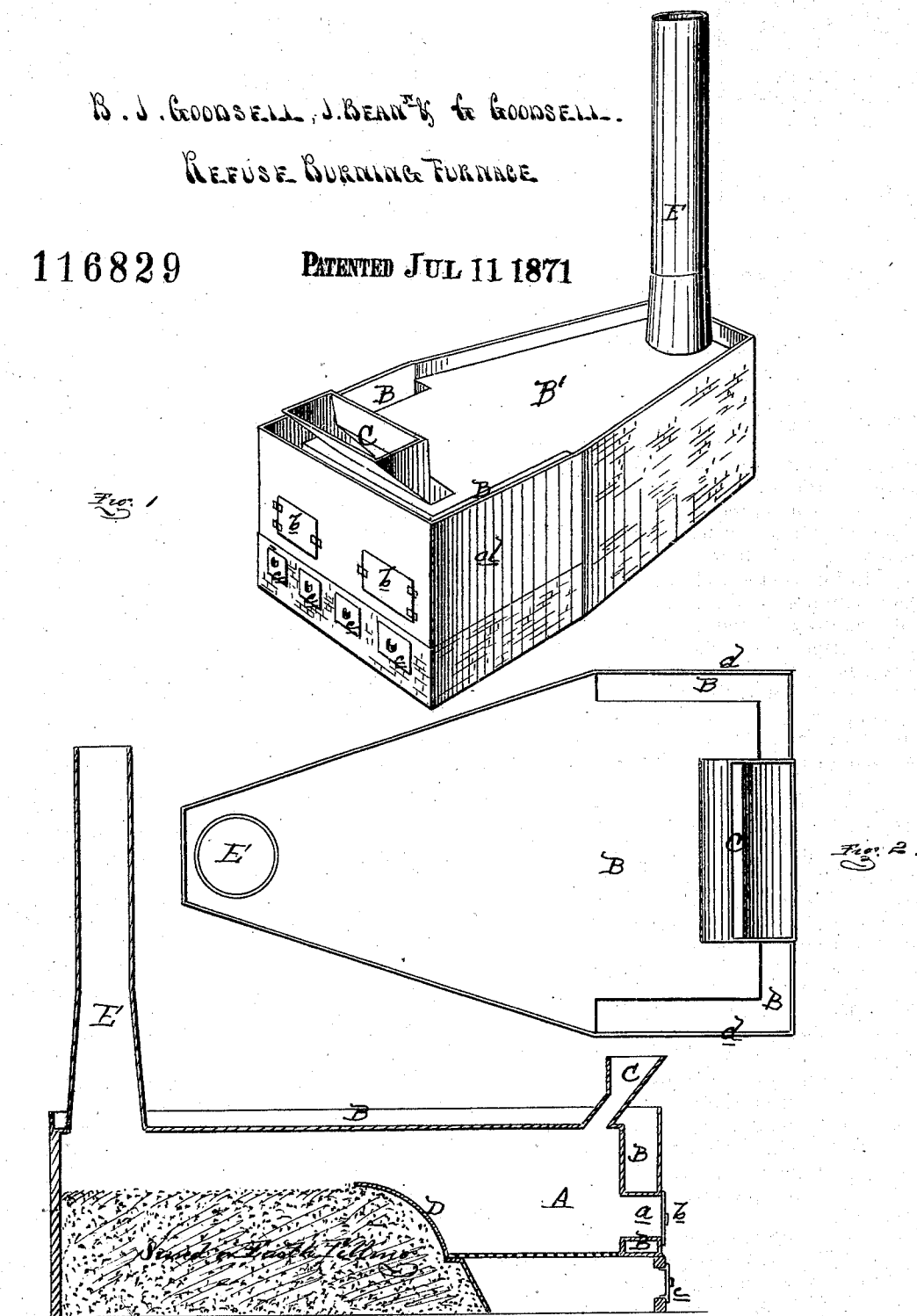


B. J. GOODSELL, J. BEAN & GOODSELL.

REFUSE BURNING FURNACE.

116829

PATENTED JUL 11 1871



ATTEST

Franklin Smith
Myron H. Church

Fig. 3.

INVENTORS

George Goodsell
Benjamin J. Goodsell
John Bean for
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The B. & S. Company

UNITED STATES PATENT OFFICE.

GEORGE GOODSSELL, BENNETT J. GOODSSELL, AND JOHN BEAN, JR., OF
PENTWATER, MICHIGAN.

IMPROVEMENT IN REFUSE-BURNING FURNACES.

Specification forming part of Letters Patent No. 116,829, dated July 11, 1871.

To all whom it may concern:

Be it known that we, GEORGE GOODSSELL, BENNETT J. GOODSSELL, and JOHN BEAN, JR., of Pentwater, in the county of Ottawa and State of Michigan, have invented a new and useful Improvement in Refuse-Burning Furnaces; and we do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1 is a perspective view of our furnace. Fig. 2 is a plan view of the furnace, showing the water-jacket around three sides of the fire-box. Fig. 3 is a longitudinal vertical section of the furnace, showing the deflecting-plate and the filling behind the plate.

The nature of this invention relates to the construction of a furnace in which to consume saw-dust, edgings, and other refuse which is made by saw-mills in the manufacture of lumber.

This invention consists of a fire-box with a fire-grate and a plate at the back to throw the flame up, with the necessary smoke-stack and air-flues, having a water-jacket on three sides of the fire-box and extending over the whole top of the furnace, with the necessary supply and overflow pipes, with a feed-spout on the top of the fire-box through which the waste or refuse is placed or thrown into the fire-box from an endless belt or apron leading from the mill; the whole forming a safe and economical means of getting rid of the waste, of which a large and cumbersome mass is made in the manufacture of lumber from the logs, as hereinafter more fully and substantially set forth.

Like letters designate like parts in each figure.

In the accompanying drawing, A represents the fire-box surrounded on three sides with the water-jacket B. The walls of this device are entirely constructed of brick, except the outer walls of the water-jacket, which surrounds three sides of the fire-box. B' is a metallic pan having flanges projecting downward to fit over the walls, thereby protecting these from the action of the weather, and is supplied with water in any convenient way. The outer walls *d* of the water-jacket may be made of wood or any other convenient mate-

rial. The feed-spout C passes through the water and the bottom of the pan on the top of the fire-box, and throws the fuel or waste into the center of the fire-box, the waste being fed into the spout C from an endless belt or apron from the mill, or in any other convenient way. The flame from the fire-box A is thrown up against the bottom of the water-pan B' by the deflecting-plate D and toward the smoke-stack E, and this also increases the draught. The flues *a* pass from the front of the furnace through the water-jacket B into the fire-box A, and are used for starting or stirring the fire, and are closed with the doors *b*. The doors *c* open into the ash-pit under the fire-grate, and are for removing the ashes, &c., from the furnace. From the upper rear end of the deflecting-plate D and on a level therewith the space within the walls is filled with sand or other appropriate material to increase the draught and carry the smoke and flame more directly to the smoke-stack.

One and the main object of having an open pan filled with water and connecting with the water-space around the fire-box is to prevent the generation of steam in a close water-jacket, while all sparks falling into the water are at once extinguished; and a sheet of water is interposed between the great heat and any surrounding objects, thereby rendering damage from fire an impossibility.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. A refuse-burning furnace, built of brick, the fire-box A of which is surrounded on three sides by a water-jacket, B, connecting with an open metallic pan, B', substantially as and for the purposes set forth.

2. The combination of a brick furnace provided with fire-box, ash-pit, doors, water-jacket, deflecting-plate, and smoke-stack, with an open water-pan, when the parts are arranged to operate substantially as and for the purposes set forth.

GEORGE GOODSSELL.
BENNETT J. GOODSSELL.
JOHN BEAN, JR.

Witnesses:

THOS. S. SPRAGUE,
MYRON H. CHURCH.