W. N. BEST.

HEATING FURNACE.

APPLICATION FILED OCT. 22, 1907.

899,285.

Patented Sept. 22, 1908.

2 SHEETS—SHEET 1.

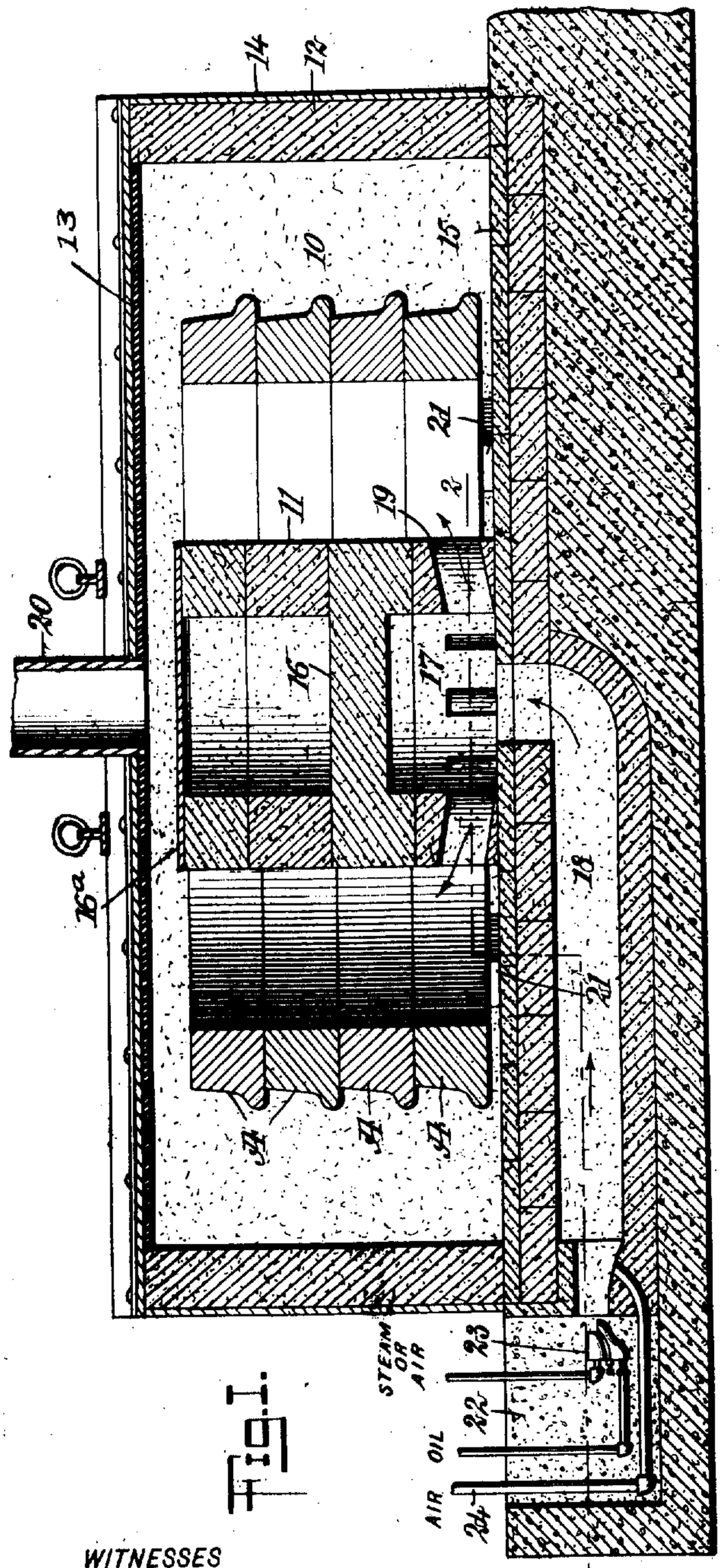

FIG. 1.

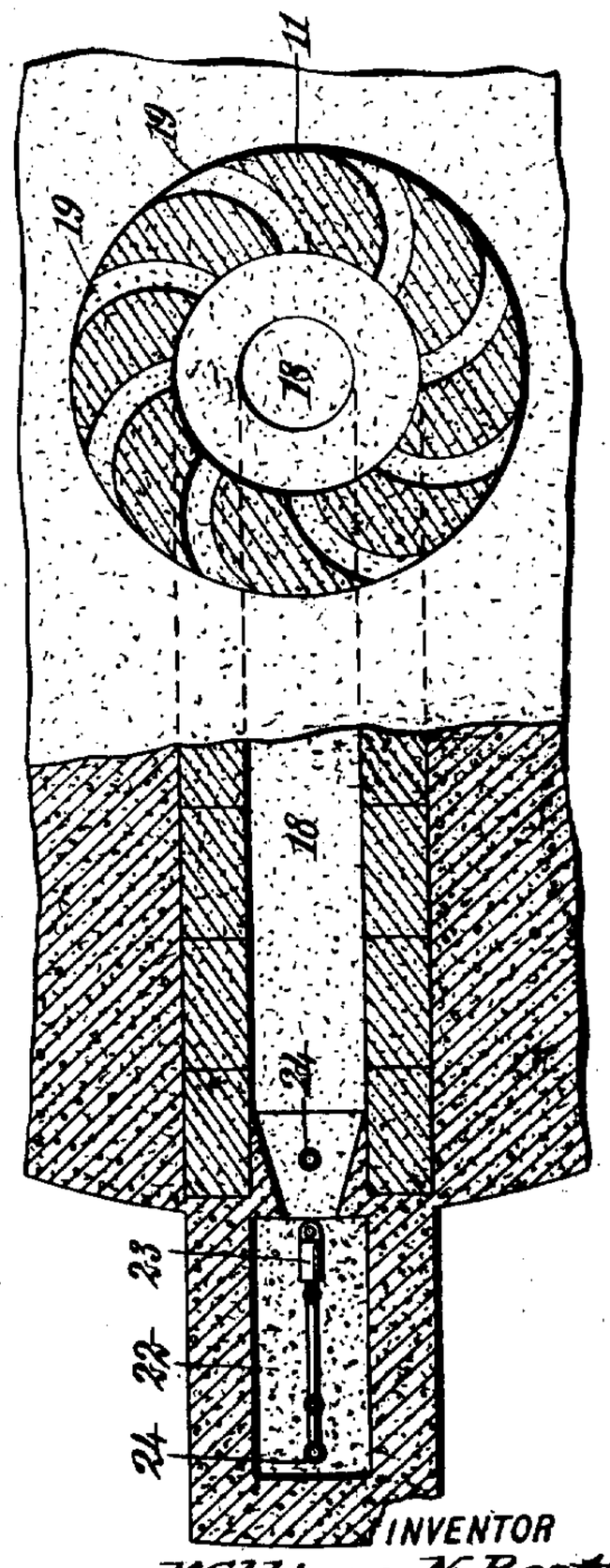

FIG. 2.

WITNESSES

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C. M. Fairbank

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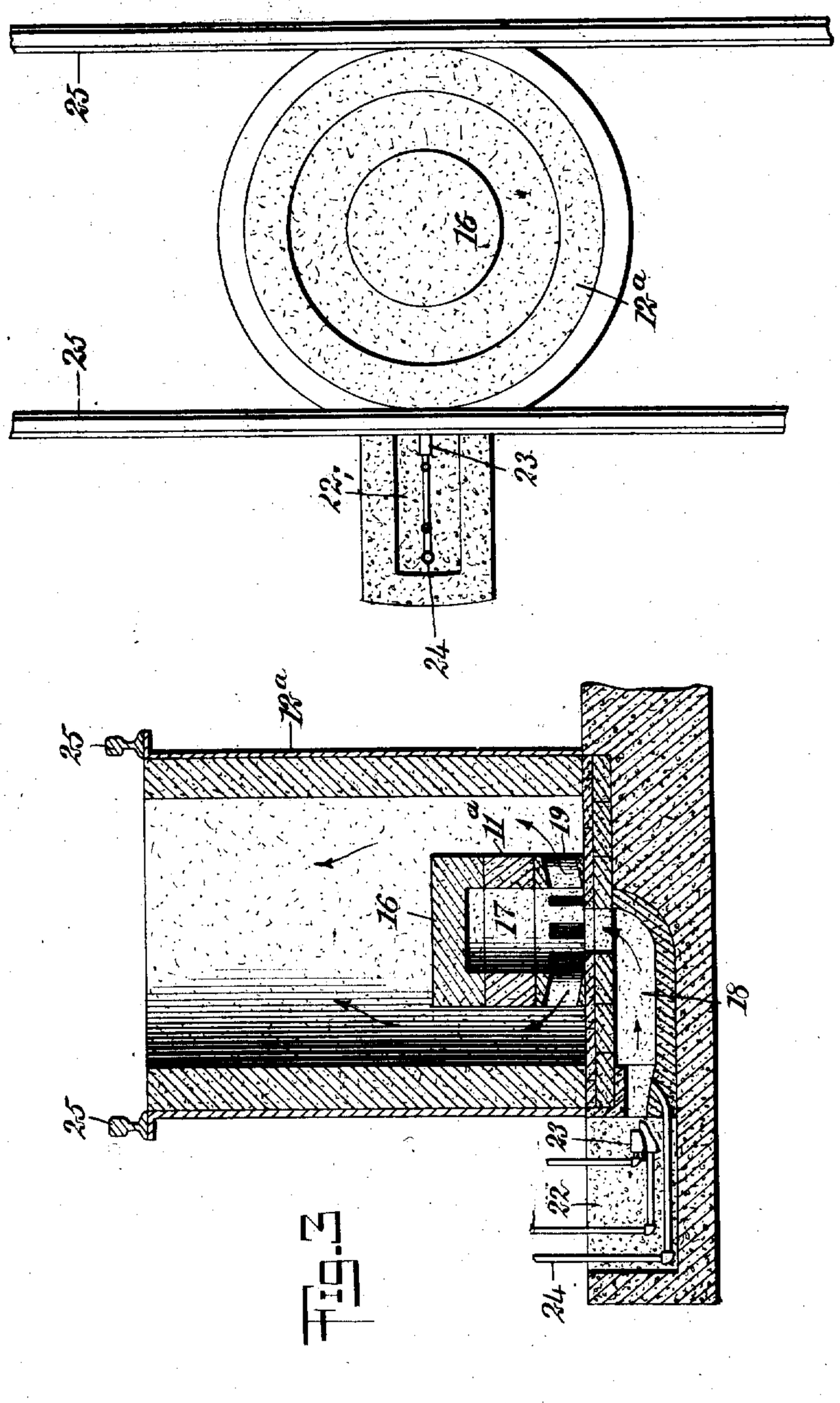

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UNITED STATES PATENT OFFICE.

WILLIAM NEWTON BEST, OF NEW YORK, N. Y.

HEATING-FURNACE.

No. 899,285. Specification of Letters Patent. Patented Sept. 22, 1908.

Application filed October 22, 1907. Serial No. 398,621.

To all whom it may concern:

Be it known that I, WILLIAM NEWTON BEST, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Heating-Furnace, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in heating furnaces adapted for the heating of railroad tires or other bodies, and relates more particularly to the wall structure of the furnace and the means for delivering the heating medium to the interior thereof. The source of heat is preferably a liquid or gaseous fuel burner, and the inlet through which pass the hot gases from the burner is so constructed as to give a uniform distribution of heat throughout the interior of the furnace.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which

Figure 1 is a vertical central section through a furnace constructed in accordance with my invention and adapted for use in heating railroad tires; Fig. 2 is a transverse section of a portion thereof, taken on the line 2—2 of Fig. 1; Fig. 3 is a central vertical section through a modified form of furnace; and Fig. 4 is a top plan view thereof.

In the specific form of my improved furnace illustrated in Figs. 1 and 2, I provide an annular chamber 10, formed by two concentric walls 11 and 12, both of said walls being formed of fire-brick, asbestos, or other suitable heat insulating non-combustible material. The outer wall 12, which may, if desired, be inclosed by a sheet metal casing 14, supports a removable cover 13, normally closing the upper end thereof and spaced a short distance above the top of the inner annular wall 11. The cover is provided with any suitable means for facilitating the removal thereof, said means being illustrated as two rings disposed upon opposite sides of the center thereof. The bottom or floor 15 of the chamber is formed of one or more layers of slabs or bricks of heat insulating material. The inner wall 11 is preferably closed at the top by a plate 16^a and carries a transverse wall 16 intermediate its height. The lower portion of the annular wall 11 and said transverse wall 16 form the heat-distributing chamber 17. A conduit 18 leads beneath the floor 15 and is curved upward to terminate within the chamber 17. The wall 11 below the partition 16 is provided with a plurality of passages 19, so disposed that the hot gases entering the chamber 17 from the conduit 18 may pass into the heating chamber 10 at the bottom thereof and in all directions. These passages extend upwardly and preferably slightly tangentially, or are curved so as to give the gases entering the heating chamber a substantially helical movement as they rise from the inlet passages 19 to a suitable vent 20 in the upper wall of the chamber. In the heating of tires, this movement of the hot gases from the passages 19 is especially advantageous.

In Fig. 1, I have illustrated a plurality of tires A, arranged one above the other and supported above the bottom 15 by small spacing blocks 21. The tires surround the inner wall 11, and the gases in escaping through the passages 19 strike the inner wall of the tires at an angle and travel upward into engagement with all of the tires, and in uniform engagement with all portions of the inner surface.

The inlet passage 18 to the distributing chamber 17 leads from a point adjacent the outer side of the outer wall 12. As shown, there is formed a well 22, outside of the outer wall 12 and extending below the floor 15. This well contains a burner 23 having an oil conduit and a steam or air conduit leading thereto, and having its discharge nozzle at the diverging inlet of the passage 18. If steam is employed in the burner, it is often necessary to supply additional air, and for this purpose, I provide a conduit 24 leading into the well and terminating within the fan-shaped entrance of the passage 18. The upper portion of the wall 11 becomes highly heated by the gases, and this heat is radiated to the tires or other articles within the heating chamber, even after the supply of heat from the burner has been shut off.

By varying the shape of the heating chamber, it may be adapted for many other purposes than that above described. The specific form illustrated in Figs. 3 and 4 is especially adapted for heating varnish kettles, but all of the parts are substantially the same as those described in the first-mentioned form. The outer wall 12^a is of considerably less diameter and extends to a somewhat higher elevation, while the upper

portion of the inner wall 11ª is eliminated, the partition 16 forming the top of the heat-distributing chamber and disposed at a lower elevation in respect to the top of the heating chamber than is the transverse wall 16 of the first-mentioned form. A suitable track including rails 25 is disposed adjacent the upper end of the heating chamber, and a suitable truck carrying the varnish kettle, or other receptacle or article, to be heated, may be run along the track until it is directly over the heating chamber. This is especially desirable in heating substances to a predetermined temperature or condition, and then immediately removing them from the influence of the heat.

In both forms, the burner 23, well 22, delivery passage 18, distributing chamber 17, inlet passages 19, and conduit 24 are substantially identical to those shown in the other views.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A heating furnace, comprising two concentric annular casings, the inner casing having a transverse wall, and means for delivering a heating medium to the interior of the inner casing, the walls of said inner casing being provided with a plurality of outlet passages the outer ends of which terminate substantially tangentially of said casing.

2. A heating furnace, comprising two concentric annular casings adapted to receive therebetween the articles to be heated, said articles encircling said inner casing, a removable cover for the outer casing, means for delivering a heating medium to the interior of the inner casing, a plurality of passages through the wall of said inner casing, whereby the heat is delivered against the inner surface of the articles, and an exhaust gas escape passage from the outer casing.

3. A tire-heating furnace, comprising two concentric annular casings adapted to receive the tires therebetween, said tires encircling said inner casing, said inner casing having a transverse wall above the bottom thereof, and means for delivering a heating medium to the interior of the inner casing, the walls of said inner casing being provided with a plurality of outlet passages for delivering the heat against the inner surface of said tires and a cover and an exhaust gas escape passage for said outer casing.

4. A heating furnace, comprising a casing having a floor and an annular imperforate wall, means for admitting the article to be heated through the top of the casing, a centrally-disposed chamber within said casing and having a plurality of passages through the wall thereof, a well disposed outside of the annular wall and extending down into said floor, a delivery passage extending beneath said floor from said well to the interior of said chamber, and a fluid fuel burner within said well and delivering to the outer end of said passage.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM NEWTON BEST.

Witnesses:
EVERARD B. MARSHALL,
CLAIR W. FAIRBANK.