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W. N. RUMELY.

BOILER.

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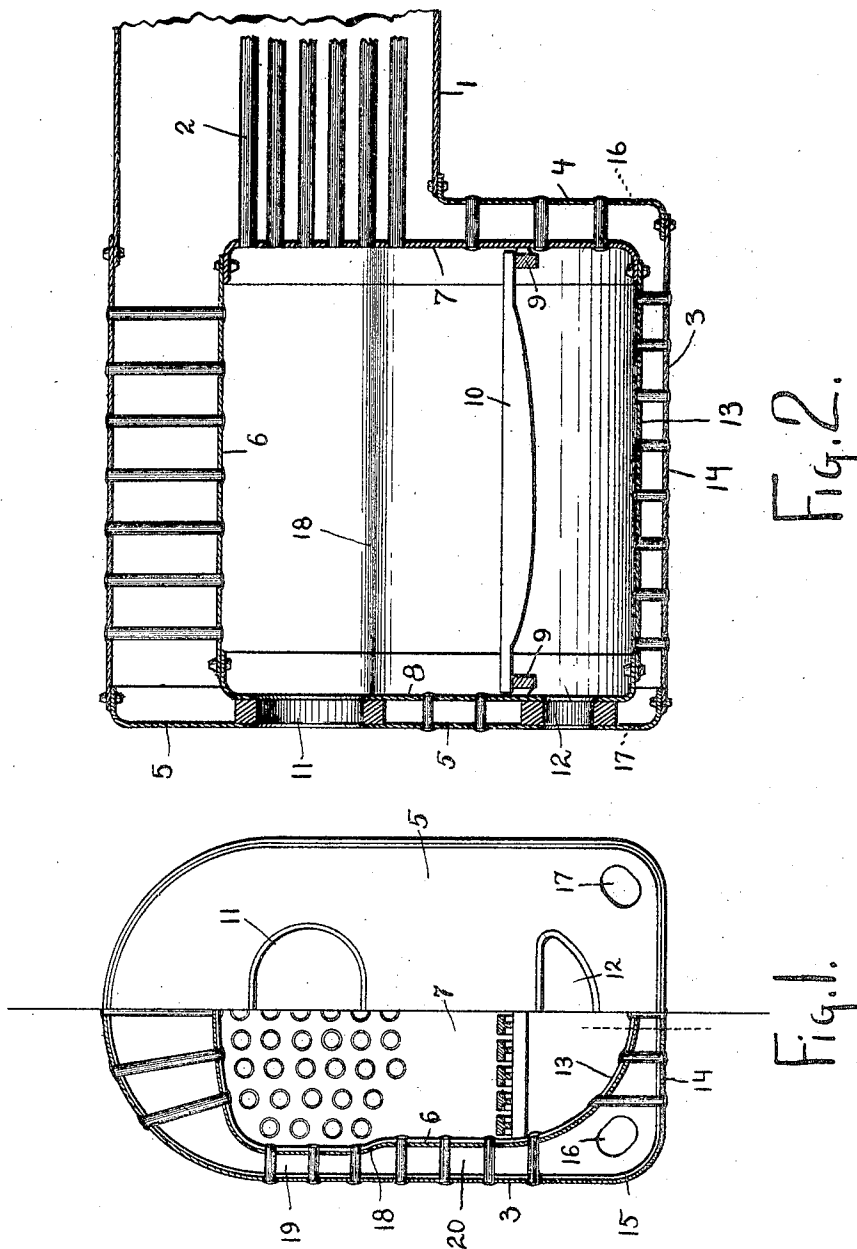


Fig. 2.

Fig. 1.

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Witnesses:

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# UNITED STATES PATENT OFFICE.

WILLIAM N. RUMELY, OF LAPORTE, INDIANA.

## BOILER.

No. 812,529.

Specification of Letters Patent.

Patented Feb. 13, 1906.

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*To all whom it may concern:*

Be it known that I, WILLIAM N. RUMELY, a citizen of the United States, residing in Laporte, Laporte county, Indiana, (post-office address Laporte, Indiana,) have invented certain new and useful Improvements in Boilers, of which the following is a specification.

This invention, pertaining to improvements in boilers of locomotive type, will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a rear elevation, half vertical section, of my improved boiler; and Fig. 2, a vertical longitudinal section of the same.

In the drawings, 1 indicates the barrel of the boiler; 2, the tubes; 3, the shell of the fire-box; 4, the throat-sheet; 5, the outer-door sheet; 6, the fire-box main sheet; 7, the back tube-plate; 8, the fire-box-door sheet; 9, the grate-bearers; 10, the grate-bars; 11, the fire-door opening; 12, the ash-door opening; 13, the fire-box floor forming the floor of the ash-pit and formed in a circular curve with its axis parallel with the axis of the barrel of the boiler; 14, base-plate of the fire-box casing, the same being flat and disposed below the circular floor of the ash-pit; 15, the rounded corners at the junctures of the base-plate with the sides of the fire-box shell or casing; 16, cleaning-holes in the throat-sheet, the same being disposed between the rounded base-corners of the sheet and the circular line of the floor of the ash-pit; 17, similar cleaning-holes in the outer door-sheet; 18, an offsetting of the side walls of the fire-box at a point intermediate between the grate and the top of the fire-box, this offsetting serving to widen the fire-box at points above it; 19, the side water-legs above the offsetting, and 20 the side water-legs at points below the offsetting.

The usual stay-bolts are employed in tying the fire-box to its casing, these stay-bolts being omitted at the base-corners of the structure, so that there is produced a clear passage extending longitudinally of the fire-box at each side of the fire-box between the outer convex surface of the floor of the ash-pit and the inner concave surface of the corners joining the sides with the base of the casing, the liberal clear passages thus formed having the

cleaning-holes 16 at their front ends and the cleaning-holes 17 at their rear ends. The circular form of the floor 13 of the floor of the ash-pit gives best economy of material along with strength of structure for resisting collapsing strains, and the form of the casing with its flat base and sides become satisfactorily tied, by means of the stay-bolts, to the curved ash-pit. At the same time there are provided liberal spaces for the reception of sediment, together with liberal surfaces for the cleaning-openings leading to these spaces.

The offsetting of the side walls of the fire-box at 18 serves in increasing the horizontal dimension of the water-legs at the sides of the fire-bed, the thinning of the water-spaces above the offsets serving to increase the width of that portion of the back tube-plate in which the tubes are inserted, thus permitting of an increase in the number of tubes or an increase in their spacing.

I claim as my invention—

1. In a boiler, the combination, substantially as set forth, of a barrel, a throat-sheet, an outer door-sheet, a fire-box with its sides formed continuous with its floor, and a fire-box shell having its base formed continuous with its sides, the floor of the fire-box forming a semicircular curve with its concavity upward, and the base of the fire-box shell or casing joining the sides thereof by rounded corners presenting inward concavities, cleaning-openings being formed in the throat-sheet and outer door-sheet at the forward and rear extremities of the spaces formed between the floor of the fire-box and the base-corners of its shell.

2. In a boiler of locomotive type, the combination, substantially as set forth, of a fire-box with a concave floor formed continuous with its sides, a fire-box casing having a flat floor joining the sides of the casing by circular curves, a throat-sheet having rounded base-corners fitting the fire-box casing and having cleaning-openings at said corners, and an outer door-sheet having rounded base-corners fitting the casing and having cleaning-openings at said corners.

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Witnesses:

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W. H. YATES.