No. 835,024. PATENTED NOV. 6, 1906.

A. C. HEPP.

GRATE.

APPLICATION FILED NOV. 16, 1905.

Fig. 1.

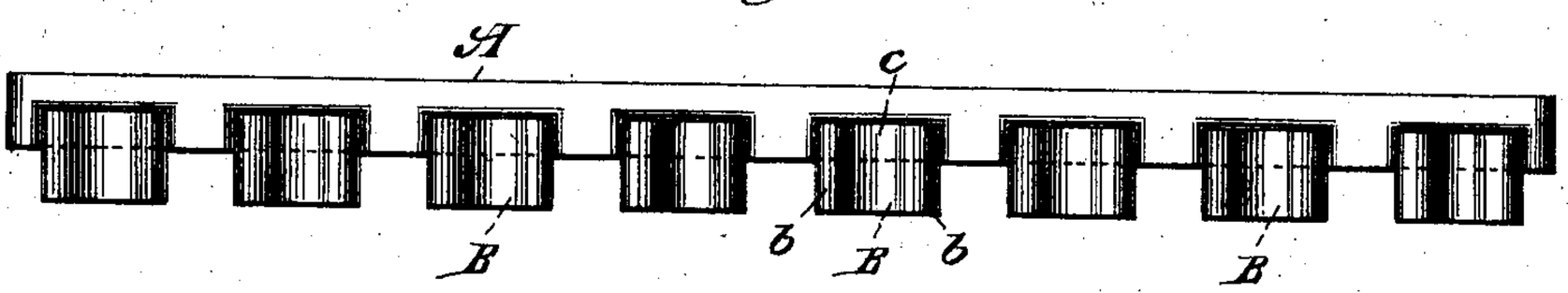


Fig. 2.

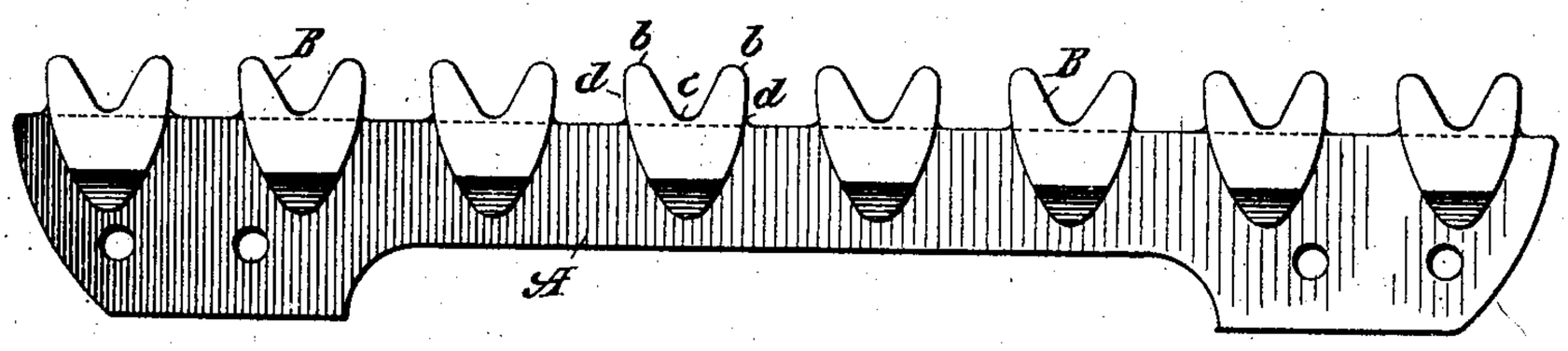


Fig. 3.

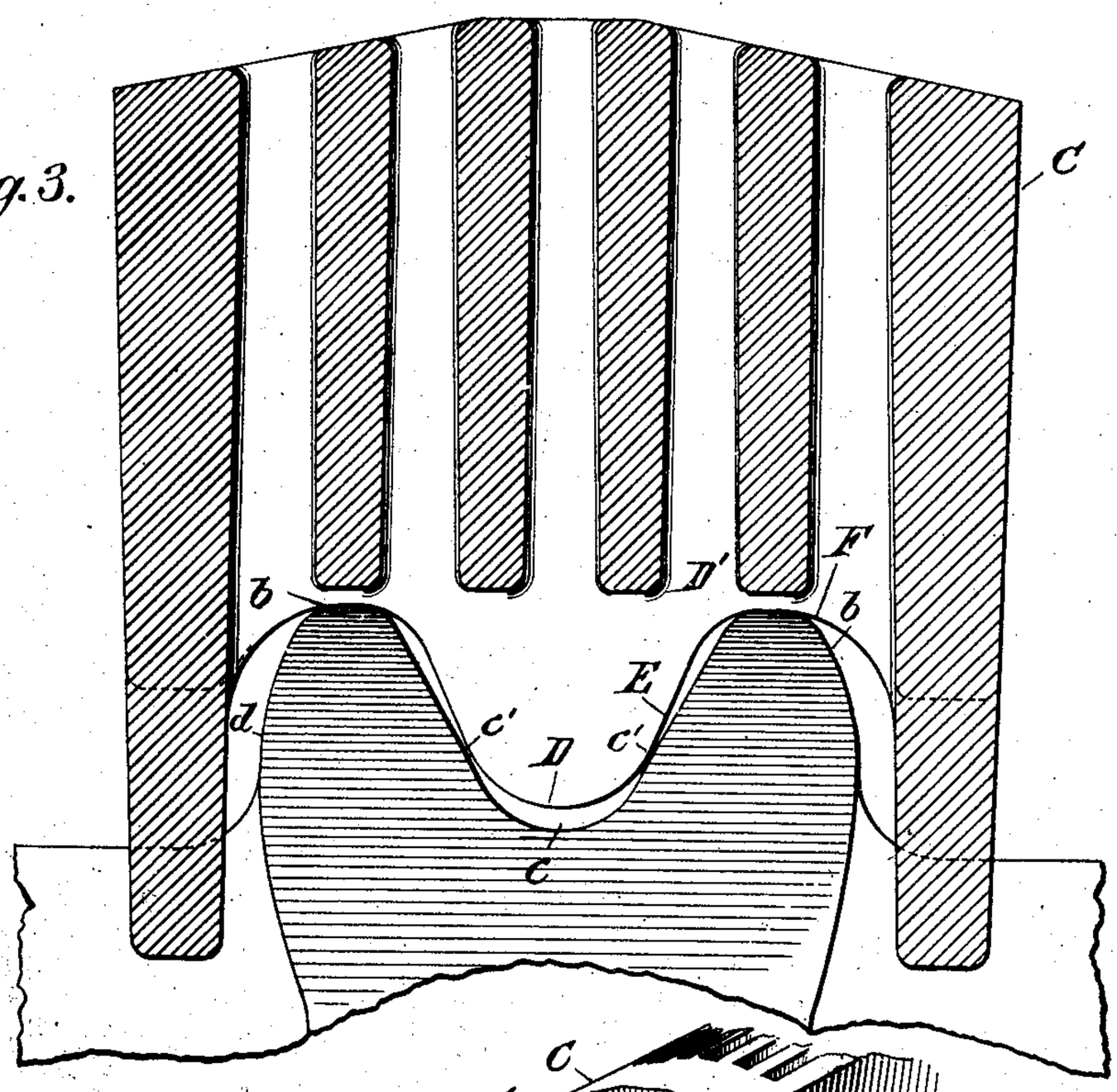
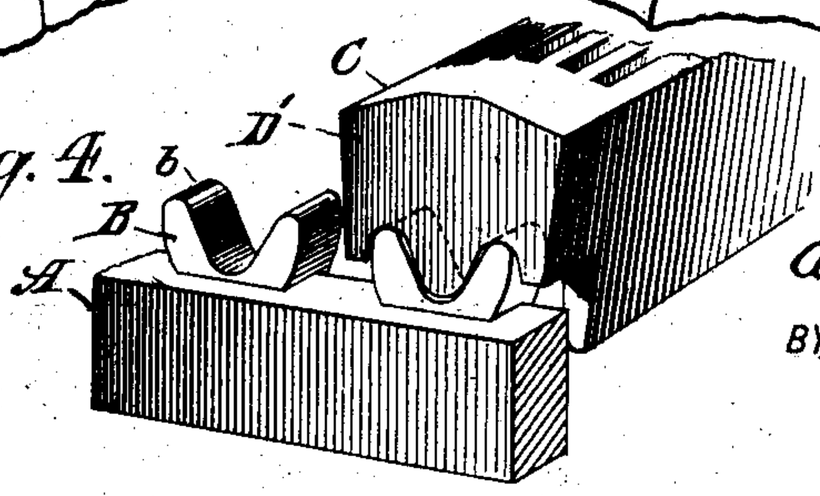


Fig. 4.



WITNESSES:

M. Van Nortwick

N. B. Smith

INVENTOR

Augustus C. Hepp

BY George Beck

ATTORNEY

UNITED STATES PATENT OFFICE.

AUGUSTUS C. HEPP, OF NEW YORK, N. Y.

GRATE.

No. 835,024. Specification of Letters Patent. Patented Nov. 6, 1906.

Application filed November 16, 1905. Serial No. 287,751.

To all whom it may concern:

Be it known that I, AUGUSTUS C. HEPP, a citizen of the United States, and a resident of New York, borough of Manhattan, in the county of New York, and State of New York, have made and invented certain new and useful Improvements in Grates, of which the following is a specification.

My invention relates to an improvement in grates, and more particularly to the bearing-surfaces of the grate and grate-bar, the object of the invention being to so construct these bearing-surfaces that the grate may be easily rocked upon the supporting-bars, and whereby a central position will be insured for each of the grate-sections when in their normal positions, and thereby prevent the smaller or finer grades of coal from dropping through between the sections, which often occurs in grates of ordinary construction, the sections in some instances being spread apart at one side while entirely closing up the air-space on the opposite side.

With these and other ends in view the invention consists in certain novel features of construction and combinations of parts, as will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of one of the supporting-bars. Fig. 2 is a view in side elevation thereof. Fig. 3 is a sectional view of one of the grate-sections resting upon a bar. Fig. 4 is a view in perspective showing one end of the grate-section resting upon the bar.

In this, as in grates of ordinary construction, three supporting-bars are preferably used, one at each end of the furnace, to support each end of the grate-section, and a central bar to support the central portions of the grate-sections and prevent their bending or sagging from the weight of the fire-bed. Each of these grate-bars A is provided with a plurality of bearings B, the number thereof depending, of course, upon the number of grate-sections C. These bearings are somewhat heart shape in outline—that is, each is constructed with the rounded bearing ends *b* and a depression *c*, the outer sides or surfaces *d* being also rounded or curved. Each of the grate-sections is also provided with a bearing somewhat reverse in shape of the bearings on the grate-bars—that is, at each end of the section and in the center is formed a plate D′, having a central depending bearing D, whose extreme lower end is rounded and the sides E of which are also rounded, the arc or curvature of these several parts, however, differing in such way that the depending bearing D will contact with the rounded sides of the depressions *c* at but two points—that is, at *c*′—as clearly illustrated in Fig. 3. In the plates D′ are formed the depressions F, into which extend the rounded bearing ends *b* before referred to, the curvature or arc of the depressions being somewhat greater than the curvature of the bearing ends *b*, thereby allowing said plates D′ to rest or be supported on said ends *b*. By this construction and arrangement of parts it will be understood that each of the grate-sections is supported in each of the bearings at four points—namely, at the extreme upper ends of the bearing ends *b* and at the points *c*′—thereby insuring an easy and free rocking of the grate-section upon the bar, the four bearing or contact points being always preserved regardless of the position of the grate-section and at the same time also insuring a proper position of each section with relation to the others when in its normal position—that is, insuring the centering of the grate-section when returned to its normal or original position. This novel feature avoids all danger of large openings or spaces being left between two grate-sections on one side of a certain section and the closing of the necessary air-spaces between the grate-sections on the opposite side of that particular section, as often occurs in grates of ordinary construction when the sections thereof are not brought back to their normal or proper positions, thereby allowing the smaller or finer grades of coal to pass through the enlarged spaces between the grate-sections on one side and choking the draft through the fire-bed between other sections.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An improved grate comprising grate-bars and grate-sections, said bars having grate-section supports which include spaced projections having rounded ends and an intermediate depression with inclined side walls, and said grate-sections having a projection with inclined sides to enter the said depression of the support, the inclination of the respective sides of the depression and projection being unlike and the end of the projection being of slightly-greater diameter than the bottom of the depression whereby the projection contacts with the walls of the

depression at a single point on each wall above the bottom of said depression, and said grate-sections having depressions on each side of their projections adapted to receive the projections of the grate-bars but of greater diameter than the ends of said grate-bar projections.

2. A grate-bar having spaced upward projections and an intermediate downward depression, in combination with a grate-section having spaced upward depressions and an intermediate downward projection, the projections of the grate-bar being adapted to enter the depressions of the grate-section and the projection of the grate-section adapted to enter the depression of the grate-bar, the adjacent side walls of the grate-section projection and grate-bar depression being inclined relative to each other and the lower end of said grate-section projection being of slightly-greater dimensions than the bottom of the grate-bar depression, and the upper ends of the grate-bar projections being of smaller dimensions than the grate-section depressions, whereby the grate-section contacts with the grate-bar only at the top of the grate-bar projections and at single points on the side walls of the grate-bar depression above the bottom thereof.

Signed at New York, borough of Manhattan, in the county of New York and State of New York, this 15th day of November, A. D. 1905.

AUGUSTUS C. HEPP.

Witnesses:
GEORGE COOK,
M. VAN NORTWICK.