

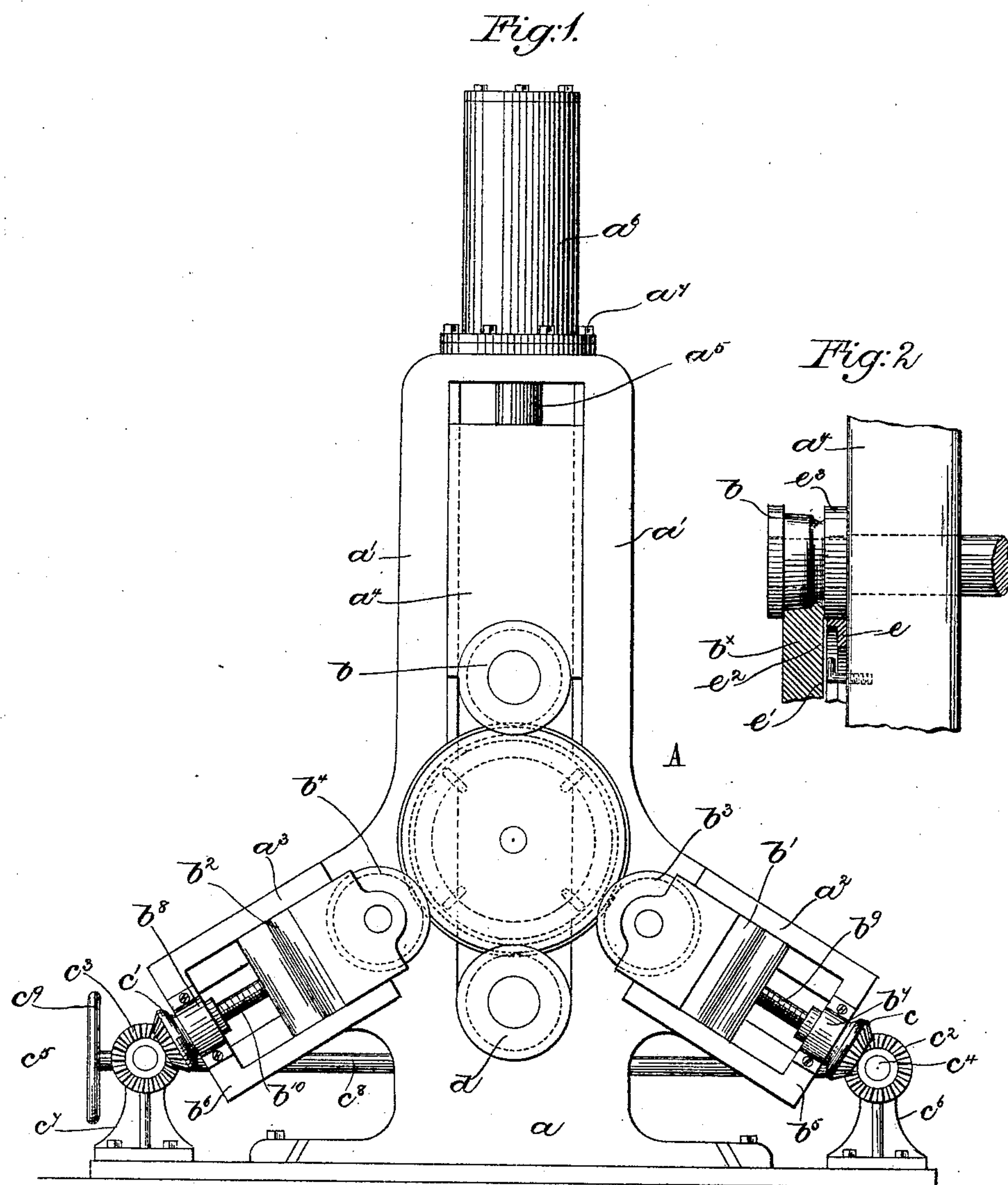
(No Model.)

N. WASHBURN.

APPARATUS FOR ROLLING CAR WHEELS, TIRES, &c.

No. 437,270.

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UNITED STATES PATENT OFFICE.

NATHAN WASHBURN, OF BOSTON, MASSACHUSETTS.

APPARATUS FOR ROLLING CAR-WHEELS, TIRES, &c.

SPECIFICATION forming part of Letters Patent No. 437,270, dated September 30, 1890.

Application filed January 28, 1890. Serial No. 338,391. (No model.)

To all whom it may concern:

Be it known that I, NATHAN WASHBURN, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in

5 Apparatus for Rolling Car-Wheels and Similar Circular Objects, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention relates to a novel apparatus or rolling-mill especially adapted to be used in manipulating cast-steel car-wheels, car-wheel tires, and like circular objects, and has for its object to provide the said apparatus

15 with a gage, whereby the car-wheels or other circular objects manipulated in the machine may be accurately reduced to the same diameter.

My invention therefore consists, in a rolling-mill or apparatus for the compression and reduction of circular metallic objects, in the combination, with a supporting-frame, a series of rollers carried thereby, and means to move one or more of said rollers, of a gage to

25 limit the movement of the movable roller to thereby limit the reduction of the circular object, substantially as will be described.

Other features of my invention will be pointed out in the claims at the end of this

30 specification.

Figure 1 represents a front elevation of a rolling-mill or apparatus embodying my invention; Fig. 2, a detail to more clearly show the gage.

35 Referring to Fig. 1, A represents the frame-work of my improved rolling apparatus, it consisting, as herein shown, of a base portion a , a slotted upright portion a' , and slotted arms a^2 a^3 , extended from the upright portion on

40 opposite sides thereof. The slotted upright portion a' forms a guideway for a plunger a^4 , joined by a rod a^5 to a piston. (Not shown, but which is located in a cylinder a^6 , secured on top of the frame-work, as by suitable bolts

45 a^7 .) The plunger a^4 supports a roller b , having its periphery shaped, as herein shown, to conform to the shape of the periphery of a car-wheel b^x . The arms a^2 a^3 form guideways for movable blocks b' b^2 , carrying rollers b^3 b^4 , similar in shape to the roller b . The arms a^2

50 a^3 are provided with cross-pieces or tie-bars b^5 b^6 , on which are secured bearing-boxes b^7 b^8

for screw-shafts b^9 b^{10} , having their inner ends inserted into the threaded sockets in the blocks b' b^2 . The threaded shafts b^9 b^{10} are

55 provided at their outer ends, as herein shown, with bevel-gears c c' in mesh with bevel-gears c^2 c^3 on shafts c^4 c^5 , mounted in uprights c^6 c^7 , the shafts c^4 c^5 being driven from a main shaft c^8 in any usual manner, as by gears. (Not

60 herein shown.) The main shaft c^8 is provided, as herein shown, with a hand-wheel c^9 , by turning which the blocks b' b^2 may be adjusted in the guideways a^2 a^3 .

The frame-work A supports a roller d , located below and substantially diametrically

65 opposite the roller b , the roller d being rotated in any usual manner to produce rotation of the car-wheel b^x or other circular object to be reduced to a desired diameter. The pe-

70 riphery of the rollers will in practice correspond to the shape of the periphery of the object to be reduced.

In operation the car-wheel b^x , while hot, is placed in position on the apparatus, it resting upon the rollers b^3 b^4 , and when in position the piston in the cylinder a^6 may be

75 moved down by hydraulic, steam, or like motive power admitted into the cylinder until the roller b is brought into contact with the

80 wheel. The roller d is then set in rotation and the car-wheel is frictionally revolved, and as it is revolved the periphery is compressed by the roller b and gradually reduced in diameter.

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In order that all the car-wheels to be treated may be reduced to the same diameter, I have provided a gage, herein shown as a metallic ring e , loosely secured to the frame-work, as

90 by bolts e' , provided with an extended head e^x , the said ring having, as herein shown, an annular flange or rim e^2 lying in the path of movement of the hub e^3 of the roller b , so that when the wheel has been compressed at its periphery and reduced to the desired diameter

95 the hub e^3 of the said roller will be at such time in contact with the gage, and thereby prevent further compression or reduction of the wheel. As soon as the hub e^3 of the roller b is brought into contact with the rim e^2 of

100 the gage the latter is revolved, and the operator then knows that the wheel has been reduced to the desired diameter.

The gage herein shown may readily be re-

moved and a different size gage substituted therefor if it is desired to reduce or compress the wheel to a different diameter.

It will readily be seen that circular objects
5 may be accurately reduced to the diameter desired, and when car-wheels or tires have their periphery compressed it is especially essential that all the wheels should be uniform in diameter, which is effected in the
10 present instance by the gage.

The rollers b^3 b^4 preferably serve merely as supports for the car-wheel.

I have herein shown my improved gage applied to a rolling-mill or apparatus in which
15 the pressure upon the periphery is accomplished by movement of a piston; but I do not desire to limit myself in this respect, as the said gage may be used to advantage on a rolling-mill or apparatus in which the com-
20 pression of the metal is effected in other ways.

I have herein shown one form of gage; but I do not desire to limit my invention to the particular form shown, as it is evident various other forms may be used, the gist of my
25 invention consisting in a gage to regulate the reduction of the car-wheels, tires, or similar circular objects.

I claim—

1. In a rolling-mill or apparatus for the compression and reduction of circular metallic
30 objects, the combination, with a supporting-frame, a series of rollers carried thereby, and means to move one or more of said rollers, of a gage to limit the movement of the movable
35 roller to thereby limit the reduction of the circular object, substantially as described.

2. In a rolling-mill or apparatus for the compression and reduction of circular metallic
40 objects, the combination, with a supporting-frame consisting of a base, a slotted upright portion, and slotted arms, blocks b' b^2 in said arms, provided with rollers, a plunger in said slotted upright portion, a roller carried
45 by said plunger, a cylinder having a piston connected to said plunger, a driving-roller d to impart rotation to the car-wheel or other object, and a gage loosely secured to the frame-
work to limit the movement of the plunger and its roller, substantially as described.

In testimony whereof I have signed my name
50 to this specification in the presence of two subscribing witnesses.

NATHAN WASHBURN.

Witnesses:

JAS. H. CHURCHILL,
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