A. J. MATTER.

FIREPLACE FURNACE.

APPLICATION FILED OCT. 4, 1909.

976,819.

Patented Nov. 22, 1910.

3 SHEETS—SHEET 1.

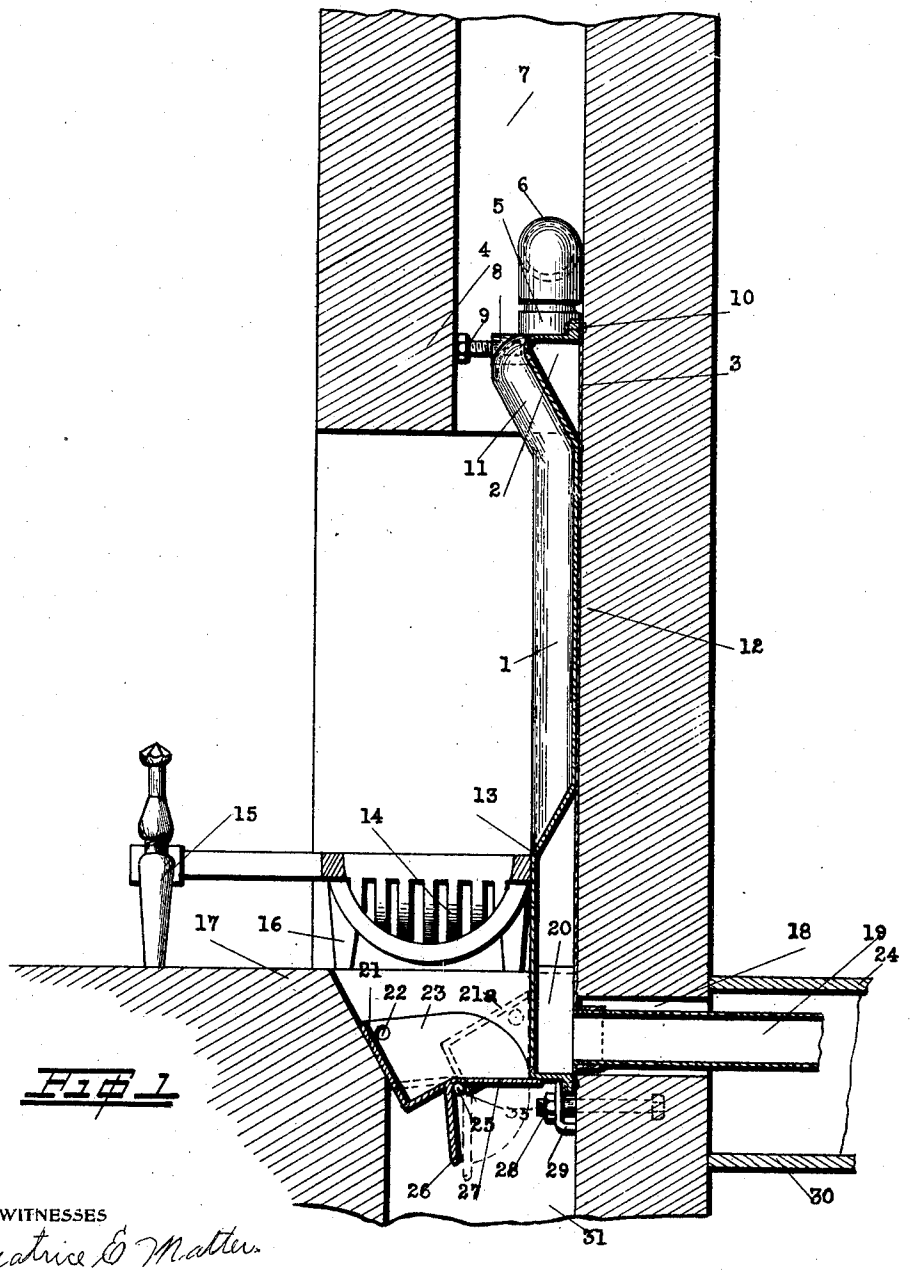

FIG 1

WITNESSES

Beatrice E. Matter.

N. M. Trice

INVENTOR

Albert J. Matter.

A. J. MATTER.

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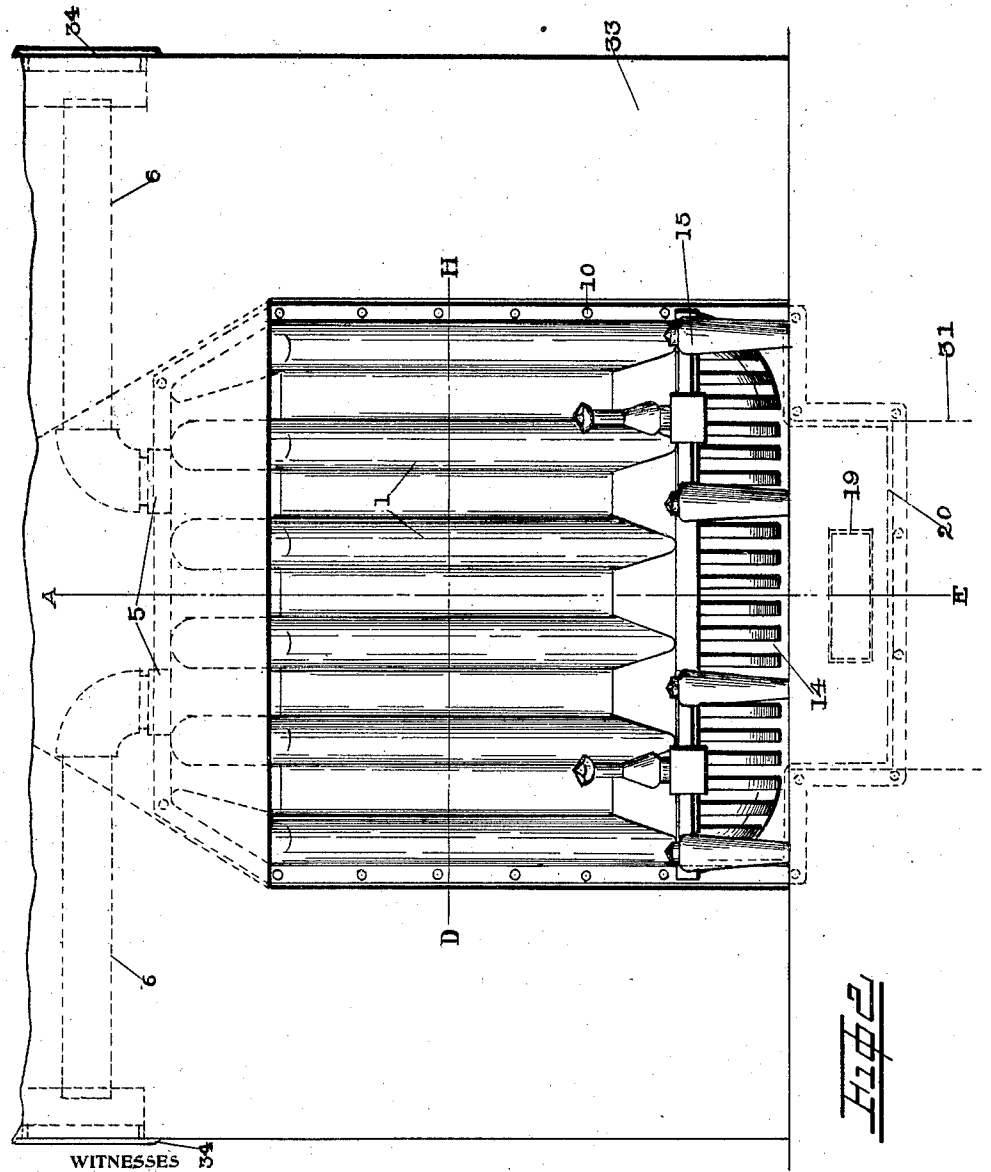

Fig 2

WITNESSES

Beatrice E. Matter.

N. M. Price

INVENTOR

Albert J. Matter

A. J. MATTER.

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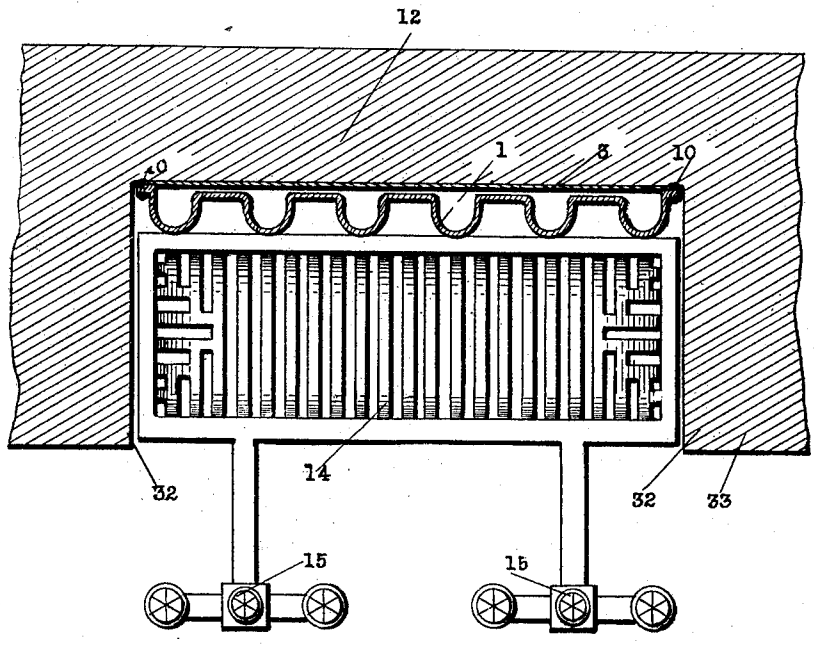

FIG 3

WITNESSES

Beatrice E. Matter.

N. M. Treece

INVENTOR

Albert J. Matter

UNITED STATES PATENT OFFICE.

ALBERT J. MATTER, OF PORTLAND, OREGON, ASSIGNOR OF ONE-HALF TO JOSEPH GASTON, OF PORTLAND, OREGON.

FIREPLACE-FURNACE.

976,819. Specification of Letters Patent. Patented Nov. 22, 1910.

Application filed October 4, 1909. Serial No. 521,027.

To all whom it may concern:

Be it known that I, ALBERT J. MATTER, a citizen of the United States, and residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Fireplace-Furnaces, of which the following is a specification.

This invention relates to fire-place furnaces and has for its object to provide simple and efficient means for utilizing the waste heat in a fire-place.

Another object is to provide means for bringing fresh air from an exterior source, through the fire-place and thence through pipes into the desired rooms after it has absorbed the waste heat which would otherwise have gone up the flue.

Another object is to provide a fire-back which can be fitted within the fire-place without altering the design of the front or opening of said fire-place.

Another object is to provide a fire-back which can be fastened within the fire-place in such manner as to allow proper expansion of the metal in the furnace.

I attain these objects by means of the improvements illustrated in the accompanying drawings in which,

Figure 1 is a sectional elevation on A—E, Fig. 2. Fig. 2 is a front elevation. Fig. 3 shows a horizontal section on D—H Fig. 2.

Like numerals of reference indicate similar parts throughout the several views.

Referring to the drawings it will be seen that the fire-back consists chiefly of a corrugated front 1 and the sheet-metal back 3 which is rigidly attached to front 1 by means of rivets or screws 10. The corrugated portion 1 extends downward only to the point 13 thus allowing for a horizontal air space below and connected with each of the vertical corrugations. As seen in Fig. 1 and by the lower dotted lines in Fig. 2 the lower portion 20 can be made narrower than the main body so as to fit the ash pit opening 31. The upper portion of the corrugated front is inclined forward as shown at 11 leaving a horizontal air space at 2.

At 5 I provide orifices extending into air space 2. Outlet pipes 6 are connected with the fire-back by means of orifices 5 as shown or may be run in any desired direction or to any desired point. I show the pipes 6 extending through the sides 32 of the fire-place. Registers for regulating the flow of the heat are provided at 34. An inlet pipe 19 is connected with an outside source and run between the floor 24 and ceiling 30 and thence through orifice 18 in back 12 of the chimney and fastened to back plate 3 so as to form a means for supplying the fire-back with fresh air.

The fire back is held in place at its lower end by means of bolts 28 and clamps 29 and at its upper end by means of screw 9 in lug 8. Said screw 9 is turned outwardly until the back of the fire-back rests properly against the back wall 12 of the fire-place. Front wall 4 of flue 7 forms an abutment for screw 9. This arrangement of fastening the fire-back in place allows for proper expansion, as it will not be necessary to fasten the fire-back in the masonry.

Although the fire-back may be fitted in an ordinary fire-place without a grate or ash dump as shown, I provide a combination of grate and andirons in which 14 is the grate provided with legs at 16 and andirons at 15, all arranged to rest on hearth 17 as shown. This combination of grate and andirons allows the use of coal or wood and also allows the cold air off of the floor to come up through the fire from below. A fire built in this fire-place will admit heat into the room through the front opening of the fire-place as in all ordinary fire-places, but the heat which usually escapes up the flue is absorbed by the fire-back which heats the fresh air brought in through pipe 19. When hot, the air will rise to the air space at 2 and thence through pipes 6 and registers 34 out through the sides 32 of the fire-place.

The advantages of admitting the hot air into the room through the sides of the fire-place are several, as it brings the hot air to a point not easily reached by the ordinary fire-place which throws the heat out toward the front and upwardly. Another advantage is that this extra heat is not brought out under the mantel which would be scorched by too much heat. When a grate is used as shown I provide an ash dump composed of sides 23, front 21 and bottom 27. Depending plate 26 and projection 35 form a bearing for rod 25 which is rigidly fastened in the sides of the ash pit opening 31. The ash dump being loosely mounted on rod 25 may be dumped back as shown by the dotted lines 21[a], by inserting a poker in

orifice 22 and pushing back. Depending plate 26 closes the ash pit opening as shown by the dotted lines, thus keeping the dust from the falling ashes out of the room.

It is understood that slight changes may be made in the specific structure shown without departing from the spirit of the invention.

What I claim is;

The combination with a fire-place fire-back having a flat back, a corrugated front provided with a plurality of openings at the top, and having the length of the corrugations vertically placed except at the top where they are inclined forward at a slight angle and form a horizontal air chamber just back of the corrugated portion, a lower horizontal air chamber connected with the corrugated portion and having its lower portion slightly narrower so as to fit within the ash-pit opening to a point below the hearth line, a supply pipe for supplying air to the lower horizontal air chamber through the back of said fire-back, a plurality of pipes connected with the openings at the top of said corrugated front piece for taking the hot air from the upper horizontal air chamber and conducting it to any desired point, of means for fastening said fire-back within and to the back of a fire-place and an ash dump open at its rear side, the bottom of said dump arranged to coöperate with the bottom of the said lower air chamber when in normal position, said air chamber forming a closure for the rear of said ash dump, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

ALBERT J. MATTER.

Witnesses:

BEATRICE E. MATTER,

J. H. SCOTT.