(No Model.) 2 Sheets—Sheet 1.

C. A. TILLOY.

GRATE BAR.

No. 490,932. Patented Jan. 31, 1893.

FIG. 1.

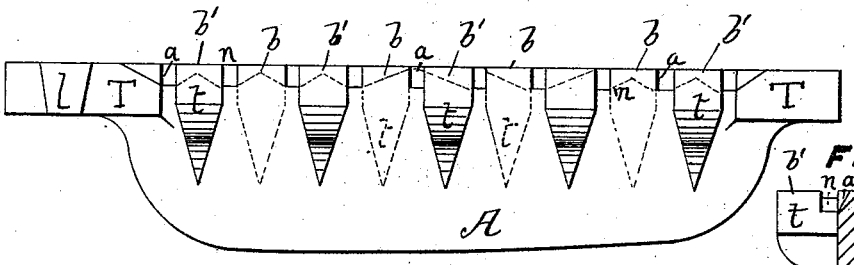


FIG. 2.

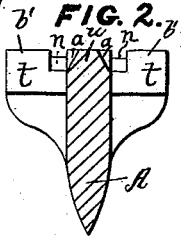


FIG. 3.

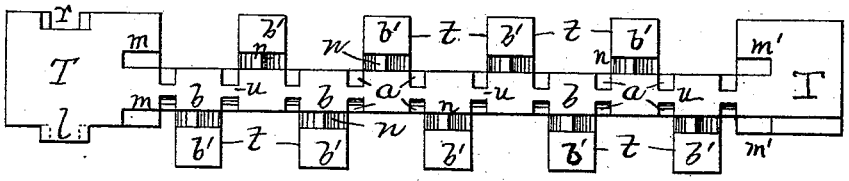
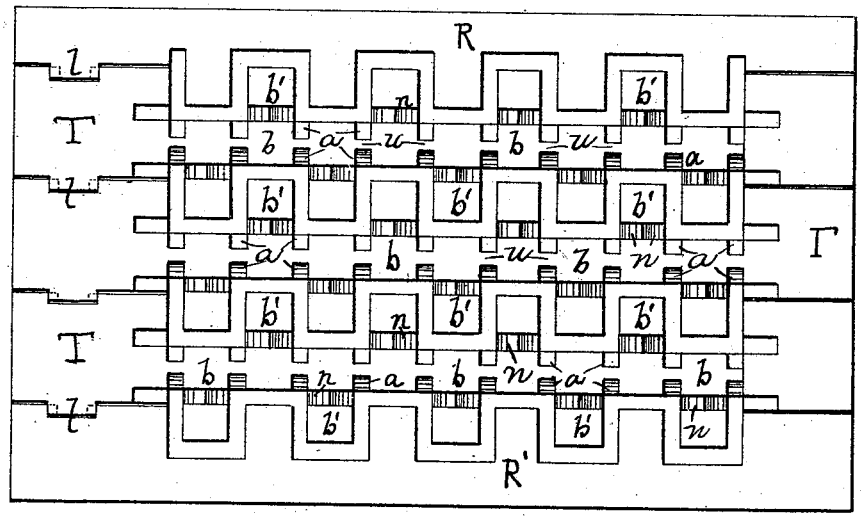


FIG. 4.



WITNESSES:

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(No Model.) 2 Sheets—Sheet 2.

C. A. TILLOY.

GRATE BAR.

No. 490,932. Patented Jan. 31, 1893.

FIG. 5.

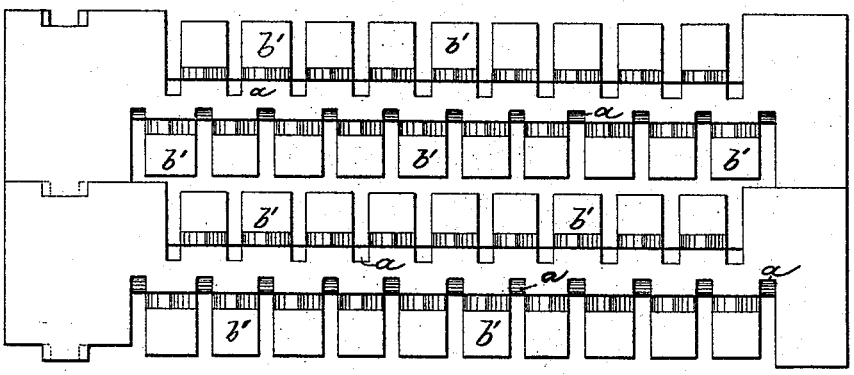
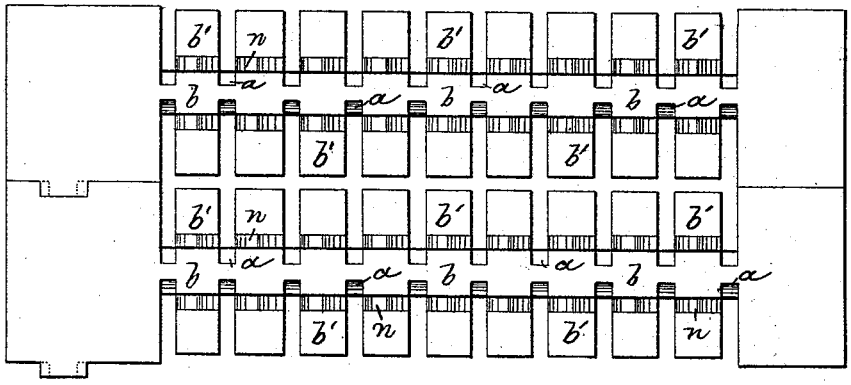


FIG. 6.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES ALBERT TILLOY, OF LILLE, FRANCE.

GRATE-BAR.

SPECIFICATION forming part of Letters Patent No. 490,932, dated January 31, 1893.

Application filed May 14, 1892. Serial No. 433,039. (No model.) Patented in France June 29, 1889, No. 199,265; in Belgium May 8, 1890, No. 90,481; in England August 11, 1890, No. 12,557; in Germany August 14, 1890, No. 29,263, and in Austria-Hungary December 3, 1890, No. 36,824.

To all whom it may concern:

Be it known that I, CHARLES ALBERT TILLOY, manufacturer, a citizen of the Republic of France, residing at Lille, (Nord,) France, have invented certain new and useful Improvements in Grate-Bars, (for which I have obtained Letters Patent in France, dated June 29, 1889, No. 199,265; in Belgium, dated May 8, 1890, No. 90,481; in Great Britain, dated August 11, 1890, No. 12,557; in Germany, dated August 14, 1890, No. 29,263, and in Austria-Hungary, dated December 3, 1890, No. 36,824,)of which the following is a specification.

The object of this invention is to provide a new form of grate bar by which the air to support combustion is distributed in a more efficient manner than heretofore.

In the accompanying drawings:—Figure 1 is a side elevation of the improved grate bar;—Fig. 2 is a cross-section, and Fig. 3, a plan view of the same. Fig. 4 is a plan view of a grate formed with the improved bar; and Figs. 5 and 6 are plan views of a portion of a grate showing slight modifications.

As may be seen by Figs. 1. 2. 3 and 4, the bar is composed of a body A, of appropriate section, the upper edge of which is formed with notches, grooves, or slits *a*, at intervals, on its whole length. The notches, grooves, or slits *a*, when formed, will leave square or rectangular full portions *b*, which will form the bearing surface of the bars.—The bottom of each notch *a* has a single or double incline, to facilitate the falling of the cinders, which might otherwise obstruct the openings, and also to impart to the air, or other aid to combustion, a direction favorable to the penetrating of the combustible materials.—As to the depth of the inclines, it is optional, so long, however, as it is not too great to affect the solidity of the bars.

The body or central part A of the bar, is provided with lateral projections *t*, arranged alternately on opposite sides of the bar, and having transverse inclined portions *n*, that is to say, longitudinally of the bar.—The inclines *n* leave square or rectangular portions *b'* on the upper surface of the lateral projections *t*, similar to the portions *b* on the main bar A. The inclines *a*. of the bar, will be so formed as to leave a flat portion *u* on the surface of the bar, to form a flat path for the rake, when cleaning the fire, and prevent the rake being stopped in the movement.—Finally, one of ends, T, of the bar, is formed on one side with a recess or rabbet *r*, and in the other with a projection or tongue *l*.,—both ends having an inclined portion *m*. *m'*.—Several of these bars with projections, when united, form a grate, the arrangement of which is shown in plan view at Fig: 4.—In this figure it will be seen that the projections on the bars interlock, and that the spaces left between the bars are both longitudinal and transverse of the grate.—By this means, a number of small surfaces *b*. *b'*. are produced, which serve to support the fuel,—every part of which is, so to speak, completely surrounded by, and subjected to, the action of, air.—The tongues *l*, and corresponding rabbets *r*. interlocking, prevent any possible longitudinal displacement of the bars, and maintain the spaces which exist between the bars.—Instead of being arranged alternately, the projections *t* may be placed close together, as shown in Figs. 5 and 6.—The side bars R and R' (Fig: 4) have projections only on one side.

The advantages of the improved grate bars may be summed up as follows:—By reason of the many spaces close together, made on the surface of the bars, the air is uniformly distributed through the combustible material; the ashes fall easily into the ashpit, as fast as they are made; and the quantity of clinker is less, so that cleaning is less frequent. As a result, there is an economy of fuel, and the bars last longer.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

A grate bar having a body with a flat upper surface with deep inclined notches *a* at intervals but leaving an unbroken flat portion *u* throughout the length of the bar, and with lateral projections *t* having inclined notches *n* longitudinally of the bar, all substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES ALBERT TILLOY.

Witnesses:

THEODORE EVENS,

CHARLES LANNY, Père.