perspective view of a furnace fire box showing my coke breaking grill above the fire bed which is supported upon the normal grate within the fire box.

Figure 3 is a perspective view of my coke breaking grill.

I have preferred to illustrate my invention as showing one form only of the many variations which may be employed. My coke breaking grill can be placed for example within a warm air furnace as of the type shown in the patent to John William Westwick, Sr., No. 1,696,067, dated December 18, 1928, or in any other suitable solid fuel grate type furnace.

The above mentioned patent shows a shaking device which is operated by a lever and link construction from without the furnace.

I have discovered that in burning coal within a coal burning furnace when small sizes of anthracite coal are used, in many instances considerable clinkers form within the fire box.

My invention is directed to overcoming the objection stated above and I have had considerable success in burning coal of small sizes by placing in the fire pot on top or beneath or within the fire bed my coke breaking grill.

The reason for the success in burning coal of

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this character or in preventing clinkers in forming is that by the use of my improved coke breaking grill considerably more agitation of the fire bed takes place when grill bars are moved when the shaking operation occurs.

My grill unit in the present showing comprises a supporting frame 10 of U-shaped formation. This frame 10 comprises an end bar 11 and side bars 12 and 13. Intermediate the length of the bars 12 and 13 I pivot a transverse shaft 14 on which is mounted individual grill bars 15 pivoted at 16 to the shaft 14. The grill bars are capable of swinging movement up and down. The ends 17 and 18 of the swinging bars will assume different positions according to the amount of fuel in the fire box and when one bar is raised another one may be lowered or vice versa.

The agitation of the bars within the furnace box 19 will of course be provided by agitation of the grate bars 20 which are pivoted at 21 and operated from a shaker structure not shown. In other words, when the grate bars of the furnace are moved up and down, the grill bars of the coke breaking grill will be made up and down in see-saw motion.

The grill bars 15 may be spaced from one another by collars or dividing sleeves 22. The frame members 12, the collars 22 and grill bars 15 may be fastened together by placing a nut 23 upon the end of the shaft 14. Of course, the opposite end of the shaft may be secured in place in the same manner if desired.

While I have described my invention as being useful for small sizes of coal, it will be evident that the coke breaking grill would also be adaptable for larger sizes of coal if so desired.

If at any time the coke breaking grill should work its way down to close contact with the normal grate structure, it would not make any difference because in any event more agitation would be provided because of the additional movement of the grill bars.

It will be evident that the grill bars 15 will be free to swing under shifting of the level of the fire bed, or to adjust to accumulated unevenness in the fire bed, and also to shift in response to the "earthquake" like upheaval of the fire bed which occurs during shaking of the main grate. To accomplish this purpose the nut 23 will not be tightened sufficiently to lock the grill bars, or will be riveted in a partially tightened position, or the collars 22 will be provided with spacing means to prevent undue locking of the grill bars.

In view of my invention and disclosure varia-

tions and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the structure shown, and I, therefore, claim all such insofar as they fall within the reasonable spirit and scope of my claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a fuel burning furnace, a main grate having shaker bars in combination with a coke breaking grill positioned parallel to the main grate in the fire box and adapted to rest on the fire bed above the main grate and independent thereof, and including horizontally pivoted bars side by side which are free on the pivot and adapted to move during upheaval of the fire bed incident to shaking of the shaker bars.

2. A coke breaking grill wholly separate from attachment to other parts, comprising a U-shaped strip having arms of the U and a base of the U, a plurality of spaced grill bars generally parallel to one another and generally parallel to the arms of the U and positioned at spaced intervals between the arms of the U, free at their outer and inner ends and their inner ends adjoining the base of the U, and a pivot extending through the arms of the U and independently pivotally supporting the grill bars.

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The following references are of record in the file of this patent:

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