No. 771,526.

PATENTED OCT. 4, 1904.

W. BLACKBURN.

MOTOR.

APPLICATION FILED NOV. 11, 1903.

NO MODEL.

4 SHEETS—SHEET 1.

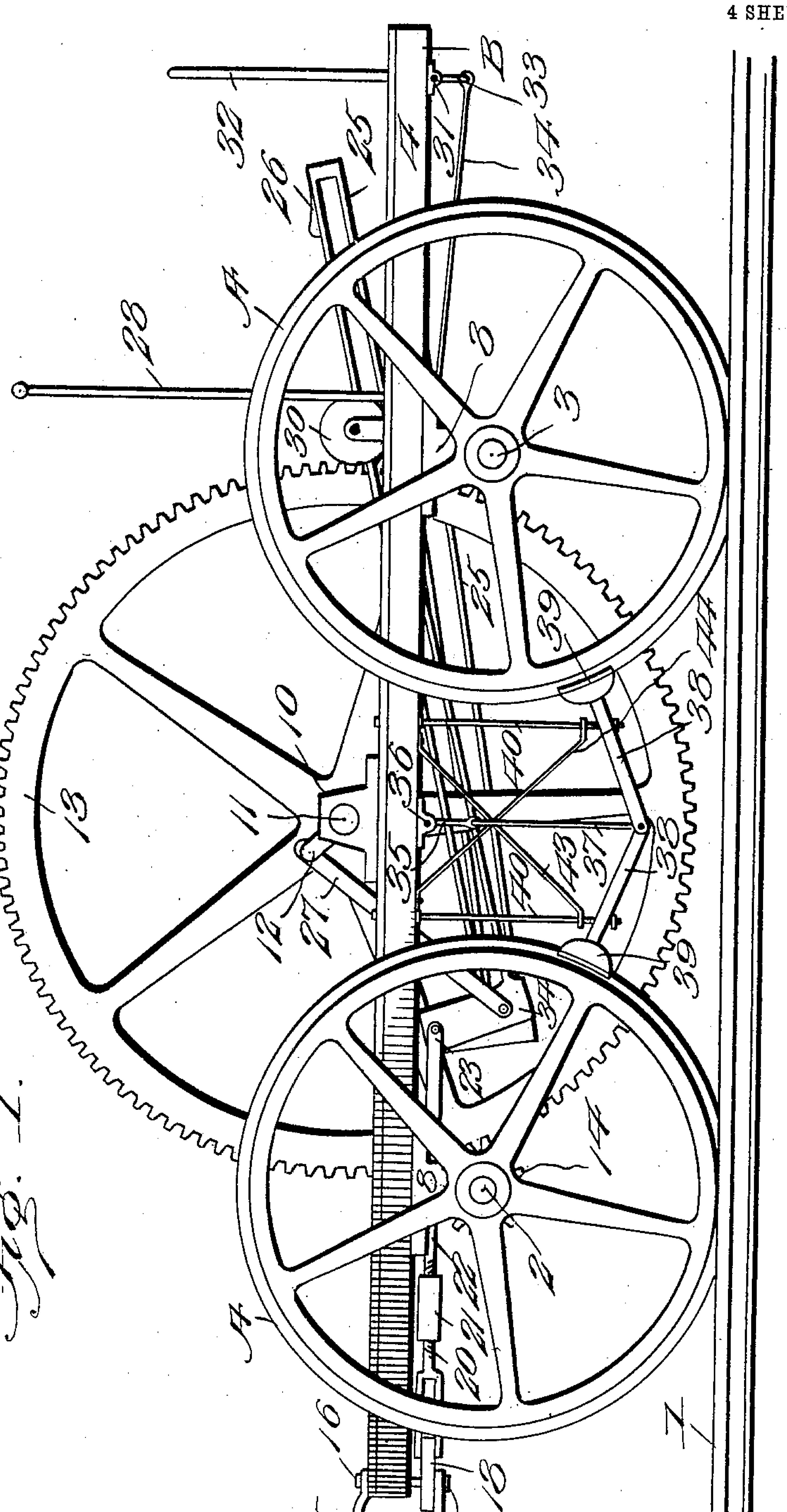

Fig. 1.

Witnesses

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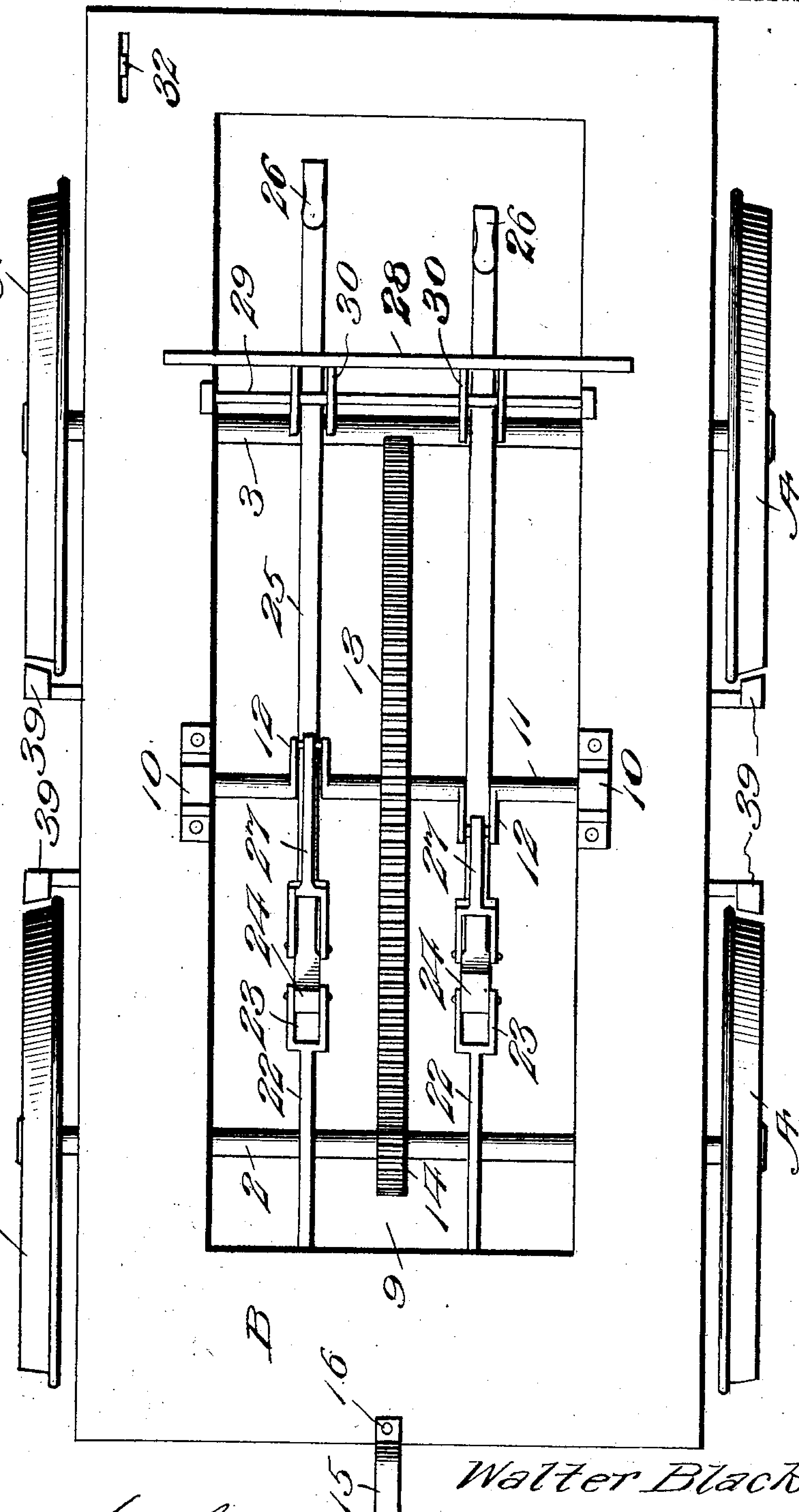
NO MODEL. 4 SHEETS—SHEET 2.

Fig. 2.



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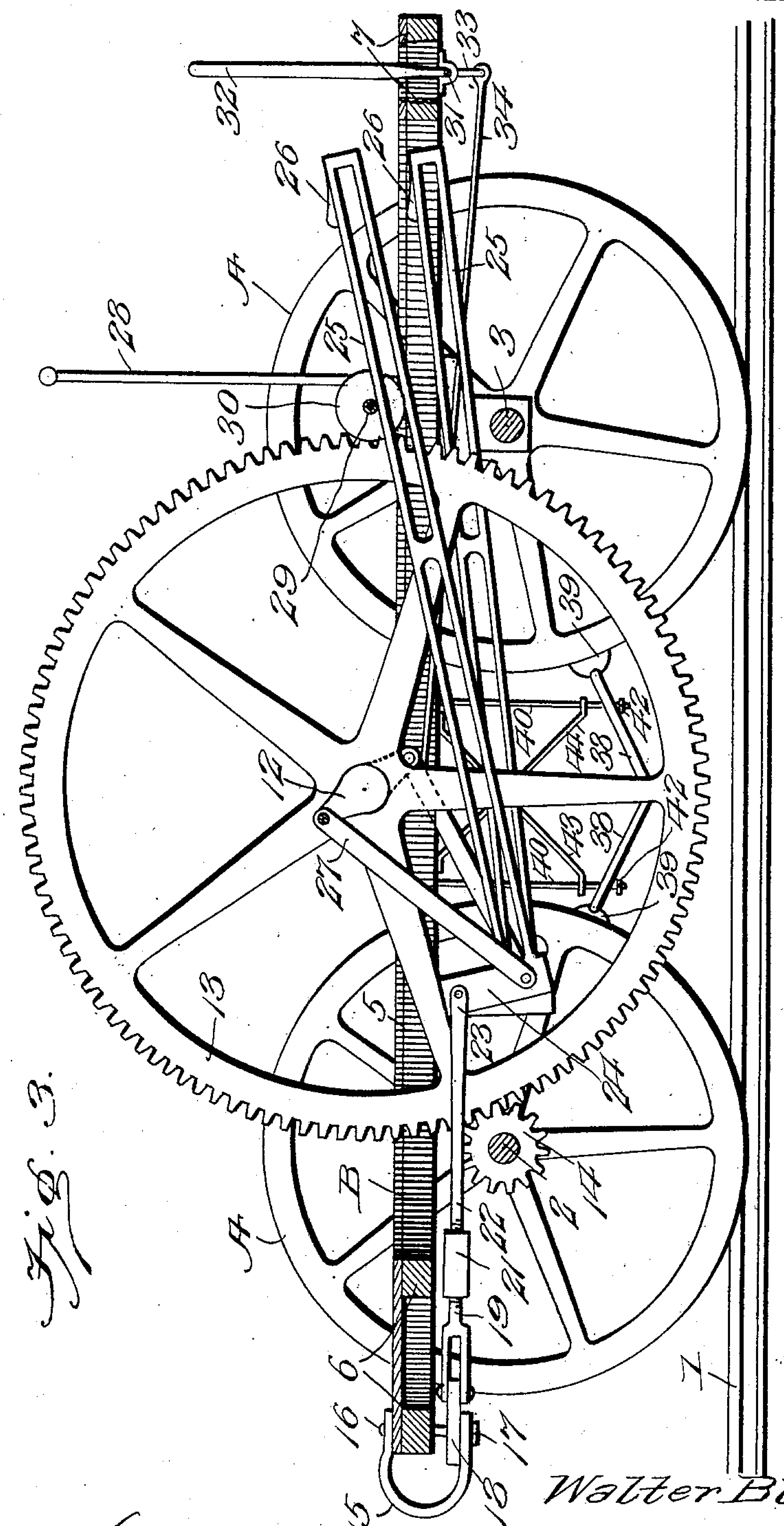
NO MODEL. 4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

Fig. 4.

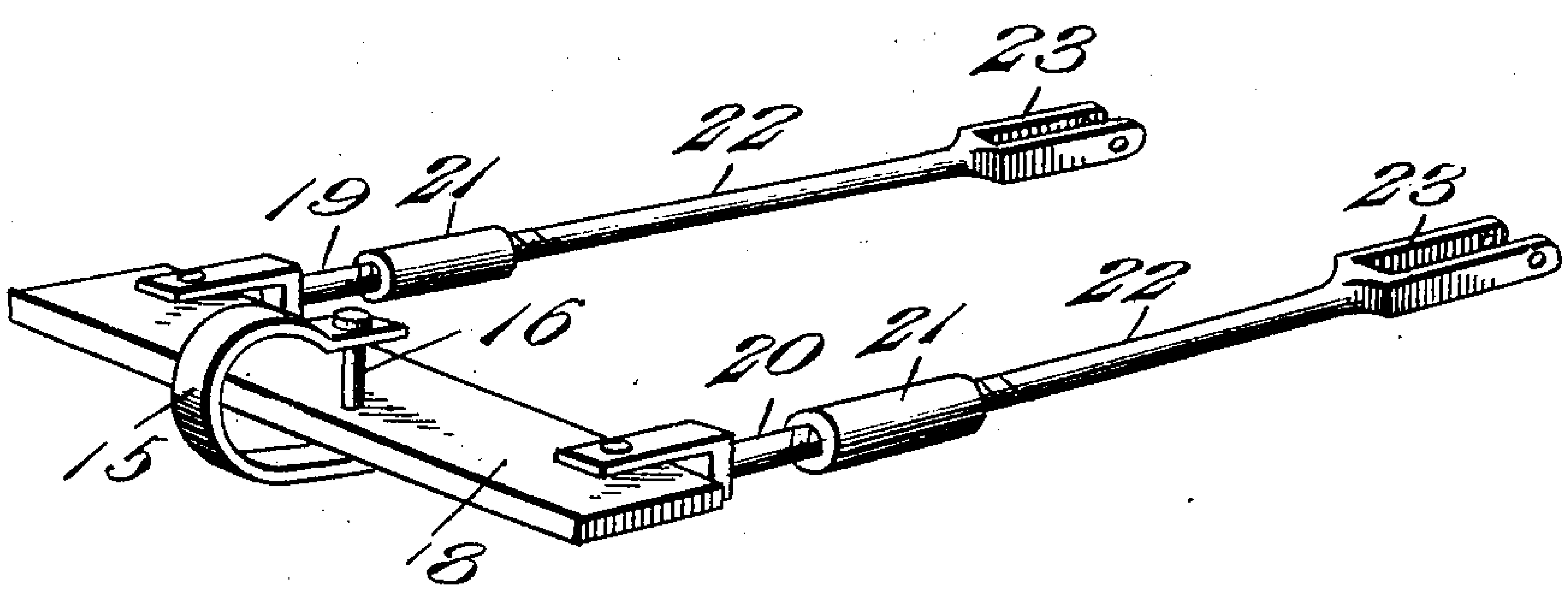
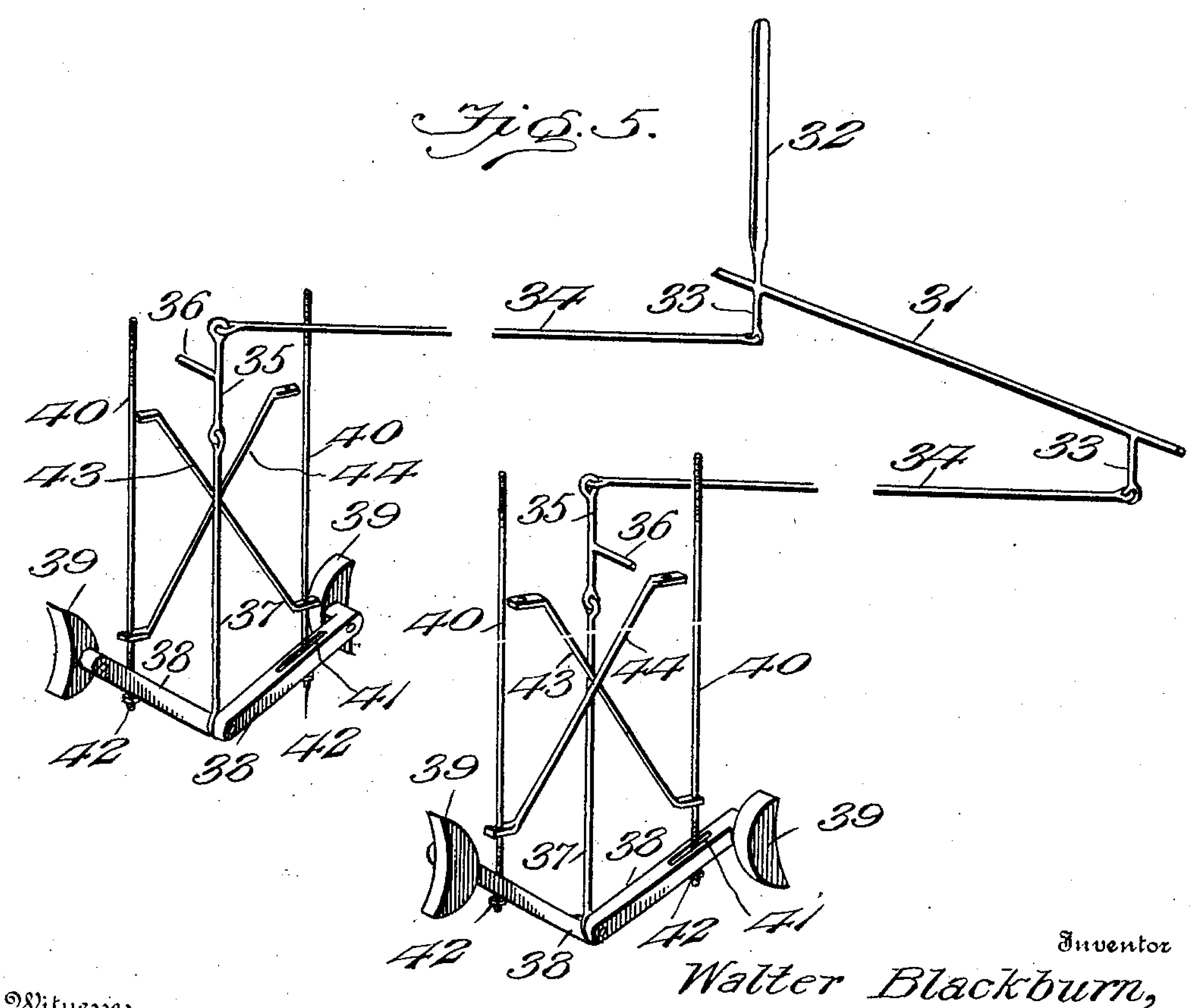


Fig. 5.



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UNITED STATES PATENT OFFICE.

WALTER BLACKBURN, OF SAN FRANCISCO, CALIFORNIA.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 771,526, dated October 4, 1904.

Application filed November 11, 1903. Serial No. 180,754. (No model.)

To all whom it may concern:

Be it known that I, WALTER BLACKBURN, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Motors, of which the following is a specification.

My invention relates to improvements in wheeled motors; and the object is to simplify and improve the existing condition of the art by providing a mechanically-operated motor-vehicle of simple construction, great power, and increased speed.

With these objects in view my invention resides in the novel construction of parts and their operative combination, as will be hereinafter fully specified and the novelty particularly pointed out and distinctly claimed.

In the annexed drawings I have illustrated the improvements as applied for the propulsion of a car; but it is apparent they may with equal utility be applied to the propulsion of a road-vehicle.

I have fully and clearly illustrated my improvements in the annexed drawings, to be taken as a part of this specification.

Reference being had to the drawings, Figure 1 is a side elevation of the complete machine. Fig. 2 is a top plan view of the machine. Fig. 3 is a side elevation of the machine, partly in longitudinal section, on the line 3 3 of Fig. 2. Fig. 4 is a detail perspective view of the turning-plate and adjustable pull-rods of the pedal-levers and crank rods or links. Fig. 5 is a detail perspective view of the brake mechanism.

A designates the wheels, which are in the present instance formed with flanges and adapted to ride on the rails of a track 1. The wheels are mounted on axles 2 3, which are fixed in the hubs to turn with the wheels. On the axles is properly secured and carried the floor or body B, which consists of the floor or platform B, laid and secured to side rails 4 5, united at the ends by cross-pieces 6 7. This frame and floor may be of any desired area to suit it to the uses the vehicle is to be put and the whole connected to and carried by the axles by means of bearing-blocks 8, secured to the side rails of the frame, as indicated. The floor has a large central opening 9 in it, so as to make ample room for the movement of the several associated and combined elements. At the middle of the platform at opposite points are secured bearings 10, wherein is journaled a double-crank shaft 11, the cranks 12 extending in opposite directions from the axis, so that one will assist the other in exerting force in a well-known manner. On the shaft 11, at the middle thereof and between the cranks, is mounted a large driving gear-wheel 13, which meshes with a pinion 14, fixedly mounted on the front axle 2, as shown in the drawings. On the front end of the frame is a keeper or loop 15, the ends of which fit loosely over the end of the frame and has projected through them a bolt 16, the bolt being secured in place by a nut 17, threaded on its lower end portion. Pivotally supported at its middle on the bolt 16 is a plate 18, adjacent to the ends of which are pivotally connected pull-rods 19 20, having forked ends to fit over the plate 18, as shown, the other ends of the pull-rods being threaded to take in a sleeve 21, the other end of the sleeves engaging the ends of the rods 22, forked at their free ends, as 23, the forks straddling the upper ends of the lever-blocks 24, which are pivotally secured therein. The pull-bars also keep the lever-blocks in relative position during the action of the pedal-levers.

To the lower end of the blocks 24 are pivotally connected the inner or lower ends of the pedal-levers 25, duplicate in construction and extending to the rear end of the machine, as shown, and provided with foot-pieces 26 on their free outer ends, as indicated, and upon which the operator or motorman stands in the operation of the machine. To the lower ends of the lever-blocks 24 are pivotally connected the lower ends of links or pitmen 27, the upper ends being properly connected to the wrist-pins or wrist-pieces of the crank-arms

12, as shown. Forward of the free ends of the pedal-levers is erected a vertical frame 28, the cross-bar of which the operator grasps with his hands to support himself while operating the pedal-levers. Across the machine adjacent to and in front of the free ends of the pedal-levers is revolubly mounted a shaft 29, arranged at a suitable distance above the pedal-levers to limit the upper movement of the levers, and on this shaft in alinement with and straddling the pedal-levers are annular disks or flanges 30, which serve to steady and guide the pedal-levers in their reciprocation. It will now be perceived that when the pedal-levers are worked the lever-blocks 24 will be rocked or swung on their connections or bearings and that through the pitmen 27, connected to the cranks of the driving-shaft 11, that shaft will be rotated with the gear-wheel 13 thereon, which being in mesh with the pinion 14 on the front axle of the machine the vehicle will be propelled forward.

Combined with the mechanism for propelling the machine is means for stopping or braking it, as may be desired or required. This brake mechanism is illustrated in the drawings; but it is particularly shown in all its parts in Fig. 5 of the drawings and may be described as follows: A bar 31 is journaled to the frame and provided with a hand-lever 32, rigid with the bar, and formed on the bar are rigidly-depending extensions 33, having pivotally connected to their lower ends pull-bars 34, to the other ends of which are hung rocking links or bars 35, formed at their middle with laterally-extending pivot-pieces 36, which are supported in any suitable bearings made in or secured to the frame. To the lower ends of the links 35 are hung rods 37, the lower ends of which are pivotally connected to and unite the inner and meeting ends of the brake-bars 38, to the free ends of which are pivotally mounted the brake-shoes 39, which are adapted to engage against the perimetal faces of the wheels substantially as indicated in the drawings.

40 designates supporting-rods having their upper ends firmly fastened in the frame of the motor and their lower ends loosely passed through slots 41 in the brake-bars and provided with nuts 42 on their ends below the bars on which the bars rest.

43 44 designate crossed brace-bars having their upper ends fixed firmly to the frame and their lower ends formed with apertures through which the lower end portions of the depending bars 40 are projected.

The brake-bars stand at a downward angle, as shown, so as to lengthen out when drawn up as the middle joint in a well-known manner to apply the brakes. It will readily be seen that when the hand-lever 32 is moved in either direction the links or bars 35 will be turned on their pivotal supports and draw up the bars 37, which being connected to the meeting ends of the brake-bars those elements will be drawn up at the middle and operate to push the brake-shoes against the wheels. When the brakes have served their purpose and the hand-lever released, the brake-bars will move down by gravity and release the brakes from the wheels.

Having described my invention, what I claim is—

1. In a vehicle of the character described, the combination with the double-crank shaft, a driving gear-wheel thereon and a pinion on the front axle of the vehicle, of a pivotally-supported plate at the front end of the vehicle, pivotally-supported bars extending rearward from the plate, lever-blocks pivotally secured in the inner ends of the bars, pitmen pivotally connected to the lower ends of the lever-blocks and to the wrist-pieces of the cranks, and pedal-levers having their inner ends secured to the lower ends of the lever-blocks and extending to the rear of the vehicle.

2. In a vehicle of the character described, the combination with the double-crank shaft, a driving-gear thereon and a pinion on the front axle of the vehicle, of a pivotally-supported plate at the front end of the vehicle pivotally-supported and lengthwise-adjustable bars extending rearward from the plate, lever-blocks having their upper ends pivotally secured in the inner ends of said bars, pitmen connected to the lower ends of the lever-blocks, and to the wrist-pieces of the cranks, pedal-levers having their inner ends secured to the lower ends of the lever-blocks and extending to the rear of the vehicle, and a bar across the rear portion of the vehicle above the pedal-levers to limit their upward movements.

3. In a vehicle of the character described, the combination with the double-crank shaft, a driving-gear thereon and a pinion on the front axle of the vehicle, of a pivotally-supported plate at the front end of the vehicle, pivotally-supported and lengthwise-adjustable bars extending rearward from the plate, lever-blocks having their upper ends pivotally secured in the inner ends of said bars, pitmen connected to the lower ends of the lever-blocks, and to the wrist-pieces of the cranks, pedal-levers having their inner ends secured to the lower ends of the lever-blocks and extending to the rear of the vehicle and a bar journaled across the rear portion of the vehicle above the pedal-levers to limit their upward movement, and vertical flanges on the said bar arranged to straddle and guide the pedal-levers in their reciprocations.

4. In a vehicle of the character described, the combination with the propelling mechanism

of a brake mechanism comprising a shaft journaled across the vehicle and provided with rigid depending arms, a hand-lever fixed to the shaft, pull-bars connected to the lower ends of said arms, depending links pivotally supported at their middle, vertically-movable brake-rods connected to the said links, brake-bars pivotally united at their inner ends to the lower ends of the brake-rods, brake-shoes on the outer ends of the brake-rods, and means substantially as described to support and guide the brake-rods.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER BLACKBURN.

Witnesses:

MATTHEW TURNER,

D. O. THORNTON.