

No. 728,272.

PATENTED MAY 19, 1903.

T. MITCHELL.

APPARATUS FOR HARDENING TREADS OF CAR WHEELS.

APPLICATION FILED JUNE 20, 1902.

NO MODEL.

FIG. 2.

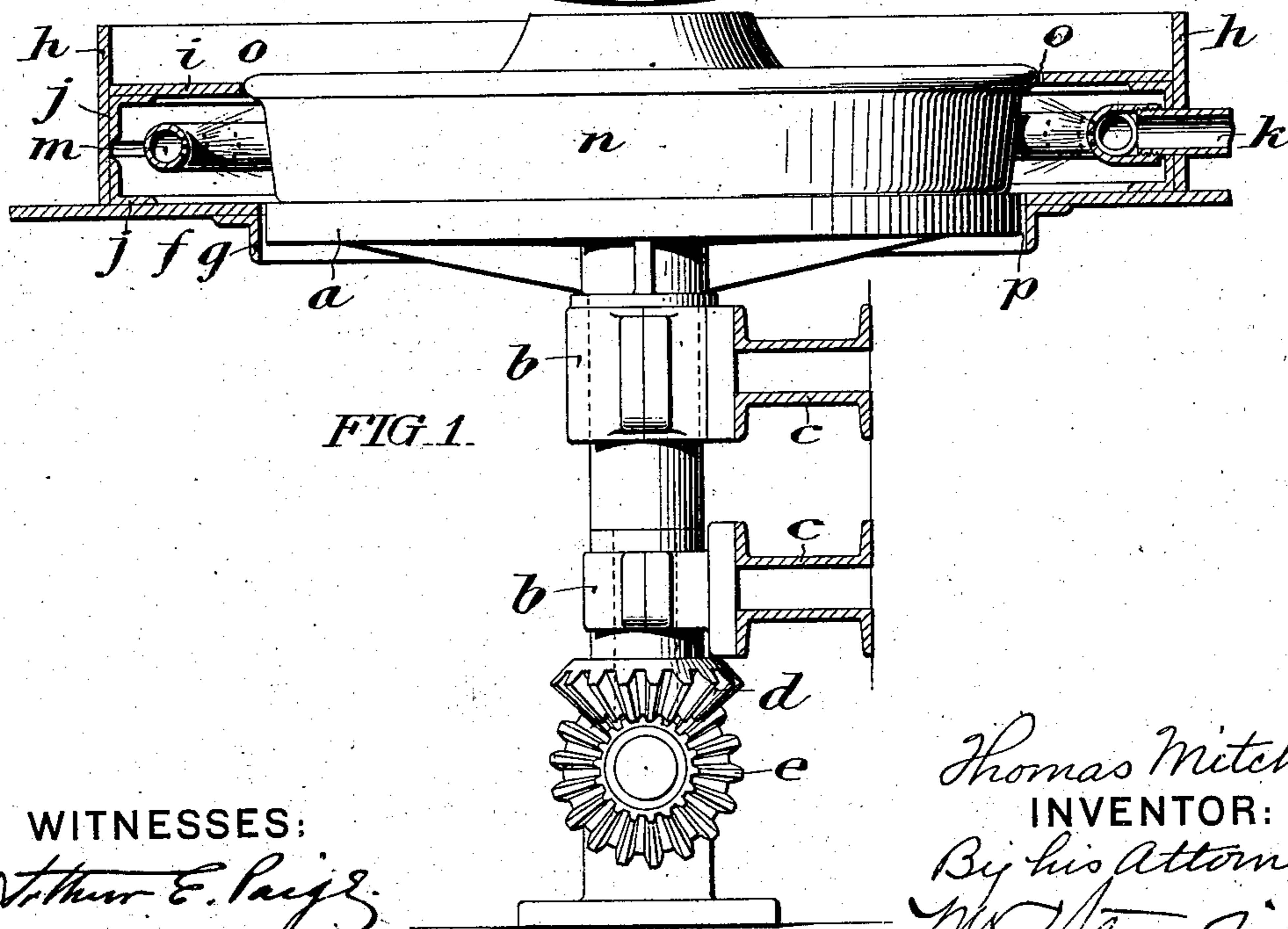
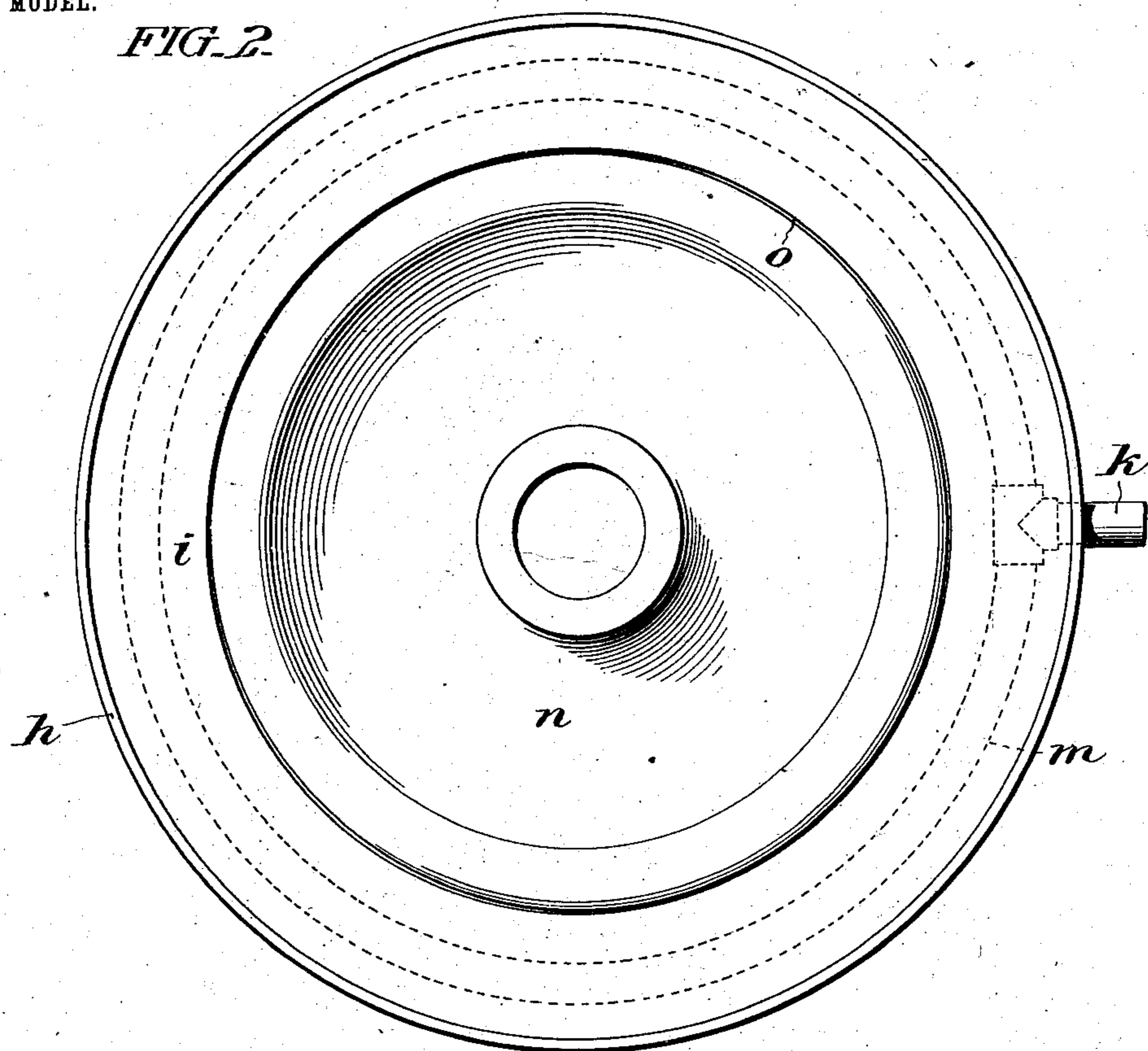


FIG. 1.

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APPARATUS FOR HARDENING TREADS OF CAR-WHEELS.

SPECIFICATION forming part of Letters Patent No. 728,272, dated May 19, 1903.

Application filed June 20, 1902. Serial No. 112,425. (No model.)

To all whom it may concern:

Be it known that I, THOMAS MITCHELL, a citizen of the United States, residing at Chester, in the county of Delaware, in the State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Hardening the Treads of Car-Wheels, of which the following is a specification.

This invention relates to the production of cast steel car wheels, and it has for its object the provision of novel, simple, inexpensive, and efficient means, by which such wheels may be operated upon to bring the metal of their treads to any desired degree of hardness.

In the accompanying drawings I illustrate an apparatus embodying a good form of my invention. Variations in form may, of course, be made without departure from the spirit of my invention.

In the drawings,

Figure 1 is a view in side elevation, partly in section, of an apparatus embodying a good form of my invention.

Figure 2 is a top plan view of the same.

In the accompanying drawings,

a is a rotatable carrier, consisting of a supporting plate, of diameter approximately the same as that of a wheel to be operated upon,— and an axial depending stem, which extends through a pair of sleeves b , carried on any suitable supports c , and with respect to which sleeves said stem, with its supporting plate, is free for revolution. Such revolution may be conveniently imparted to the carrier by providing the lower end of the stem with a driven bevel gear d , engaging with a driving bevel gear e , supposed connected with any convenient source or power.

The supporting plate or head of the rotatable carrier is of circular plan, and is arranged in an opening in which it snugly fits, free for revolution, in a floor or platform f , the upper face of the supporting plate being conveniently flush with that of the floor or platform.

A depending annular lip g is arranged at the edge of the opening in the platform f .

h is an annular wall, conveniently located in a position in which it is concentric with respect to the carrier, upon said floor f , said

wall having an inwardly extending lip i arranged above the floor f a distance approximating the thickness of the car wheel.

As will be observed, the portion of the floor f in the vicinity of the carrier, the wall h , and the lip i , together constitute an annular three sided or hood-like boxing or casing, having an inwardly facing endless opening, which opening is of breadth approximately equal to the thickness of a car wheel at its rim, the arrangement being such that the rim of a car wheel placed upon the rotatable carrier will face said opening, and with the marginal portion of the supporting plate of the rotatable carrier, very nearly close it.

If desired, said annular hood-like boxing may be strengthened by the annular braces j as shown in Figure 1.

k is a supply pipe assumed to be in communication with a source of supply of tempering fluid, under pressure, which pipe extends through a suitable opening to the interior of the annular hood-like boxing, where it is in communication with an annular tubular distributor m , the inner face of which is provided with a large number of small escape openings.

As will be understood from a contemplation of the structure illustrated, the tempering fluid, entering the distributor through the supply pipe under pressure, will emerge through said escape openings in a great number of small jets directed toward the rim or tread of the wheel n .

In the operation of the apparatus, the wheel, preferably at about a cherry red heat, is placed on the carrier and the latter caused to rotate. The tempering fluid under pressure is turned on through the supply pipe k , and thereupon, entering the distributor, escapes from it in jets, and plays against the rotating wheel. The arrangement is preferably such that the said fluid escapes from the distributor more rapidly than it escapes through the crevices o and p , and consequently it accumulates in the hood, forming an expansive cushion therein, which presents against the rim or tread of the wheel.

As will be understood, the arrangement of

the jet openings of the distributor throughout the inner circumferential face of the latter occasions a practically uniform distribution with respect to the face of the wheel rim of the tempering or hardening fluid entering through the supply pipe *k*. When rotative movement of the wheel (in the special embodiment of my invention illustrated) occurs, and all parts of the wheel tread successively and repeatedly confront different parts of the opening of the casing, intimate contact between the rim and the tempering fluid is established, and uniformity in the hardening action upon the face of the wheel rim insured.

The apparatus herein described is designed and adapted to be used in connection with any selected tempering fluid. In the use of the apparatus, I prefer to employ air.

For ordinary purposes a tempering fluid at atmospheric temperatures may be charged to the distributor, but, if desired, such fluid may be reduced to a temperature lower than that of the atmosphere and charged thereto for the purpose of accelerating or increasing the effectiveness of the operation.

The improvement in the art or process of applying the air to the rims or treads of car wheels, involved in the use of the apparatus herein set forth, forms the subject of an application executed by me contemporaneously herewith, and filed as Serial No. 112,424.

It is, of course, to be understood that when the air is employed, it need not be perfectly dry, but may be more or less saturated with any suitable liquid such as water or oil, or with such air may be commingled any ingredient which may be found useful for the purpose.

Having thus described my invention, I claim—

1. In a tempering or hardening apparatus for car wheels, in combination, means for supporting a car wheel, a hood-like boxing or casing arranged in adjacency to such wheel, and having an elongated opening facing the tread of said wheel, means for discharging a series of jets of tempering fluid within said hood-like boxing, and means for occasioning the rotation of said wheel during such discharge, substantially as set forth.

2. In an apparatus for hardening the treads of car wheels, in combination, means for supporting and rotating a wheel, an annular hood-like boxing having an elongated opening arranged to face the rim of a wheel supported by the said means, the arrangement of said boxing being such that said opening is practically closed by the marginal portions of a wheel supported as stated, and means for supplying tempering or hardening fluid at a series of independent points to the interior of said boxing, substantially as set forth.

3. In an apparatus for tempering or hardening the treads of cast steel car wheels, in combination, a rotatable carrier, means for occa-

sioning the rotation of said carrier, an annular boxing having an elongated opening confronted and practically closed by a wheel placed on said carrier, a circumferentially extending distributor arranged within said boxing and having a large number of escape openings, and means for supplying tempering or hardening fluid to said distributor, substantially as set forth.

4. In combination with a rotatable carrier having a circular supporting plate, a floor or fixture having an opening in which said carrier fits, a fixed annular wall arranged on said floor and having an inwardly projecting lip, a fluid distributor arranged between said lip and said floor and embodying a series of independent escape openings, and means for supplying tempering or hardening fluid to said distributor, substantially as set forth.

5. In combination with a carrier having a circular supporting plate, means for rotating said carrier, a floor or fixture having an opening in which said plate fits, an annular wall rising from said floor and having an inwardly projecting lip, the margin of which lip is so arranged as to be in close proximity to the rim of a wheel mounted on said carrier, and means for supplying tempering fluid to the space below said lip.

6. In an apparatus for hardening the rims of cast steel car wheels, a carrier, adapted to support a wheel, means for rotating said carrier, a hood-like annular boxing having an elongated opening on its inner face, which opening is confronted by a wheel on said carrier, a distributor having a series of small openings arranged to discharge within said boxing and against the rim of a wheel mounted on the carrier, and a supply pipe in communication with said distributor, substantially as set forth.

7. In a tempering or hardening apparatus for car wheels, in combination, means for supporting a car wheel, a casing arranged adjacent to the tread of said wheel and having an elongated opening facing said tread, means for causing the rotation of one of said elements relatively to the other, and means for discharging a series of jets of tempering fluid within said casing, for the purpose set forth.

8. In a tempering or hardening apparatus for car wheels, in combination, means for supporting a car wheel, a boxing device arranged concentric to such wheel in proximity to the tread thereof, and having an opening facing said tread, means for causing the rotation of one of said elements relatively to the other, and means for discharging a series of jets of tempering fluid within said boxing device, for the purpose set forth.

9. In a tempering or hardening apparatus for car wheels, in combination, a support for a car wheel, a boxing or casing extending circumferentially of the rim of a wheel in position on said support, and open as to its region

confronting the face or tread of the wheel-
rim, a distributor arranged within said box-
ing and having a series of escape openings,
and means for supplying tempering or hard-
5 ening fluid to said distributor, substantially
as set forth.

In testimony that I claim the foregoing as

my invention I have hereunto signed my
name this 12th day of June, A. D. 1902.

THOMAS MITCHELL.

In presence of—

THOS. K. LANCASTER,
S. SALOME BROOKE.