No. 707,708. Patented Aug. 26, 1902.

J. MacCORMACK.

ROLLER GRATE.

(Application filed Dec. 18, 1901.)

(No Model.)

Fig. 1

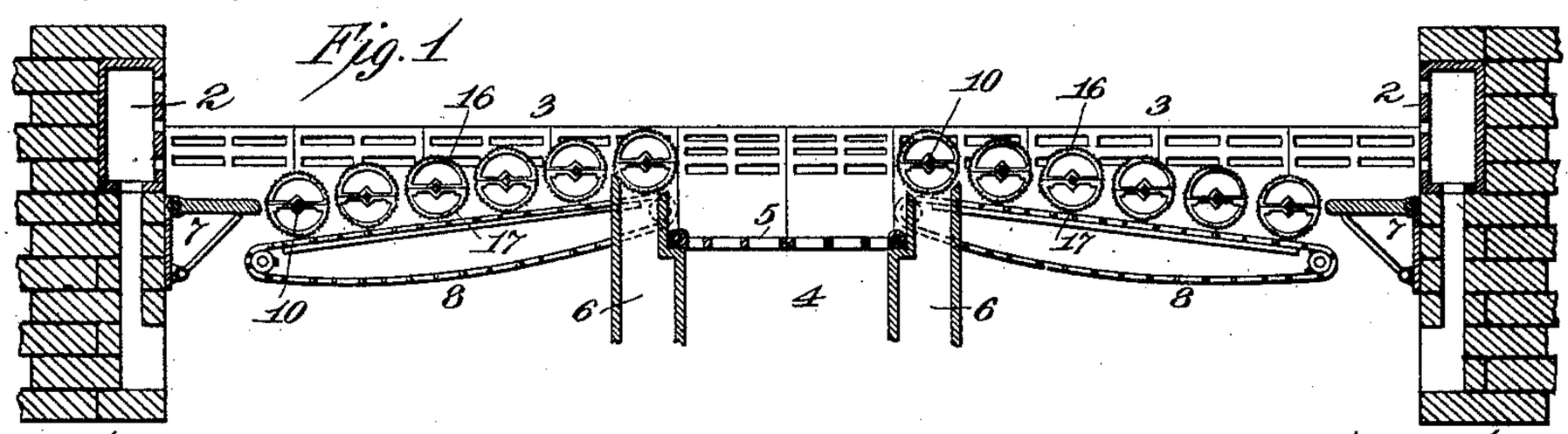

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Fig. 2

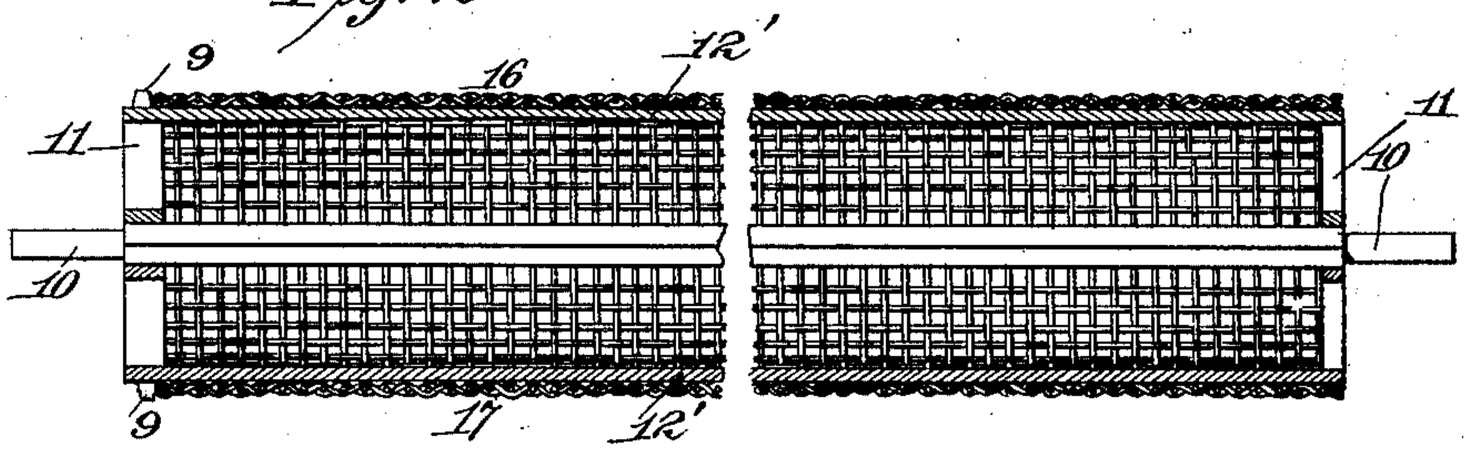


Fig. 3

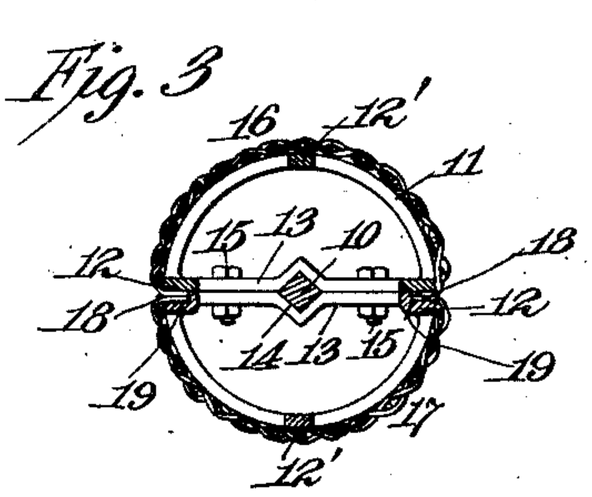
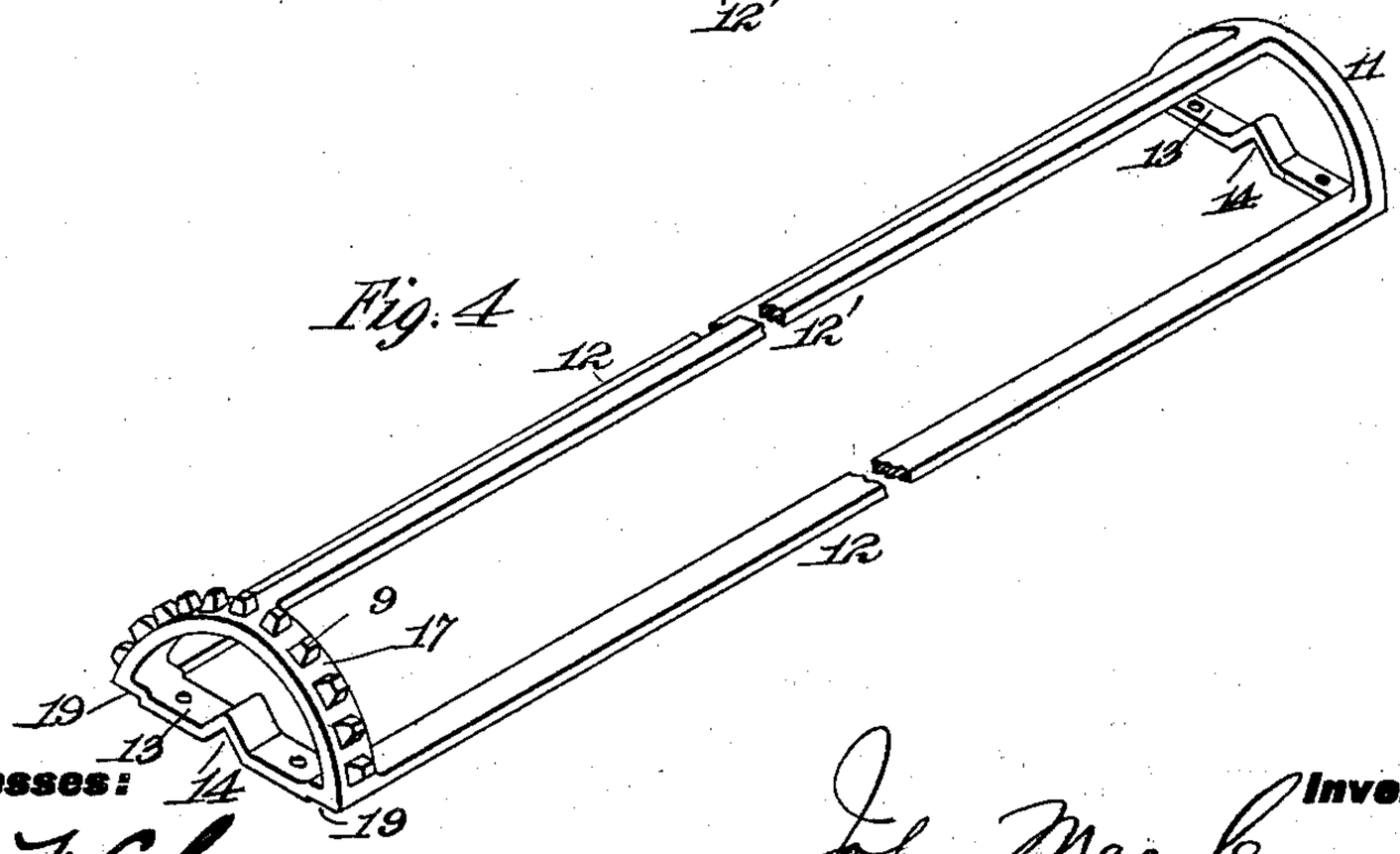


Fig. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

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ROLLER-GRATE.

SPECIFICATION forming part of Letters Patent No. 707,708, dated August 26, 1902.

Application filed December 18, 1901. Serial No. 86,399. (No model.)

To all whom it may concern:

Be it known that I, JOHN MACCORMACK, a citizen of the United States, residing at Bayonne, in the county of Hudson and State of New Jersey, have invented a certain new and useful Improvement in Roller-Grates, of which the following is a description.

The object I have in view is to produce a roller-grate for the burning of fine fuel, such as mine refuse or pulverized coal, which will be cheap and effective in construction and capable of ready repair.

In the accompanying drawings, Figure 1 is a cross-section of the furnace through the grate. Fig. 2 is a longitudinal section through one of the grate-bars. Fig. 3 is a cross-section of the bar, and Fig. 4 is a perspective view showing one of the supporting-frames of the bar.

1 1 are the side walls of the furnace, containing twyers 2 2, while 3 is the twyer upon the bridge-wall of the furnace.

My roller-grate is illustrated in connection with a centrally-placed underfeed automatic stoker, of which 4 is the hopper, having gates 5, the stoker being preferably of the construction illustrated in my application, Serial No. 75,169, filed September 12, 1901. The walls of the hopper are air-boxes 6, having longitudinal openings at their top, in which are located rolling perforated grate-bars forming rotatable twyers, as described in my application, Serial No. 41,473, filed December 29, 1900. On opposite sides of the central hopper 4 are the two grate-surfaces, slightly inclined downwardly away from the hopper and terminating in clinker-aprons 7 7. Each of these grate-surfaces is composed of a number of rotating grate-bars, which are slowly rotated by means of endless chains 8 8, engaging teeth 9 on the ends of the grate-bars.

The roller-grate bars which form the feature of novelty of the present invention are composed each of a longitudinal shaft 10, which is made of angular form throughout its length except at its ends, where it is rounded to form journals for supporting the grate-bar and permitting its rotation. Upon the shaft 10 are clamped two semicircular frames consisting of semicircular end bands 11, connected by longitudinal rods 12 12'. Each semicircular end band 11 is connected across its ends by a cross-bar 13, having an angular seat 14 at its center. The semicircular frames, consisting of the parts 11, 12, 13, and 14, are preferably cast in one piece. Two of these semicircular frames are mounted upon the shaft 10 and are secured together by bolts 15, passing through the cross-bars 13, the angular seats 14 fitting the angular shaft and holding the frames firmly in place thereon. The semicircular frames are covered by two semicircular sections 16 17, of wire-cloth screening or punched steel screen-plates having the desired fineness of mesh. These screen-sections are bent over a suitable former into a semicircular form and have inwardly-turned edges 18, which are clamped between the longitudinal bars 12 of the supporting-frames, the bars on one or both of the frames being recessed, as shown at 19, to accommodate the overlapped edges of the screen-sections. The screen-sections are placed upon the semicircular frames before such frames are clamped together upon the shaft, and in clamping the frames together the screen-sections are likewise secured in place. The rotation of the grate-bars, together with the relatively small surface presented to the fire and the large surface which is being cooled by the draft, secure the durability of the screen-surfaces. When such surfaces are burned out, they can be readily renewed without discarding the supporting-frames.

What I claim is—

1. A roller-grate bar having in combination a shaft, a sectional supporting-frame removably secured thereto, and a sectional screen-surface removably secured to said supporting-frame, substantially as set forth.

2. In a roller-grate bar, the combination with the two semicircular supporting-frames

clamped together, of two semicircular screen-sections having inwardly-turned edges clamped between the meeting edges of the sections of the supporting-frame, substantially as set forth.

3. A roller-grate bar having in combination the shaft, the semicircular frames secured to said shaft, and the semicircular screen-sections clamped between the meeting edges of the semicircular frames, substantially as set forth.

This specification signed and witnessed this 13th day of December, 1901.

JOHN MACCORMACK.

Witnesses:
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JOHN LOUIS LOTSCH.