(No Model.) 2 Sheets—Sheet 1.

J. A. PEER.

MOWING MACHINE.

No. 428,018. Patented May 13, 1890.

Fig: 1.

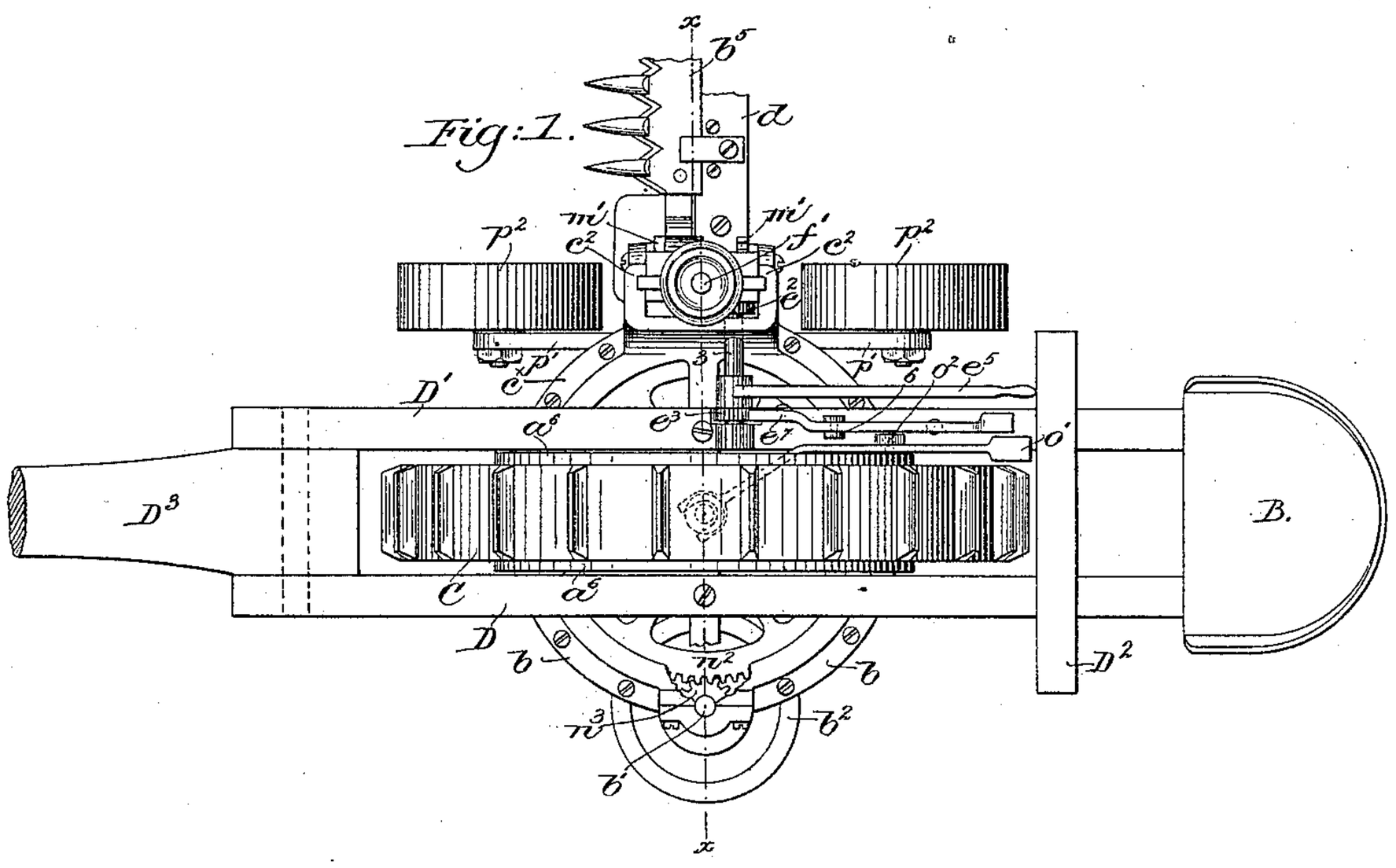


Fig: 2.

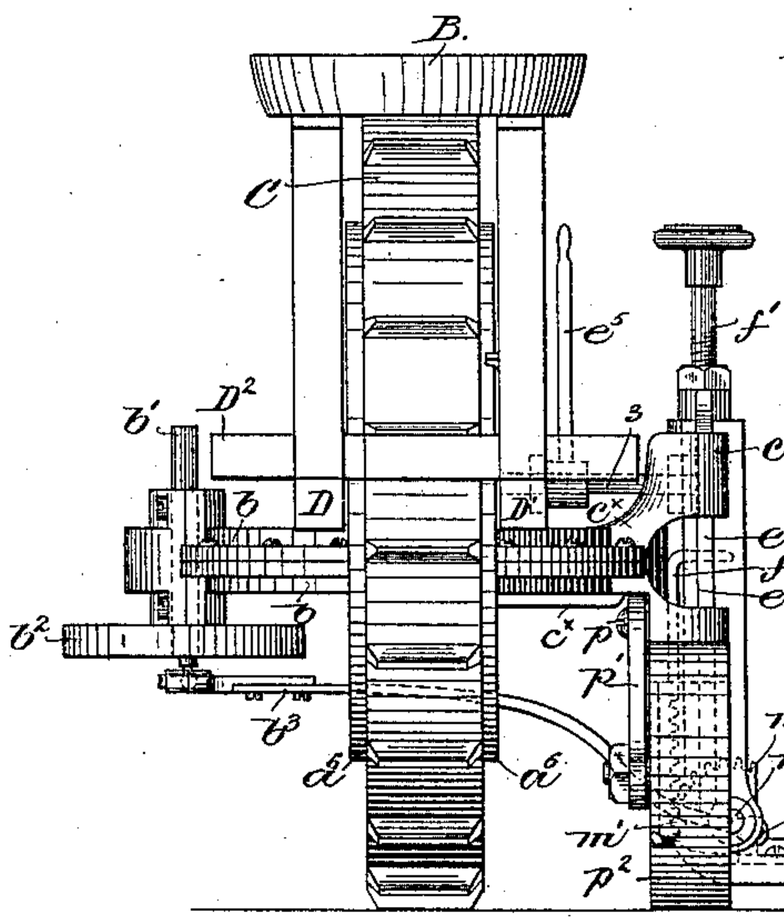
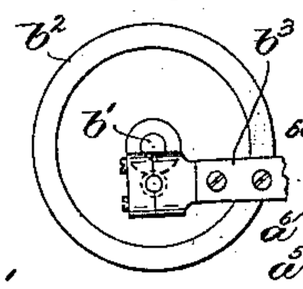


Fig: 4.



C. Fig: 3.

Witnesses.
Frederick L. Emery-
Fred. S. Greenleaf

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John A. Peer,
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

J. A. PEER.

MOWING MACHINE.

No. 428,018. Patented May 13, 1890.

Fig: 5.

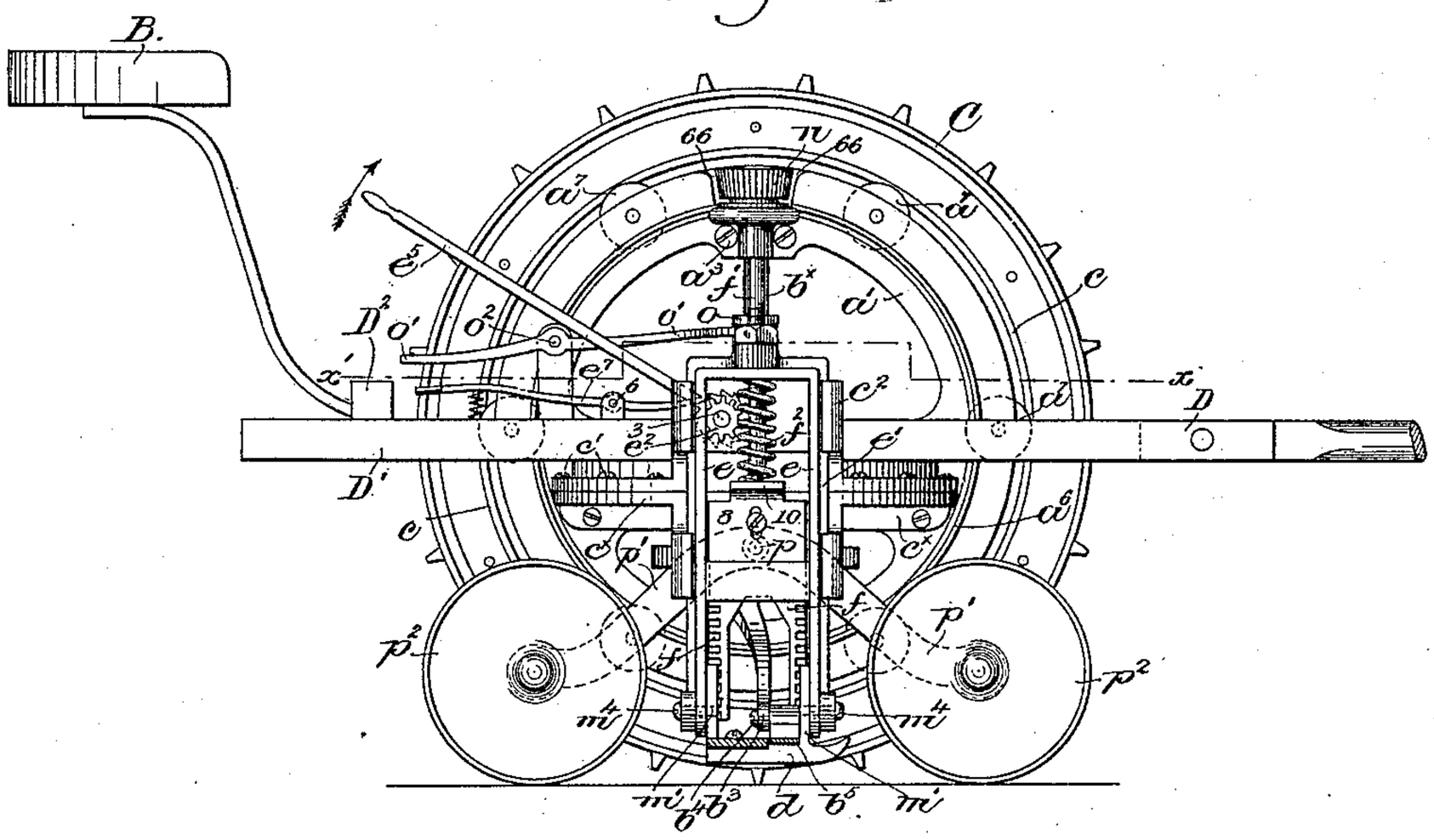


Fig: 6.

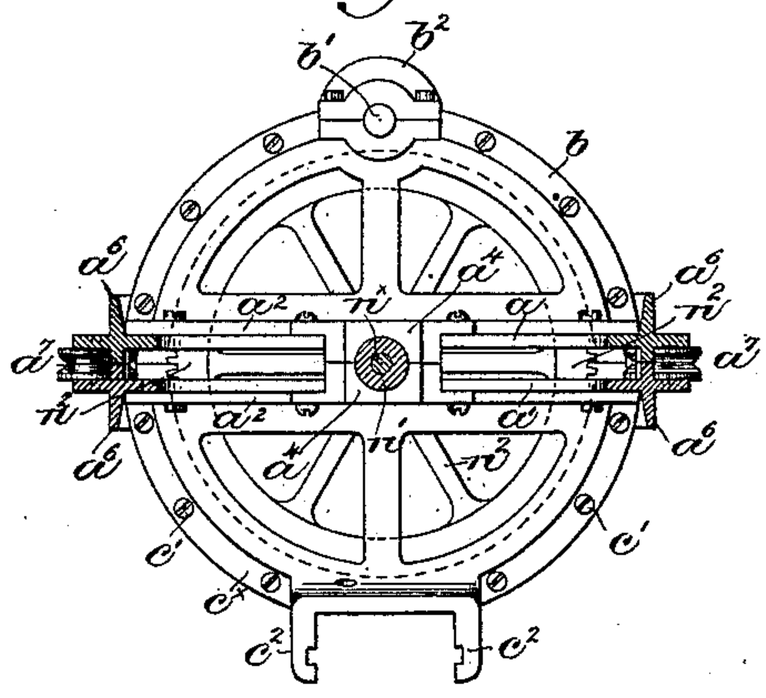
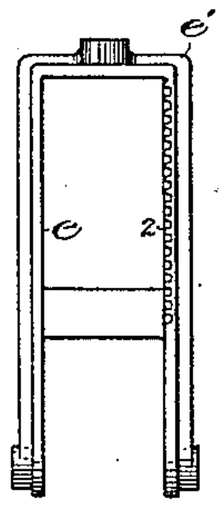


Fig: 7.



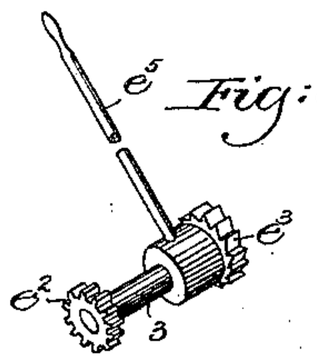


Fig: 8.

Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN A. PEER, OF BROOKLYN, ASSIGNOR TO ALFRED G. ELY, CHARLES C. ELY, AND FREDERICK ELY, ALL OF NEW YORK, N. Y.

MOWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 428,018, dated May 13, 1890.

Application filed July 23, 1889. Serial No. 318,432. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. PEER, of Brooklyn, county of Kings, State of New York, have invented an Improvement in Mowing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to simplify and improve the construction of mowing-machines of that class having a single large driving-wheel.

The main actuating-shaft and gearing instrumental in reciprocating the cutter-bar are supported in an annular skeleton frame having at its periphery a series of anti-friction wheels which form bearings for a track-flange at the interior of the main wheel of the mower, so that the said wheel as it is drawn over the field rotates on the said anti-friction wheels as a bearing, a series of teeth at the interior of the main wheel engaging and rotating a bevel-wheel on the main shaft of the machine. This annular bearing-frame has lateral extensions, which at the side farthest from the cutter-bar has bearings for the vertical crank-shaft employed to reciprocate the cutter-bar, and at its opposite side the said frame has a vertical yoke in which the hanger is arranged to slide, the frame so constructed and having combined with it the crank and hanger, as described, being symmetrical, and by driving the cutter-bar from a crank at the farthest side of the main single wheel by a link extended through the skeleton frame the machine is better adapted to withstand all strains much better than when the crank and cutter-bar are both at the same side of the main single driving-wheel. I have made the hanger as a single one-piece loop provided with rack-teeth to be engaged by a pinion on a short shaft provided with a handle or lever by which to raise the hanger, and the lower end of the hanger has two pivots on which turn the hubs of two toothed segments fixed to or forming part of the frame carrying the finger-bar, the said segments, when the hanger is moved vertically, engaging a rack-bar adjustably secured to the yoke, in which the said hanger slides.

Figure 1 is a top or plan view of a mowing-machine embodying my invention, the most of the finger and cutter bars being broken off to save space on the drawings. Fig. 2 is a rear elevation of the machine shown in Fig. 1. Fig. 3 is a partial section in the line x, Fig. 1. Fig. 4 is a detail showing the crank-pin and link to actuate the cutter-bar. Fig. 5 shows the right-hand end of the main part of the machine when standing at the rear of the machine, viewing the machine from the seat. Fig. 6 is a horizontal section in the line x', Fig. 5. Fig. 7 shows the hanger detached, and Fig. 8 is a detail to be referred to.

The annular bearing-frame is composed of two like skeleton rings a a', having each a cross-bar a^2, and suitably united, as by bolts or screws a^3 at desired points, the said cross-bars supporting the boxes or bearings a^4 a^5, in which the main shaft $b^\times$ rotates. These skeleton rings, in order that they may have sufficient strength, have horizontally-extended flanges a^6, and between the rings are placed a series of anti-friction wheels a^7, grooved at their peripheries to receive an annular track c of the main wheel C, the periphery of which rolls on the ground, the said track in the rotation of the said wheel C running on the said anti-friction wheels a^7.

The skeleton ring a has extended laterally from and secured to or forming part of it a bracket b, composed of two like pieces united at their edges in suitable manner, as by screws, the said bracket containing bearings at its outer extremity for the shaft b', having at its lower end a crank or disk b^2, to the wrist or pin of which is attached one end of the connecting-link b^3, which is jointed at b^4 to the usual cutter-bar b^5, sliding in grooves in the usual finger bar or beam d.

The ring a' has connected to or forming part of it a laterally-extended bracket $c^\times$, composed of two like pieces united at their edges by screws c', and having ears, as c^2, at its outer extremity, the said ears forming a yoke or guideway in which may be moved vertically, the hanger e, having ribs e', which enter grooves in the said ears. It will be readily seen that the laterally-extended brackets b $c^\times$ are symmetrically arranged with relation to the bearing-frame, as are also the crank-shaft b and hanger e.

The hanger e at one side has a series of rack-teeth 2, (see Fig. 7,) which are engaged by a pinion e^2 on a short shaft 3, provided with a ratchet-wheel e^3, (see Figs. 1 and 8,) and having a lever-handle e^5, (see Fig. 8,) the movement of which in the direction of the arrow, Fig. 5, enables the hanger to be lifted to elevate the finger-bar bodily when the driver is on the seat, the revolution of the pinion e^2 engaging successive teeth of the rack 2, and thus forcing the hanger up at such time.

The ratchet-wheel e^3 (see Fig. 8) has co-operating with it a detent (shown as a lever e^7) pivoted at 6 and having its end extended backwardly toward the seat B, so that the operator with his foot on the said detent may release the ratchet-wheel and permit the hanger to descend and the finger-bar to turn down into operative position.

The bracket $c^\times$ has adjustably attached to it by a screw 8 a double rack-bar f, having an ear 10, which is acted upon by the adjusting-screw f', extended through the upper part of the hanger. The screw f' between the ear 10 and the hanger is surrounded by a spring f^2, which, when the hanger is permitted to drop after the detent a^7 is moved to release the ratchet, contacts with the said ear 10 and cushions the blow. The finger-bar d has fixed to it at its inner end two like gear-segments m', which are in engagement with the fixed rack-bars f, so that as the hanger is raised bodily, as described, the said segments will be turned about the center screws or bolts m^4, which constitute the pivots for the finger-bar, thereby turning the finger-bar up from a sub-horizontal position at the same time it is elevated bodily. The shaft $b^\times$, provided at its upper end with a bevel-gear n, is engaged by bevel-teeth at the inner side of the annulus 66, attached to the wheel C. This shaft $b^\times$ is extended loosely into a hub n' on a shaft $n^\times$ of a large gear n^2 in engagement with the gear n^3 on the shaft b', the said gears rotating the said shaft very rapidly, and by the link b^3, extended through the skeleton rings or bearing, reciprocating the cutter-bar rapidly.

By locating the crank-shaft b' at the opposite side of the bearing-frame from that at which the cutter-bar is located the strains are better distributed and balanced. The brackets $b\ c^\times$ are made in two parts, so as to shield or surround the gears n^2 and n^3. The upper end of the hub of the gear n^2 is notched to form part of a clutch, the other half of which is a collar o, notched at its lower end and splined on the shaft $b^\times$, so as to slide thereon, and having an annular groove at its upper end, to be engaged, as shown in Fig. 3, by the inner end of a clutch-operating lever o', pivoted at o^2, and having its outer end extended out toward the seat B, so that the operator can unclutch the shaft b from the hub of the gear n^2 whenever it is desired to stop the cutter-bar.

The wheel C is surrounded by suitable side bars D D, of wood, which support the seat B, the side bars being united at their rear ends by a cross-girt D^2, the tongue D^3 being attached in usual manner. The bars D D are secured to the brackets $b\ c$ by suitable strong bolts, as 12.

The bracket $c^\times$ has pivoted to it at p a lever p', provided at its opposite ends with wheels p^2, to help support one side of the machine, the said lever being free to turn on its pivot to enable the wheels to run over uneven ground.

I claim—

1. In a mowing-machine, the single driving-wheel having the gear-teeth and the circular track, the annular skeleton bearing-frame having the similar two-part brackets $b\ c^\times$, laterally extended therefrom at its opposite sides, anti-friction rollers, the main shaft $b^\times$, supported in said bearing-frame, the gear n^2 thereon, and the crank-shaft b', supported by the bracket b at its outer extremity and having a gear n^3, engaging and rotated by said gear n^2, the said gears being inclosed by the two-part brackets, combined with the finger-bar d, attached to a hanger e, suspended from the outer extremity of the bracket $c^\times$, the outer bar b^5, sliding in said finger-bar, and with the link b^3, extended through said skeleton bearing-frame and connecting the said crank-shaft and finger-bar symmetrically arranged on opposite sides of the driving-wheel, substantially as described.

2. The skeleton bearing-frame composed of two open rings, a bracket b, having bearings for a crank-shaft, a bracket $c^\times$, having a guideway, the anti-friction rolls, the shaft $b^\times$, having a bevel-gear n, the driving-wheel C, surrounding the said bearing-frame and having a track to run on the said anti-friction wheels, the shaft b', the gear n^3 thereon, the crank, the link b^3, the cutter-bar, to which the said link is attached at the opposite side of said skeleton frame, the finger-bar having the toothed segments m', and the hanger e, to which the finger-bar is pivoted, combined with a pinion to engage rack-teeth of the said hanger, and with a stationary rack, as f, to operate substantially as described.

3. The bearing-frame having the bracket $c^\times$, provided with a guideway, the yoke-like hanger e, fitted to slide therein, and having rack-teeth 2, the rack-bar f, and the finger-bar pivoted to the lower end of the said hanger and provided with teeth to engage the teeth of the rack f, combined with the pinion e^2, and means to rotate it to raise or lower the said hanger to raise or lower the said finger-bar, substantially as described.

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

JOHN A. PEER.

Witnesses:
JOHN R. FARRAR,
HENRY W. SACKETT.