Sept. 24, 1946. H. F. LAWRENCE 2,408,321

STOKER

Filed Dec. 4, 1943

Fig. 1

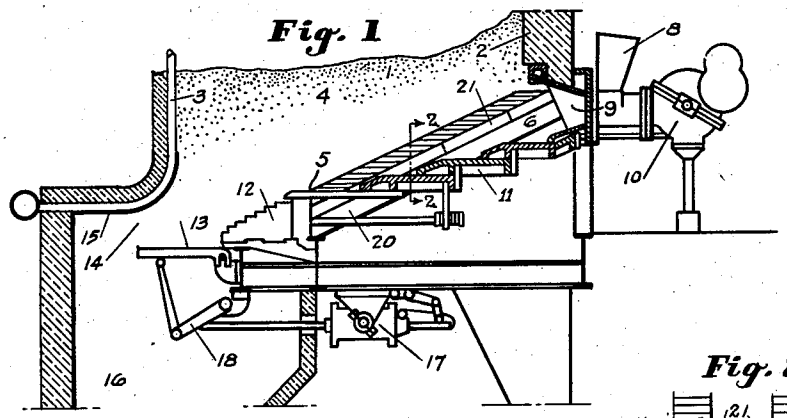


Fig. 2

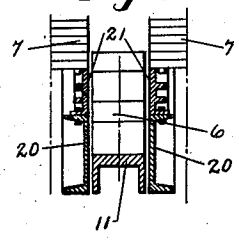


Fig. 3

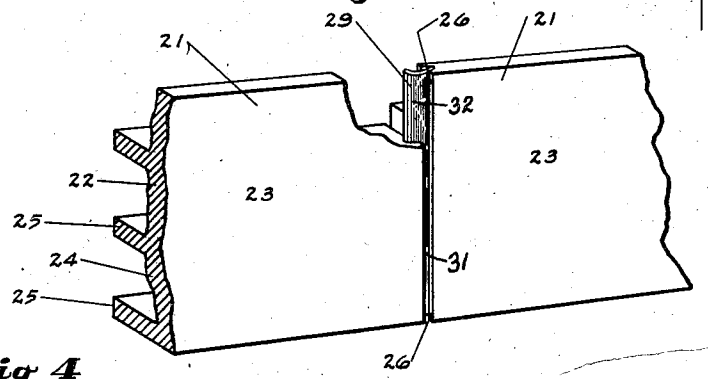


Fig 4

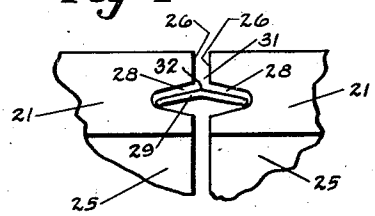


Fig 6

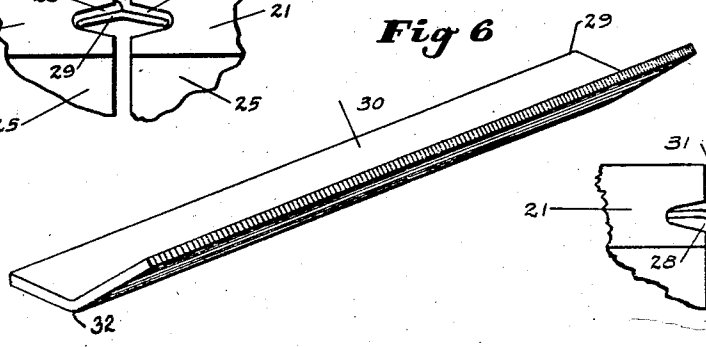
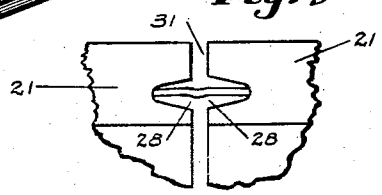


Fig. 5



Inventor
Howard F Lawrence
By Carl O. Gibbs
Attorney

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UNITED STATES PATENT OFFICE

2,408,321

STOKER

Howard F. Lawrence, Philadelphia, Pa., assignor, by mesne assignments, to American Engineering Company, Philadelphia, Pa., a corporation of Pennsylvania

Application December 4, 1943, Serial No. 512,955

1 Claim. (Cl. 110—44)

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This invention relates to stokers and more particularly to stokers of the underfeed type.

In stoker mechanisms of the underfeed type fuel is fed along relatively deep troughs or retorts which, in some instances, become progressively shallower from front to rear of the stoker. The fuel entering these retorts overflows to the tuyères disposed at the sides thereof and through which the combustion air is supplied to the fuel bed. Feeding mechanisms underfeed the fuel along the retorts to extension grates or dump plates from which it is fed to a place of disposal. In devices of this kind, it is highly important that the retorts be sealed against the admission of air; otherwise combustion would take place in the retorts and consequently serious damage may result to the walls thereof as well as to the fuel feeding mechanism.

A primary object of the present invention is to provide a sectional retort construction which permits expansion and contraction of the various sections thereof and at the same time effectively seals the joints between the sections against the influx of air.

Another object is to provide a simple and economic sealing means between the sections of stoker retort side walls which effectively prevents the influx of air into the retorts.

Other and further objects of the invention will become apparent as the description thereof progresses.

Of the drawing:

Fig. 1 is a longitudinal sectional view taken through one of the retorts of a stoker.

Fig. 2 is a sectional view taken substantially along line 2—2 of Fig. 1.

Fig. 3 is an enlarged view of a pair of adjoining sections of a retort structure showing the sealing means disposed therebetween with parts broken away to show more clearly the arrangement of the sealing means and the retort sections proper.

Fig. 4 is a fragmentary top view of a pair of abutting retort sections taken immediately following insertion of the sealing means between the sections.

Fig. 5 is a view similar to Fig. 4 showing the sealing means after it has been extended into operative position, and,

Fig. 6 is a perspective view showing the structure of the sealing means.

Referring to the drawing, the numeral 1 indicates a furnace comprising front, rear and side walls 2, 3 and 4 respectively, only one of the side walls 4 being shown. A stoker 5 of the inclined

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grate underfeed type is provided in the furnace, and comprises alternately disposed retorts 6 and tuyère rows 7. Fuel from hoppers 8 mounted exteriorly of the front wall 2 is fed to the retorts through an opening 9 provided in the front wall by any suitable power feeding mechanism indicated generally at 10. Pushers 11 mounted in the bottom of the retorts 6 feed the fuel therealong to extension grates 12 provided at the rear of the stoker which in turn feed the fuel to dump plates 13. The dump plates 13, in the present construction, are disposed beneath the lower end 15 of rear wall 3. The refuse from the stoker is fed through an opening 14 provided between dump plates 13 and the lower end 15 of wall 3 into an ash pocket 16. The refuse supported on dump plates 13 may be dumped from time to time by any suitable means such as the power means indicated generally at 17 which operates the dump plates 13 through any suitable mechanism such as the link and lever mechanism shown generally at 18.

Each retort 6 of the stoker 5 comprises a pair of spaced longitudinally extending beams 20, each of which has supported thereon a series of sectional plates 21 upon which the tuyères 7 are supported. These plates may be fastened by bolts or by any other suitable means to the longitudinal extending beams 20 as shown in Fig. 2. Each plate 21, as shown more particularly in Figs. 3, 4 and 5, is of rectangular construction and comprises a vertical wall portion 22 having a smooth fuel abutting surface 23. The opposite side 24 of each plate 21 has extending therefrom a series of cooling ribs 25. The abutting edges 26, 26 of the sectional plates 21 are provided with vertical slots 28, 28 for receiving a sealing member 29. Sealing member 29 comprises a relatively long body portion 30 which is bent at the longitudinal center thereof in the form of a broadened V. To assemble the sealing members it is only necessary to insert them into the slots 28 as shown in Fig. 3. To effect a sealed joint the operator simply inserts a bar or other member in the opening 31 provided between the abutting sections 21 and into contact with the apex 32 of the member 29 and then strikes the bar or other member with a hammer or mallet, thereby causing it to extend into the slots 28 as shown in Fig. 4, at which time the opposite edges of the member 29 engage the ends of the slots 28, thereby forming an effective seal.

By this construction an effective seal is maintained under all conditions of operation and consequently a minimum of air is permitted to enter

the retorts. This prevents burning of the fuel in the retorts and as a result damage to the parts is avoided. The sealing members **29** may be constructed of any suitable metal or non-metallic material, preferably of heat resistive, resilient material which will have the faculty of springing into position under impact as previously described.

While the present embodiment is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to limit it thereto since it may be embodied in other forms, all coming within the scope of the claim which follows:

What is claimed is:

A stoker comprising retort walls, each of said walls comprising a series of slightly spaced members arranged in end to end relation, each of said members having a vertical slot provided at each end thereof, and a sealing member of substantially V shape construction insertable in said slots, said sealing members being adapted to be straightened and thereby extended to the inner ends of said slots by impact, thereby effectively sealing the retorts against the influx of air.

HOWARD F. LAWRENCE.