

J. M. STUDEBAKER & H. L. HINDS.

FURNACES FOR HEATING TIRES FOR WAGON-WHEELS.

No. 178,812.

Patented June 13, 1876.

Fig. 1.

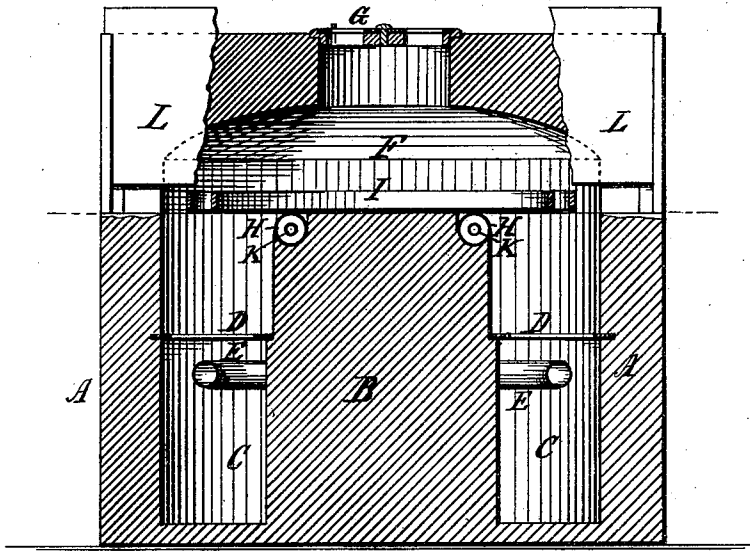
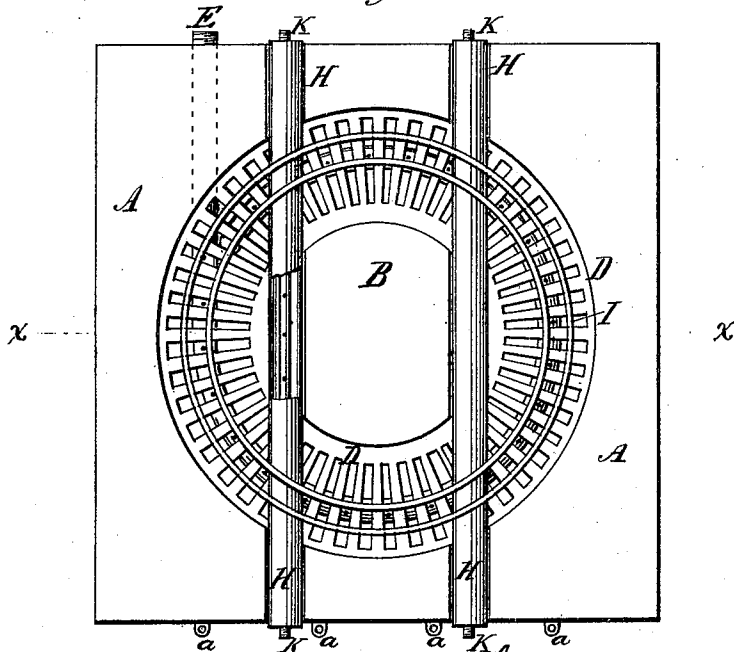


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN M. STUDEBAKER AND HUGH L. HINDS, OF SOUTH BEND, INDIANA.

IMPROVEMENT IN FURNACES FOR HEATING TIRES FOR WAGON-WHEELS.

Specification forming part of Letters Patent No. **178,812**, dated June 13, 1876; application filed April 10, 1876.

To all whom it may concern:

Be it known that we, JOHN M. STUDEBAKER and HUGH L. HINDS, both of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Furnaces for Heating Tires; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

Our invention relates to furnaces for heating tires for wagon and carriage wheels. It has for its object economy of fuel and the imparting of an uniform temperature to the tire through its entire extent, and in a much shorter time than can be done by the present system. With these objects in view our invention consists of a new and improved furnace for heating tires, as will be hereinafter more fully set forth.

To enable those skilled to more fully understand and appreciate our invention we will proceed to describe the construction, operation, and advantages of our improved furnace, referring by letters to the accompanying drawings, in which—

Figure 1 is a central vertical section of a furnace embracing our invention, taken at the line *x x*, Fig. 2, the door or slide through which the heated tires are withdrawn being shown partly in elevation, and Fig. 2 is a top view of the furnace with the dome or hot-air chamber removed.

Similar letters of reference indicate like parts in the two figures of the drawings.

A represents the outside wall or casing of the furnace, made of brick or other suitable material adapted to withstand the action of heat. B is a central pillar erected within the furnace, and about two-thirds the height of the furnace, and of such diameter as to leave an annular chamber, C, between it and the inside walls of the furnace, which are preferably circular, though they may be of any other configuration. This pillar B is made solid or closed for accumulating heat, and is designed to support the tire-sustaining tubes and the interior circumference or edge of the circular grate, as will be presently explained. The lower portion of this chamber forms the ash-pit, above which is arranged a circular

grate, D, distant from the bottom of the ash-pit about one-third the height of the furnace. E is a pipe entering the furnace at one side, and bent in a circle, and lying horizontally a short distance below the bottom of the grate D. This pipe is perforated on its top surface to admit of the passage of currents of air centrally under the grate, furnished by a blast-fan or otherwise outside the furnace. The annular chamber C merges into a dome-like chamber, F, above the top of the central pillar B, which chamber is furnished centrally with a ventilator, G, for controlling the temperature therein. H H are two parallel pipes passing through the furnace and on top of the pillar B, and designed to form a support for two or more tires, I. These pipes may be provided interiorly with smaller pipes K, perforated, and through which cold water is constantly projected to keep the pipes H at a low temperature, and prevent them from being too rapidly consumed by the intense heat in the hot-air chamber of the furnace, or the pipes K may be dispensed with, and a current of cool air made to circulate through the pipes H H for a similar purpose. The ash-pit and fuel-chambers are furnished with suitable doors for the purpose of removing the ashes and furnishing fuel to the fire, and the upper chamber F is provided with a slide or door, L, to permit of the entrance and delivery of the tires to and from the chamber. The diameters of the central post or pillar B and the annular chamber C are such that tires of the largest and smallest diameters, when placed upon the supporting-tubes H H, will lie within the chamber C and receive the direct action of the heat produced by the consumption of fuel on the grate D, intensified by the blasts from the circular pipe E.

This improved furnace may be built in sections or not, as deemed advisable, and the grate and various pipes shown may be arranged so as to be readily removed and replaced in an obvious manner without departing from the spirit of our invention, the gist of which rests in the idea of providing a heating chamber and grate of such form that the heat produced will be immediately under the circumferences of the tires to be heated and intensified by blasts from a circular pipe be-

low the grate, and inducing to a uniform and economic heating of the tire. *a a a a* are a series of staples arranged on the side of the furnace and about on a level with the supporting-pipes *H H*, and are designed to receive the hook ends of rods which have their other ends similarly connected with a tire-setting device, so that as the hot tires are withdrawn from the furnace through the door or slide *L* they may be horizontally run down the incline rods to the tire-setting machine.

A simple allusion to these devices is all that is necessary in this application, as the tire-setting device, and the arrangement of the same and the connecting-rods with our improved furnace, form the subjects of two other applications by us for Letters Patent.

The operation of our improved furnace is as follows: The fire having been kindled upon the grate *D* the slide *L* is raised, and one or more tires, *I*, are placed horizontally upon the supporting-tubes *H*, through which a current of air or water is forced, as hereinbefore explained. The slide *L* is closed and the ventilator *G* regulated when a blast of air is forced into the tube *E* by a fan or otherwise, and escapes in jets centrally and immediately under the grate *D*, intensifying the heat and producing an upward current against the tires, they also receiving the heat radiated from the outer walls of the furnace and from the central pillar, which being solid or closed, accumulates a large amount of heat that may be effectually utilized for heating tires for some hours after the furnishing of fuel to the grate has ceased, and thus it will be observed

that great economy of fuel is one of the valuable incidents resulting from the solid or closed pillar, which also serves as a support for the horizontal tire-sustaining tubes, and likewise as a support for the annular grate.

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

1. An improved furnace for heating tires, having a central solid pillar adapted to support the tire-sustaining tubes *H H*, and interior edge of annular grate *D*, and also having an annular heating-chamber and grate, arranged as described, whereby the heat generated from the burning coals is hoarded by the pillar and otherwise economized, as hereinbefore set forth.

2. In combination with the central pillar *B* and annular grate *D*, the perforated blast-pipe *E*, substantially as and for the purposes set forth.

3. In combination with the annular heating-chamber, the hollow supporting-pipes *H*, adapted to receive a current of air or water, substantially as and for the purpose set forth.

4. The combination of the heating-chamber *F*, hollow bars *H*, fuel-chamber *C*, central pillar *B*, grate *D*, and blast-pipe *E*, substantially as and for the purposes hereinbefore set forth.

Witness our hands and seals this 30th day of March, A. D. 1876.

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HUGH L. HINDS. [L. S.]

Witnesses:

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