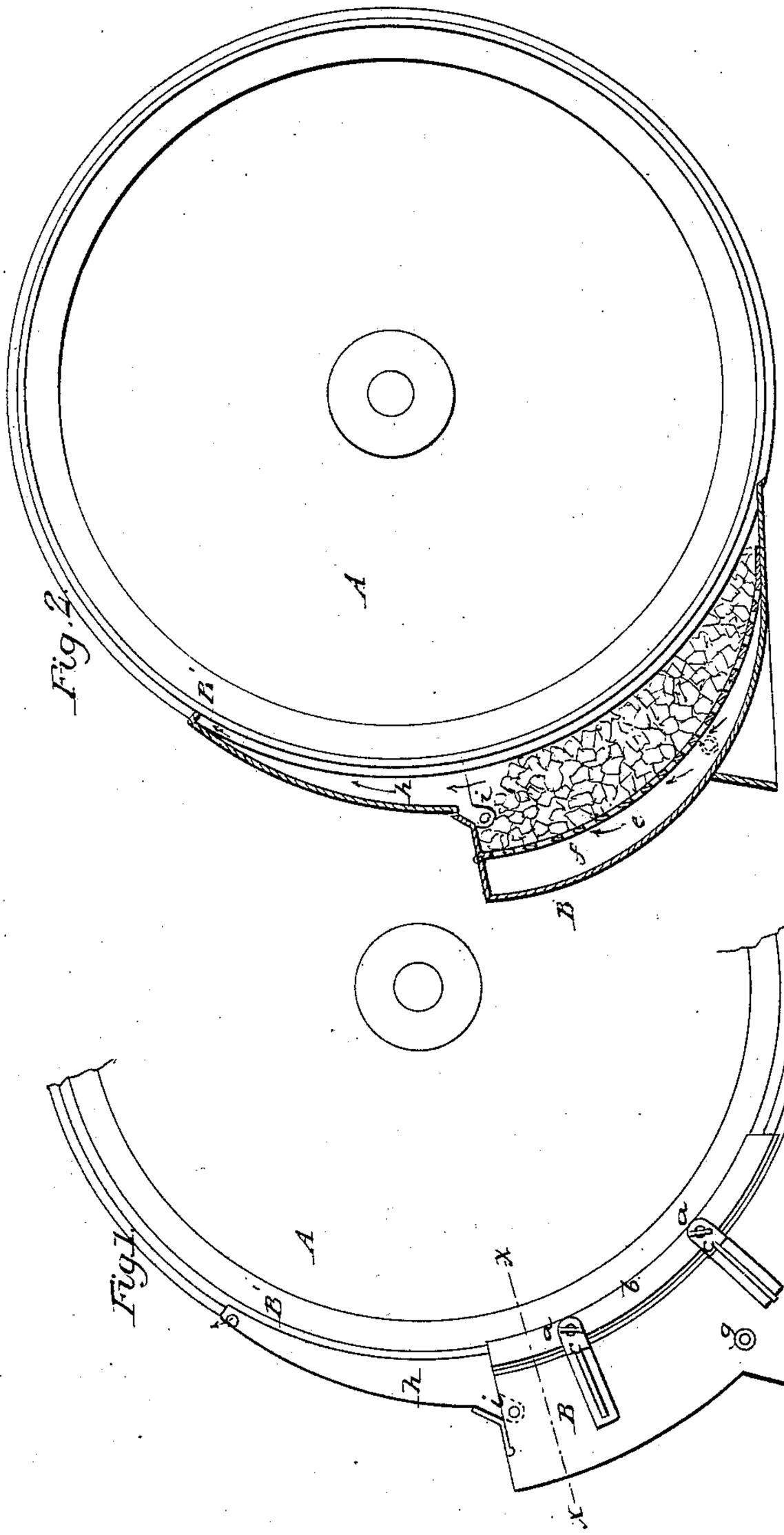
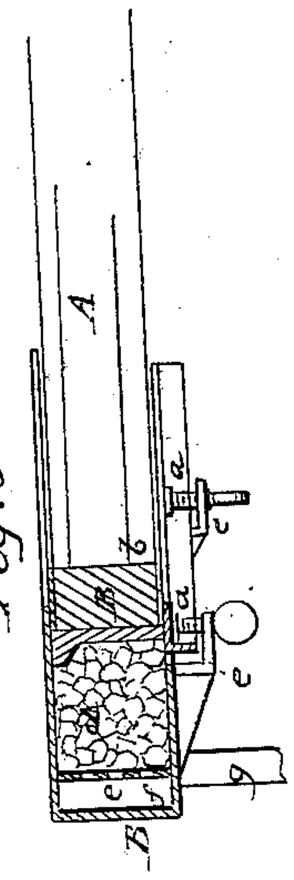
S. PENBERTHY.

Tire-Tightener.

No. 18,553. Patented Nov. 3, 1857.





UNITED STATES PATENT OFFICE.

SAMUEL PENBERTHY, OF CHICAGO, ILLINOIS.

METHOD OF EXPANDING TIRES.

Specification of Letters Patent No. 18,553, dated November 3, 1857.

To all whom it may concern:

Be it known that I, SAMUEL PENBERTHY, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Mode of Expanding the Tires of Locomotives and other Heavy Wheels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side or face view of a portion of a locomotive wheel with a furnace applied to it, and showing my invention. Fig. 2 is the same view as Fig. 1 with the exception that the furnace is bisected longitudinally. Fig. 3 is a transverse section of the furnace and wheel taken in the line (*x*) (*x*) Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in applying a portable furnace to the tire while on the wheel, and the wheel attached to its axle or shaft, the furnace being so constructed that it may be applied to the tire at any point and by heating a section thereof cause the same to be sufficiently expanded that it may be removed from the wheel or adjusted upon it without detaching the wheel from the locomotive or vehicle nor from its axle or shaft.

To enable those skilled in the art to fully understand and practice my invention I will proceed to describe it.

A represents a locomotive wheel or a portion of one and B represents a furnace which may be constructed of sheet or cast metal. The furnace is of somewhat crescent form and is attached to the tire B of the wheel by set screws (*a*) (*a*) and a flanch (*b*) which is at one side of the furnace, Figs. 1 and 3, the flanch (*b*) being attached to the ends of the set screws, which screws pass through plates (*c*) attached to one of the side plates of the furnace. The flanch (*b*) extends the whole length of the fire chamber (*d*) of the furnace, and in consequence of being adjustable as shown the furnace may be applied to tires of different width.

The fire chamber (*d*) is supplied with oxygen through a grate or perforated plate (*e*), see Figs. 2 and 3, which divides the furnace into two parts—viz., the fire chamber (*d*) and an air chamber (*f*), the latter communicating with the external air by means of a tube (*g*). The smoke passage or chamber (*h*) is of curved taper form and is jointed to the larger end of the fire chamber (*d*) as shown at (*i*), Figs. 2 and 3, so that it may be moved outward from the tire for the purpose of allowing the furnace to be more readily adjusted to and detached from the tire. The smoke passage or chamber (*h*) is not indispensably necessary, but it is preferable to have it as it increases the draft and also causes a greater heated surface to be presented to the tire.

Any proper fuel may be used and the furnace may be applied to any point of the tire. The wheel if attached to a locomotive or other vehicle would of course require to be raised a few inches in order that the tire may be removed from the wheel.

By this improvement it will be seen that the tire by being heated at one spot may be expanded and removed from the wheel without difficulty, the wheel remaining on its shaft or axle and in adjusting a new tire on a wheel if the tire contracts and binds upon the wheel before it is properly adjusted thereon, it may be, by the within described invention, readily expanded and properly adjusted on the wheel.

I do not confine myself to the precise construction of furnace as herein shown and described, for it is obvious that various modifications of the same may be successfully employed for the purpose, although the within described apparatus or contrivance would probably be as convenient and as simple as any that could be devised for the purpose.

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

Expanding the tires of locomotives and other heavy wheels while on their axles or shafts and connected with their vehicles or locomotives, by means of a portable furnace arranged as shown or in any proper way so that the same may be attached to the tire at any desired point as set forth.

SAMUEL PENBERTHY.

Witnesses:

CALVIN D. WOLF,

G. C. FLENTZ.