

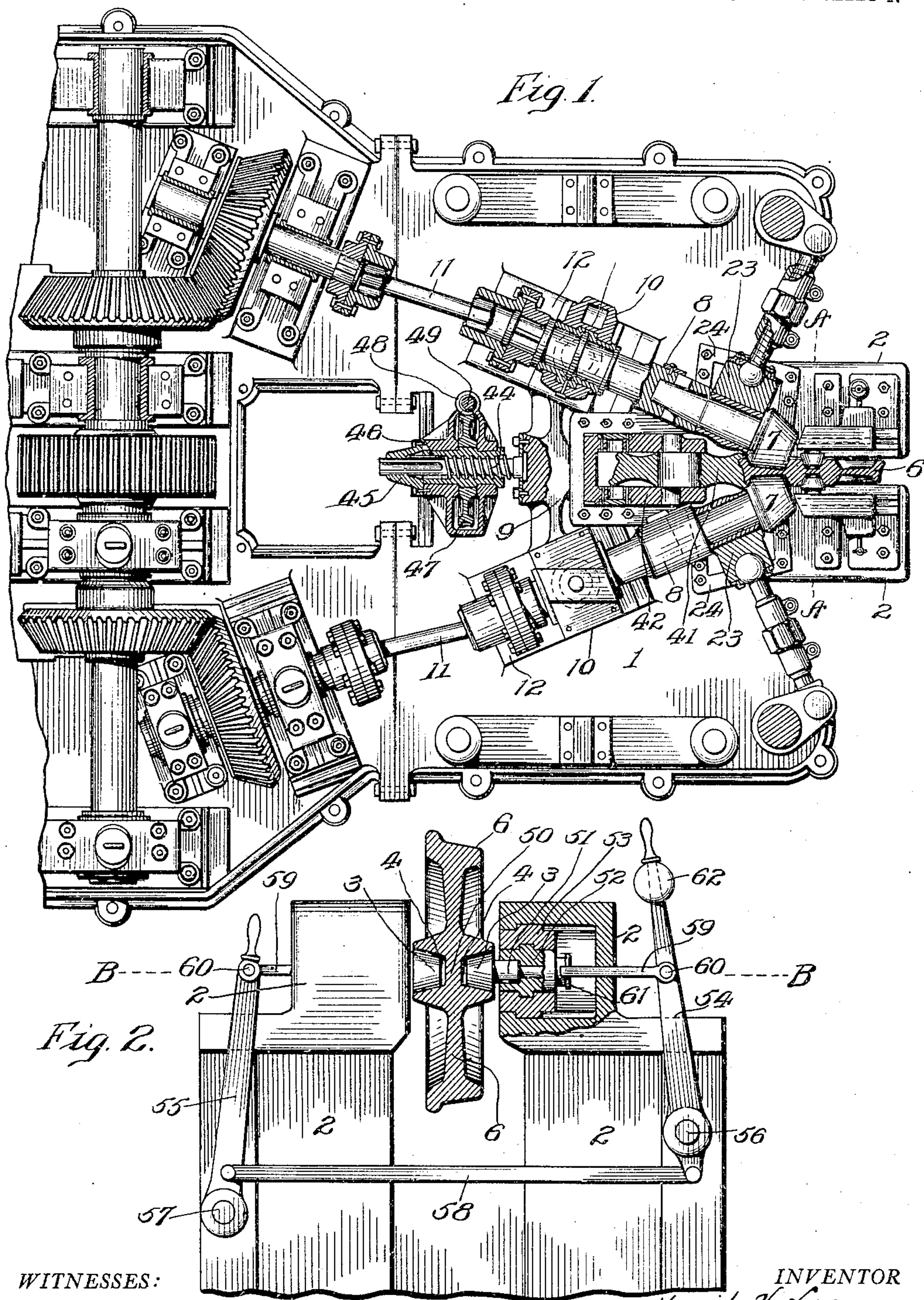
No. 792,337.

PATENTED JUNE 13, 1905.

H. V. LOSS.  
MACHINE FOR ROLLING CAR WHEELS.

APPLICATION FILED DEC. 21, 1904.

2 SHEETS—SHEET 1.



WITNESSES:  
*H. J. Hartman.*  
*Ernest Chiles.*

INVENTOR  
*Henrich V. Loss*  
BY *Chas. A. Carter.*  
ATTORNEY.



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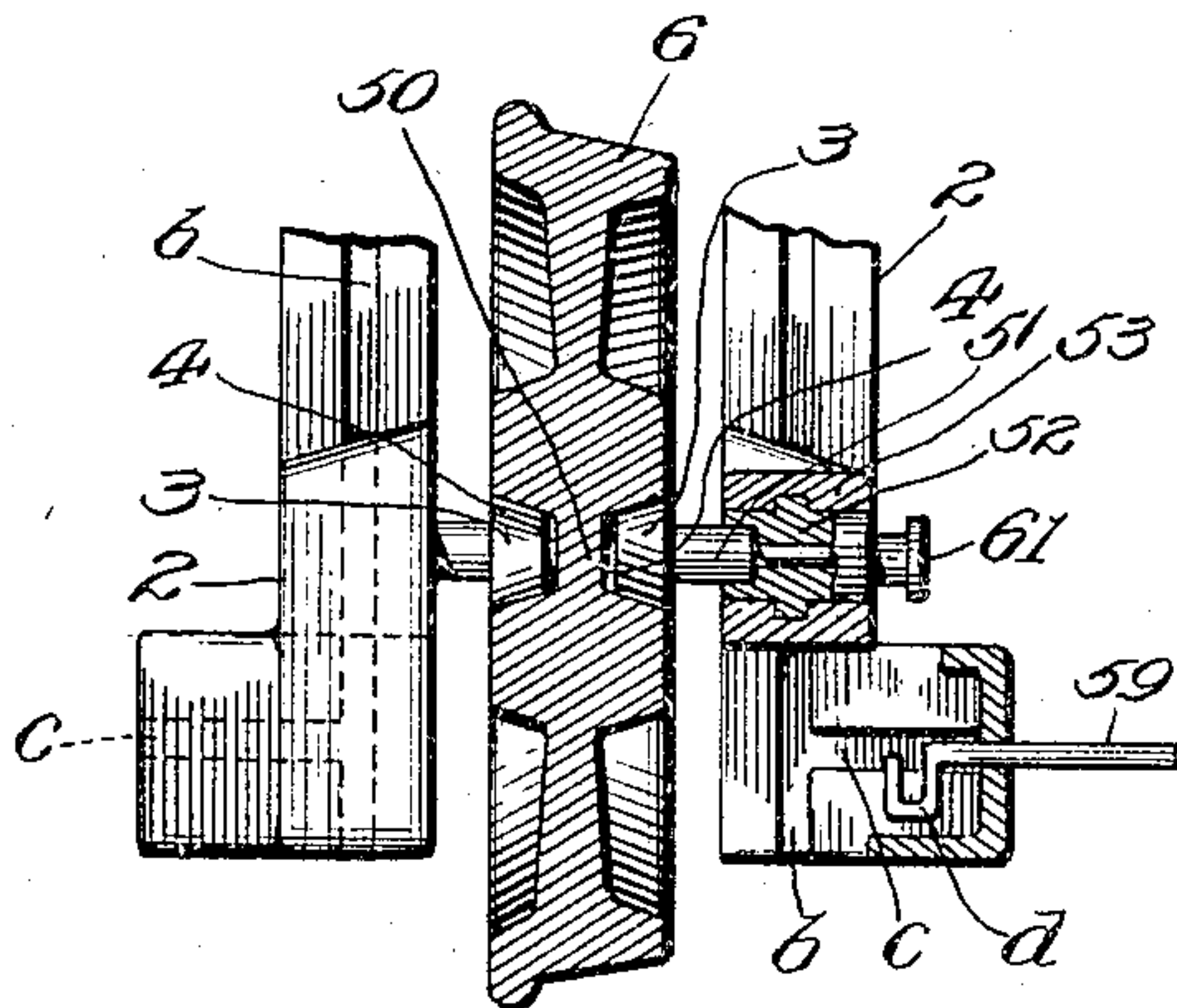
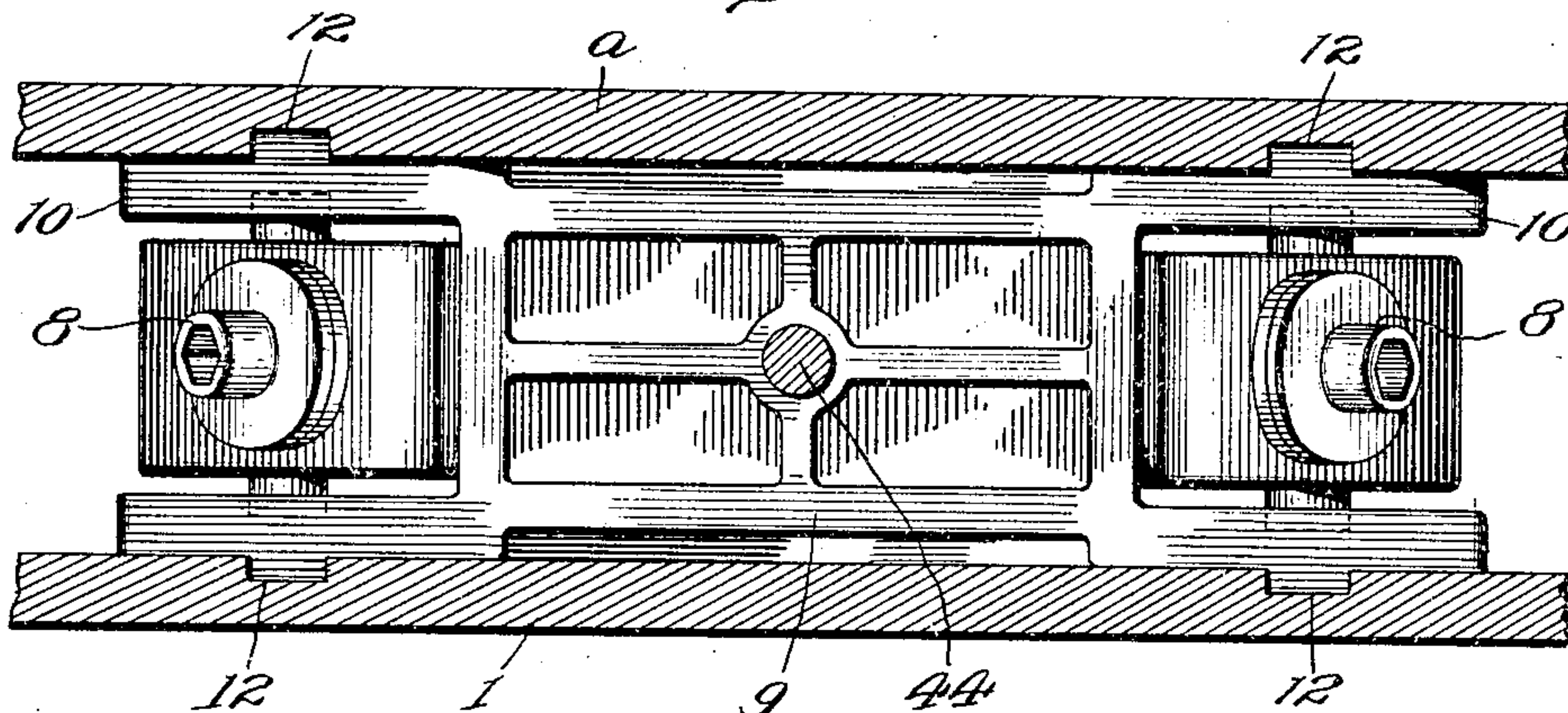
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2 SHEETS—SHEET 2.

*Fig. 3.*



*Fig. 4.*

WITNESSES:  
*F. J. Hartman.*  
*Ernest Shields*

INVENTOR  
*Henrik V. Loss*  
BY *Chas. A. Carter.*  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

HENRIK V. LOSS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
CHAS. T. SCHOEN, OF MOYLAN, PENNSYLVANIA.

## MACHINE FOR ROLLING CAR-WHEELS.

SPECIFICATION forming part of Letters Patent No. 792,337, dated June 13, 1905.

Application filed December 21, 1904. Serial No. 237,762.

*To all whom it may concern:*

Be it known that I, HENRIK V. LOSS, a citizen of the United States, and a resident of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Machines for Rolling Car-Wheels, of which the following is a specification.

My invention relates to improvements in machines for rolling car-wheels; and the object of my invention is to furnish an improved means for forming the tread and an improved means for supporting the blank during the process of rolling.

In Letters Patent of the United States granted to me on August 12, 1902, No. 706,674, a machine for rolling car-wheels is shown in which the blank to be formed into the wheel is made with a central perforation through which a horizontal spindle passes in order to support it vertically, the blank being operated upon by three sets of independently-controllable rolls, one set for drawing out the web, another for forming the tread, and the third for acting upon the lateral edges of tread. In this invention the rolls for forming the tread are movable toward the center of the blank during the rolling, while the web-forming rolls are movable during the rolling substantially toward one another—that is to say, against the sides of the blank. In practice this method of rolling the wheel-blank has proved fairly satisfactory, except in that the extreme pressures necessary to form the wheel draw the metal away from the supporting-spindle, causing the inner parts of the sides of the perforation through the blank to be drawn outward, thus leaving a perforation of greater diameter inside than at its ends, and subsequently necessitating the removal by boring or otherwise of a considerable amount of metal from the hub in order to obtain a perforation of uniform diameter throughout.

In my present invention I use a blank which is formed with depressions at its center, one upon either side, leaving a web of metal between, and I engage these depressions and support the blank during the process of rolling upon trunnions suitably carried in a frame.

The web of metal separating the depressions upon the opposite ends of the hub serves to tie opposite sides of the hub together and prevents any serious distortion of the central portion of the hub during the rolling process. After the wheel has been completed its hub is bored, and this one boring is all that is required. The web of the wheel is formed, as in my former invention, between complementary rolls; but these rolls in addition to having their former movement of rotation and movement toward and away from one another and from the web have conjointly a movement substantially at right angles to the transverse axis of the wheel, while the wheel which forms the outer face of the tread has no movement other than that on its axis.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan, partly in section, of my improved rolling-machine, the upper plate *a*, Fig. 3, being removed; Fig. 2, a section, on an enlarged scale, of Fig. 1 on line A A; Fig. 3, an end view of the converging roll-holders and their connection-yoke, and Fig. 4 a section of Fig. 2 on line B B.

1, Figs. 1 and 3, is a bed-plate, and *a*, Fig. 3, a top plate, which carry stands 2, which carry trunnions 3, Figs. 2 and 4, which engage depressions 4, formed at the center and upon opposite sides of the blank 6. The complementary rolls 7 are arranged, as before, convergently in rotary roll-holders 8, which are mounted in bearings 10, which are now secured together by any suitable yoke 9. The roll-holders 8 have rotary motion imparted to them through the coupling-rods 11, which are arranged and driven in any suitable manner—as in my former patent, for instance. It will therefore be unnecessary to redescribe this part of the machine. The forward end of each roll-holder 8 is mounted in a block 23, which is movable in ways 24 on the bed-plate 1 through mechanism as described in my former patent to cause the rolls 7 to approach or recede from the work, and the bearings 10, in addition to their former movement upon their vertical axis, so that the rolls may be moved toward and away from the work,



have a longitudinal movement in ways 12, carried by the bed 1 and plate *a*, so that the rolls 7 may be moved toward or away from the tread-shaping roll 41, which is carried in the present case in fixed bearings 42, which are carried by bed 1.

The bearings 10, which carry the roll-holders 8, are cast together or are secured by a yoke 9, and this yoke and the bearings 10, with which it is connected, the roll-holders 8, and the rolls 7 are adjustable toward and away from the tread-shaping roll 41 by a screw 44, mounted in bearings 45 and having a nut 46, which carries a worm-wheel 47, which engages a worm 48 on a shaft 49. By revolving the shaft 49 in any convenient manner the worm 48, worm-wheel 47, and nut 46 may be driven to move the screw 44 and the rolls 7 toward or away from the tread-forming roll 41.

The wheel-blank 6 is first roughly forged to shape in a press, and upon each side the hub is formed a depression 4. (Best shown in Figs. 2 and 4.) 50 is a web separating the depressions 4, which preferably have inwardly-sloping walls. 3 represents trunnions adapted to engage the depressions 4 to support the blank during the finishing operations. The trunnions 3 are carried on spindles 51, which are carried in bearings 52, which are carried and revolve in blocks 53, which are movably carried in the stands 2. The stands 2 are furnished with longitudinal guides *b* and with transverse guides *c*, in which the blocks 53 can slide. When the blank 6 is to be secured to or detached from the trunnions 3, the blocks 53 are moved to the outer end of the stands 2, in which position they can be moved out in the guides *c* to cause the trunnions 3 to disengage the blank 6. When the blocks 52 are moved in on guides *c*, the trunnions engage the blank, as shown, and the blocks can then be moved in on guides *b* until the web of the blank is in position to be engaged by rolls 7. During the rolling by the rolls 7 the diameter of the blank is increased and causes the trunnions 3 and connected parts to slide outward in guides *b*, a movement which they are free to make. After the completion of the rolling the blocks 53 are moved out on slides *b* until the hooks *d*, Fig. 4, on the inner ends of rods 59 engage collars 61, carried by blocks 53. The rods 59 are pivoted to levers 54 55 at 60, and these levers are themselves pivoted (the former at 56, the latter at 57) to stationary supports. 58 is a rod connecting levers 54 55; 62, a counterweight upon upper end of lever 54. By throwing the lever 54 outward when the blocks 53 are opposite guides *c* the trunnions 3 are, through the connections shown, simultaneously drawn out of the depressions 4 in the blank 6, and, conversely, if the lever 54 be thrown inward the trunnions 3 are simultaneously thrown inward to engage the depressions 4 in a blank which has

been moved in any convenient manner opposite them. The complementary rolls 7 having been separated, as in my former invention, and the blank 6 being held by the trunnions 3, the rolls 7 are closed and revolved, and at the same time they are, through the screw 44 or an equivalent device, moved out toward the tread-forming wheel 41, simultaneously rolling the web of the blank and, in conjunction with the wheel 41, forming the tread. The web of metal 50, separating the depressions 4 in the wheel-blank 6, prevents any serious distortion of the hub of the blank during the rolling, the hub being finally punched or bored for the axle after the wheel has been otherwise completely formed.

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

1. In a machine for rolling car-wheels, in combination, means for revolvably carrying the wheel-blank, a tread-roll, a pair of converging rolls adapted to shape the wheel between its hub and tread and in conjunction with said tread-roll to form the tread, means for moving said converging rolls into and out of operative position with the web, means for driving said latter rolls, and means for moving said latter rolls in and out, substantially at right angles to the axis of the tread-roll.

2. In a machine for rolling car-wheels, in combination, means for revolvably carrying the wheel-blank, a tread-roll, fixed supports for carrying said roll, a pair of converging rolls adapted to shape the web of the wheel and in conjunction with said tread-roll to form the tread, means for moving said converging rolls into and out of operative position with the web, means for moving said rolls toward and away from the tread-roll, that is, substantially at right angles to the axis of said roll, and means for driving said rolls.

3. In a machine for rolling car-wheels, in combination, means for revolvably carrying the wheel-blank, a tread-roll, fixed supports for carrying said roll, a pair of converging rolls adapted to shape the web of the wheel and in conjunction with said tread-roll to form the tread, a carriage for carrying said converging rolls, means for moving said rolls substantially longitudinally, means for moving said rolls substantially radially, and means for driving said rolls.

4. In a machine for rolling car-wheels, in combination, a pair of converging rolls adapted to roll the web and the inner side of the rim of the wheel, means for positively rotating each of said converging rolls, bearings in which said rolls are carried, a yoke carrying said bearings, guides for said bearings, a screw engaging said yoke, and means whereby said screw may be rotated in order to advance or retract said yoke, bearings, and rolls.

5. In a wheel-rolling machine, in combination, supports between which a blank is adapted to be placed, said supports each being fur-



nished with longitudinal and transverse guides, blocks carried by said guides, trunnions carried by said blocks adapted to engage a wheel-blank centrally, hooked rods adapted to engage said blocks when opposite said transverse guides, pivoted levers to which the outer ends of said rods are connected, and a connection between said levers whereby the operation of one will cause the proper operation of the other.

6. In combination, supports or carriers be-

tween which a blank is adapted to be placed, blocks adapted to slide longitudinally and transversely in said carriers, bearings adapted to rotate in said blocks, trunnions carried by said bearings, and means whereby said blocks may be moved transversely in the said bearings.

HENRIK V. LOSS.

Witnesses:

GEORGE W. SELTZER,  
CHARLES A. RUTTER.