

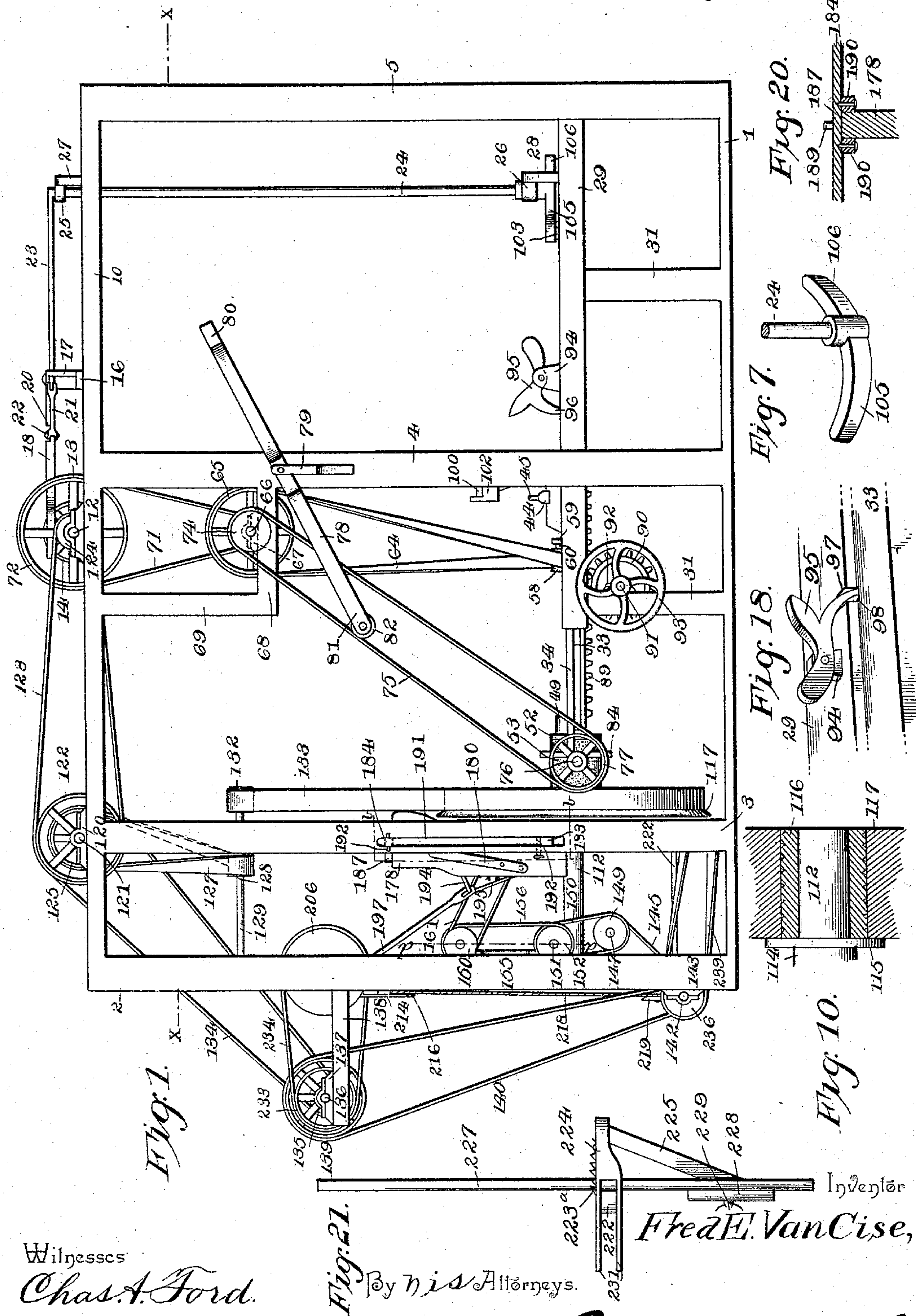
(No Model.)

5 Sheets—Sheet 1.

F. E. VAN CISE.
MACHINE FOR DRESSING CAR WHEELS.

No. 543,161.

Patented July 23, 1895.



Witnesses

Chas. A. Ford.

D. B. Owens.

Fig. 21.

By his Attorneys.

Chas. A. Snow & Co.

Inventor
Fred E. Van Cise,

(No Model.)

5 Sheets—Sheet 2.

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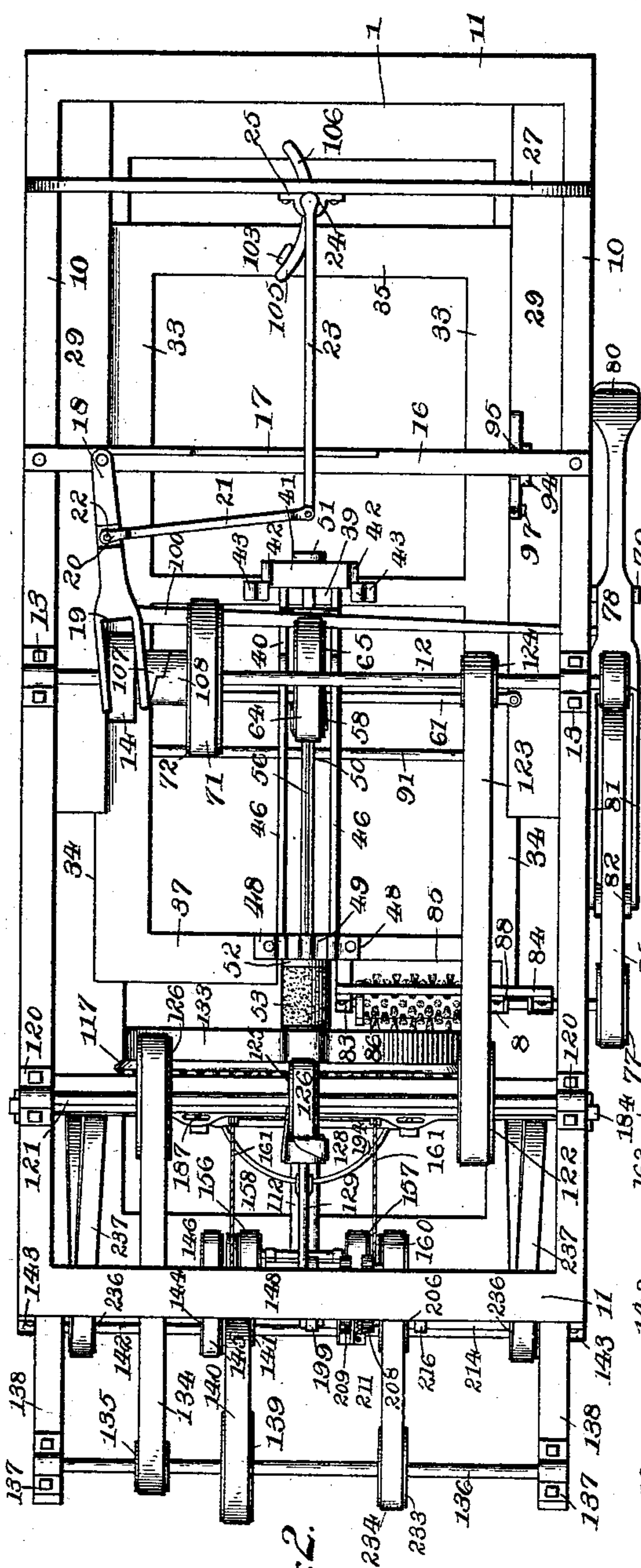


Fig. 2.

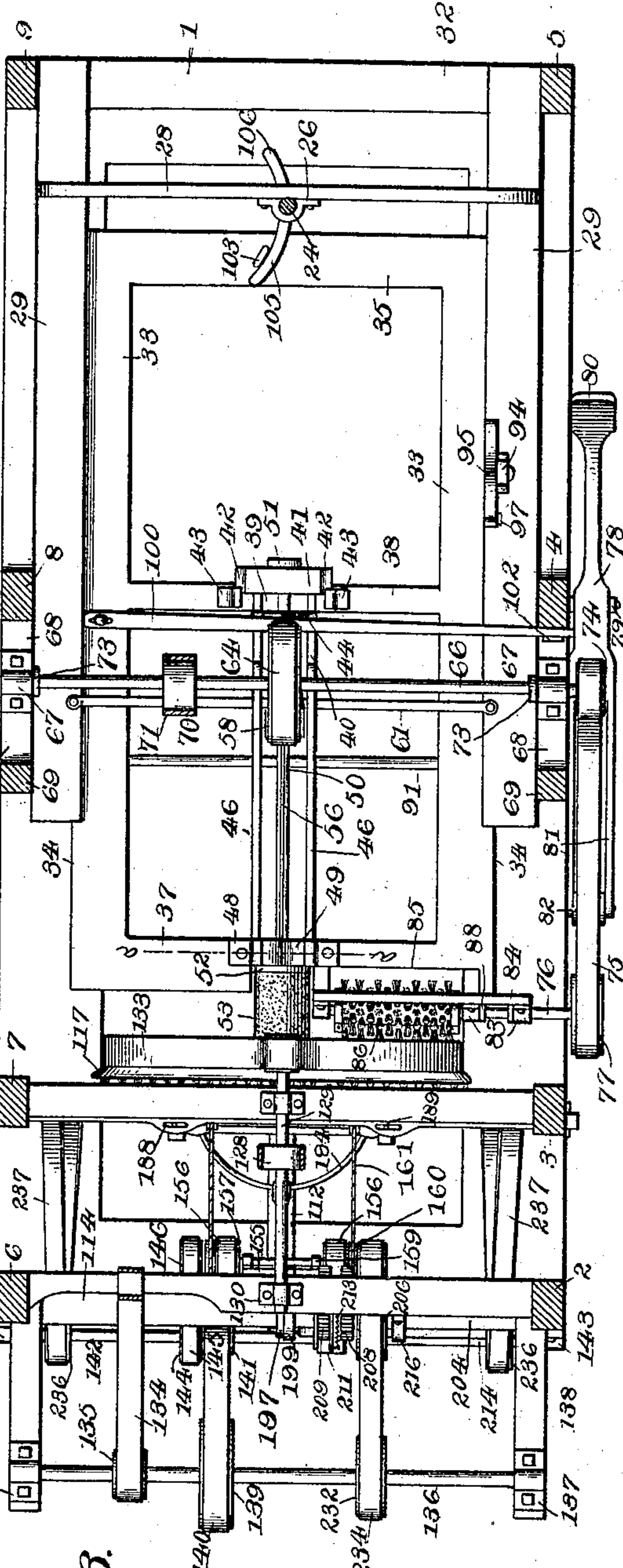


Fig. 3.

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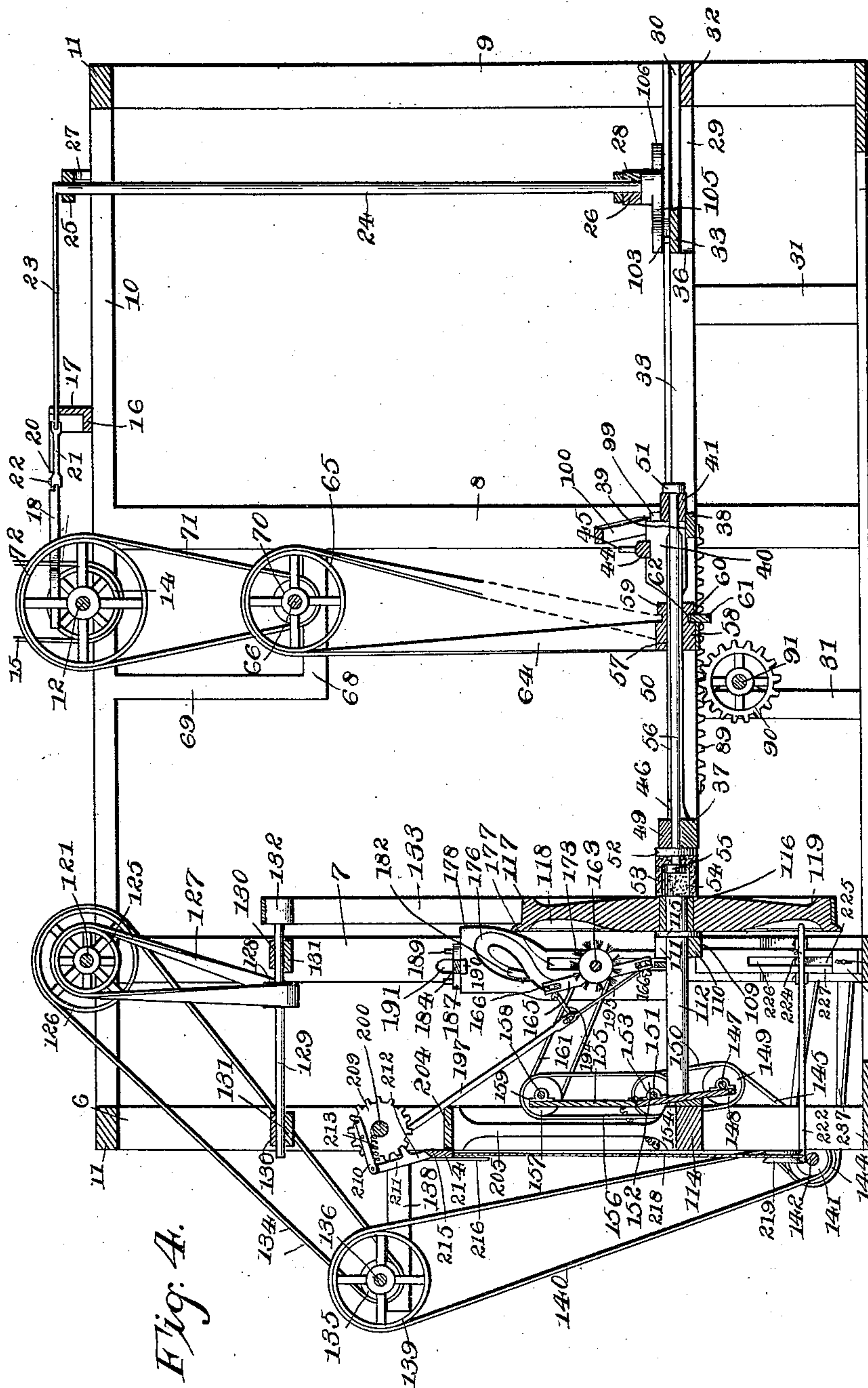


Fig. 4.

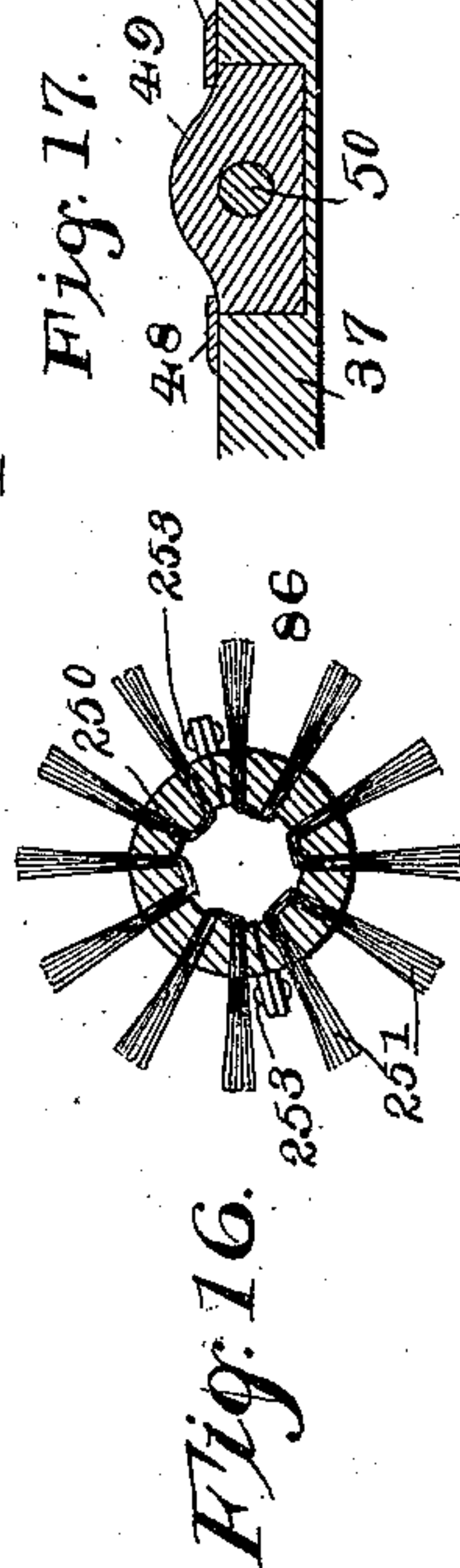
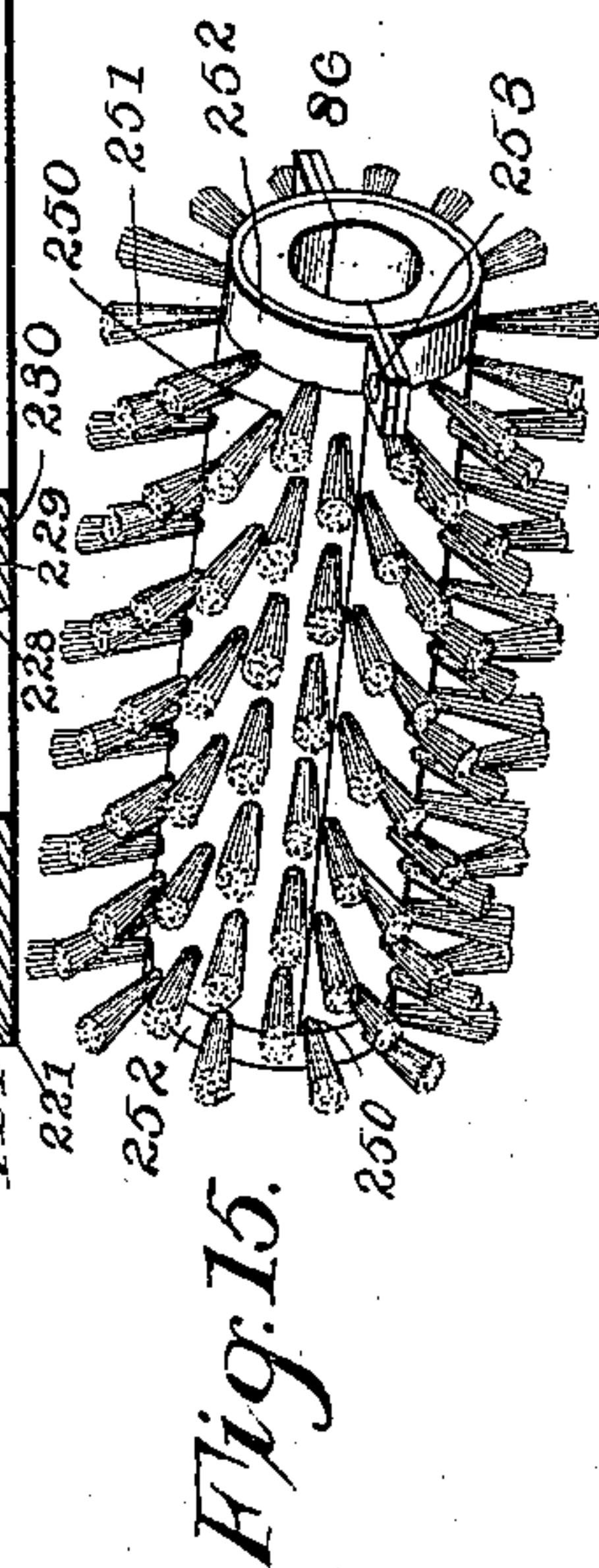


Fig. 16.



(No Model.)

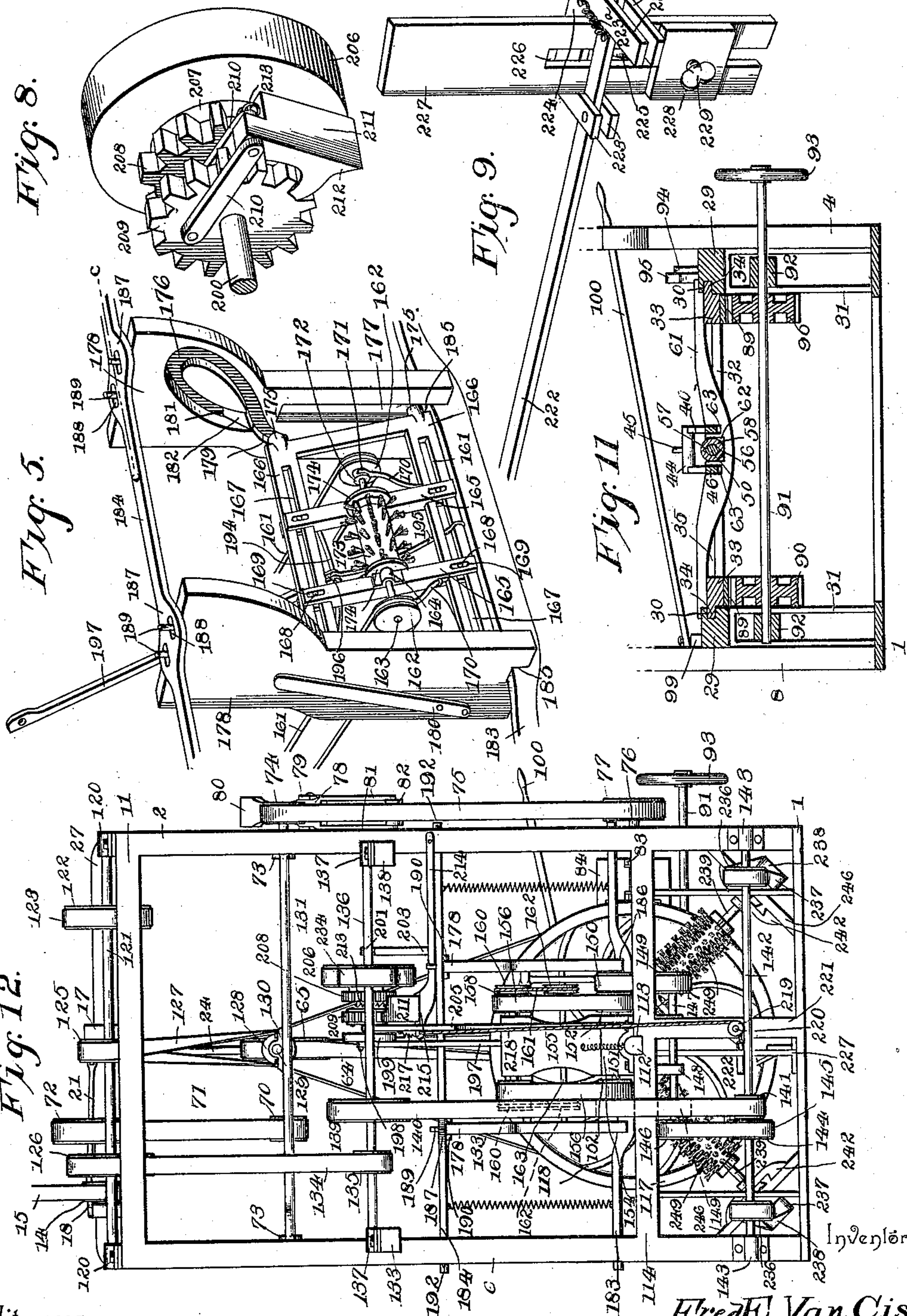
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F. E. VAN CISE.

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Witnesses
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(No Model.)

5 Sheets—Sheet 5.

F. E. VAN CISE.
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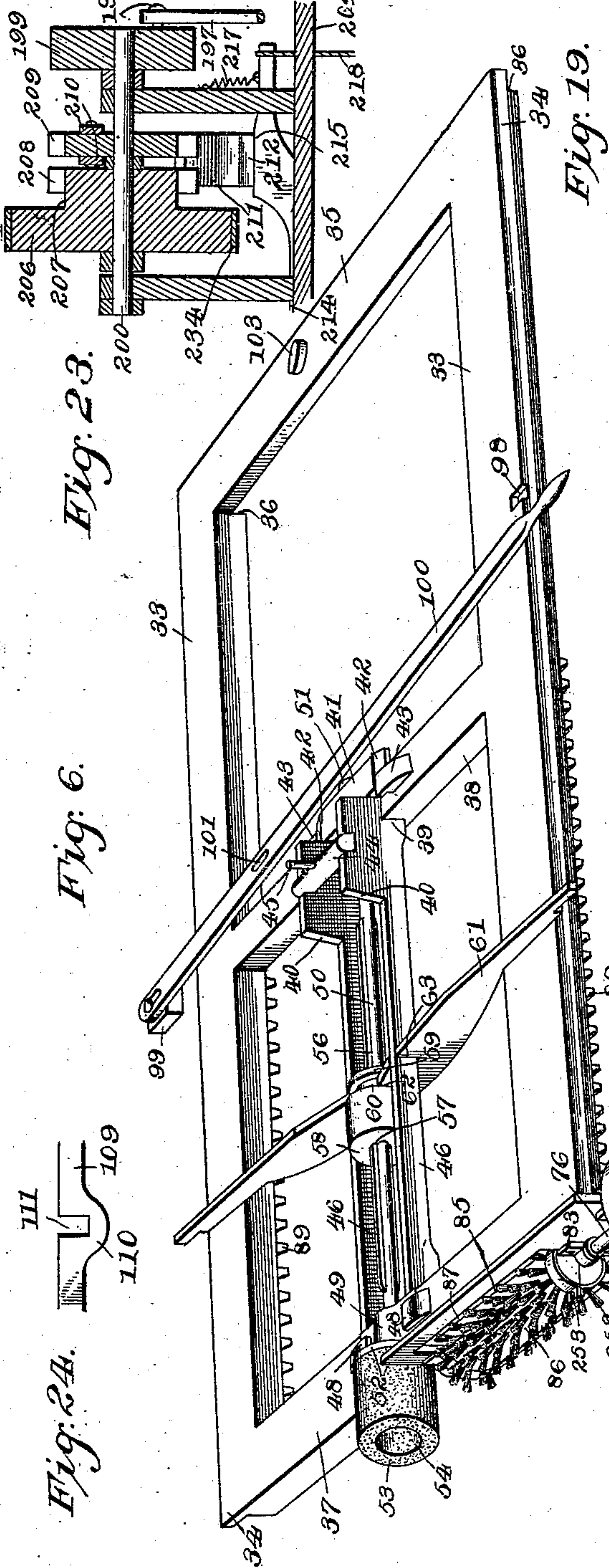


Fig. 19.

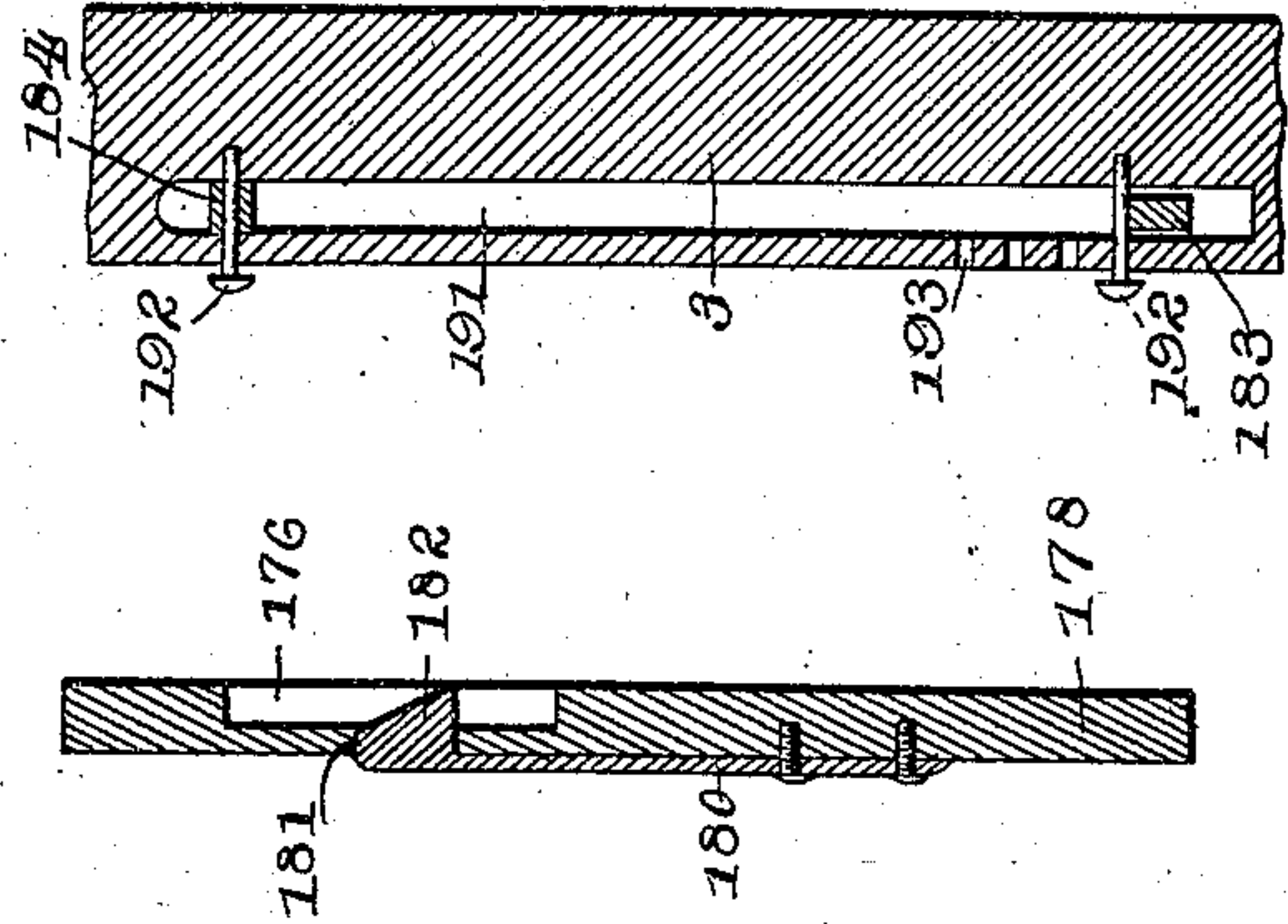


Fig. 13.

Fig. 14.

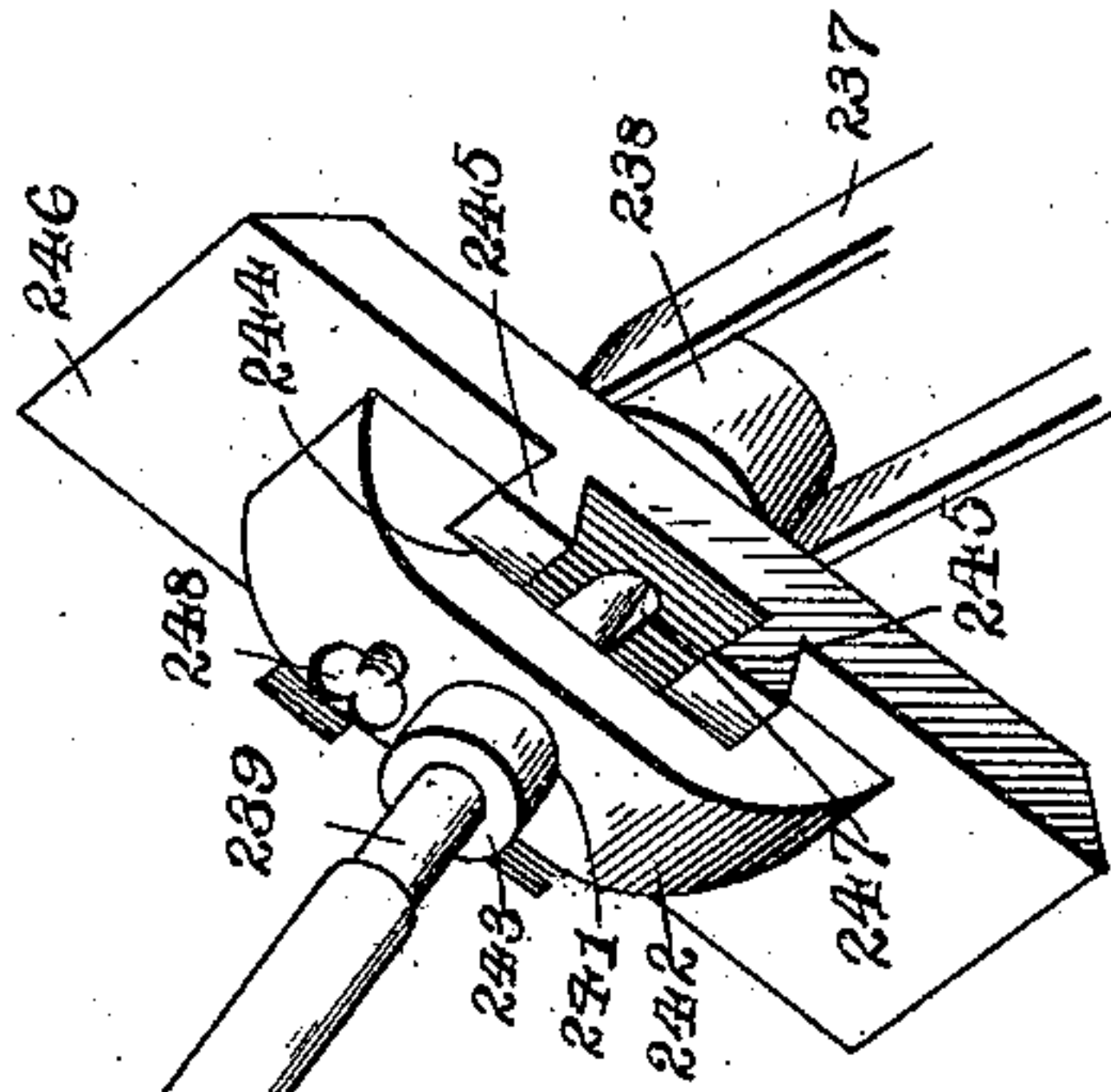
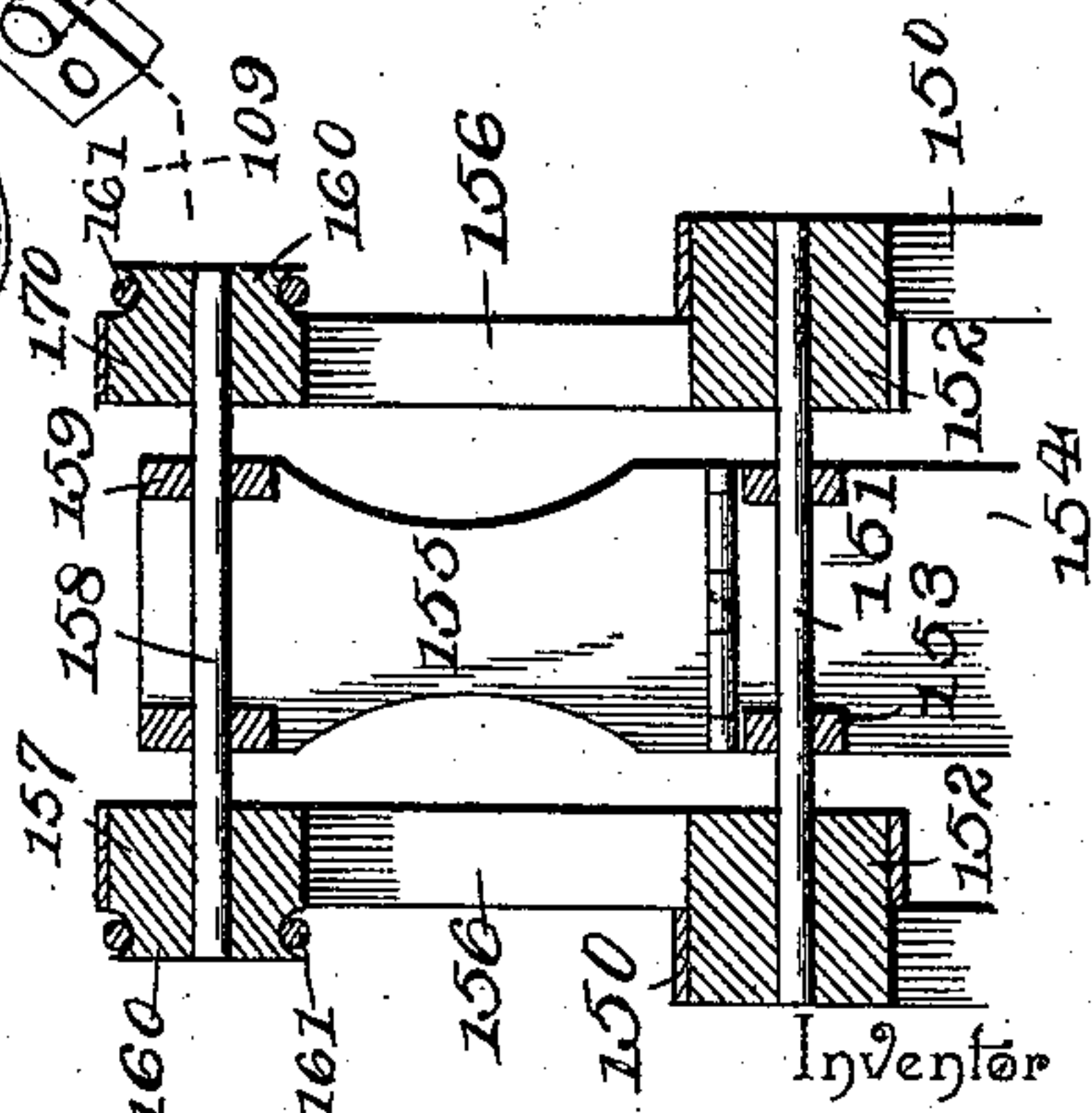


Fig. 22.



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Witnesses

Chas. Ford.

J. A. Devereux.

By his Attorneys,

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

FRED E. VAN CISE, OF LANCASTER, NEW YORK, ASSIGNOR OF ONE-HALF
TO HENRY HAGAN, OF SAME PLACE.

MACHINE FOR DRESSING CAR-WHEELS.

SPECIFICATION forming part of Letters Patent No. 543,161, dated July 23, 1895.

Application filed June 28, 1894. Serial No. 516,013. (No model.)

To all whom it may concern:

Be it known that I, FRED E. VAN CISE, a citizen of the United States, residing at Lancaster, in the county of Erie and State of New York, have invented a new and useful Machine for Dressing Car-Wheels, of which the following is a specification.

The object of this invention is to provide a machine capable of brushing from newly-cast car-wheels the residue of sand and grit which is found thereon, and which has to be removed before the wheel is fit for the market.

A further object is to provide devices by which the projections left on the wheels by reason of the gates of the mold may be removed.

To these ends the invention consists in certain improved machinery for operating an emery-wheel, for advancing it toward the car-wheel, and for driving and applying it thereto.

The invention also consists in the improved brush-operating machinery, machinery by which brushes are engaged with the wheel and given a rotary movement when so engaged.

In the accompanying drawings, the details of this mechanism are illustrated, and therein—

Figure 1 represents a side elevation of my complete machine and showing it in the act of dressing a car-wheel; Fig. 2, a plan view thereof; Fig. 3, a horizontal section taken on the line *x x* of Fig. 1; Fig. 4, a vertical longitudinal section of the machine; Fig. 5, a perspective view showing the brush for cleaning the wheel between the strengthening ribs or brackets thereof, the said view extending to the devices for rotating the brush and for moving it throughout the length of the ribs or brackets; Fig. 6, a perspective view of the reciprocating bed for carrying the emery-wheel and the devices for operating the same; Fig. 7, a perspective view showing the arms for throwing the machine in and out of gear; Fig. 8, a detail perspective of the clutch mechanism for causing the brush which cleans the space between the ribs or brackets to operate; Fig. 9, a similar view of the trip-lever for engagement with the car-wheel and by which said clutch is made to operate; Fig. 10, a detail section taken through the shaft or axle upon which the car-wheel is mounted

and showing the means employed for fitting various-sized car-wheels thereon; Fig. 11, a cross-section taken through the emery-wheel bed, and on the line of the shaft for operating the same; Fig. 12, a rear elevation of the machine; Fig. 13, a detail section taken through one of the guides for the movable brush and showing the spring-actuated stop for limiting the movements of the brush-frame; Fig. 14, a detail perspective showing the mechanism for operating one of the brushes for cleaning the more exposed parts of that side of the car-wheel upon which the ribs or brackets are located; Fig. 15, an enlarged perspective view of one of the brushes for cleaning the wheels; Fig. 16, a detail section taken through the brush of Fig. 15. Fig. 17 is a detail section taken on the line *a a* of Fig. 3. Fig. 18 is a detail perspective of the pawl for securing the emery-wheel bed. Fig. 19 is a detail section taken longitudinally through the parts indicated by the line *b b* of Fig. 1. Fig. 20 is a detail section taken on the line *c c* of Fig. 5. Fig. 21 is a side elevation of the parts shown in Fig. 9. Fig. 22 is a detail section taken on the line *d d* of Fig. 1. Fig. 23 is a detail section of the clutch mechanism and attendant parts. Fig. 24 is a detail view in illustration of one of the beams composing the machine.

The frame of the machine consists of four base-plates 1, joined to each other at their ends and arranged in the form of a parallelogram. Arising from the base-plates 1 are the vertical beams 2, 3, 4, 5, 6, 7, 8, and 9, having rigidly secured to their upper ends the longitudinal beams 10 and end beams 11. These parts comprise the main frame of my machine and are constructed, preferably, of iron.

12 indicates the drive or primary movement shaft of my machine, which is journaled in the boxes 13 fixed to the upper sides of beams 10 and at about the middles thereof. This shaft has fixed thereto a drive-pulley 14, over which the belt 15 operates, and by which movement is imparted to the shaft 12.

Rigidly secured to the upper sides of the beams 10, and forward of the shaft 12, is the cross-beam 16, which is provided with a vertical plate 17, having the lever 18 pivoted to one end thereof. The lever 18 is extended horizontally at its free end and formed with

a slot 19 therein, said slot being adapted to embrace the pulley 14 and to form a sliding contact therewith. The lever 18 has formed at a point about its middle the recess or indentation 20, in which the bifurcated left-hand end of the pitman 21 is seated and held therein by the pivot 22. The right-hand end of the pitman 21 is also bifurcated and adapted to receive the rear end of the crank-arm 23, the forward end of which is rigidly secured to the vertical shaft 24. The shaft 24 extends from the top of the machine downwardly to a point very near its lower end, and is journaled in the boxes 25 and 26 of the cross-beams 27 and 28, respectively. The cross-beam 27 is fixed to the front extremities of the frame-beams 10, while the beam 28 is fixed to the frame-beams 29. The frame-beams 29 are the main beams of the emery-wheel bed-frame and are formed with the horizontal and inwardly-opening grooves 30, which form the way or guide for the emery-wheel bed. The beams 29 are supported by the vertical beams 31, which are preferably eight in number and composed of two or more plates arranged parallel with each other and suitably connected to the base-plates 1 and to the under sides of the beams 29.

Rigidly secured to the upper ends of the extreme front beams 31, and extending horizontally across the machine, is the beam 32, which lies in the same plane as the lower edges of the grooves 30, and which operates to give rigidity to the beams 29, and to form a stop for limiting the rearward movement of the emery-wheel bed. The emery-wheel bed consists of two longitudinal beams 33, formed on their outer edges with the tongues 34, adapted to fit into the grooves 30, and thereby slidably mount the bed. Rigidly secured to the front ends of the beams 33, and extending from one to the other, is the cross-beam 35, which is of a size and shape equal to that of the beam 32, while the front ends of the beams 33 are formed with the shoulders 36 thereon, adapted to engage the edges of the beam 32, and thereby restrict further movement of the emery-wheel bed.

The rear ends of the beams 33 are provided with the beam 37, which extends from one of the beams 33 to the other, and is joined thereto by any suitable means. 38 indicates a second beam which extends from one of the beams 33 to the other, and which is secured in place so as to be countersunk in the upper sides thereof. Formed in the upper side of the beam 38, and in the middle thereof, is the recess 39, which is adapted for the reception of the longitudinal plates 40 of the emery-wheel shaft. The plates 40 have rigidly secured between their front ends the block 41, which is formed with the lugs 42 at each side thereof. These lugs 42 are adapted to operate with the overhanging studs 43, which are secured to the beam 38, and which have for their purpose to retain the plates 40 in place. The connection between the studs 43 and the lugs

42 is a sliding one, so as to permit the plates 40 a limited movement in their seatings. Rigidly secured to the upper sides of the plates 40, and extending horizontally from one to the other, is the bar 44, which is provided with an upwardly-projecting stud 45, having a hereinafter-described purpose.

Formed integral with the rear ends of the plates 40 are the rearwardly-extending bars 46, which extend parallel with each other to the beam 37, and are there arranged in the indentation 47 of the upper side of said beam. This indentation is provided with the inwardly-extending lugs 48, located one on each edge thereof, and projecting over the respective bars 46, so as to prevent them from moving out of the indentation or depression 47.

Rigidly secured between the rear ends of the bars 46 is the box 49, which is formed with a longitudinal passage therein adapted for the reception of the emery-wheel shaft 50, which is revolubly mounted therein and which extends parallel with and between the bars 46 to the block 41, through which it passes and in which it is revolubly mounted. The front end of the shaft 50 is formed with a collar or flange 51 thereon, which prevents said shaft from excessive rearward movement. The rear end of the shaft 50 extends beyond the box 49 and is there provided with a disk 52, which is fixed thereto and which lies flush with the rear side of said box.

A short portion of the shaft 50 projects rearward of the disk 52 and is adapted for the reception of the emery-wheel 53. The emery-wheel 53 is formed of a sleeve or hollow cylindrical device and provided with an inwardly-extending flange 54, which has a central orifice formed therein for permitting it to be mounted on the shaft 50. The emery-wheel is held in place by means of the nut 55, which is arranged in its interior and bears against the inner end of the flange 54. The emery-wheel 53 is adapted to have its rear edge engaged with the part ground, and, owing to its peculiar construction, this part may wear away as in the common emery-wheels. The purpose of the disk 52 in bearing against the front side of the flange 54 is to brace and render rigid the emery-wheel. The shaft 50 is formed with two longitudinal ribs 56 thereon, which are adapted to operate with the corresponding recesses 57 in the pulley 58. The pulley 58 is mounted upon the shaft 50, so that it will allow said shaft free longitudinal movement therein, and so that the shaft will be incapable of independent rotary movement. This end is attained by the ribs 56 and recesses 57.

The pulley 58 has formed integral therewith the extension 59, which is provided with an annular groove 60. Rigidly secured to the beams 29 and near the rear ends thereof is the bar 61, which is formed on its upper side with an indentation 62 therein. The indentation 62 is adapted for the reception of the annular groove 60, so that the pulley 58

will be connected to the bars 61 in a way which will make it capable of a free rotary movement, yet incapable of longitudinal movement. The bar 61 has formed in its upper edge, and one on each side of the indentation 62, the indentations 63, which are respectively adapted for the reception and passage of the bars 46. Thus it will be seen that the shaft 50 is capable of free longitudinal movement within the pulley 58 and that said pulley, while capable of revolving to revolve the shaft 50, is incapable of all other movement.

Operating over the pulley 58 is the belt 64, which passes up to and over the pulley 65, which is fixed to the shaft 66. The shaft 66 is journaled in the boxes 67, fixed in turn to the horizontal beams 68. The beams 68 project out horizontally and rearwardly from the beams 4 and 8 and have their rear extremities connected to the upwardly-extending beams 69, which proceed upwardly to the frame-beams 10, to which they are rigidly connected. The shaft 66 is provided with a pulley 70, over which a belt 71 operates. From the pulley 70 the belt 71 proceeds upwardly to the pulley 72, fixed to the shaft 12. By these means power is transmitted from the shaft 12 to the counter-shaft 66, and thence to the pulley 58 and shaft 50. The shaft 66 is provided with the collars 73, which are two in number and arranged one inside each the bearings 67. The purpose of this pair of collars is to restrict or prevent the shaft 66 from longitudinal movement in its bearings. The right-hand end of the shaft 66 is provided with a pulley 74, over which the belt 75 operates. The belt 75 proceeds downwardly from the pulley 74 to the pulley 77, fixed to the shaft 76 of the emery-wheel frame or bed. The belt 75 is of a length which will permit the emery-wheel bed to reciprocate back and forth in its frame, and to retain the proper tension of the belt I provide the lever 78. This lever is fulcrumed to the bracket 79, fixed in turn to the beam 4. The front end of the lever 78 is provided with the weight 80, by which the rear end of said lever is given a normal tendency upward. The rear end of the lever 78 is bifurcated to form the arms 81, in the outer ends of which the idler-pulley 82 is arranged. Over this pulley and between the arms 81 of the lever 78 the belt 75 passes, so that as the frame or bed of the emery-wheel reciprocates the weight 80 of the lever 78 will cause the idler 82 to take up the slack of the belt.

The shaft 76 is journaled in the boxes 83 of the plate 84. The plate is rigidly secured to the rear right-hand side of the emery-wheel bed and adjacent to the indentation 85, which is formed in said bed. Upon the shaft 76 and directly opposite the indentation 85 is mounted the cleaning-brush 86, which is adapted to operate in said indentation 85 and in the large opening 87 of the plate 84. The details of the

brush 86 will be left for subsequent description.

The shaft 76 is provided with the collars 88, by which it is prevented from longitudinal movement in the boxes 83. Fixed to the under side of the beams 33 and extending from the middles thereof to their rear ends are the rack-bars 89, which respectively mesh with the spur-gears 90 of the transverse shaft 91. The shaft 91 is journaled in the boxes 92 of the rear standards 31 and provided at its extended right-hand end with an operating-wheel 93. By this means the shaft 91 may be revolved so as to cause the gears fixed thereto to operate similarly, thereby moving the bars 33 and their attachments or the emery-wheel bed toward and from the car-wheel, as will be better described hereinafter.

Rigidly fixed to and arising from the right-hand beam 29 is the standard 94, to which the pawl 95 is pivoted. This pawl is provided with a point 96, adapted to pass through the recess 97 in the right-hand beam 29 and into the indentation 98 of the adjacent beam 33, or of the emery-wheel bed. By these means the bed may be locked immovably with the beams 29, and the recess or indentation 98 is so located that when engaged with the pawl 95 the frame will be moved forwardly as much as is necessary. The left-hand beam 29 has fixed to its upper side and directly adjacent to the beam 8 a stud or projection 99, to the upper side of which the lever 100 is pivotally connected. The lever 100 extends transversely across the machine and to the right-hand side thereof, and is provided at about its middle with the transversely-elongated slot 101. This slot is adapted for the reception of the stud 45 of the plates 40. By these means it is possible, upon the swinging of lever 100, to move the plates 40, and consequently bars 46 and shaft 50, toward and from the wheel, thereby causing the emery-wheel 53 to engage or disengage the car-wheel.

Fixed to the beam or standard 4 and having an upwardly-opening recess therein is the block 102, which is adapted, through the medium of its recess, to receive and retain the free end of the lever 100 when said lever is not operating. Fixed to and arising from the beam 35, at about the middle thereof, is the stud 103, which is inclined at right angles from the longitudinal perpendicular of the machine, and which is adapted to operate with the eccentric or cammed arms of the shaft 24. These arms are two in number and are designated by the numerals 105 and 106 respectively. The arm 106 is the shorter arm and projects forwardly from the shaft 24, it being curved to the left, while the arm 105 projects rearwardly from the shaft 24, and is also curved to the left, it being of a length about twice that of the arm 106. The normal position of the arm 106 is such that the stud 103 when moving rearwardly with the bed of the emery-wheel will pass the end of the arm,

and as it continues rearwardly will engage the arm 105 at about the middle thereof. This engagement will result in a swinging of the arm to the right and in a consequent oscillation of the shaft 24. As the shaft 24 moves to the right the crank-arm 23 will swing correspondingly, thereby moving the lever 18 and causing the drive-pulley 14, which heretofore operated loosely on the shaft 12, to move to the right. As the pulley 14 moves to the right the ratcheted face of its clutch member 107 will engage the corresponding member 108 of the pulley 72, thereby causing the drive-pulley 14 to be fixed to the shaft 12 and to impart its movement thereto. From the shaft 12 the movement of pulley 14 is transmitted to the shaft 66 and thence to pulley 58 of shaft 50, thereby causing the shaft 50 to revolve, and, of course, the emery-wheel 53. By these means the emery-wheel is operated, and as the emery-wheel bed is advanced directly prior to its operation with the car-wheel the stud 103 will operate with the arms 106 and 105 to start the emery-wheel to revolving. Upon the return or reversal of the emery-wheel bed, however, the stud 103 will engage with the arm 106, which owing to the swinging of shaft 24 to the right has been thrown into its path. Upon the engagement of stud 103 and arm 106 the shaft 24 will be revolved to the left or returned to its normal position, which will be followed by a corresponding movement of lever 18 and in a consequent disengagement of the members 107 and 108 of the clutch attending the drive-pulley 14. Thus it will be seen that the emery-wheel is automatically thrown into and out of gear and that this automatic movement extends to all of the operative parts of the machine, as will appear with more clearness hereinafter.

Fixed to the standards 3 and 7 and extending horizontally from one to the other is the beam 109, which is provided at its middle with an enlargement 110, extending downwardly therefrom and provided to permit the formation of the vertical slot 111, which slot extends from the upper side of the beam 109 down into the enlargement 110 and to a point near the lower edge thereof. In this slot the forward end of the shaft 112 is arranged, while the rear end of the shaft 112 is rigidly fixed in the recess 113 of the horizontal beam 114, which beam extends from the standard 2 to the standard 6 and is rigidly secured to each. The shaft 112 has its forward end reduced and rounded and provided with the collar 115, which lies flush with the forward side of beam 109, and which is adapted to engage with the rear side of the car-wheel when mounted upon the shaft 112. The shaft 112 is provided with the sleeve 116, which is formed with a roughened or unfinished periphery, while its inner surface is smoothed or polished, so that it will fit snugly upon the reduced portion of shaft 112 and be capable of easy revolution thereon. The purpose of this sleeve 116 is to permit

the easy mounting of car-wheels having various size cores.

In the manufacture of car-wheels it is the practice, to meet the requirements of trade, to form the wheels with different-sized cores or axial openings, and to adapt my machine to every car-wheel, whatever be the size of its core, I provide the sleeve 116, which will be made of a size capable of snugly fitting within the bore of the wheel and of similarly fitting on the reduced portion of shaft 112. It will be understood that in practice several sets of these sleeves will go with one of my machines, so that it will be possible to clean car-wheels of every size core.

The car-wheel is shown in place in several views of the drawings, and is designated by the numeral 117. In placing the car-wheel upon the shaft 112 it is arranged with its strengthening ribs or brackets 118 on the rear side, while the comparatively smooth face 119 is arranged on the opposite or front side.

The brush of shaft 76 is of a length equal to about the radius of the car-wheel, and is adapted to clean the front surface or front side thereof. This is effected upon the rearward movement of the emery-wheel bed, and as the bed is so moved the stud 103 will operate to throw the machine into gear, as has been explained, and cause the shaft 76 to revolve, thereby imparting a similar movement to the brush, which is fixed thereto, and causing it to clean the wheel. Simultaneously with this operation the emery-wheel 53 will operate, and when moved by lever 100 will engage the gate projections of the wheel. These projections are invariably located directly adjacent to the core of the wheel, so that it will not be necessary for the emery-wheel 53 to engage the car-wheel at any other point.

The operator, by attending the lever 100, may throw the emery-wheel in and out of engagement with the car-wheel irrespective of the other movements of the machine, and with or without affecting the position of the emery-wheel bed. The devices for brushing the opposite or rear side of the car-wheel will now be described.

Fixed to the rear ends of the beams 10 and transversely aligned with each other are the boxes 120, which are two in number, one for each beam, and which are provided to furnish a bearing for the revolving shaft 121. The shaft 121 is provided with a pulley 122, which operates with the belt 123 and is adapted to be revolved by motion transmitted from the pulley 124 of the shaft 12. By these means the shaft 121 is rotated. From the shaft 121 motion is transmitted in two directions by the pulley 125 to the devices for revolving the car-wheel and by the pulley 126 to the devices for operating the brushes for cleaning the rear face. The pulley 125 has operating thereon the belt 127, which proceeds downwardly to the pulley 128 of the shaft 129. The shaft

129 is journaled in the boxes 130 of the two transverse beams 131. These beams 131 are fixed to the shafts 2 and 6 and 3 and 7, respectively. The front end of the shaft 129 is provided with a pulley 132, over which the belt 133 operates. The belt 133 proceeds downwardly from the pulley 132 and passes over the periphery of the car-wheel 117. By these means the car-wheel is revolved upon the shaft 112.

It will be observed that the pulleys for transmitting the motion from shaft 12 to shaft 129 are so formed that the motion will be reduced, thereby driving the car-wheel at a slow rate of speed.

Operating over the pulley 126 is the belt 134, which passes downwardly to the small pulley 135 of the shaft 136. The shaft 136 is journaled in the boxes 137 of the beams 138, and the beams 138 are in turn rigidly fixed to the standards 2 and 6. By these means the shaft 136 is caused to revolve.

Fixed to the shaft 136 and in addition to the pulley 135 is the pulley 139, over which the belt 140 operates. The belt 140 passes downwardly and slightly forwardly to the pulley 141 of the shaft 142. The shaft 142 is journaled in the boxes 143 of the lower ends of the standards 2 and 6, and has fixed thereto, and directly adjacent to the pulley 141 the pulley 144, over which the belt 145 operates. The belt 145 passes to and over the pulley 146 of the shaft 147. Shaft 147 is revolvably journaled in the boxes 148 depending from the middle of beam 114. Thus it will be seen that the belt 145 proceeds upwardly and forwardly from the shaft 142.

Fixed on the shaft 147, and one adjacent to each of its boxes and on the outer side thereof, are the pulleys 149, which are two in number and over which the belts 150 operate. The shaft 147 is given its rotary movement by the pulley 144 and belt 145 from shaft 142 and by means of belt 150 transmits such movement to the shaft 151 and applies it thereto by the pulleys 152, fixed to the shaft 151. The shaft 151 is located directly above the shaft 147 and is journaled in the boxes 153 of the plate 154. The plate 154 is rigidly secured to the front edge of the beam 114 and at the middle thereof and has the swinging plate 155 hinged to its upper edge. The hinge of plates 154 and 155 has a transverse axis, so that the plate 155 will be capable of swinging forwardly and backwardly.

The shaft 151 is arranged in approximately horizontal alignment with the hinge of plates 154 and 155, while its pulleys 152 are provided with belts 156 operating alongside the belts 150, and proceeding upwardly to the pulleys 157 of the shaft 158. The shaft 158 is journaled in the boxes 159, of the upper end of plate 155. Thus it will be seen that motion will be transmitted from shaft 151 to shaft 158 by means of belts 156 and that this transmission of motion will be unaffected by the swinging movement of plate 155. This

is so owing to the arrangement of the hinge of plate 155, since the belts 156 will swing with the plate 155 in the arc of a circle, thus retaining the proper relations of the shafts 158 and 151.

The pulleys 157 have formed integral with their outsides the grooved pulleys or extensions 160, over which the belts 161 operate. The belts 161 proceed forwardly and downwardly to the correspondingly-grooved pulleys 162 of the shaft 163. By these means power is transmitted to the shaft 163 and the shaft in consequence thereof caused to rotate. The shaft 163 is journaled in the boxes 164, fixed, in turn, to the approximately-vertical beams 165. The beams 165 are bifurcated at their respective ends, so as to form two longitudinally-aligned arms, adapted to lie one on each side of each of the transverse and horizontal beams 166. The beams 166 are two in number, one for each end of the beams 165, and are formed with the longitudinal slots 167 therein. The slots 167 are adapted for the reception and passage of the bolts 168, which are one for each end of the beams 165, and which are adapted to clamp the arms formed by the bifurcations in the beams 165 against the front and rear sides of the beams 166.

The bolts 168 are seated in the vertically-elongated slots 169 of the beams 165, so that the beams will be capable of movement on the pins 168. Thus it will be seen that the beams 165 may be adjusted laterally on the beams 166 or vertically on said beams. The purpose of this adjustment is to place the shaft 163 in the proper relation to the car-wheel, as will be more fully described hereinafter. The shaft 163 is mounted in its boxes so as to be capable of longitudinal movement therein, and this movement is limited by means of the spring-arms 170. The spring-arms 170 are two in number, one for each beam 165, and are rigidly secured thereto at the lower ends thereof. The springs 170 project upwardly and outwardly from the beams 165 and have their upper ends bifurcated to form the arms 171, which embrace the shaft 163 at each end, respectively, and are held incapable of longitudinal movement thereon by means of the collars 172, which are fixed to the shaft 163, and which lie one on each side of the arms 170. By these means the shaft 163 is held capable of a limited longitudinal movement, and this movement is provided to the end that the shaft may be adjusted to suit the position of the car-wheel.

Fixed to the shaft 163 and at a point between its bearings is the brush 173, which is similar in construction to the brush 86, and which has arranged on either side thereof the flanges 174. The flanges 174 are fixed to the shaft and are provided to guide the brush into and through the space which the brush is designed to clean. This operation will be more fully described hereinafter.

Formed integral with the ends of the beams 166 are the trunnions 175, which are one for

each end of the beams, and which are adapted to be arranged in the slots 176 and 177, respectively. The slots 176 and 177 are four in number, two for each numeral, and are formed in the vertical plates 178. The plates 178 are two in number and are each formed with a lower portion having plane vertical sides and with an upper portion having curved sides, said portion being enlarged. The lower portion, that with the plane sides, is formed with the slot 177 therein, while the enlarged upper portion of each plate is provided with the slot 176. The slot 177 is a vertical one in each plate, while the slot 176 is curved to form substantially an oval or ellipse, with an offset portion 179 at its lower rear end. In this part 179 of the slot 176 the trunnions 175 of the upper bar 166 are normally arranged, and here these trunnions remain when the bars 166 are at rest.

Rigidly secured to the outer sides of the plates 178 and near the lower ends thereof are the spring-arms 180, which proceed upwardly and slightly forwardly to the openings 181 of the enlarged upper ends of the plates. Here the arms 180 are provided with the pawls 182, which are rigidly fixed thereto and which project through the openings 181 and into the rear portion of the slot 176. The pawls 182 are formed with an inclined face, sloping downwardly and inwardly from their upper ends and terminating in an abrupt shoulder, which lies in the lower extremity of the rear portion of the slots 176, thereby forming a movable wall in said slots, which prevents the trunnions 175 of the upper beam 166 from moving into the rear portion of the slots 176 on its upward stroke. It is possible, however, for these trunnions to pass the pawls 182 on their way down the rear portion of the slots 176 by overcoming the tendency of the arms 180, as will be understood.

The plates 178 are secured to the vertical standards 3 and 7 by means of the transverse bars 183 and 184, which are two in number and arranged one at the upper and one at the lower ends of the plates. The bar 183 is arranged at the lower ends of the plates and is fitted within the notches 185 of the plates, the bars being provided with corresponding notches 186, adapted to co-operate with the notches 185 and thereby form a secure connection. The bar 184 is arranged at the upper ends of the plates and is provided directly adjacent to each plate with the longitudinally-enlarged portions 187, which are formed with transversely-elongated slots 188 therein. The slots 188 are two in number for each enlarged portion, and are adapted for the reception of the vertically-extending pins 189, which are rigidly secured to the upper ends of the plates 178 and which project through the respective slots.

Rigidly secured to the under sides of the enlargements 187 are the longitudinally-extending cleats 190, which are two for each enlarged portion and which are adapted to lie

one on each side of the plates. Formed in the standards 3 and 7 are the vertically-extending slots 191, which are one for each standard and which are adapted for the reception of the ends of the bars 183 and 184, whereby said bars may be adjusted in the slots. Passing through the rear sides of the slots 191 and projecting into the front sides thereof are the pins 192, which are one for each end of the bars 183 and 184 and which are adapted to hold said bars in a fixed position. The rear sides of the slots 191 are formed with a series of vertically-aligned openings 193 therein, which are adapted for the passage of the pins 192 so as to permit said pins to be adjusted, thereby adjusting the bars with which they operate.

Fixed to the rear side of the upper bar 166 is the curved rod 194, which extends from one end to the other of the bar, and which has its middle connected to the downwardly-extending brace 195 fixed thereto and to the middle of the lower bar 166. By these means the rod 194 is rigidly connected to the bar 166. Pivotally connected to the center of the rod 194, by means of its bifurcated end 196, is the pitman 197. The arms formed by the bifurcation of pitman 197 embrace the rod 195, so that the pitman will be incapable of sliding on the rod 194 owing to the rigid character of rod 195. The pitman 197 extends upwardly and rearwardly from the rod 194 and is connected to the wrist-pin 198 of the crank-disk 199. The crank-disk 199 is in turn fixed to the shaft 200, which is revolutely journaled in the boxes 201 of the vertical standards 203, fixed in turn to the horizontally-extending plate 204. The plate 204 is rigidly secured to the inner side of the standard 2 and projects inwardly and horizontally therefrom, its free end being supported by a brace 205 which rises from the beam 114.

Loosely mounted upon the shaft 200 is the pulley 206, which has the sleeve 207 fixed thereto and formed with the ratchet-teeth 208 thereon. Located directly adjacent to the sleeve 207 is the ratchet-wheel 209, which has the links 210 fixed one to each side thereof and provided at their free ends with the pawl 211, which is pivoted therein and which extends laterally, so as to be capable of engaging the teeth on both of the wheels 209 and 208. Formed on the pawl 211, and directly adjacent to its engaging point, is the spur 212, which projects outwardly from the engaging point of the pawl. The pawl 211 is given a normal tendency toward the ratchet-wheels 208 and 209 by means of the coiled spring 213, which is fixed to the pawl at one end, and which projects toward the shaft 200, to which it is secured. By these means the pawl 211 operates to connect the ratchet-wheel 209 and the pulley 206, and to give the pulley 206 the effect of being fixed to the shaft 200.

Pivotally connected to the vertical standard 2 and directly adjacent to the plate 204 is

the rod 214, which projects horizontally parallel with the plate 204, and is formed with the upwardly-extending portion 215, arranged directly in the path of the projection or spur 212 of the pawl 211, so that as the pawl revolves with the wheel 209 it will engage said projection 215 and be raised against the tendency of the spring, so that its engaging point will disengage the teeth of the wheels 209 and 208, so as to permit the pulley 206 to revolve loosely on shaft 200 and independent of the gear 209. Fixed to the rear side of the inner standard 203 is the downwardly-extending plate 216 which proceeds parallel with the standard and which embraces the free end of the rod 214, whereby the said rod is guided in its movements and prevented from all movement other than a vertical one.

217 indicates a retractile spring which is fixed to the inner standard 203, and which projects downwardly to the rod 214, to which rod the spring is connected. By these means the rod 214 is given a tendency upward, so that it will be in position to engage the projection 212 of pawl 211. Connected to the outer end of the rod 214 and extending downwardly therefrom is the cord 218, which passes to a point near the base of the machine and which turns over the pulley 219. The pulley 219 is mounted upon the stub-shaft 220 of the standard 221, which is in turn fixed to the rear base-plate 1 and to the under side of the beam 114. From the pulley 219 the cord 218 proceeds horizontally for a short distance, and is there connected to the lever 222. The lever 222 extends horizontally and longitudinally, and is pivoted between the bifurcated arms 223 of the plate 224. The plate 224 has formed integral therewith or rigidly secured thereto the downwardly-extending arm 225, which proceeds through the vertical slot 226 in the standard 227, and which is rigidly connected at its lower end to the block 228, which lies flush with the right-hand side of the vertical standard, and which is provided with the set-screw 229. The set-screw 229 passes through the block 228 and into engagement with the arm 225, whereby the block and its attached plate and arm may be fixed to the standard at any position throughout the vertical extent of the slot 226.

The standard 227 is rigidly fixed to and rises vertically from the horizontally-extending beam or plate 230, which plate is fixed to the rear sides of the longitudinal base-plates 1. The upper end of the standard 227 is fixed to the middle of beam 109, whereby the standard is made rigid in its seatings. The plate 224 is approximately U-shaped, and has its arms embracing the standard 227. The arm 231 is horizontally aligned with the arm 223, and is similarly bifurcated to admit the short arm of lever 222. The lever 222 is held snugly against the standard 227 by means of the retractile spring 223^a, which is connected to the plate 224 and to the lever. Thus it will be seen that by oscillat-

ing the lever 222 on its fulcrum in the arm 223 the cord 218 will be drawn over pulley 219 and the free end of rod 214 drawn down against the tendency of its spring 217. This will release the pawl 211 and allow the engaging point thereof to lock the teeth of the wheels 208 and 209, and thereby fix the pulley 206 to the shaft 200.

The short arm of the lever 222 passes to a point directly under the reduced portion of the shaft 112, and is adapted to be engaged by the ribs 118 of the car-wheel 117. By this engagement the lever is swung or oscillated on its fulcrum. Fixed to the shaft 136 is the pulley 233, over which the belt 234 operates. The belt 234 proceeds forwardly and horizontally to the pulley 206 of the shaft 200, and operates to transmit the motion of the shaft 136 to the shaft 200. Thus it will be seen that the pulley 206, during the operation of the machine, revolves continuously, and that the crank-disk 199 remains stationary until the rod 214 is disengaged from pawl 211, whereupon the engaging point thereof will connect the pulley 206 and wheel 209, thereby causing the shaft and consequently the crank-disk 199 to revolve. As the crank-disk 199 begins to revolve it will impart a similar movement to the pitman 197. By these means the bars 166 are moved in their slots 176. The movements of the crank-disk 199 will be such that the upper bar 166 will pass first forwardly and upwardly through the front portions of slots 176 to the upper ends thereof, thence rearwardly and downwardly through the rear portions of said slots, past the pawls 182, and back into the offset portions 179 of the slots 176. This movement completes a round-trip of the upper bar 166. During this operation of the upper bar 166, the lower bar 166 is reciprocating vertically in the slots 177.

Fixed to the shaft 142, directly adjacent to the ends thereof, are the pulleys 236, which are two in number and over which the belts 237 operate. The belts 237 extend forwardly and horizontally to the pulleys 238 of the shafts 239. The shafts 239 are one for each belt 237, and extend diagonally from the lower end of the standards 3 and 7, respectively, to the enlarged central portion of the beam 109. The upper ends of the shafts 239 are journaled in the boxes 240 of the beam 109, while the lower ends of the shafts are journaled in the boxes 241 of the plates 242, a collar 243 being provided and arranged upon the upper sides of the plates 242, whereby the shafts are prevented from moving too far down. The plates 242 are one for each shaft 239, and are formed with the dovetailed slots 244 therein. These slots are adapted to receive the correspondingly-shaped projections 245 of the diagonal beams 246. The beams 246 are secured respectively to the standards 3 and 7 and to the plate 230, and have formed therein a longitudinally-elongated slot 247, through which the shafts 239 respectively pass, the purpose of the slots 247 being to

permit longitudinal movement of the lower ends of shafts 239, adjustment being secured by means of the set-screws 248, which pass through the plates 342 and are adapted to engage with one of the projections 245 of the beams 246. The bearings 240 are formed with a loose connection, so that this movement of the lower ends of the shafts 239 will be permitted. The shafts 239 are provided with brushes 249, which are one for each shaft and which are similar in construction to the brush 173. These brushes 249 are adapted to clean the most exposed portions of the side of the car-wheel bearing the ribs 118, as will be more fully explained hereinafter.

The brushes used for cleaning the wheels are all of the same peculiar construction, and this is illustrated in Figs. 15 and 16 of the drawings. They consist of two semicylindrical longitudinal sections, constructed so as to form a hollow cylinder when assembled, and having formed therein the lines of openings 250. The openings 250 are arranged in concentric peripheral lines, and are adapted for the reception of the bristles 251, which are formed, preferably, of sections of wire arranged in bunches and passed first through one opening, thence along the inner periphery of the brush to an adjacent opening, and finally through said opening and up parallel with the first portions of the wires. The two sections of the brush are secured together by the collars 252, which are formed in two semicircular sections joined by bolts 253, and arranged over the ends of the body portions of the brushes. By this construction it is possible to take the brush apart when the bristles have worn out and to replace them, thus making the brush as good as it was when first placed in the machine.

In the use of my invention the car-wheel is taken from the molds in its rough and unfinished state and placed upon the reduced portion of the shaft 112 with its ribbed side rearwardly. The belts of my machine are now connected to their respective pulleys and shafts, and the drive-pulley 14 connected to the source of power by which the machine is to be driven. After the car-wheel has been placed in position, and when it is desired to start the machine operating thereon, the attendant should rotate the shaft 91 by means of the operating-wheel 93, so as to advance the emery-wheel bed toward the car-wheel. This will throw the machine into gear by means of the arms 105 and 106, as before described. When the emery-wheel bed has been advanced as far as possible, the lever 100 should be connected with the plates 40, so as to permit the plates to be reciprocated independently of the emery-wheel bed. With the reciprocations of the plates 40 the shafts 50 will be moved similarly, and the emery-wheel 53 may thereby be engaged or disengaged with the car-wheel.

It will be observed that the emery-wheel is so located that it will engage the car-wheel at

that portion which is directly adjacent to its axial opening or core, as such point is that upon which the projections caused by the gate of the mold are arranged. By these means the projections may be ground down to the surface of the wheel. Simultaneously with this operation of the emery-wheel the shaft 76 will be revolving continuously, which will impart a similar movement to the brush 86. Upon the advancement of the emery-wheel bed the brush 86 will be thrown into engagement with the front side of the car-wheel, and as the operation of the machine continues the brush will operate on that side of the wheel and remove the sand and grit which cling thereto.

It will be understood that the revolutions of the car-wheel will place every part thereof in position to be engaged and cleaned by the brush 86. While the wheel is being operated upon on its front side the devices for cleaning its rear side are operating concurrently, and this is effected by the brushes 249 and 173. The brushes 249 of shafts 239 engage the more exposed portions of the rear side of the wheel and clean the same, while the brush 173 operates upon the spaces between the ribs or brackets 118 and rids the same of the grit therein.

In the operation of the brush 173 the frame 166, or, rather, the bars 166 and their attachments, moves first up the wheel and through the space between two of the ribs thereon. When the highest portion of the wheel has been reached, the bars 166 swing rearwardly, owing to the curvature of slots 176, and pass down the rear side thereof. When the upper bar 166 results back to the offset portion 179 of the slots 176, the pawl 211 will have been engaged with the upwardly-projecting portion 215 of rod 214, which will disengage the pulley 206 from the shaft 200 and cause it to revolve loosely thereon. This will allow the shaft 200 to remain stationary, and consequently result in a stationary condition of the brush-frame. During this operation the car-wheel is slowly revolving, and as one of its ribs engages the lever 222 the cord 218 will be drawn down and with it the rod 214, which will allow the pawl 211 to engage with the wheel 209 and pulley 206, thereby resulting in a fixing of pulley 206 to the shaft 200 and in a consequent revolution of the shaft. Upon this operation the bars 166 or the frame of brush 173 will be made to again traverse the slots 176, thereby cleaning the space between the ribs which were directly adjacent to the ribs bounding the first-cleaned space. This operation is repeated continually until the whole wheel has been cleaned.

It will be understood that the shaft 163, and consequently the brush 173, revolves continuously during the rearward position of the emery-wheel bed. By means of the disks 174 the shaft 163 is moved longitudinally in its bearings, so as to guide the brush 173 in conformity with the curves of the ribs 118 on the car-

wheel. When the car-wheel has been completely dressed, the shafts 91 should be reversed, which will throw the emery-wheel bed forwardly and cause the clutch of pulley 14 to be disengaged, which will stop the operation of the whole machine. It will now be possible for the operator to remove the wheel and to replace it by a second one, which operation he may continue as long as desired.

I desire it borne in mind that the operations of my machine are all simultaneous; and that the front side of the wheel is being cleaned and dressed while the rear side is receiving the attention of brushes 249 and 173.

The use of the pawl 95 will be understood, since it has for its purpose to hold the emery-wheel bed in its position just forward of the car-wheel, and so that the lever 100 may be operated without affecting the position of the bed.

Various changes in the details, form, and proportions of my machine may be resorted to without departing from the principle thereof and without avoiding my claims, since such changes will readily suggest themselves to any skilled mechanic. Therefore I desire it understood that I consider myself entitled to all such variations as come within the scope and spirit of my claims.

Having described my invention, what I claim is—

1. In a machine for cleaning car wheels, the combination of means for supporting the wheel, a bed or frame capable of movement toward and from said means, a driven pulley on said bed or frame, a shaft arranged within the pulley and capable of independent longitudinal movement therein, the said shaft being connected with the pulley so as to revolve therewith, an emery-wheel fixed to the shaft and adapted to engage and to dress the car wheel, and a lever fulcrumed to the frame of the machine and pivotally connected to the shaft, whereby the shaft may be moved independently of the bed or frame, and made to engage or disengage the car-wheel substantially as described.

2. In a machine for dressing car wheels, the combination of means for mounting the car wheel, a bed or frame movable toward and from said means, a shaft mounted in said bed and having thereon a longitudinal rib, a pulley mounted upon the shaft so that the shaft will be capable of independent longitudinal movement therein, the pulley having an annular groove in its periphery, a rib arranged on the bed and fitting in the groove, whereby the pulley is kept from longitudinal movement, mechanism for revolving the pulley, an emery-wheel fixed to the shaft and adapted to engage the car wheel, and a lever fulcrumed to the frame of the machine and slidably connected to the shaft, whereby the shaft may be moved independently of the frame or bed, substantially as described.

3. In a machine for dressing car wheels, the combination of means for mounting the car

wheel, a bed or frame capable of movement toward and from said means, a driven emery-wheel on the bed and adapted to engage and disengage the car wheel, a rack-bar fixed to each side of the bed or frame, and on the under side thereof and extending longitudinally thereon, a shaft extending transversely across and beneath the bed or frame and pinions on the shaft and respectively engaging said rack-bars whereby the bed or frame may be moved, substantially as described.

4. In a machine for dressing car wheels, the combination of means for mounting the car wheel, a frame movable toward and from said means, an auxiliary frame capable of slight independent movement in the main frame and mounted thereon, a shaft revolubly mounted in said auxiliary frame and having a longitudinal rib thereon, a pulley mounted on the shaft so as to turn therewith and so that the shaft will be capable of independent movement within the pulley, means for driving the pulley, an emery-wheel fixed to the shaft, and a lever pivoted to the frame of the machine and capable of connection with the auxiliary frame, whereby said frame may be reciprocated within the main sliding frame, substantially as described.

5. In a machine for dressing car wheels, the combination of means for supporting the car wheel, a horizontal bed or frame movable toward and from the said means and having a detent thereon, a vertical shaft provided with an arm engaging the detent and operated thereby, clutch mechanism connected to the shaft and thrown in and out of engagement by the operation thereof, whereby the operative parts of the machine are set in motion, and dressing devices on the bed or frame and connected with the operative parts of the machine, substantially as described.

6. In a machine for dressing car wheels, the combination of means for mounting the wheel, a bed or frame movable toward and from said means, dressing devices on the bed or frame, a detent arising from the frame or bed, two curved arms of different lengths adapted to be engaged by the detent as the bed or frame moves and to be swung by such engagement, clutch mechanism to which said arms are connected, whereby the movements thereof are transmitted to the clutch mechanism, and a system of shafts and belting capable of connection with the clutch mechanism and with the dressing devices of the bed or frame, whereby said dressing devices may be operated, substantially as described.

7. In a machine for dressing car wheels, the combination of means for supporting the car wheel, a tool-carrying frame movable toward and from said means and having a detent arising therefrom, a pair of curved arms adapted to be engaged by the detent and to be moved by said engagement, and clutch mechanism actuated by said arms and adapted to throw the machine in and out of gear, substantially as described.

8. In a machine for dressing car wheels, the combination of means for supporting the car wheel, a tool-carrying bed or frame movable toward and from said means and having a
5 detent arising vertically therefrom, a vertical rock-shaft having its lower end adjacent to the detent of the bed or frame, curved arms of different lengths fixed to the lower end of said vertical shaft, a revoluble shaft connect-
10 ed to the operative parts of the machine and adapted to transmit movement thereto, and a clutch member to which the power for driving the machine is primarily imparted, said member being in connection with the vertical
15 shaft and adapted to be moved thereby so as to engage or disengage with the revoluble power-transmitting shaft, substantially as described.

9. In a machine for dressing car wheels, the
20 combination of means for supporting the car wheel, a reciprocating bed or frame capable of movement toward and from said means, and a driven brush on said bed or frame and adapted to engage the car wheel and to dress
25 or clean the same, substantially as described.

10. In a machine for dressing car wheels, the combination of means for mounting the car
30 wheel, two plates located adjacent to the wheel and having an oval-shaped slot in each, a frame having trunnions arranged respectively in said slots and adapted to move throughout the same, and a driven brush mounted upon said frame and adapted to en-
35 gage the car wheel, substantially as described.

11. In a machine for dressing car wheels, the combination of means for mounting the car
40 wheel, two plates located adjacent thereto and having oval-shaped slots in their contiguous faces, a frame arranged in the space between said plates and having trunnions fitting in the grooves thereof, a brush on said frame and adapted to engage and dress the car
45 wheel, means for driving the brush, a pitman connected to the frame, and a driven crank-disk connected to the pitman, whereby the frame is caused to move throughout the slots of the plate, substantially as described.

12. In a machine for dressing car wheels, the
50 combination of means for mounting the car wheel, a pair of plates arranged adjacent thereto and having slots therein, a frame arranged between the plates and provided with trunnions respectively located within the slots of the plates and adapted to move throughout
55 the extent thereof, means for moving the frame, and a driven brush mounted on the frame and adapted to engage the car wheel, substantially as described.

13. In a machine for dressing car wheels, the
60 combination of means for mounting the car wheel, a pair of slotted plates arranged adjacent thereto, a brush-carrying frame located between the plates and having trunnions arranged in the slots thereof, means for
65 driving the brush, a shaft having a crank-disk thereon and in connection with the frame, whereby the frame is caused to trav-

erse the slots of the plates, a pulley loosely mounted on the shaft and having a rotary movement continuously imparted thereto, a
70 ratchet-wheel fixed to the shaft, and a pawl pivoted to the ratchet-wheel and capable of being engaged with the pulley, whereby the said pulley may be fixed to the shaft and the shaft caused to revolve, substantially as de-
75 scribed.

14. In a machine for dressing car wheels, the combination of means for mounting the car
80 wheel so that it will be capable of a rotary movement, two slotted plates arranged adjacent to said means, a brush-carrying frame having trunnions located within the slots of
85 of said plates, means for driving the brush, a revoluble shaft, a crank-disk thereon and connected to the frame, a loose pulley on the shaft and having power continuously im-
90 parted thereto, clutch mechanism for engaging and disengaging said shaft and pulley, and a lever connected to said clutch mechanism and adapted to operate the same, said le-
95 ver being adapted to be engaged by the car wheel as it revolves, whereby the lever is operated, substantially as described.

15. In a machine for dressing car wheels, the combination of means for revolubly mounting
95 the car wheel, a brush adapted to engage the car wheel, a frame in which said brush is mounted, means connected to the frame whereby it is moved toward and from the car-wheel, clutch mechanism for throwing said means in
100 and out of gear, and a lever connected to the clutch mechanism and adapted to be engaged by the car wheel, whereby the clutch mechanism is operated substantially as described.

16. In a machine for dressing car wheels,
105 the combination of means for mounting the car wheel, a frame capable of movement toward and from the car wheel, a brush revolubly mounted in the frame and adapted to engage the car wheel, a plate hinged to a sta-
110 tionary portion of the machine, a revoluble shaft mounted in said plate, a belt connecting said shaft and the brush, a second revoluble and driven shaft mounted off the plate and at the hinged end thereof, and a belt con-
115 necting the first and second shafts, substantially as described.

17. In a machine for dressing car wheels, the combination with means for supporting
120 a car wheel, of a dressing-tool-carrying bed movable toward and from the said wheel-supporting means, driving mechanism for imparting movement to the operative parts of the machine, and a clutch actuated by the
125 bed and adapted to be thrown in and out of engagement upon the movements thereof, whereby upon the advancement of the bed the machine may be automatically set in operation, substantially as described.

18. In a machine for dressing car wheels,
130 the combination with means for supporting a wheel, of a bed movable toward and from the same, a brush revolubly mounted on the bed and adapted to engage the car wheel, driving

mechanism mounted on the frame of the machine and off the bed, a loose belt connecting the brush and said driving mechanism, and a lever fulcrumed on the frame of the machine and adjacent to said belt and having one end weighted and the other provided with an idler pulley adapted to be pressed into engagement with the belt and to keep the same taut notwithstanding the reciprocations of bed, substantially as described.

19. In a machine for dressing car wheels, the combination of means for supporting a wheel, of two duplicate and slotted plates, a frame provided with trunnions fitted in the slots of said plates and movable therein, a shaft journaled in the frame and capable of longitudinal movements in its bearings, means for driving the shaft, a spring arm fixed to the frame and having a loose connection with the shaft whereby the shaft is given a tendency to a predetermined position, a brush on the shaft, and a flange fixed to the shaft and adapted to engage the car wheel whereby the shaft is made to move longitudinally, substantially as described.

20. In a machine for dressing car wheels, the combination of means for mounting a car wheel, a brush capable of cleaning the spaces between the strengthening ribs thereof, and an additional brush extending radially with the wheel and capable of and adapted to clean the more exposed portions of the wheel, substantially as described.

21. In a machine for dressing car wheels, the combination with means for supporting a car wheel, of a frame, a brush mounted therein, guide-plates for the frame whereby it may move in a line parallel with the spaces between the strengthening ribs of the wheel, means for continuously revolving the brush, a pitman connected to the brush-frame, a crank-shaft for furnishing movement to the pitman, clutch mechanism operating with the shaft to throw it in and out of gear, and a lever having one end connected to the clutch mechanism and the remaining end in position to be engaged by the strengthening ribs of the car wheel, whereby as each rib passes said end the clutch mechanism will be operated and the position of the brush-carrying frame changed, substantially as described.

22. In a machine for dressing car wheels, the combination of two vertical frame-standards slotted longitudinally, means for supporting a car wheel, a brush-frame, a driven brush thereon, two guide-plates within which the brush-frame is movable, and two bars sup-

porting the guide-plates and having their ends arranged in the slots of the frame-standards and adjustably held therein, substantially as described.

23. In a machine for dressing car wheels, the combination with means for supporting a wheel, of a brush-frame, means for moving the brush-frame so that it may cover the extent of the car-wheel, a driven brush on said frame, a guide plate formed with an oval-shaped slot therein in which slot the brush-frame is arranged, and an inclined spring-pressed pawl arranged in the slot and having an abrupt shoulder normally aligned with the sides of the slot, whereby the brush-frame is forced to move throughout the slot in a specific direction, substantially as described.

24. In a machine for dressing car wheels, the combination with means for supporting a car wheel, of a brush-frame capable of moving toward and from the wheel, a brush thereon, a plate hinged to the frame of the machine, a shaft revolubly mounted in its free end, a belt connecting said shaft with the brush on the brush-frame, a shaft at the base or hinged end of the plate and in connection with the shaft at the free end thereof, and means for driving the shaft at the base or hinged end of the plate, substantially as described.

25. In a machine for dressing car-wheels, the combination with a frame capable of having a car wheel mounted thereon, of a shaft extending radially with the car wheel, a diagonally-extending beam fixed on the frame and having a transversely elongated slot therein in which the lower end of the shaft is arranged, a pulley mounted at the lower end of the shaft and below the diagonally-extending beam, whereby power may be applied to the shaft, the diagonally-extending beam having two dove-tailed ribs extending parallel with and on each side of the slot, a plate mounted on the ribs and adjustable thereon, means for holding the plate stationary, the plate having a box therein in which the shaft is journaled, a bearing for the upper end of the shaft, and a brush fixed to the shaft substantially as described.

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

FRED E. VAN CISE.

Witnesses:

A. F. FERGUSON,
GEORGE FREY.