

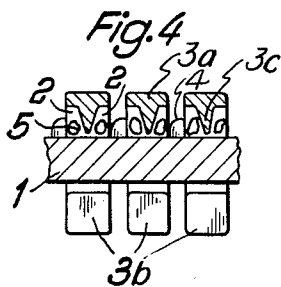
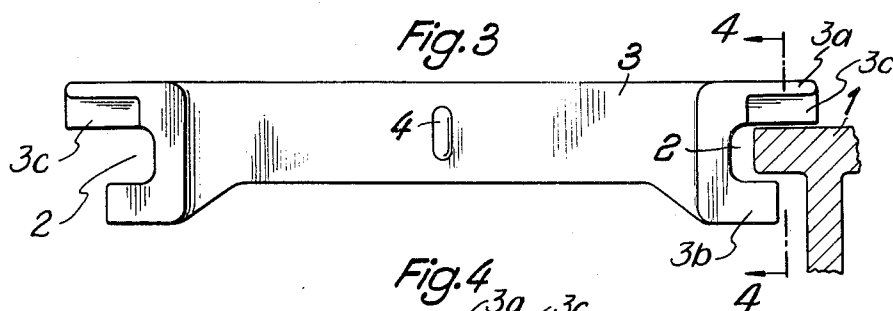
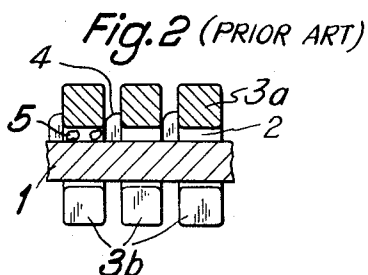
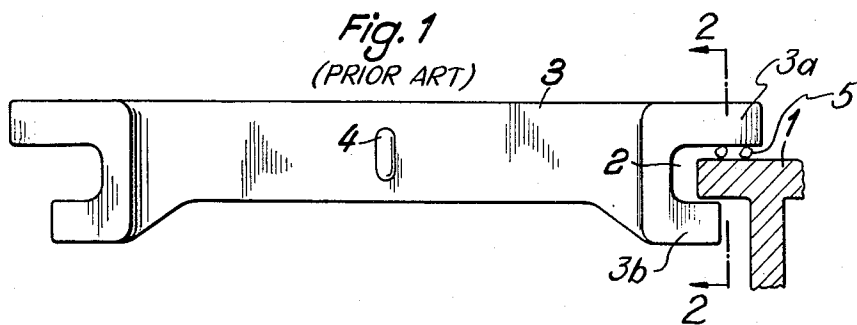
Aug. 16, 1960

W. VEITH

2,949,289

GRATE BAR FOR SINTERING APPARATUS

Filed Jan. 19, 1959



*Inventor:*  
*Werner Veith*

BY *Bailey, Stephens & Huetting*  
ATTORNEYS

1

2,949,289

## GRATE BAR FOR SINTERING APPARATUS

Werner Veith, Frankfurt am Main, Germany, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

Filed Jan. 19, 1959, Ser. No. 787,666

Claims priority, application Germany Feb. 1, 1958

3 Claims. (Cl. 266—21)

This invention relates to grate bars for sintering apparatus and, in particular, to grate bars for sintering carriages or bands.

In grates which move along the sintering apparatus, it is ordinary practice to use grate bars which are movable vertically with respect to their supporting beams. This is so the grate bars can temporarily separate from the beams during the return of the grate from the discharge point to the loading point of the apparatus in order that the grate can be freed automatically of material that may have become lodged in the grate bars. At the loading point, the grate bars drop automatically into their working position in the grate for the reception of raw material.

The object of this invention is to produce a grate bar which cleanses itself of material lodged in a grate.

The means by which the object of the invention is obtained are described more fully with reference to the accompanying drawings, in which:

Figure 1 is a longitudinal side view of a grate bar according to the prior art;

Figure 2 is a cross-sectional view on the line 2—2 of Figure 1;

Figure 3 is a longitudinal side view of a grate bar according to this invention; and

Figure 4 is a cross-sectional view on the line 4—4 of Figure 3.

The prior art grate bar of Figure 1 is supported at its ends upon a grate supporting beam 1. The ends of the grate bar are bifurcated or forked to form a recess 2 at the ends of the grate bar 3. The legs 3a and 3b of the forked end are spaced such a distance that the width of the recess 2 is greater than the supporting flat surfaced flange of beam 1. At the center of the body 3 is a boss 4 which serves to space uniformly adjacent grate bars so that gas can pass through the grate. This construction has the disadvantage in that lumps of sintered material or other matter become lodged under the legs 3a and prevent the bars from dropping into their proper positions at the charging end of the apparatus. Such lodged pieces of material 5 are indicated in Figures 1 and 2 and prevent the grate bars from forming a smooth bed surface.

An attempt has been made to overcome this trouble by using a press roller for giving the grate bars a down-

2

ward thrust in addition to their natural weight so that the bars are pressed into working position when a foreign particle has become lodged beneath the forked legs. This expedient is successful only when the particles are sufficiently soft, as to be readily crushed, and thus does not remedy the problem for all materials. Such other materials as cement clinker and iron ore clinkers are not readily crushed and will cause the grate bars to fracture when pressed, especially when the bars are made of cast iron.

According to this invention, one leg of the fork is wedged shaped, with the apex of the wedge being directed toward the flange of the supporting beam. As shown in Figures 3 and 4, the body 3 of the grate bar has a forked end with the legs 3a and 3b. However, leg 3a has a wedge-shaped cross-section so as to present a sharp bearing edge against the flange of beam 1. By reason of the wedge 3c, any lumps of material 5 which are encountered as the bar drops into operating position are readily pushed aside and will drop out of the grate in the spaces between adjacent bars. This effectively eliminates the forming of an uneven grate bed surface and the danger of fracturing the bars by pressing on the same.

The wedge angle of wedge 3c is as acute as working conditions and the required mechanical strength will permit. The angle is effective between 20° and 50°, with an angle of 30° being preferred.

This wedge-shaped support for the grate bar has the further advantage in that the transfer of heat is restricted from the bar to supporting beam 1 and hence to the frame of the sintering apparatus. This permits the use of beams 1 made of ordinary grey cast iron even though the sinter bed is operating at very high temperatures which heretofore required supporting beams composed of high-cost, heat-resistant alloys.

Having now described the means by which the object of the invention is obtained,

I claim:

1. A grate for a sintering apparatus comprising supporting beams having flat surfaced grate bar supporting flanges, a grate bar supported upon said beams and composed of an elongated body, forked end portions on said body with the distance between the forks at each end, respectively, being greater than the thickness of the flange of the beam it engages, and one leg of each fork having a wedge-shaped cross-section with the apex of the wedge directed toward the opposite leg of the fork and being unenclosed and in engagement with the flat supporting surface of said flange.

2. A grate as in claim 1, said leg with a wedge-shaped cross-section having a wedge angle of from 20° to 50°.

3. A grate as in claim 1, said leg with a wedge-shaped cross-section having a wedge angle of 30°.

### References Cited in the file of this patent

#### UNITED STATES PATENTS

1,807,154 Ekstedt ----- May 26, 1931

#### FOREIGN PATENTS

719,998 Great Britain ----- Dec. 8, 1954