(No Model.)

G. B. MERSHON.

GRATE.

No. 261,375. Patented July 18, 1882.

Fig. 1.

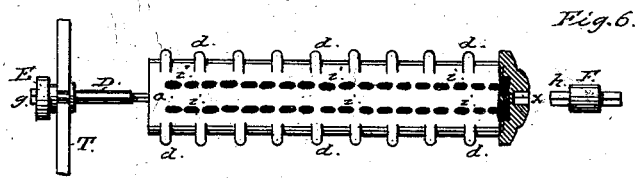

Fig. 6.

Fig. 2.

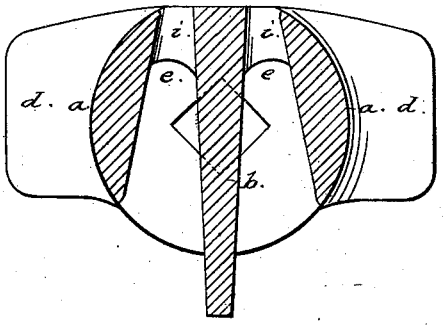

Fig. 3.

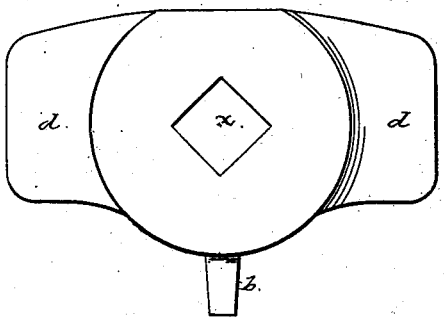

Fig. 5.

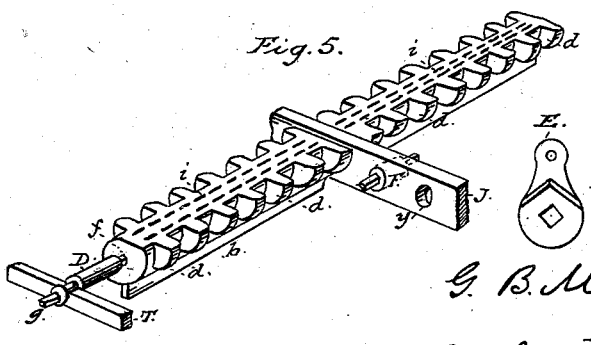

Fig. 4.

Attest;
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Inventor;
G. B. Mershon
By his attorney
Charles E. Foster

UNITED STATES PATENT OFFICE.

GEORGE B. MERSHON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE AMERICAN GRATE BAR COMPANY, OF SAME PLACE.

GRATE.

SPECIFICATION forming part of Letters Patent No. 261,375, dated July 18, 1882.

Application filed May 22, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. MERSHON, of the city and county of Philadelphia, State of Pennsylvania, have invented certain Improvements in Grates, of which the following is a specification.

My invention relates to that class of grates in which the bars are supported so as to be rocked to rake the fire; and my improvements consist in constructing and supporting the bars as fully described hereinafter, so as to secure great strength, rigidity, and durability without correspondingly increasing the weight, and so as to permit a bed of any desired extent to be readily built up of short bar-sections.

In the drawings, Figure 1 is a plan in part section of one of my improved bars. Fig. 2 is a transverse section enlarged. Fig. 3 is an end view. Fig. 4 is a view of one of the crank-arms. Fig. 5 is a perspective view, showing the manner of building up the grate of short bar-sections; and Fig. 6 represents a connecting-shaft.

The bars are cast each in one piece, consisting substantially of three connected sections—viz., two side webs or sections, *a a*, and a central web, *b*, deeper than the side webs, and united to the latter at the top by thin necks *e*, forming two longitudinal grooves at the under side extending nearly to each end. In the necks *e* are longitudinal slots *i*, which, with the top of the rib and outer sides of the side webs, have curved faces, so that the body of the bar is cylindrical. The teeth or lugs *d* project from the side pieces, and the ends of the bar are provided with lugs or necks to fit bearings in the frame; or they may have angular sockets to receive the angular ends *f* of shafts or studs D, which have suitable bearings to fit sockets in the frame T, and angular ends *g* to fit angular openings in detachable pinions or crank-arms E, by means of which the bars may be socketed, as set forth in Letters Patent Nos. 180,616, 193,018, and 213,228, heretofore granted to me.

By constructing the bar as above described—that is, with deep narrow side webs or sections, *a a*, parallel to a central web—I secure great durability and rigidity without proportionate increase in weight, as the sections *a a* *b* impart great stiffness to the bar, enable it to support a heavy load without bending, and prevent it from warping, so that the parts may be cast thinner than heretofore.

It will be seen that the connection between the side pieces and central web, through the necks *e*, is very slight, and that the side lugs or teeth, *d*, are carried mainly by these side pieces, so that the air can pass freely behind such side pieces and up through the slots *i*, thereby preventing the lugs from becoming so overheated as to burn away, which is apt to occur when there is no means of keeping their supports from becoming unduly heated.

Where it is necessary to secure a fire-bed having an extended area, the bars may be made with angular or feathered sockets *x* at their inner ends, adapted to receive corresponding projections, *h*, upon both ends of short shafts or cylinders F, adapted to sockets or bearings *y* in cross-bars J, forming part of or extending across the frame. These shafts F serve as a means of connecting the bar-sections in line with each other, as shown in Fig. 5, and of transmitting motion from one to the other. It will be apparent that by this means any desired number of bars may be arranged in line to build up grates of any desired extent, and that this mode of forming the grate or bed may be pursued with grate-bars of different constructions. It will further be evident that projections or lugs on the ends of the bars may fit sockets in the short shafts F. This construction has the advantage over the use of long bars that it maintains a more level bed, not so likely to sink under the load upon it. It is also more readily and cheaply repaired.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. A revolving grate-bar consisting of three sections, *a a b*, arranged vertically and substantially parallel, and connected at their upper parts by perforated necks *e*, the side sections carrying lugs *d*, substantially as set forth.

2. The combination, in a grate-bar, of a central web, *b*, side webs or sections, *a a*, having curved outer faces arranged substantially parallel to said web, and connected thereto at

the upper edges by perforated necks *e*, and lugs *d*, projecting from said side sections, substantially as specified.

3. The combination, in a grate, of bars arranged in line with each other, and connecting shafts F, supported by a cross-piece, J, the bars and shafts having corresponding angular lugs and sockets, substantially as set forth.

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

GEORGE B. MERSHON.

Witnesses:
CHAS. W. HILLMAN,
ROBERT INGRAM.