Feb. 14, 1933. T. J. COURTNEY 1,897,112

STOKER GRATE

Filed April 12, 1929 2 Sheets-Sheet 1

Fig. 1.

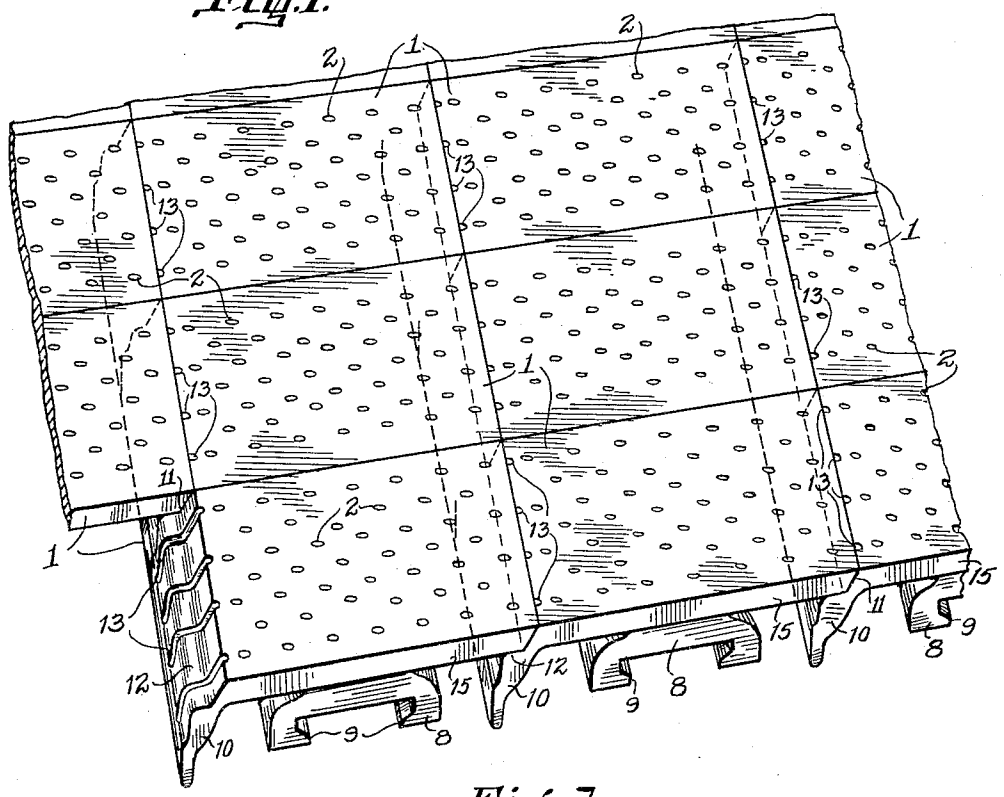
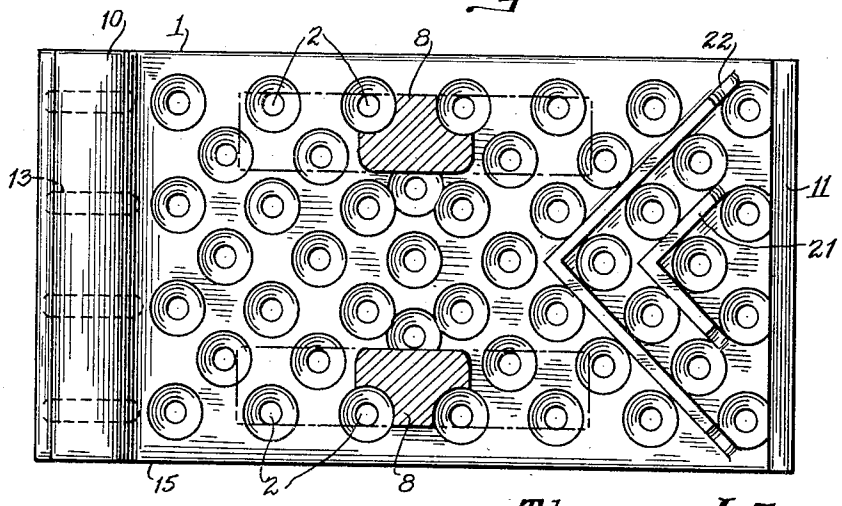


Fig. 2.



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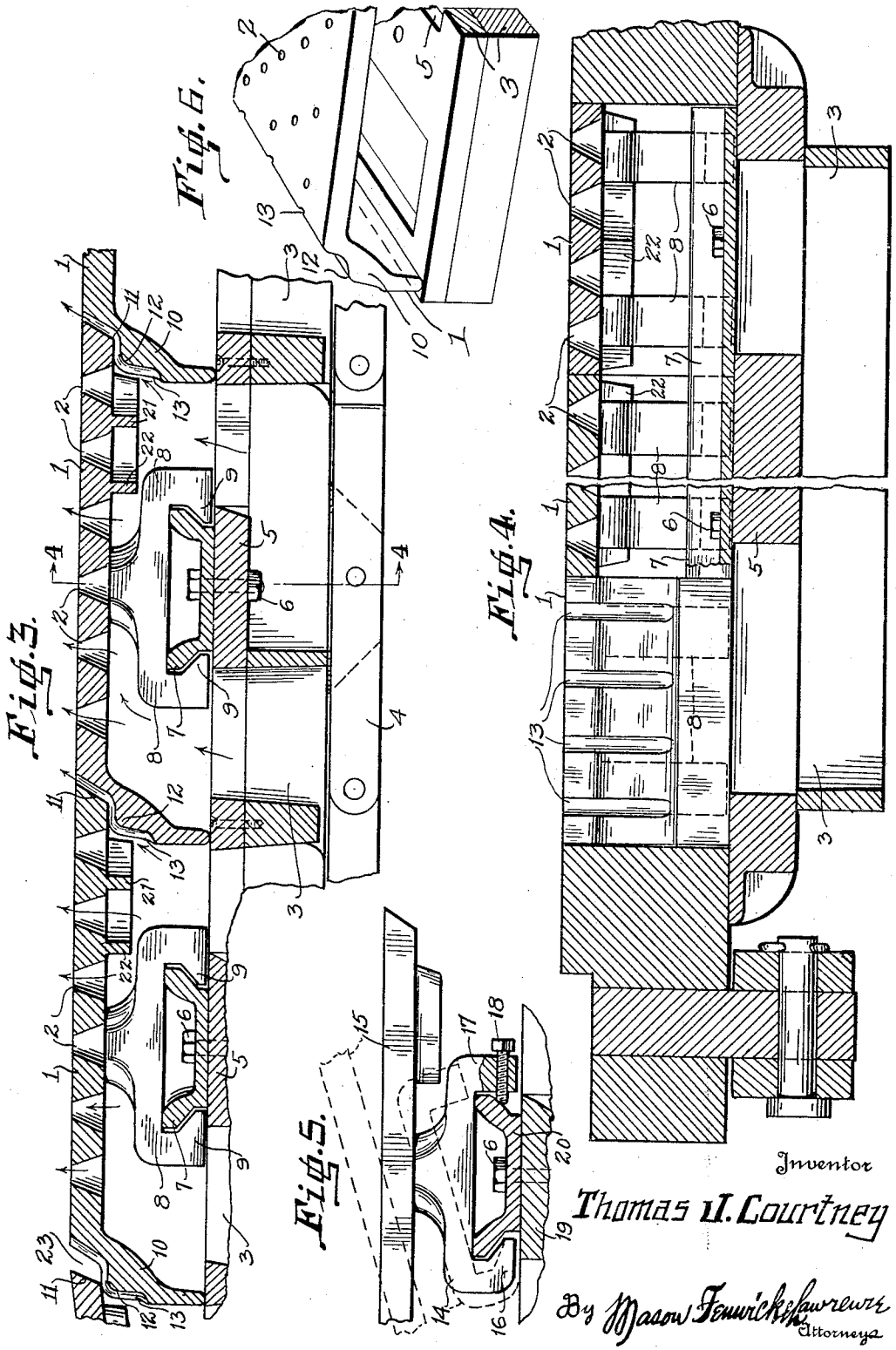

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Patented Feb. 14, 1933 1,897,112

UNITED STATES PATENT OFFICE

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STOKER GRATE

Application filed April 12, 1929. Serial No. 354,615.

This invention relates to improvements in stoker grates, particularly of a type disclosed in the applicant's previous Patents Nos. 1,437,931 and 1,600,868.

A prime object of this invention is to provide a stoker grate section having improved means for detachably connecting with the grate bar, and at the same time allowing the maximum air circulation.

Other objects of this invention will appear from the following detailed description and as disclosed in the two sheets of drawings which are herewith made a part of this application.

In the drawings—

Figure 1 illustrates a perspective view of the stoker grate according to this invention.

Figure 2 represents a bottom plan view of a stoker grate section.

Figure 3 illustrates a vertical sectional view of a portion of a stoker grate disclosing a plurality of grate sections in assembled relationship to each other and the means for connecting them to the grate bar.

Figure 4 represents a sectional view of Figure 3 taken along line 4—4.

Figure 5 represents a vertical sectional view of a modification of this invention in the means for detachably holding the grate sections in connection with the grate bar.

Figure 6 is a perspective view showing the seal between the grate bars and grate sections.

As one embodiment or modification of this invention, it is preferred that numeral 1 designate a stoker grate section having a plurality of openings 2 for the passage of air upwardly, the openings 2 being flared, as clearly disclosed in the figures of drawings.

Numeral 3 designates the grate bar to which is properly secured the chain conveyor 4 which carries the grate sections from one end of the stoker to the other.

The grate bar 3 is provided with a shelf portion 5 having an opening therein for the purpose of receiving a bolt member 6 which functions to hold securely attached to the shelf member 5 a channel elements 7 having flaring sides adapted to inter-engage with T-head portions or feet 8 which may be integrally formed on the grate section 1 or otherwise secured thereto, said feet being provided with inwardly extending portions 9 for the purpose of cooperating with the channel element 7, as shown in Figure 3.

The grate section 1 is not only provided with downwardly extending feet 8, but also with a transversally, downwardly extending flange or seal 10 at the heel end of the grate section, each having suitably formed shoulder portions 12 defining recesses for holding the toe 11 of an adjacent grate section in assembled and operative position.

A plurality of grooves 13 are formed in the downwardly extending flange 10 for the purpose of allowing the air to circulate between two adjacent edges of the stoker grate sections.

As a modification of the stoker grate section, numeral 14 designates a foot extending from the stoker grate section 15, as clearly disclosed in Figure 5, the foot 14 being formed having one of its downwardly extending elements 16 hook shaped, while the opposite downwardly extending element 17 is formed without the hook, but provided with an opening through which a set screw 18 is adapted to extend, and may be so adjusted that the stoker grate section is held firmly in connection with the grate bar 19 and the holding member 20. In order to release the stoker grate section 15 from the grate bar 19, it is merely necessary to retract the set screw 18, as clearly disclosed in Figure 5.

In order to provide efficient reinforcement for the stoker grate section 1, it is preferred that downwardly extending ribs 21 and 22 be integrally formed on the stoker grate section 1, as clearly disclosed in Figure 2.

In operation this invention provides a stoker grate section having many advantages over existing devices. Figure 1 discloses a plurality of stoker grate sections in assembled and operative position, wherein the advantages of the air grooves 13 are clearly apparent, allowing as they do a free circulation of air between the abutting edges of the stoker grate sections as they travel with the chain members. At the same time, as clearly shown in Figure 3, when one of the stoker grate sections is just about to turn at the end

of its horizontal movement, the two adjacent cooperating stoker grate sections are separated and spaced from each other as approximately disclosed in Figure 3 as at 23, the shoulder 12 bridges the space that would otherwise open up, in such a manner that the possibility of coal, ash or other material dropping down below the stoker grate sections is practically eliminated. This is of considerable importance in the operation of an automatic stoker.

Among the other marked advantages of the stoker grate section according to this invention, it may be particularly noted that the downwardly extending feet 8 are formed in such a manner that a free circulation of air passes between and around each foot, and furthermore, the stoker grate sections may be quickly and easily adjusted to the grate bars, as clearly disclosed in Figures 3 and 5 of the drawings, thereby eliminating many of the complications found in the adjustment of the stoker grate sections now in ordinary use.

The downwardly extending flange 10 also lends itself to increased efficiency, for the reason that the usual tail flange is omitted, thereby allowing the free flow of air directly adjacent to the flange 10.

It will be understood that many changes and modifications may be made in the form of the embodiment of the invention within the scope of the following claim without departing from the spirit thereof.

What I claim is:

The herein described stoker grate, comprising adjoining grate bars having a transverse member at one end, grate sections mounted on and spaced above said bars, each grate section being undercut at the end adjoining the other section to form a beveled edge, the adjoining end of the said other section having a downwardly extending flange, the outer surface of which is first inclined downward and outward to fit the undercut end of the first-named grate section, and then extended in a generally downward direction into sealing engagement with said transverse member throughout its length, whereby the spaces directly beneath the grate sections are sealed from the spaces beneath adjoining sections, the grate sections being perforated to permit the passage of air.

In testimony whereof I affix my signature.

THOMAS J. COURTNEY.