

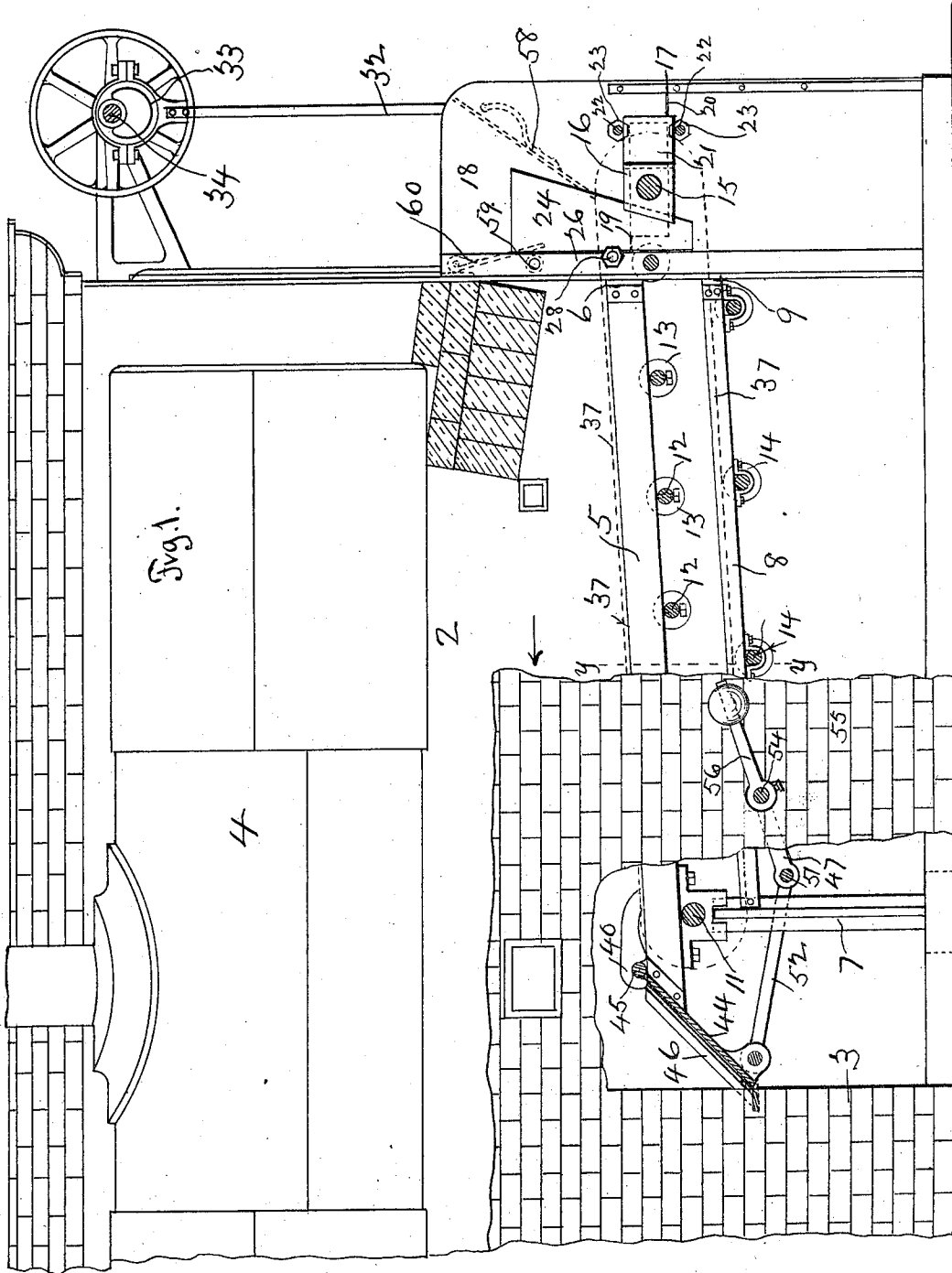
P. L. CROWE.
STOKER MECHANISM.

APPLICATION FILED FEB. 28, 1908.

Patented Aug. 15, 1911.

3 SHEETS—SHEET 1.

1,000,586.



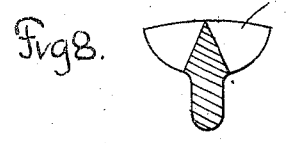
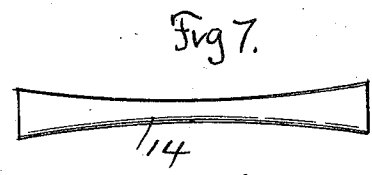
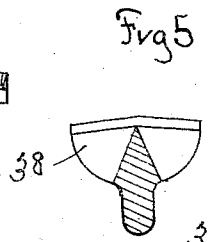
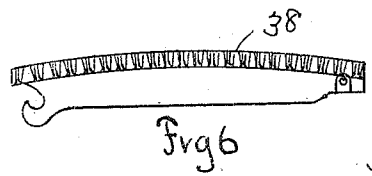
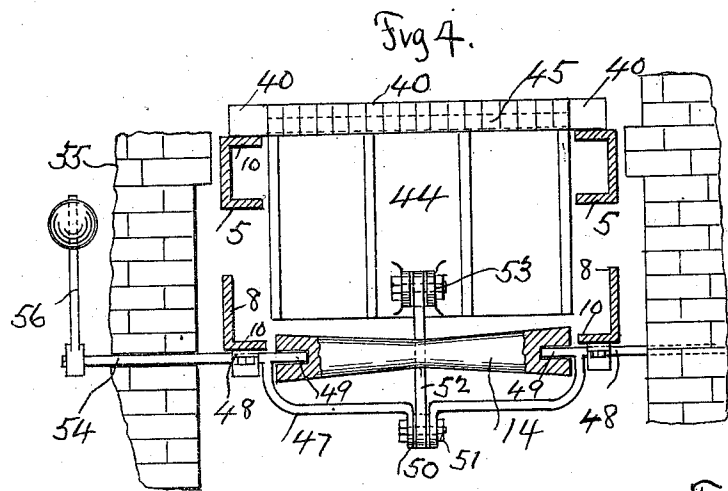
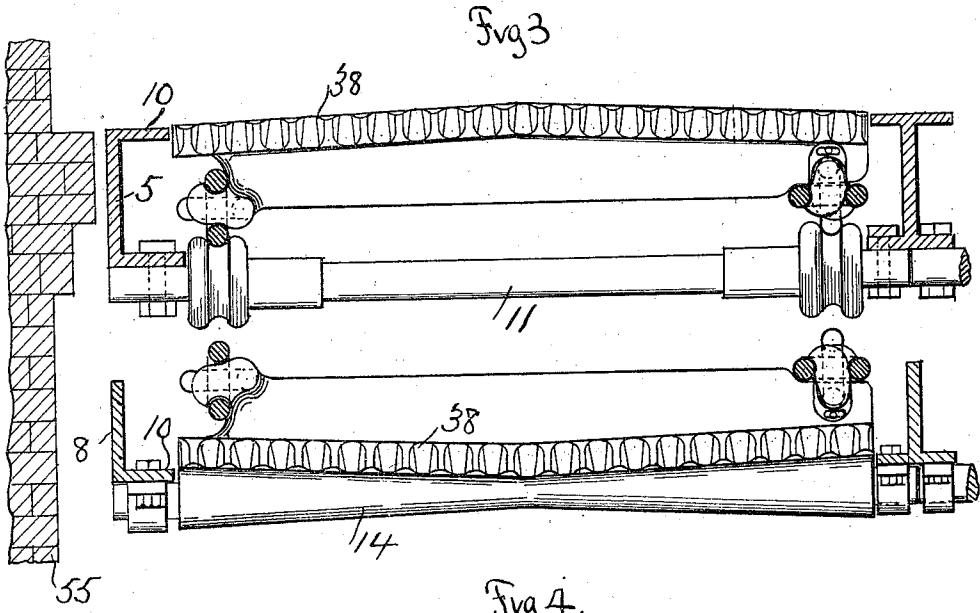
Witnesses:
John Hart
John McKeenan

Inventor
Paul L. Crowe
By his Attorney *E. P. Barrett.*

P. L. CROWE.
 STOKER MECHANISM.
 APPLICATION FILED FEB. 28, 1908.

1,000,586.

Patented Aug. 15, 1911.
 3 SHEETS—SHEET 3.



Witnesses:
John Hart
John W. Kerman

Inventor
Paul L. Crowe.
 By his Attorney *E. F. Barrett.*

UNITED STATES PATENT OFFICE.

PAUL L. CROWE, OF JERSEY CITY, NEW JERSEY.

STOKER MECHANISM.

1,000,586.

Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed February 28, 1908. Serial No. 418,229.

To all whom it may concern:

Be it known that I, PAUL L. CROWE, citizen of the United States, and resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Stoker Mechanisms, of which the following is a specification.

My invention relates to mechanical stokers and the object is, to provide same with new and useful improvements connected with the traveling grate, and I disclaim any features which are allowable in my application No. 416,965 filed Feb. 21, 1908.

Referring to the drawings:—Figure 1 is an elevation of the furnace partly in section embodying my invention. Fig. 2 is a plan view partly in section. Fig. 3 is an enlarged cross section of the furnace showing a grate bar having a convex fuel supporting surface and a concave roller. Fig. 4 is a cross section of a furnace provided with a single chain grate, taken on line *yy*, Fig. 1, looking in the direction of arrow, farther to the rear from said line, and intended to only show the dump plate operating means, which being applicable to either a single or duplex furnace—therefore only the single chain grate was shown. Fig. 5 is a cross section of the bevel grate bar. Fig. 6 is a side view of a modified form of grate bar having a curved supporting surface. Fig. 7 is a side view of a concave roller. Fig. 8 is a cross section of the modified form of grate bar.

2 is the furnace, 3 the bridge wall and 4 the boiler.

5 are channel irons supported within the furnace at their front ends, by angle irons 6 and at their rear ends by standards 7, resting on the furnace floor. 8 are angle irons placed within the furnace below the channel irons and supported by irons 9 and standards 7, as shown. These irons 5 and 8 are situated on an angle within the furnace and are held together by suitable means. The flanges 10, of said channel and angle irons face inward.

12 are cross rods mounted on the channel irons having flanged wheels, 13, revolving upon them.

The shaft 11, is supported by the standard 7. The concave rollers 14 are supported by angle irons, 8. The sprocket wheel shaft 15 is supported in the adjustable bearing, 16, which slide in apertures 17 formed between

housing and hopper end plate 18, mounted on the front of the furnace. Each bearing has sliding grooves or ways which facilitate the easy movement of the bearings.

The hopper end plates are divided at 19—20. This facilitates removing and positioning of the shaft.

21 are sliding shutters resting on studs 22 on hopper—said shutters close the opening at the front side of the bearings. The studs have nuts to hold shutters against plates.

24 are wedges for adjusting the bearings, placed between angle iron 26 and bearings. The inclined edge portion of the wedges rest in grooves cut in the inclined end portions of the bearings. The wedges are held in place by suitable studded nuts.

37 is the endless chain grate comprising a plurality of grate bars 38 and chain links to which a bar is attached. This endless chain grate travels over suitable sprocket wheels mounted on the shaft 15 and the groove wheels on shaft 11. Each grate bar is formed with a longitudinal beveled convex surface (see Fig. 3) or with a convex curved surface (see Fig. 6). In cross section each grate bar is formed with a beveled surface (see Fig. 5), or curved surface (see Fig. 8). These cross section shapes permit the bars to pass under lap bars 40 and also allow the ashes to collect over grate bar fingers for protecting same. The object of constructing the grate bars longitudinally as described, is to have them act on the lap bars so as to more effectually consume the fuel that has hitherto escaped combustion. It also tends to keep the bars cooler. Then again when the bars are formed with central raised portions (longitudinally) the fuel will be less in thickness at the central portion of the furnace, which reduction tends to compensate for increase of the combustion along the side walls, thus allowing for even combustion of the fuel across the rear of furnace.

The dump plate 44 at the rear of furnace is pivoted on irons 5, by the extension of the enlarged portion 45, secured on said iron 5, by the end lap bars. The plate 44 rests against the frame 46, secured to channel irons 5, mounted on bridge wall, 3. The dump plate is operated by the divided lever 47, both ends supported by angle irons 8. Portion 48 of the lever supports the roller

14. The halves of the lever are bent and joined at the center of the furnace where they are connected by collar 50 with bolt 51.

52 is an arm connecting lever with dump plate.

The extension 54 of portion 48 passes through the wall 55, where it is provided with a weighted arm 56.

What I claim is:

10. 1. An endless chain grate comprising a grate frame, a series of traveling grate bars mounted to move in said frame, the bars arranged with their longitudinal axes transverse to the path of movement of the said bars and formed with fuel supporting surfaces which slope gradually upward from the ends of the bars to a point intermediate the ends, and a plurality of rollers, arranged substantially parallel to the traveling bars, said rollers having a concave supporting surface complementary to the fuel supporting surface of the grate bars adapted to cooperate with said inclined surfaces of the grate bars at the lower grate run.

25 2. An endless chain grate, comprising a grate frame, a series of traveling grate bars, mounted to move in said frame, means for uniting the grate bars, the grate bars being arranged with their longitudinal axes transverse to the path of movement of said bars and formed with a fuel supporting surface which slopes gradually upward from the ends of the bars to a point intermediate the ends and a plurality of rollers arranged substantially parallel to the traveling bars, said rollers having a concave supporting surface complementary to the fuel supporting surface of the grate bars, adapted to cooperate with said inclined surface to support the bars at the lower grate run.

40 3. An endless chain grate consisting of a grate frame, a series of traveling grate bars

mounted to move in said frame, means for uniting the grate bars, the said bars being arranged with their longitudinal axes transverse to the path of movement of said bars and each of said bars formed with a fuel supporting surface which slopes upwardly from the ends of the bar to a point intermediate the ends, said fuel surface also being higher at the central portion than at the sides of the bar and a plurality of rollers arranged substantially parallel to the traveling bars each of said rollers having a concave supporting surface cooperating with the fuel supporting surface of the grate bars at the lower grate run.

4. An endless chain grate consisting of a grate frame, a series of traveling grate bars mounted to move in said frame, means for uniting the grate bars, said grate bars being arranged with their longitudinal axes transverse to the path of movement of said bars and formed with a fuel supporting surface which slopes gradually upward from the ends of the bars to a point intermediate the ends, said bars also formed with a supporting surface which in cross section is higher at the central portion than at the sides, said crosswise slope being on an arch line, a plurality of rollers arranged substantially parallel to the traveling bars, said rollers having a concave supporting surface complementary to the fuel supporting surface of the grate bars, adapted to cooperate with the said surfaces of the grate bars at the lower grate run.

Signed at Jersey City in the county of Hudson and State of New Jersey this 25th day of February A. D. 1908.

PAUL L. CROWE.

Witnesses:

JOHN HART,
JOHN MCKERNAN.