W. B. Smith.

Furnace for Shrinking and Removing Tires.

No. 81,279. Patented Jan. 15, 1867.

Fig. 1

Fig. 2

Witnesses:

W. G. Deming

Wm. G. Burtch.

Tested

W. Bell Smith

by Knight & Co.

Attorneys.
IMPROVED PORTABLE FURNACE FOR SHRINKING ON AND REMOVING TIRES.

The Schedule referred to in these Letters Patent and making part of the same.

The tires, to expand them, so as to enable them to be slipped off the wheel, and to retain them in this condition after being suspended, or previously, have applied to them, as represented in fig. 1, a furnace, $F$, which constitutes the subject of my invention, and which is adapted, by the construction hereinafter specified, or other substantially the same, to embrace the entire periphery of the tire, and subject it equally, or otherwise, as desired, to the action of the fire contained therein, and to permit the requisite expansion of the tire, and to remain on the tire until it is in place, or as long as desired, and to be readily and expediently applied and removed.

The furnace $F$ is preferably made of sheet-iron, and is constructed in three or more sections, hinged together, as shown at $f$, and held closed by a latch, $f''$, which may be in the form of a hinge, with a removable pin or bolt, as shown, or of other suitable form.

The furnace is annular in form, so as to embrace the tire, and is preferably constructed without any inner wall or top, as shown.

Its vertical wall, or "sides," may be perforated, near the bottom, with a number of small holes, $f'''$, for the admission of air to support combustion, or provision otherwise made for that purpose.

It is supported on the tire by means of brackets, $f''''$, resting on its upper side, when in the position shown in fig. 1, as represented in said figure, or other suitable means, its bottom or flange being adapted to project under the tire, as shown in said figure, or otherwise adapted to permit of the expansion of the tire, or its own expansion may be depended on for that purpose.

Its bottom, or flange, may further be notched, as represented at $f''', to admit of, or facilitate the insertion of the grapples $D$.

It may, when constructed of sheet-iron, as stated, be strengthened by braces or stays $f'''$.

The furnace being applied to the tire, as described, it is filled with charcoal, or other suitable fuel, which, being ignited, generates heat, and imparting it to the tire, expands the same.

The tire being sufficiently expanded, is then adjusted on to the wheel, or removed therefrom, as the case may be, the furnace remaining attached in either case, and keeping up the heat until the operation is completed, so as to prevent "sticking." 8

The furnace then being removed, the tire cools and shrinks, thus, in the case of its insertion, locking it securely in place.

The heat being applied from the outside, the operation of removing tires may be performed without heating the wheels much above "blood-heat." 9

Although my invention is primarily intended for shrinking on and removing locomotive-tires, it may
also be employed for wagon and other tires, and bands of other descriptions, which are secured in place by shrinking, or may be removed by expanding.

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

The furnace F, adapted to be applied circumferentially of the tire, and to remain attached thereto during the entire operation of adjusting in place or removing, substantially as and for the purposes set forth.

To the above specification of my improvement in portable furnaces for shrinking on and removing tires I have signed my hand, this 6th day of March, 1869.

W. BELL SMITH.

Witnesses:
N. H. LEENY,
JOHN B. SHIRER.