

No. 789,645.

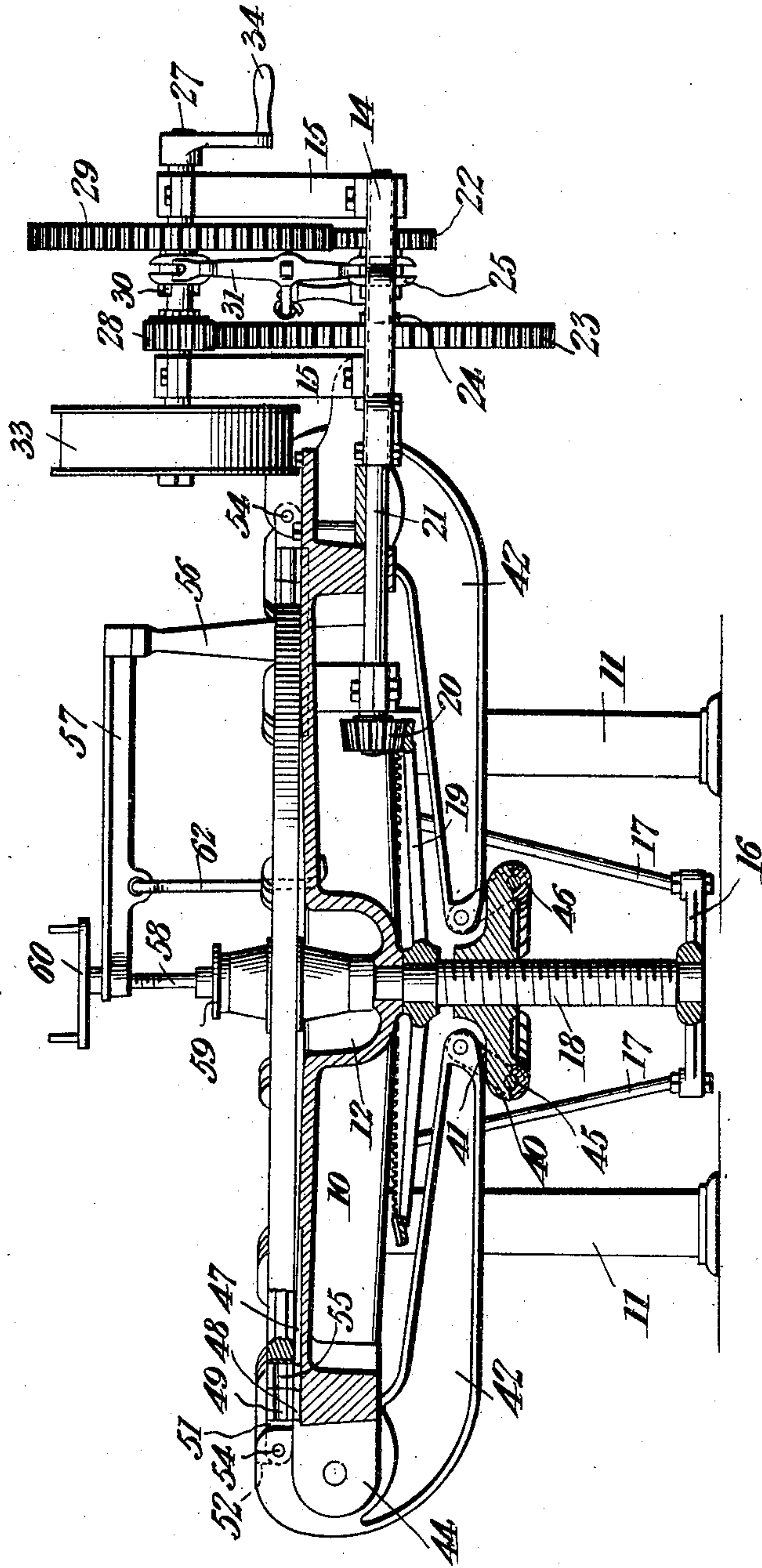
PATENTED MAY 9, 1905.

W. I. WOLVERTON.
TIRE SETTER.

APPLICATION FILED OCT. 31, 1904.

3 SHEETS—SHEET 1.

Fig. 1.



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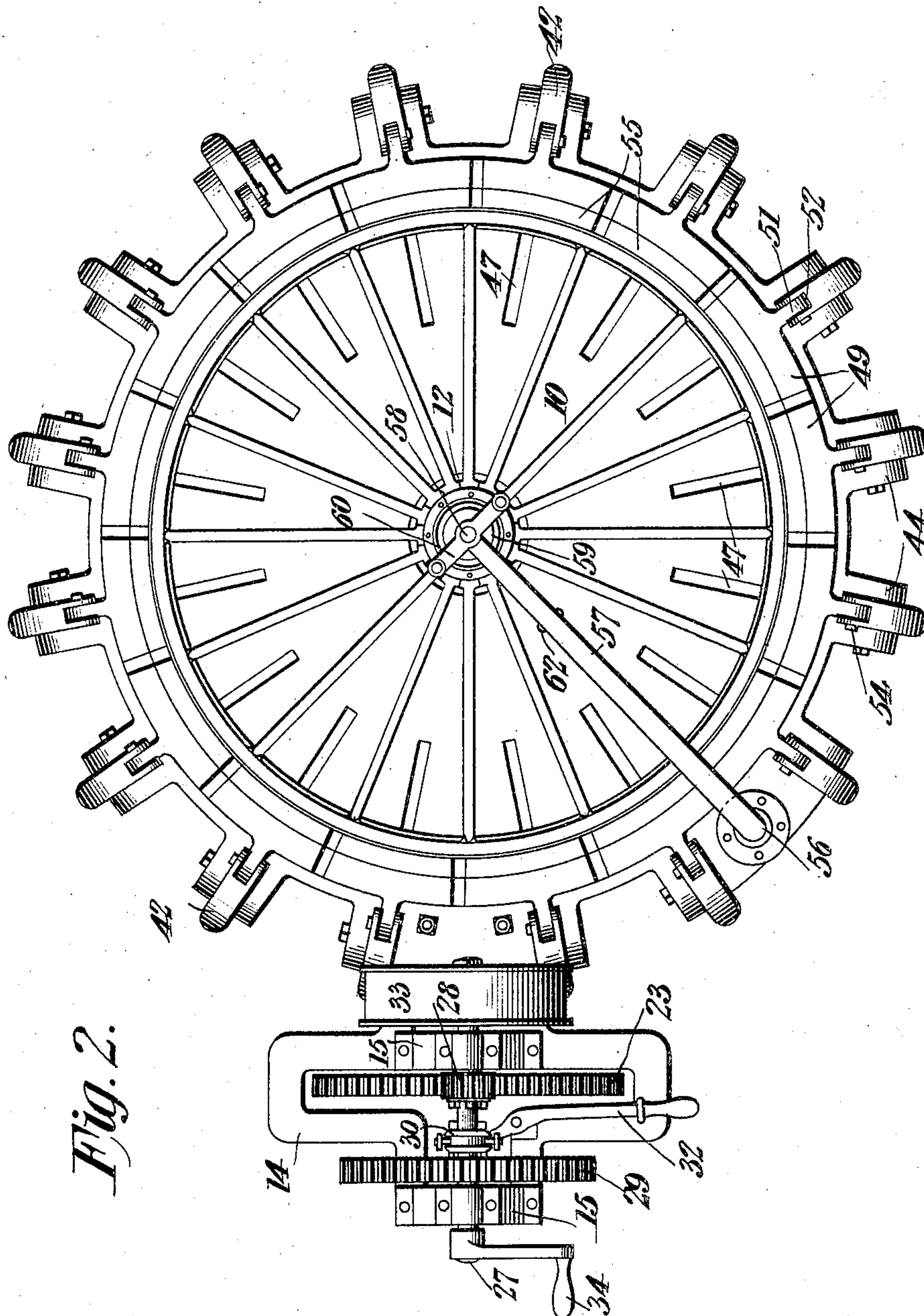
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 3.

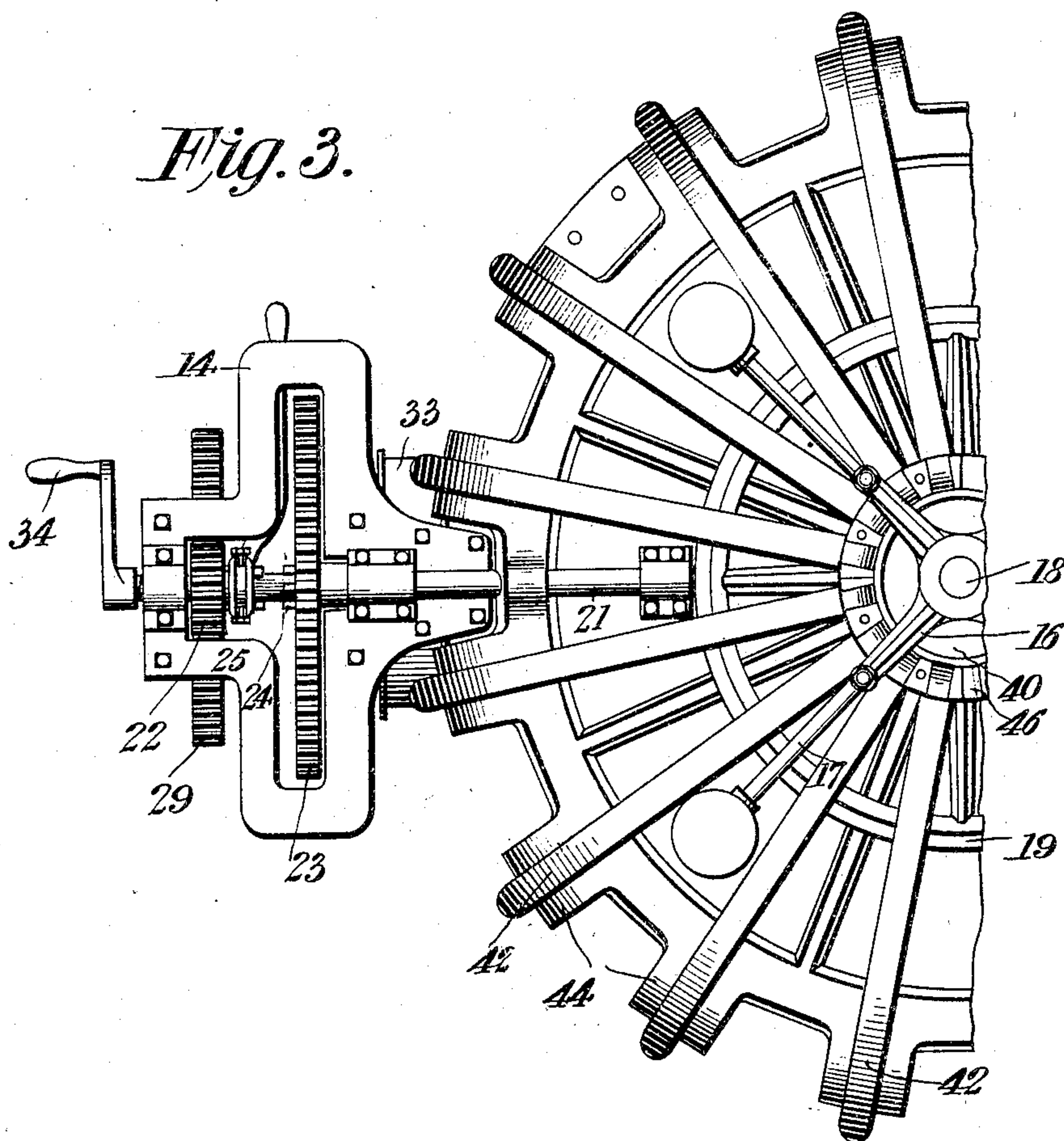


Fig. 4.

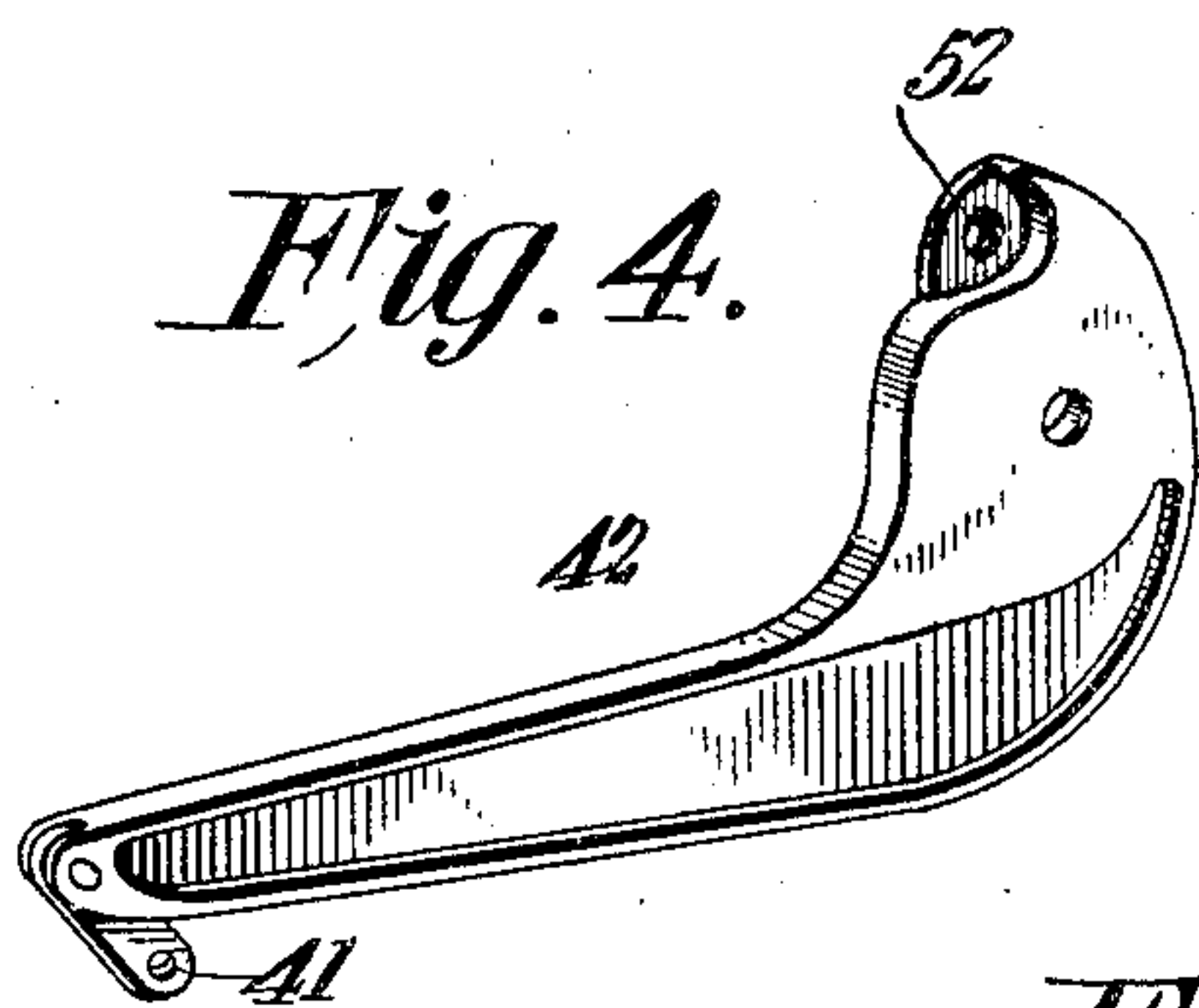


Fig. 5.

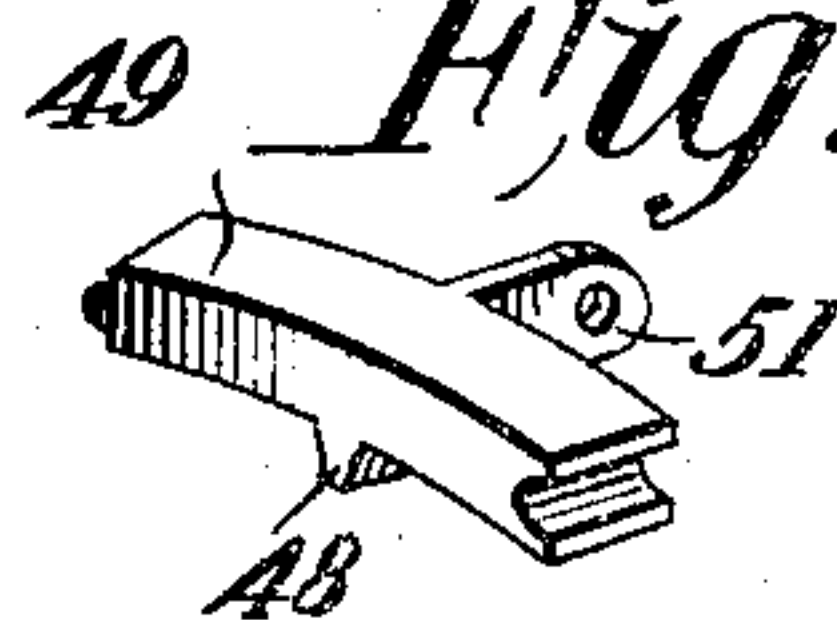


Fig. 6.



Fig. 7.



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UNITED STATES PATENT OFFICE.

WASHINGTON I. WOLVERTON, OF HOLTON, KANSAS.

TIRE-SETTER.

SPECIFICATION forming part of Letters Patent No. 789,645, dated May 9, 1905.

Application filed October 31, 1904. Serial No. 230,785.

To all whom it may concern:

Be it known that I, WASHINGTON I. WOLVERTON, a citizen of the United States, residing at Holton, in the county of Jackson and State of Kansas, have invented a new and useful Tire-Setter, of which the following is a specification.

This invention relates to tire-setting machines, and has for its principal object to provide a mechanism of simple construction for compressing cold tires around the fellyes of wheels, the machine being so arranged as to exert uniform pressure at all points around the periphery of the wheel, and thus set the tire without danger of injuring the felly.

A further object of the invention is to provide a novel form of tire-setting machine that may be operated either by hand or power and which may be quickly adjusted for operation on wheels of different diameter.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts herein-
after fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of a tire-setting machine constructed in accordance with the invention. Fig. 2 is a plan view of the same. Fig. 3 is a partial plan view of the machine inverted. Fig. 4 is a detail perspective view of one of the main operating-levers, a portion of the lever being broken away in order to more clearly illustrate the construction. Fig. 5 is a similar view of one of the tire-pressing blocks. Fig. 6 is a detail perspective view of one of the auxiliary blocks employed where tires of smaller diameter are to be operated upon. Fig. 7 is a detail perspective view of one of the connecting-plates carried by the traveling nut.

Similar numerals of reference are employed to indicate corresponding parts

throughout the several figures of the drawings.

The working parts of the apparatus are supported on a suitable frame including an approximately circular table 10 and legs or standards 11, the center of the table being provided with a depression 12 for the reception of the hub of the wheel. From one side of the frame extends a bracket 14, carrying a pair of standards 15, these members serving for the support of the main and counter shafts used for actuating the device.

At a point below the main table is arranged a spider 16, that is suspended from the frame by rods 17, and said spider and the central portion of the bed-plate are provided with bearing-openings for the reception of the unthreaded end portions of a screw-shaft 18. To this shaft is secured a large bevel-gear 19, with which meshes a bevel-pinion 20, carried by a horizontally-disposed shaft 21, that has bearings on the bracket 14. On the outer end of the shaft 21 is keyed a pinion 22, and on the shaft is mounted a loose gear 23, the hub of which is provided with a clutch-face 24. The shaft also carries a clutch 25, that is feathered to the shaft and may be moved into engagement with the clutch-face of the gear 23. The standards 15 have bearings for the reception of an operating-shaft 27, on which are arranged a loose pinion 28 and a loose gear 29, the hubs of both being provided with clutch-faces. On this shaft is arranged a clutch 30, having clutching-faces at its opposite ends, and the two clutches 25 and 30 are connected together by a vertical bar 31, which in turn is connected to a suitable operating-lever 32, which may be moved to simultaneously shift the positions of both clutches. The shaft 27 is further provided with a belt-wheel 33 to permit the operation of the machine by power and with a crank 34 to permit operation by hand. When the wheel 29 is clutched to the shaft and the latter is turned, said wheel will impart movement to the small pinion 22 and shaft 21 and the screw-shaft will be revolved rapidly. When the clutches are shifted to couple the pinion 28 and gear 23 to the irrespective shafts, the movement is much slower and more power-

ful. In starting operations the gear 29 is preferably first clutched to the shaft in order that the parts may be quickly adjusted to operative position, and after this has been accomplished the gears 28 and 23 are connected to their respective shafts and the operation proceeds more slowly.

On the screw-shaft is secured a traveling nut 40, that is connected by links 41 to a plurality of levers 42, arranged radially of the table, and said levers are pivoted near their outer ends between pairs of pivot-lugs 44, that project from the edge of the table. Each link enters a recess in the inner end of the lever 42, and the opposite end of each link extends through a recess formed in the periphery of the nut, and said link carries at its lower end a pivot-pin 45, that is received within a semicircular recess in the bottom of the nut. The pin is held in place by a plate or ring 46, that is provided with a semicircular recess for the reception of the pin and with a recess for the reception of the link. This ring is preferably formed in a number of sections—four in the present instance—and these are bolted to the lower side of the nut and serve to hold the ring in position and prevent displacement of the pins.

The upper face of the table is provided with a plurality of radially-disposed slots 47, within which fit ribs 48, formed on the under side of compression-blocks 49, said blocks extending in a continuous annular series around the table and having ribbed and grooved ends in order that pressure may be applied to every part of the periphery of the tire. From the rear face of each of the blocks projects a pivoted ear 51, that is received within a recess 52, formed in the upper and outer end of the lever 42, the rear wall of the recess or socket 52 bearing directly upon the pivot-lug 51, while the connecting pivot pin or bolt 54 is not subjected to pressure to any harmful extent. When the machine is employed for setting tires of small diameter, auxiliary blocks 55 of the character shown in Fig. 6 are used, and any desired number of series of blocks may be employed to permit the operation of the machine on wheels of any diameter.

At one side of the table is a vertically-disposed standard 56, to which is pivoted an arm 57, that is provided at its opposite end with a threaded opening for the reception of a screw 58. This screw carries a clamp-plate 59, and its upper end is provided with a double crank 60 in order to permit the clamping of the plate against the hub of a wheel. After the completion of a tire-setting operation the screw is turned to free the clamp-plate, and the arm 57 may then be swung outward and the wheel removed. To prevent breaking or distortion of the arm 57, the latter is preferably provided with a pendent hook 62, which is passed through an opening in the

table and engages the under side of the object, this hook being subjected to continuous strain when the screw is turned and preventing the breaking of the arm at the point where it is pivotally connected to the standard 56. In the operation of the device a wheel is placed in position on the table and the screw 58 is turned in order to force the clamp-plate 59 against the hub of the wheel. The large gear-wheel 29 is then clutched to the shaft 27 and the machine operated either by hand or power in order to turn the screw-shaft rapidly and bring the blocks up into contact with the periphery of the tire. The clutches are then shifted and connect the pinion 28 and the gear 23 to their respective shafts, after which the operation continues at a slower speed. The blocks are all simultaneously operated upon and the tire compressed to any desired extent. The clutches are again shifted to connect the gear 29 to its shaft, and the screw-shaft is preferably revolved in the opposite direction, after which the clamp 59 is released and the wheel removed.

With a device of this character it is obvious that the tires may be set rapidly and that tires of any size may be operated upon.

Having thus described the invention, what is claimed is—

1. The combination in a tire-setting machine, of a table, an annular series of pressure-blocks, levers pivoted at the outer edge of the table, and connected to the pressure-blocks, a centrally-disposed threaded shaft, a nut guided thereon and having a plurality of radial slots formed in its outer edge, and an annular groove formed in its lower face, links arranged within the slots and having their upper ends connected to the levers, pins carried by the lower ends of said links and entering the groove, a ring formed of detachable sections having sockets for the reception of the lower ends of the links and pins, and means for securing said ring to the lower face of the nut.

2. The combination in a tire-setting machine, of a table having a central recess or depression to receive the hub of a wheel, pressure-blocks arranged in an annular series in the table, means for operating said pressure-blocks, a standard at the edge of the table, an arm pivotally mounted on said standard, a screw-clamp carried by the arm and adapted to engage the wheel-hub, and a pendent hook carried by said arm and adapted to engage against the under side of the table.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WASHINGTON I. WOLVERTON.

Witnesses:

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S. H. NEWELL, Jr.