(No Model.)

E. H. BROWNELL.

BOILER FURNACE.

No. 264,437. Patented Sept. 19, 1882.

FIG. 1.

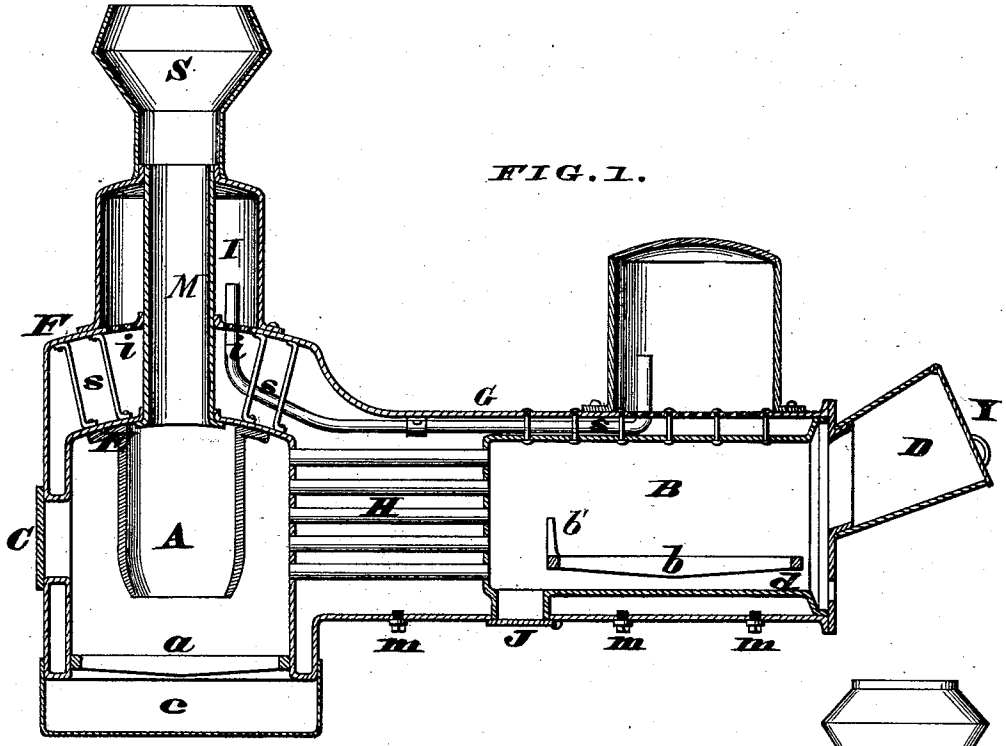
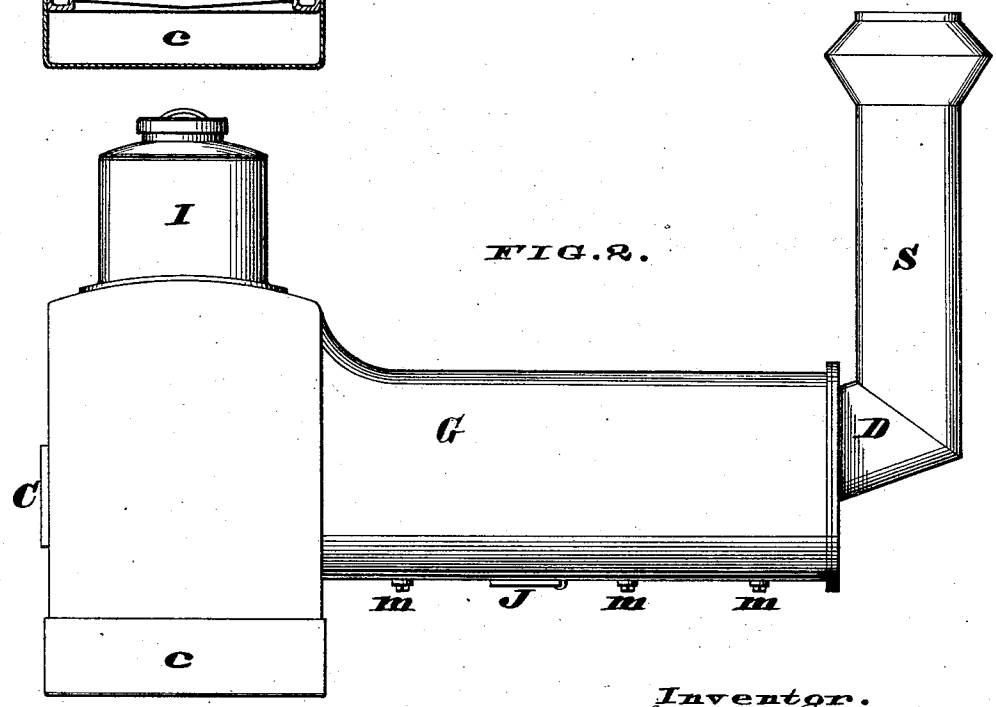


FIG. 2.



Attest.
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UNITED STATES PATENT OFFICE.

ELIJAH H. BROWNELL, OF DAYTON, OHIO.

BOILER-FURNACE.

SPECIFICATION forming part of Letters Patent No. 264,437, dated September 19, 1882.

Application filed April 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, ELIJAH H. BROWNELL, of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Boiler-Furnaces, of which the following is a full, clear, and exact description.

My improvement is especially adapted for boiler-furnaces; and the novelty consists in making a double convertible furnace capable of burning either hard fuel—as coal or wood—and lighter fuel—as hay or straw; also, in details of construction and combinations of the parts, as will be herewith set forth and specifically claimed.

In the accompanying drawings, Figure 1 is a longitudinal central section of my improved furnace in elevation, arranged to burn straw or light fuel. Fig. 2 is an exterior side elevation of the furnace converted so as to burn coal or heavy fuel.

The boiler G, which may be of any desired construction, has at each end a combustion-chamber, of which the one, A, is designed for coal or wood and the other, B, designed for straw, and both of which are connected by the usual flues, H. Each combustion-chamber has suitable grates and ash-pits, *a* representing the grate of the chamber A, and *c* the ash-pit of the same, and *b* representing the grate of the chamber B, and *d* its ash-pit.

It is desirable that a fender, *b'*, of any suitable construction, should be located across the rear of the straw-burning grate, and be of sufficient height to prevent the straw from getting into and choking the flues H when such material is being burned.

C is any suitable tight door for supplying the chamber A with wood or coal, though, if desired, (and I prefer such construction,) a magazine, L, is arranged in the fire-chamber A to contain the coal, which is fed down through the connecting-pipe M, which passes through the lower and upper crown-sheets, E and F, of the boiler, and through the steam-dome I, as represented. This construction is such that a smoke-stack, S, can be applied, as shown, when fuel is being burned in the chamber B or when coal is being burned in the chamber A.

A suitable cover or lid may be substituted for the smoke-stack, as represented in Fig. 2.

A similar construction may be employed over the chamber B, omitting only the magazine, and the two steam-domes may be connected by a pipe, *i*, which passes through and is contained in the boiler; or else the feeding-chute D for the chamber B may be covered by a smoke-stack, S, as seen in Fig. 2, when the coal-furnace is being used.

s s represent the ordinary stay-bolts between the crown-sheets, and *m* hand-holes, with suitable caps or plugs for removing scale, mud, or other foreign matter from the boiler. I also provide a properly-covered aperture, J, for cleaning and getting at the chamber B.

It will be readily understood that with above construction I have a reversible furnace which is speedily and readily convertible from a straw-burning to a coal-burning furnace, or vice versa, and which will give the best results with a minimum amount of fuel, for, in addition to the ordinary fire-chamber in which the fuel is burning, I have a combustion-chamber in which the gases are fully consumed and the heat concentrated, and this occurs whether straw is being burned in its chamber or coal in its chamber or magazine. Again, by causing the products of combustion to pass up through the steam-dome, the steam can be readily superheated, and the greatest economy of fuel is obtained. Also, by connecting the two domes by a pipe located in the boiler, an additional means for heating is provided and steam can be generated more rapidly.

I do not purpose to limit myself to the details of construction, as these may be varied infinitely; but,

Having thus fully described my invention, I claim—

1. In a boiler-furnace provided with two fire-chambers, means whereby the smoke-stack may be shifted and connected to either chamber directly, as desired, substantially as described.

2. The herein-described boiler-furnace and boiler, containing a horizontal boiler, with flues connecting fire-chambers at each end thereof, one of which chambers is provided with a self-feeding magazine, and having two steam-domes connected by a pipe which passes through the boilers and enters said domes, and also provided with reversible smoke-stacks, the whole constructed and arranged substantially as and for the purpose specified.

ELIJAH H. BROWNELL.

Witnesses:

CHAS. M. PECK,

QUINCY CORWIN.