No. 791,890. PATENTED JUNE 6, 1905.

A. C. FLETCHER.

GRATE BAR.

APPLICATION FILED DEC. 8, 1904.

Fig. 1.

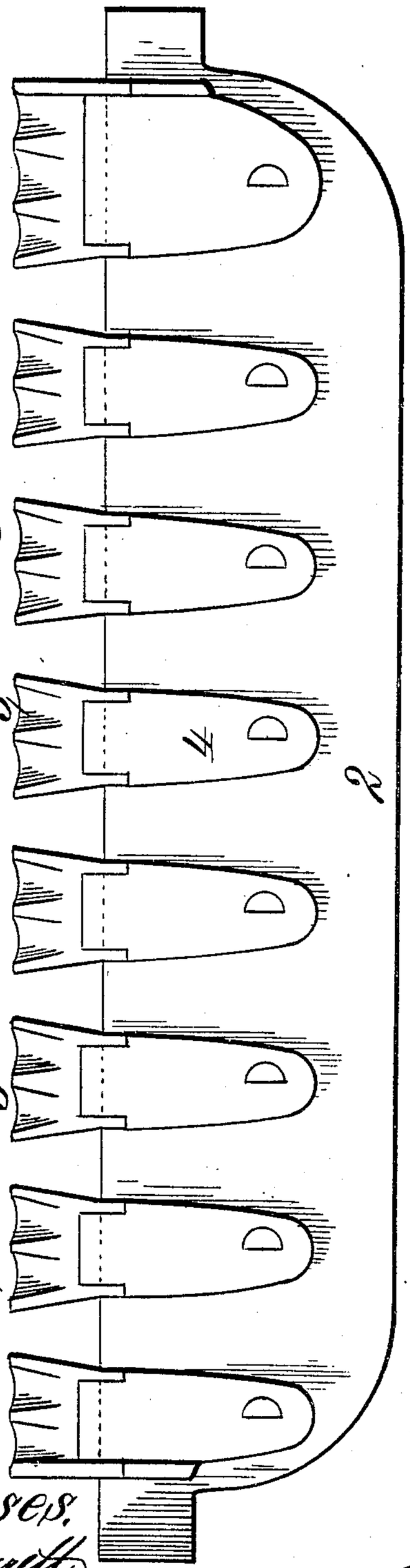


Fig. 3.

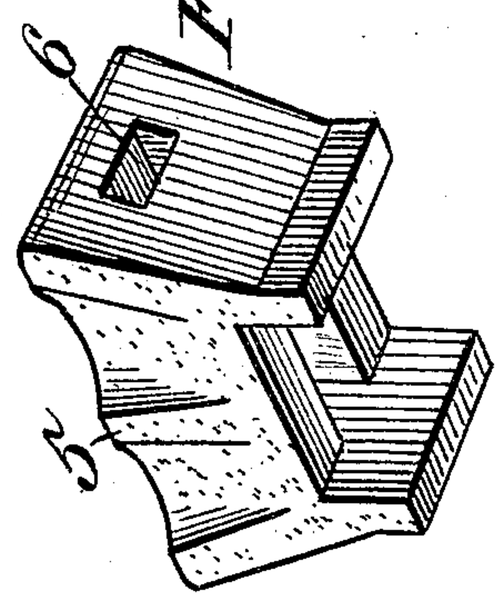
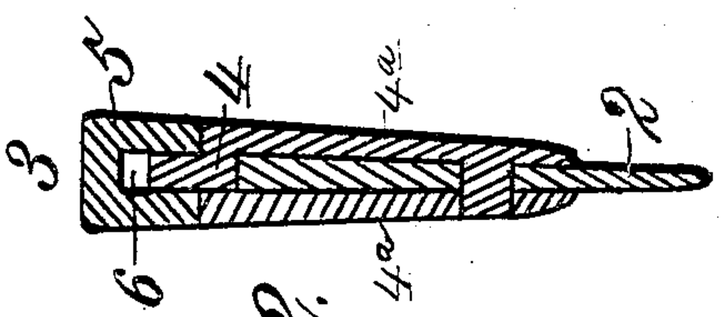


Fig. 2.



Witnesses:
Robert Ewell,
Allen L. Morris, Jr.

Inventor:
Addison C. Fletcher.
By James L. Norris.
Atty.

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UNITED STATES PATENT OFFICE.

ADDISON C. FLETCHER, OF NEW YORK, N. Y.

GRATE-BAR.

SPECIFICATION forming part of Letters Patent No. 791,890, dated June 6, 1905.

Application filed December 8, 1904. Serial No. 235,990.

To all whom it may concern:

Be it known that I, ADDISON C. FLETCHER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Grate-Bars, of which the following is a specification.

This invention relates to grate-bars capable of employment for many different purposes.

My grate-bar consists of a body having a fuel-supporting portion of vitrified material, which may be of any suitable kind, fire-clay being very satisfactory for the purpose. I do not limit myself to any particular construction of bar; but in the drawings accompanying and forming a part of this specification I show a simple and convenient embodiment involving my invention, which I will set forth in detail in the following description.

An objection to grate-bars made wholly of metal is that they fuse at a high heat, so that clinkers will adhere to the fused bar and seriously affect the draft of the furnace or other like device, and consequently the combustion of the fuel in the fire-pot thereof.

Not only will the draft become affected in a short while by grate-bars of the ordinary kind, but ultimately they will be ruined or destroyed. The vitrified material I find to be a non-conductor of heat, so that it protects the body of the grate-bar.

In addition to the advantages pointed out for the novel construction I find that ashes will not adhere to the surface of the improved grate-bar, so that the fire-pot bottom can be readily kept clean to promote the passage of air through the mass of fuel sustained on the bars.

The improved grate-bar hereinafter more particularly described involves a body and a plurality of points carried thereby. The points are separated from each other longitudinally, and each consists of a divided shank and a crown of vitrified material inclosing the upper ends of the sections of said shank and above the upper edge of the body, so as to prevent direct contact of the fuel with the body.

In the drawings, Figure 1 is a side elevation of a grate-bar involving my invention. Fig. 2 is a vertical section through the bar, taken through one of the points thereof and on an enlarged scale. Fig. 3 is a perspective view of the crown of the points shown in Fig. 1.

Like characters refer to like parts throughout the views.

The grate-bar illustrated in Fig. 1 involves in its construction a body, as 2, which is shown as consisting of an elongated plate having gudgeons or journals at its ends to be supported by a suitable frame. (Not illustrated.) Forming a part of the bar and associated in any desirable manner with the body 2 thereof are points, each designated in a general way by 3, each point being illustrated as composed of a shank, as 4, and a crown, as 5, capping the same. The shanks 4 of the points, which, it will be understood, extend longitudinally of the body 2 and are separated from each other, may be made of any suitable material. For example, they may be of cast metal and of divided form. In a contemporaneously-pending application, filed December 8, 1904, Serial No. 235,991, I cover the construction of the point, and hence a detailed description of the same and the body which supports the point is unnecessary.

Each crown 5 is detachably connected with a shank, and this may be secured by a tight fit between the heads of the sections of the shanks and the crowns by driving the latter in place. The shanks are of divided form and are interlocked at vertically-separated points. These features, however, as will be understood, form no part of the present invention. The crowns 5 are of vitrified material, and each has an air-duct, as 6, extending entirely through the same, the disposition of the air-duct in the present case being from what might be considered the front to the rear of the crown, or longitudinally of the body 2. The ducts 6 provide for the passage and circulation of air through the crowns in order to aid in cooling the same.

I deem it expedient to state that the shank of each point consists of two substantially similar sections, each designated by 4^a, the upper ends of which extend above the upper edge of the body and are inclosed by the vitrified crown 5, the latter, as in the contempo-

raneously-pending application to which I have hereinbefore referred, serving to aid in maintainingthe shank-sections in operative relation. I desire to state that I do not claim, broadly, herein an air-duct in a crown, my invention in the present case in this particular respect being in a vitrified crown having an air-duct below its upper surface extending entirely through the same. In the present instance this air-duct extends in the direction of the length of the body of the grate-bar. This, however, is not essential.

Any suitable vitrified material may be employed to form the crowns. For example, fire-clay may be satisfactorily utilized, by reason of which the crowns may be molded to the desired shape and subsequently baked.

It will be understood that the upper surfaces of the crowns constitute the effective portions of the points or that the fuel is supported upon said upper surfaces, so that the heat generated within the fire-box equipped with grate-bars such as that described cannot act directly upon the metallic bodies 2 of the grate-bars. In other words, the crowns serve to protect said bodies 2.

In addition to the advantages pointed out the crowns cannot be fused, as in case they are the clinker in the fuel would adhere thereto and seriously affect the draft of the fire-box and ultimately destroy the bars.

I space or separate the vitrified fuel-supporting members of each bar longitudinally thereof, and therefore provide for the circulation of air freely around each member above its supporting-body.

Having thus described my invention, what I claim is—

1. A grate-bar comprising a body and a plurality of points carried by said body and separated from each other longitudinally thereof, each point consisting of a divided shank and a crown, said crown being composed of vitrified material inclosing the upper ends of the sections of the shank above the upper edge of the body.

2. A grate-bar comprising a body and a plurality of points carried by said body and separated from each other longitudinally thereof, each point consisting of a divided shank and a crown, said crown being composed of vitrified material inclosing the upper ends of the sections of the shank above the upper edge of the body, said crown having an air-duct extending entirely through the same and below its upper surface.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ADDISON C. FLETCHER.

Witnesses:
HEATH SUTHERLAND,
BRUCE S. ELLIOTT.