

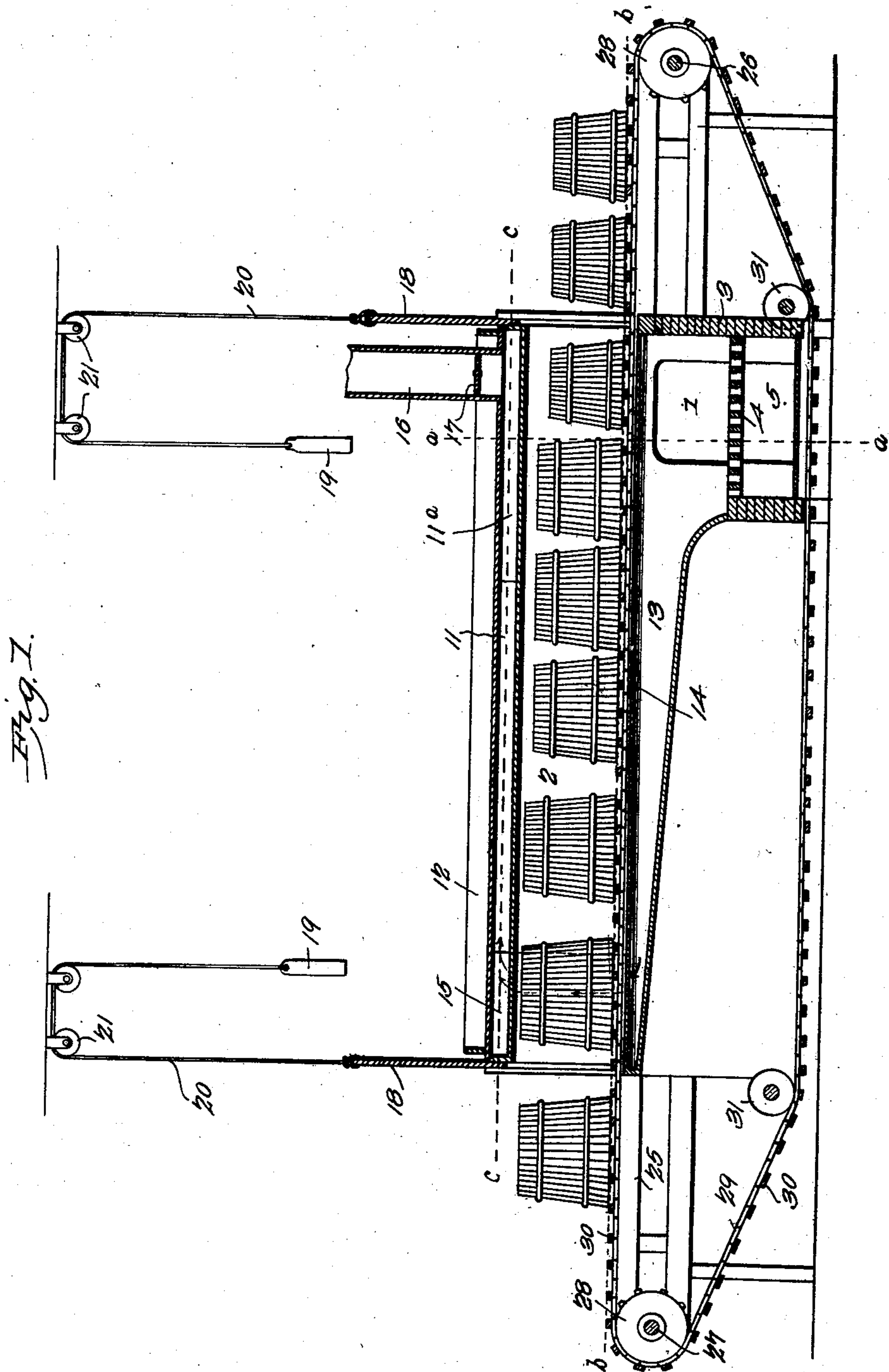
No. 701,822.

Patented June 3, 1902.

L. D. VOGEL.
HEATER AND DRIER.
(Application filed Sept. 28, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
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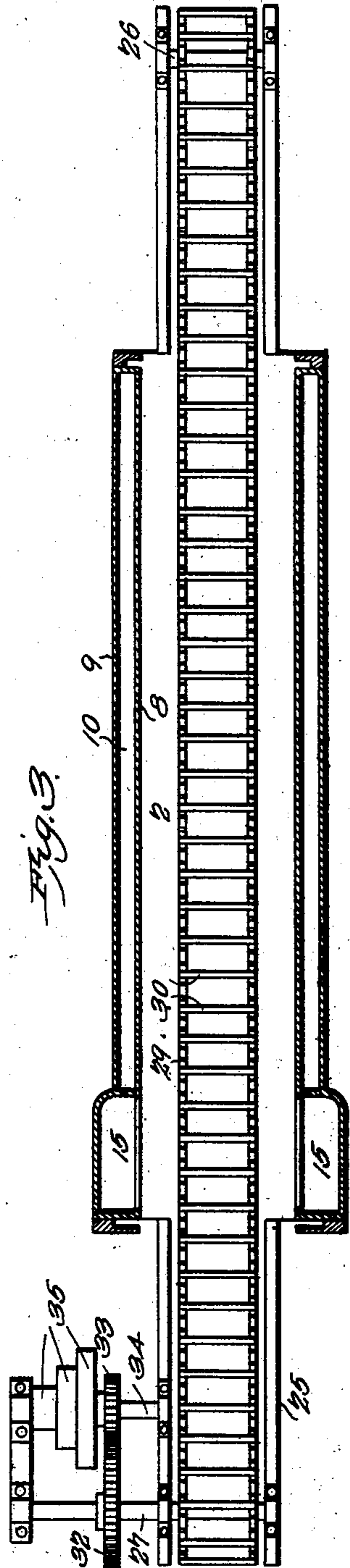
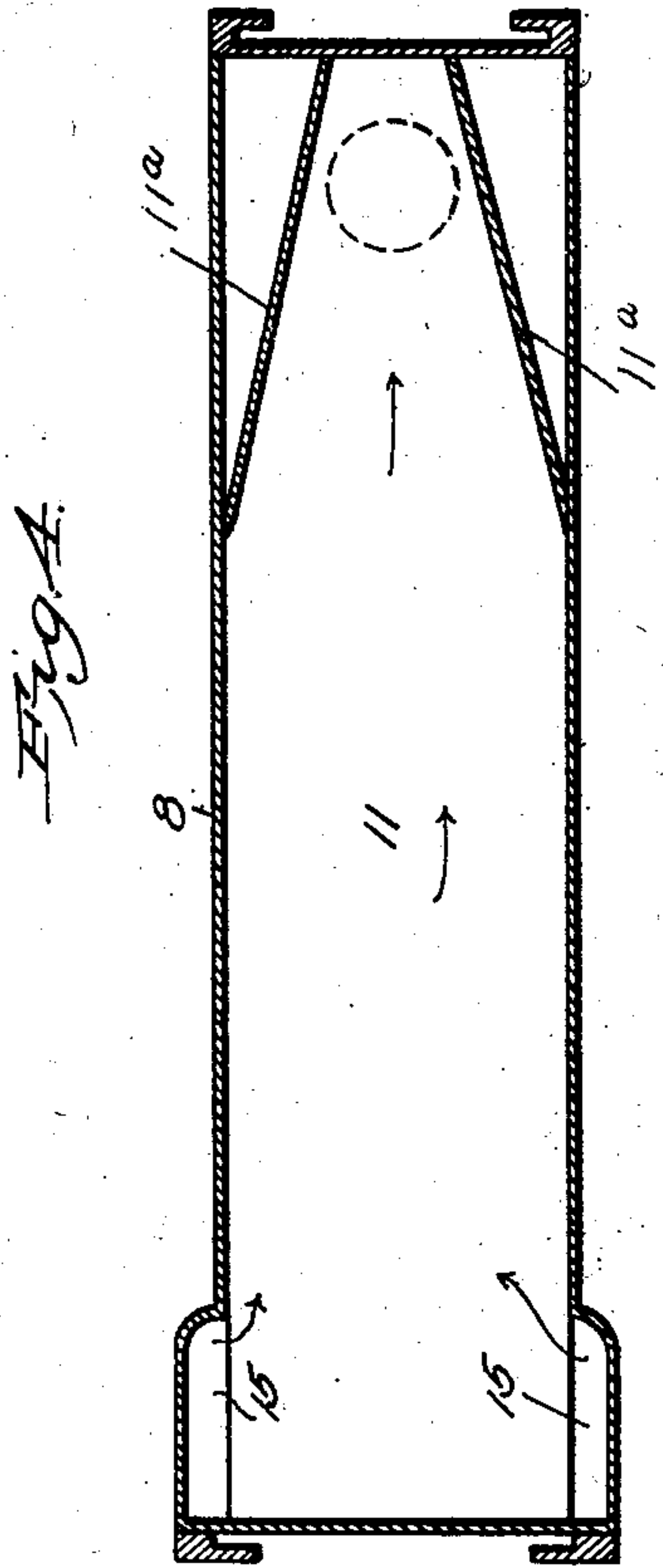
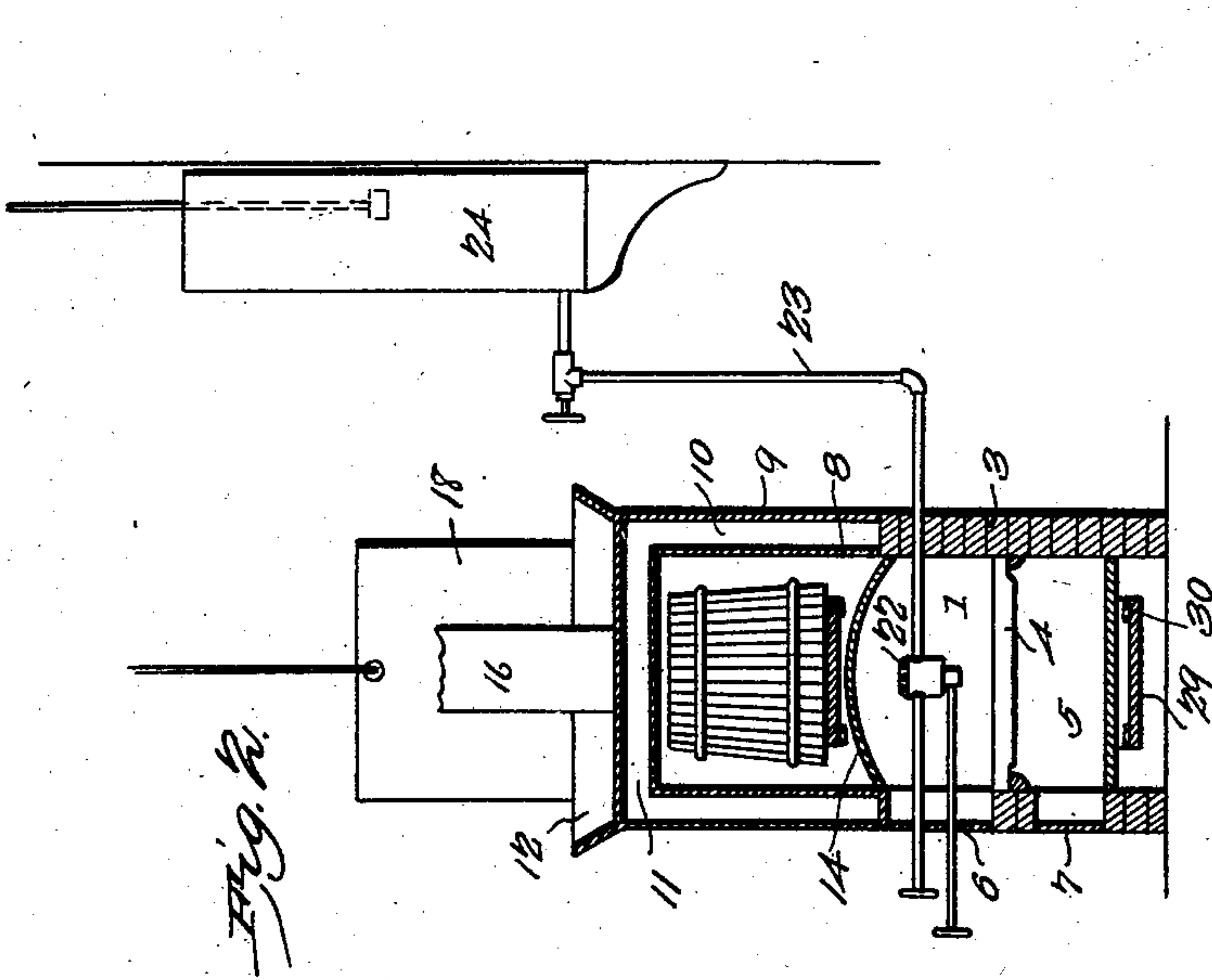
Patented June 3, 1902.

L. D. VOGEL.
HEATER AND DRIER.

(Application filed Sept. 28, 1901.)

(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

LOUIS D. VOGEL, OF OMAHA, NEBRASKA, ASSIGNOR TO WOODEN PACKAGE MANUFACTURING COMPANY, OF OMAHA, NEBRASKA.

HEATER AND DRIER.

SPECIFICATION forming part of Letters Patent No. 701,822, dated June 3, 1902.

Application filed September 28, 1901. Serial No. 76,916. (No model.)

To all whom it may concern:

Be it known that I, LOUIS D. VOGEL, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented a new and useful Heater and Drier, of which the following is a specification.

My invention is an improved heater and drier especially adapted for heating and drying wooden tubs, buckets, and other coopered articles; and it consists in the peculiar construction and combination of devices herein-after fully set forth and claimed.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a heater constructed in accordance with my invention. Fig. 2 is a vertical transverse sectional view of the same, taken on a plane indicated by the line *a a* in Fig. 1. Fig. 3 is a horizontal longitudinal sectional view of the same, taken on a plane indicated by the line *b b* of Fig. 1. Fig. 4 is a similar view taken on a plane indicated by the line *c c* of Fig. 1.

In the embodiment of my invention I construct a heating and drying furnace which comprises a fire-box 1 and a heating and drying chamber 2, which is directly above the fire-box. The walls 3 of the fire-box may be of masonry or otherwise suitably constructed, and the fire-box is provided with a grate 4, the space below the grate forming an ash-pit 5. A door 6 is provided in one of the walls of the fire-box to afford access thereto, and the ash-pit is provided with a door 7.

The heating and drying chamber 2 comprises an inner casing 8 and an outer casing 9, the said casings being, preferably, of sheet metal. The said inner and outer casings are separated in the side walls of the said heating and drying chamber to form dead-air spaces 10, which prevent loss of heat by radiation. Between the upper casing and the inner casing, which form the top of the heating and drying chamber, is formed a flue 11. A box 12 is formed on the top of the said heating and drying chamber, which box is adapted to be filled with sand or other suitable non-conducting material. One end of the heating and drying chamber is disposed directly over the fire-box, and the latter is provided with a flue 13, which extends longitudinally under

the heating and drying chamber. A crown-sheet 14 forms the top of the said flue and of the said fire-box, as shown in Figs. 1 and 2, and, being heated, radiates heat into the interior of the heating and drying chamber, as will be understood.

At one end of the heating and drying chamber in the side walls thereof are formed uptake-flues 15, which connect the flue 13, that leads from the fire-box, with the escape-flue 11 in the top of the heating and drying chamber. A flue or stack 16, which is at one end of the top of the heating and drying chamber, leads from the said escape-flue 11 and is provided with a damper 17, by means of which the draft may be regulated. The end of the flue 11 which communicates with the stack is preferably contracted, as shown in Fig. 4, by means of diagonally-disposed partitions 11^a.

The heating and drying chamber is provided at its ends with vertically-opening doors 18, which are counterbalanced by weights 19. Cords 20 connect the said weights to the said doors and operate on direction-sheaves 21.

Wood or other suitable fuel may be used in the fire-box. In Fig. 2 of the drawings I show a vapor-burner 22, disposed in the fire-box and supplied with gasolene or other liquid hydrocarbon through a pipe 23 from a reservoir 24. Where gas is available, ordinary gas-burners may be employed in the fire-box to heat the heating and drying chamber.

At the ends of the heater and drier are suitable supporting-frames 25, provided with bearings in which are journaled shafts 26 27. The said shafts are each provided with a pair of sprocket-wheels 28, and the said sprocket-wheels of the said respective shafts are engaged by endless sprocket-chains 29. The said sprocket-chains are connected together by suitable cross-rods 30. The said chains, cross-rods, and sprocket-wheels constitute an endless traveling carrier. One lead of the carrier passes longitudinally through the heating and drying chamber, above the crown-sheet 14, and through the doorways at the ends of the heating and drying chamber. The lower lead of the endless carrier passes under the ash-pit and is engaged by sheaves 31, which keep the chains tight.

Within the scope of my invention any suitable means may be employed for operating the endless carrier. For this purpose I here show the shaft 27 as provided with a gear-wheel 32, which is engaged by a pinion 33 on a power-shaft 34. The latter has a cone-pulley 35, by means of which it may be driven at any desired rate of speed by a belt from a counter-shaft, as will be readily understood.

The tubs or other articles to be dried and heated are placed on the endless carrier at one end of the heating and drying chamber, and the latter being heated, the doors thereof being opened, and the endless carrier being set in motion the said tubs or other articles are conveyed into and through the drying-chamber and dried during their passage through the same. It will be understood that the endless carrier serves to run the tubs or other articles into, through, and out of the heating and drying chamber and that tubs or other articles are placed on said carrier at one end of the heater and removed therefrom after having been carried through the heater, and hence the operation of my heating and drying apparatus is continuous. The doors 18 are only closed while the heating and drying chamber is being initially heated and are kept open while the apparatus is in use.

Having thus described my invention, I claim—

1. A heater and drier of the class described, comprising a fire-box having a flue leading therefrom, and a heating and drying chamber over the fire-box, uptake-flues in the sides of said chamber at one end thereof, and leading from the flue of the fire-box, and an escape-flue formed in the top of said chamber and extending longitudinally through the same, said uptake-flues leading to said escape-flue, and doors at the ends of said chamber; in combination with an endless traveling car-

rier having one lead disposed in and adapted to travel longitudinally through said heating and drying chamber, substantially as described. 45

2. In a heater and drier of the class described, the combination with a fire-box having a flue leading therefrom, of a heating and drying chamber having one end disposed over said fire-box, said heating and drying chamber comprising an inner and outer casing, the spaces between the sides of said casings forming non-radiating chambers, the said sides of said chamber having uptake-flues formed therein at one end thereof and communicating with the flue of the fire-box, and the space between the said inner and outer casings on the top of the said heating and drying chamber forming an escape-flue which leads from the said uptake-flues; a crown-sheet over said fire-box and the flue leading therefrom and under said heating and drying chamber; and an endless carrier having one lead adapted to travel through and disposed in said heating and drying chamber, over said crown-sheet, substantially as described. 50 55 60 65

3. A heater and drier of the class described comprising a heating and drying chamber having an escape-flue extending longitudinally above the same, uptake-flues in the sides of said chamber and communicating with said escape-flue, a fire-box under said chamber and having a flue leading to said uptake-flues, and a carrier extending through said chamber, substantially as described. 70 75

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LOUIS D. VOGEL.

Witnesses:

W. H. WHEELER,
A. L. MARK.