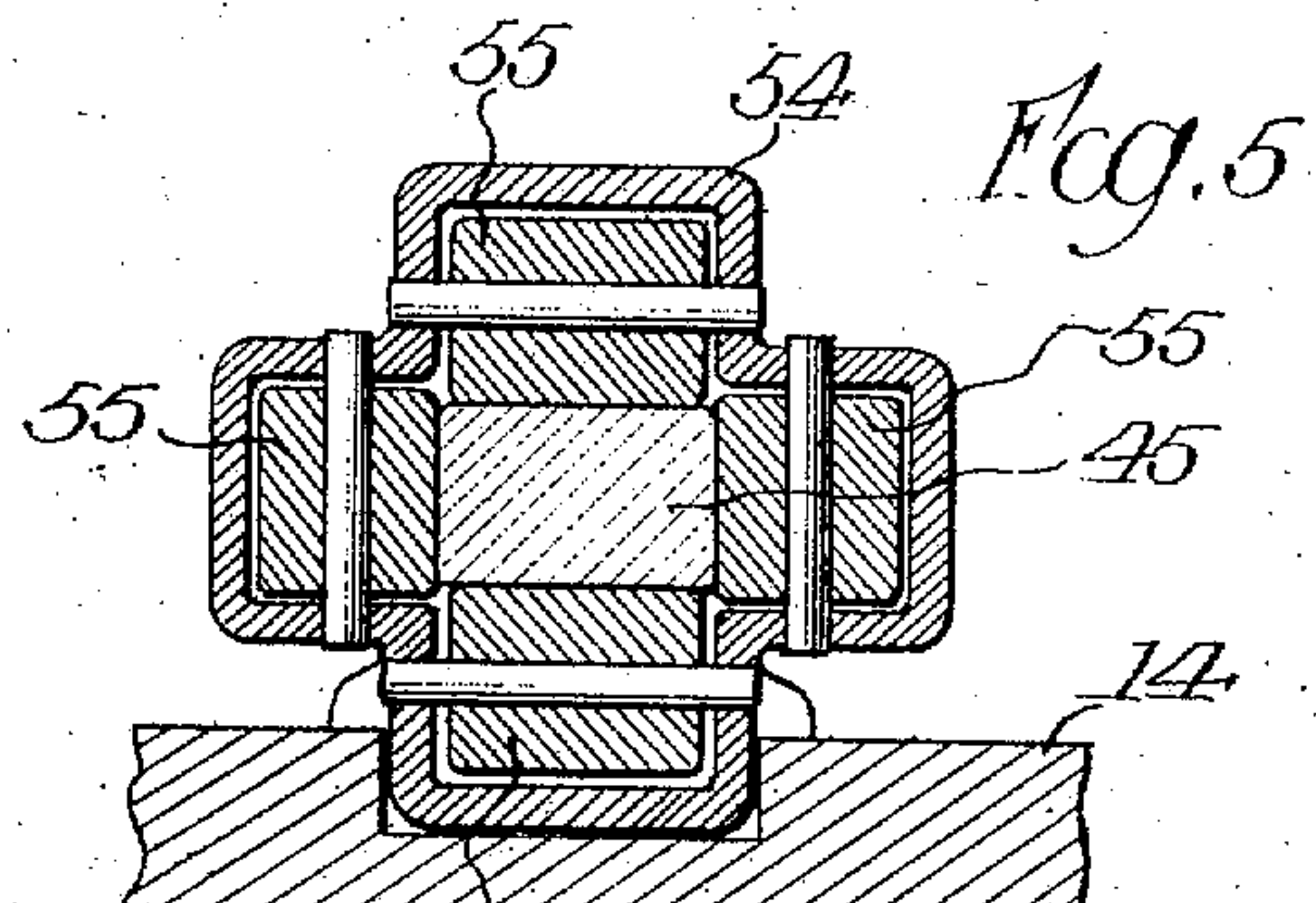
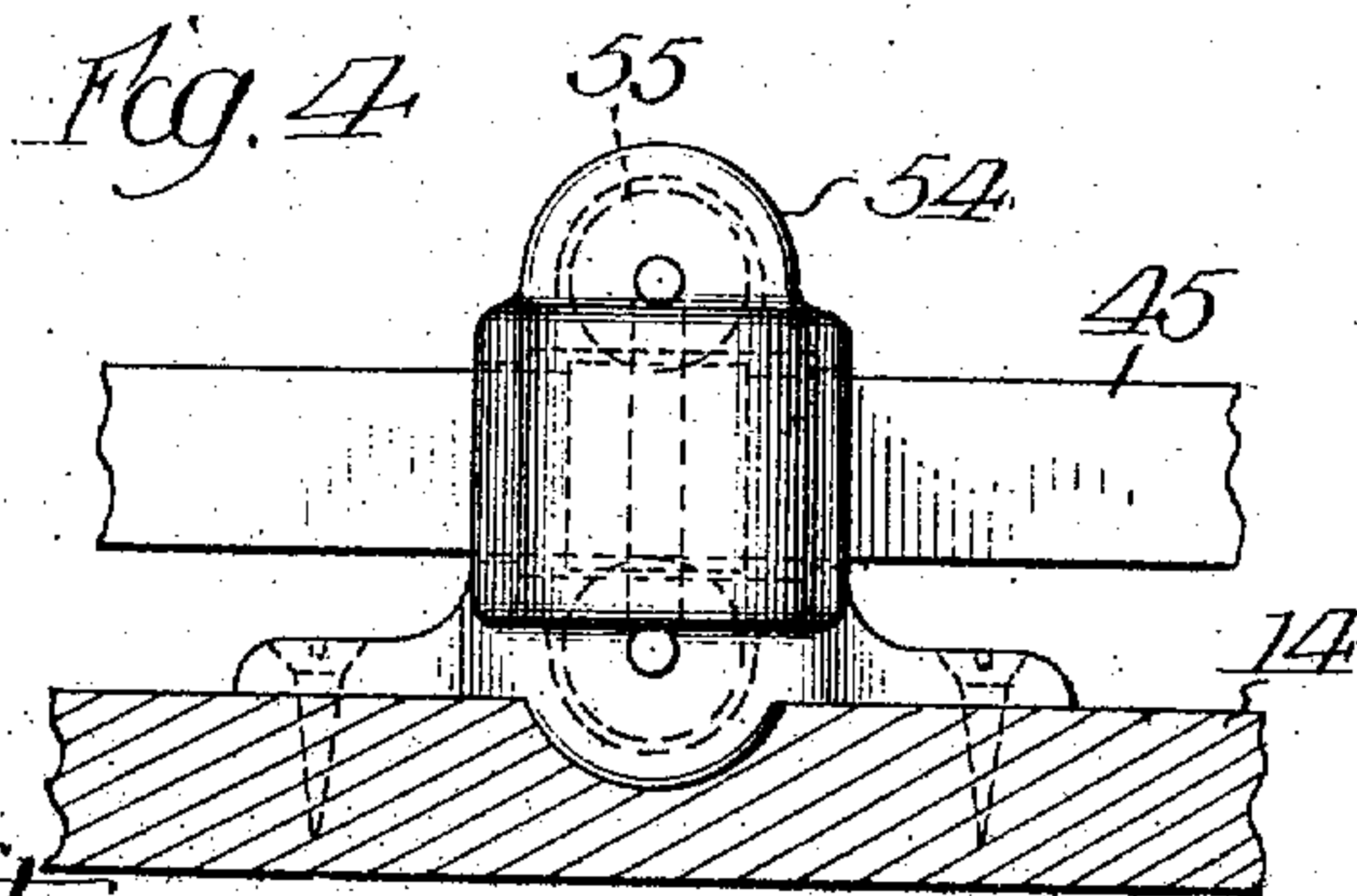
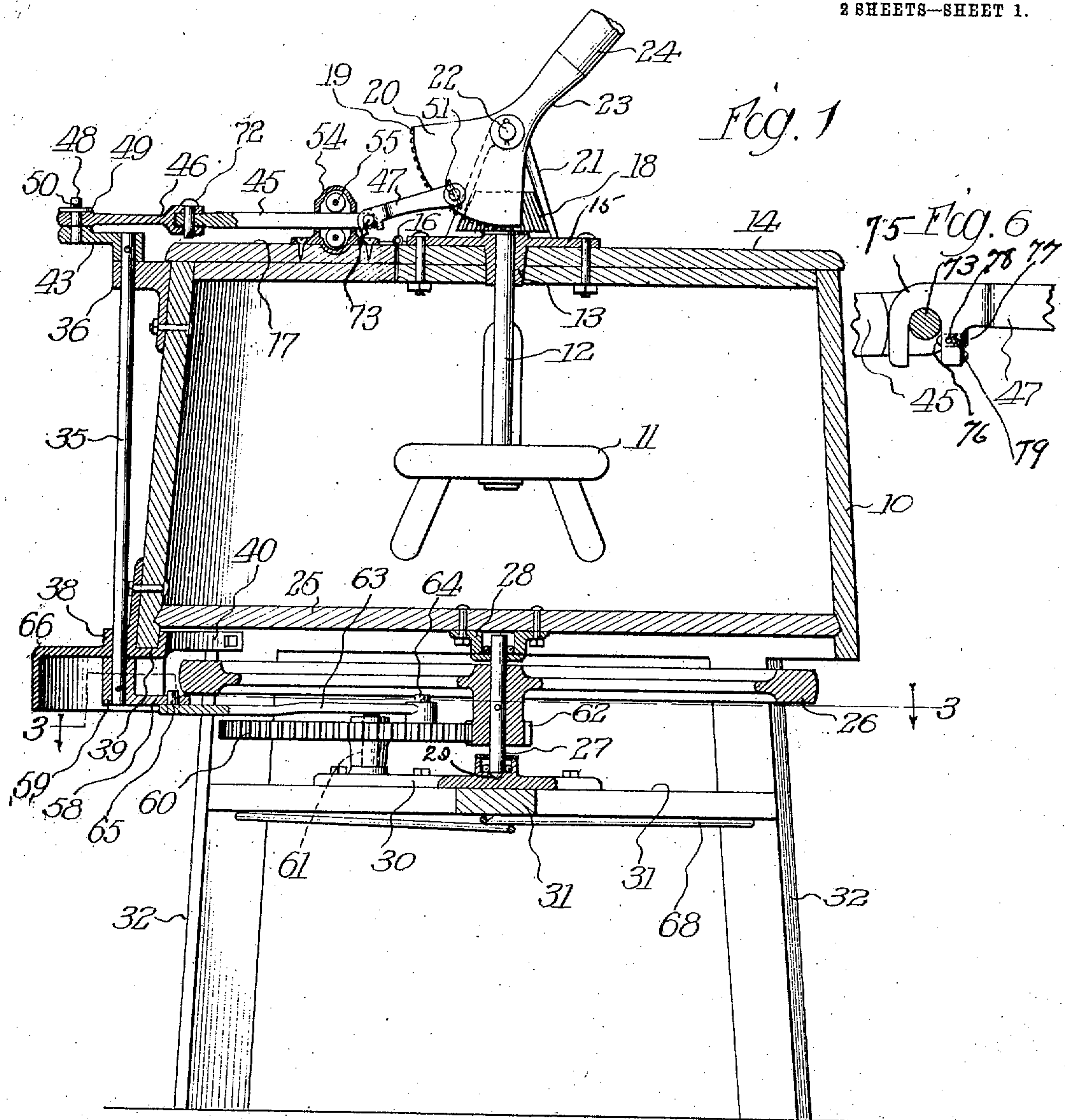


G. N. MEVES.
 OPERATING MECHANISM FOR WASHING MACHINES.
 APPLICATION FILED OCT. 27, 1909.

961,878.

Patented June 21, 1910.

2 SHEETS—SHEET 1.



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Fig. 2

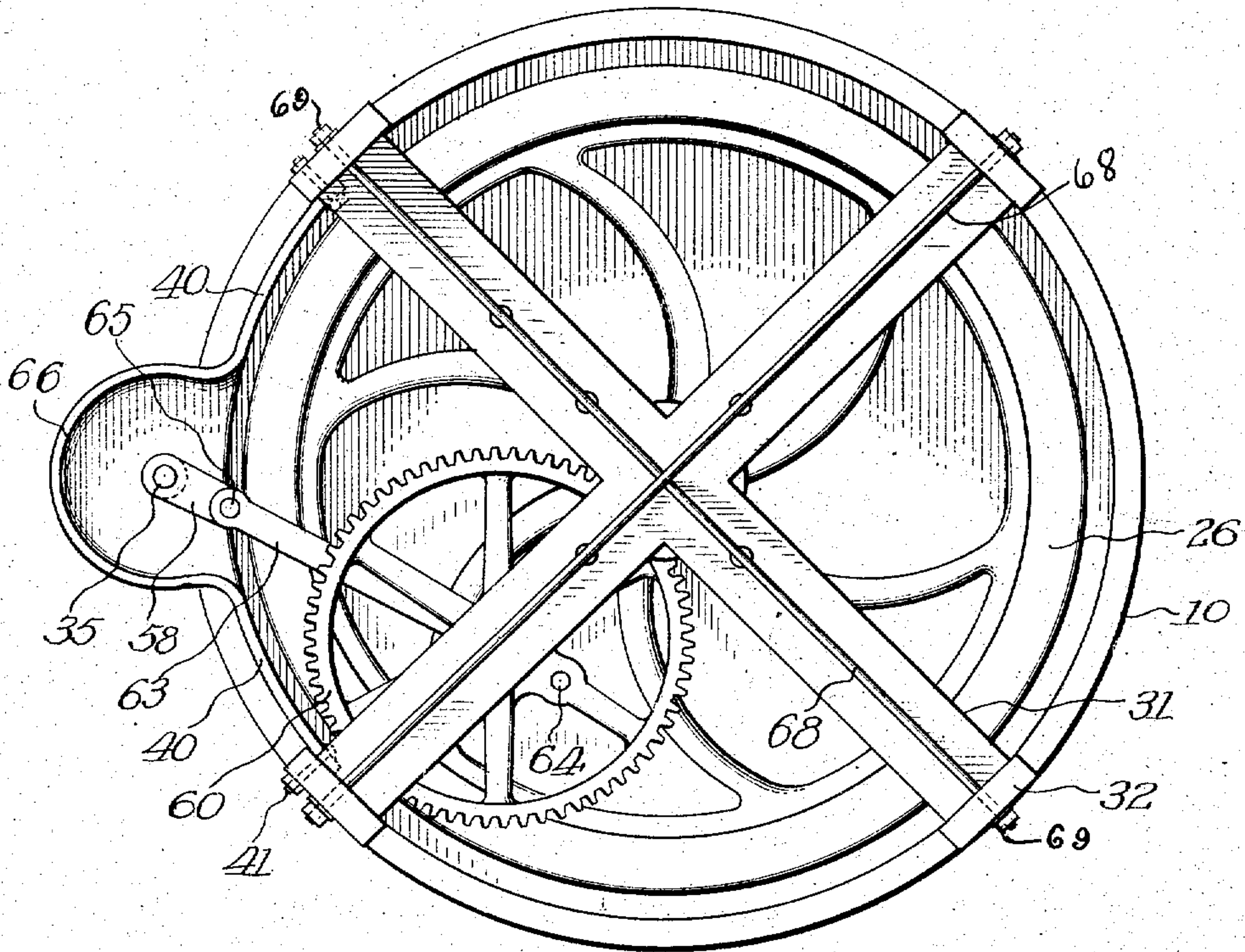
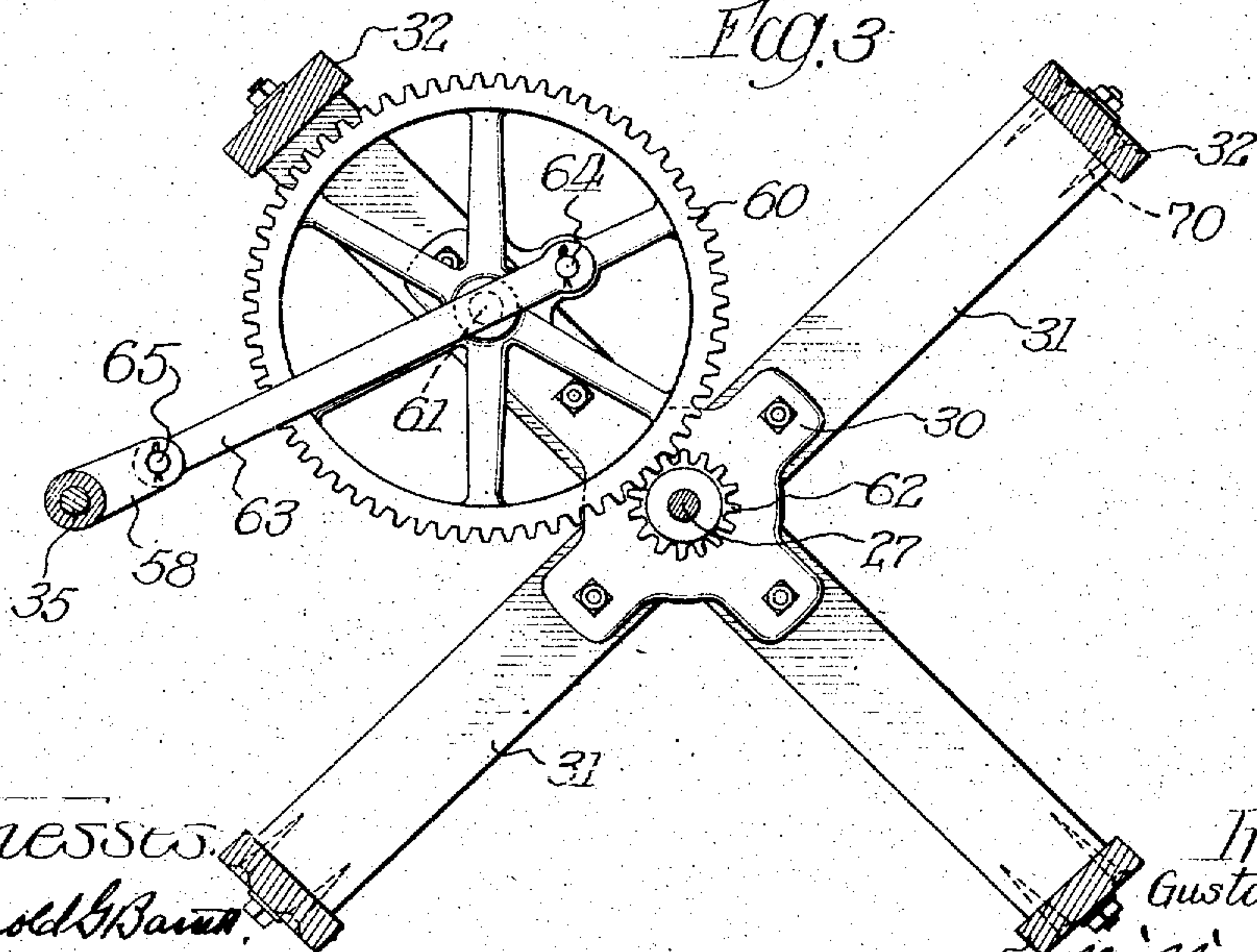


Fig. 3



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UNITED STATES PATENT OFFICE.

GUSTAV N. MEVES, OF DAVENPORT, IOWA.

OPERATING MECHANISM FOR WASHING-MACHINES.

961,878.

Specification of Letters Patent. Patented June 21, 1910.

Application filed October 27, 1909. Serial No. 524,801.

To all whom it may concern:

Be it known that I, GUSTAV N. MEVES, a citizen of the United States, and a resident of Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Operating Mechanism for Washing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in operating mechanism for washing machines of that type in which the stirrer head or dolly is given a rotary reciprocatory motion within the tub to turn the clothes first in one direction and then in the other through the wash water in the tub.

The invention refers more specifically to improvements in machines of that type wherein a balance wheel or other power storing device is operatively connected with the actuating device for the stirrer head shaft in such a way as to permit the mechanism to be driven with comparatively small power, when started in operation, and to relieve the mechanism of shocks and jars due to the reversal of direction of the moving parts.

The invention is herein shown as applied to a lever type of operating mechanism for washing machines, but may be applied to other types of such mechanisms, and may be used in connection with operating mechanisms for other than washing machines.

As shown in the drawings, Figure 1 is a central vertical section of a washing machine equipped with an operating mechanism embodying my invention. Fig. 2 is a bottom plan view thereof. Fig. 3 is a horizontal section on the line 3-3 of Fig. 1. Fig. 4 illustrates an anti-friction guide for the pitman associated with the stirrer shaft actuating device. Fig. 5 is a vertical sectional view of said guide. Fig. 6 is a detail illustrating the manner of detachably connecting the inner swinging member of the pitman with the reciprocatory member thereof.

As shown in the drawings, the tub 10, the stirrer 11 and the stirrer head shaft 12 are of the usual construction for this type of machine. The shaft 12 extends downwardly through a bearing sleeve 13 that occupies an opening in the swinging lid or cover 14, and is made integral with a plate 15 fixed to the

upper side of the swinging lid or cover. The swinging portion 14 of the top wall is hinged at 16 to the fixed or non-rising portion 17 thereof.

The stirrer head shaft is provided at its upper end with a beveled pinion 18 which meshes with the gear sector 19 of a segmental rocking member 20 that is pivoted to an upright bracket 21 which rises from or is made integral with the plate 15, said bracket being provided with a horizontal pivot pin or stud 22 which extends through a bearing aperture in said rocking member. The said rocking member is provided with a socket piece 23 which receives the lower end of a hand lever 24 by which the rocking member is swung or rocked about its axis and, through the gear sector and beveled pinion, imparts a rotary reciprocatory motion to the stirrer head shaft.

Located beneath the bottom 25 of the tub is a horizontal balance wheel 26. As shown, the said balance wheel is fixed to a vertical, rotative shaft 27 that is mounted at its upper end in a bearing bracket 28 fixed to the lower side of the tub bottom, and at its lower end in a bearing cup 29 that is formed in a lower fixed plate 30. Said plate is shown as fixed to a support arranged below the tub bottom, comprising cross members 31, 31 extending between and attached at their ends to the legs 32, 32 of the tub and intersecting each other in the central vertical axis of the balance wheel. Suitable anti-friction media are interposed between the upper and lower ends of the shaft 27 and the bearing members to reduce the friction between said parts. Said balance wheel is operatively connected with the rocking member 20 in such a way that the balance wheel has imparted thereto a continuous rotary motion in one direction, through the swinging or rocking movement of the segmental rocking member 20, whereby power is stored in the balance wheel to assist the actuation of the rocking member and stirrer head shaft, after the mechanism is started in operation, and to minimize the shocks brought on the parts at the points of reversal thereof.

The connection between the actuating member and the balance wheel is made as follows: 35 designates a vertical rotative shaft which is located at one side of the tub. It has rotative bearing at its upper end in a bracket 36 that is bolted or other-

wise fixed to the side of the tub near the top thereof. At its lower end the shaft has bearing in a bracket 38 that is fixed at its central portion by a hook shaped flange 39 to the lower edges of the tub staves, beneath the bottom 25, and is provided with oppositely extending, curved arms 40 which extend to adjacent legs 32 of the tub and are attached thereto by bolts 41 or other suitable fastening means.

To the upper end of the shaft 35 is fixed a crank 43. The crank 43 is connected to the rocking actuating member 20 through the medium of a jointed pitman comprising a central pitman member 45, and end pitman members 46, 47, which latter are pivotally connected to the ends of the central pitman member 45 and are pivotally connected at their outer ends to the crank 43 and the rocking actuating member 20, respectively. The pivotal connection between the outer pitman member and the crank 45 consists of a stud 48 which extends upwardly from the crank through an aperture in the outer pitman member, and the pitman member is held from rising thereon by means of a washer 49 surrounding the stud and a pin 50 extending through the stud above the washer. The pivotal connection between the inner pitman member and the rocking actuating sector 20 comprises a stud 51 on the rocking actuating member that extends through a bearing aperture in said inner pitman member; the pitman member being held on the stud in any suitable or convenient manner.

The central or intermediate pitman member 45 extends through and is guided by an anti-friction guide device comprising a casing 54 attached to the upper side of the lid 17 in any suitable manner and is provided with a horizontal opening through which the pitman member 45 extends. Said casing is also provided with supports for anti-friction rollers 55, 55 which are arranged to bear on the lateral and top and bottom sides of said intermediate pitman member, thereby guiding the intermediate pitman member in a direct to and fro path, and reducing the friction between said member and guide to a minimum.

The rotative shaft 35 is provided at its lower end with a crank 58, the hub or sleeve 59 of which is non-rotatively fixed to the lower end of the shaft in any suitable manner.

60 designates a large gear wheel arranged horizontally beneath the balance wheel and rotatively mounted on a stud 61 that extends upwardly from the frame plate or bearing member 30. The said gear wheel meshes with a pinion 62 that is carried by or formed integral with the lower end of the hub of the balance wheel. The gear

wheel 60 is operatively connected with the lower crank 58 by means of a pitman 63 which is pivotally connected at its inner end with a pin or stud 64 mounted on and located eccentrically with respect to the gear wheel, and is pivotally connected at its outer end with a stud 65 that is carried by the said crank 58.

A shield or hood 66, that may be made integral with the lower bearing bracket 38 for the shaft 35, incloses the lower crank 58 to prevent the crank from striking a person standing near the machine during the outward throw or swing of the crank. The legs 32 of the tub may be held together by tension rods 68, each extending between opposite legs and the rods crossing each other at the intersection of the cross members 31. The said rods extend at their ends through the legs and are screw-threaded to receive nuts 69 by which the rods are placed under tension and the tub legs held firmly against the ends of the cross members to give the required rigidity to the connection between the cross members and legs. The said cross members may be attached to the legs by screws 70 (Fig. 3) that extend through the legs and into the ends of the cross members.

In the operation of the machine, the hand lever 24 is grasped by the operator and swung from side to side and, operates, through the rocking gear sector member 20 and the pinion 18, to impart rotary reciprocatory motion to the stirrer head shaft. During the rocking motion of the gear sector member, the jointed pitman is reciprocated endwise and operates, through the crank 43, to rotate the vertical shaft 35 continuously in one direction, and the rotative motion of said shaft is transmitted, through the lower crank 58, the pitman 63, the gear 60 and pinion 62, to rotate the balance wheel at high speed in one direction. The momentum of the balance wheel, thus rotated at high speed in one direction, serves to store power in the balance wheel, which is transmitted, through the connections described back to the hand actuated rocking gear sector member 20 and acts to materially lessen the power required to actuate the rotary reciprocatory shaft after the mechanism has once been started in operation. Said arrangement also serves to continue the operation of the parts for a time after manual power acting on the hand lever is discontinued. It will be noted that the outer member 46 of the jointed pitman is pivotally connected with the central part or member thereof, as by means of the pivot pin 72, to swing horizontally and that the inner member 47 of said jointed pitman is pivotally connected with said central member, as by the horizontal pivot pin 73, to swing vertically. Thus the central member 45 of

the jointed pitman reciprocates in a straight path, during the swinging movement of the actuating gear sector member, with a minimum binding stress of said central pitman member against its anti-friction guide.

In order that the swinging portion 14 of the top wall or lid of the tub may be freely swung upwardly to permit access to the tub, provisions may be made to disconnect the inner swinging member 47 of the jointed pitman from the central member 45 thereof. Such disconnection may be afforded by any suitable construction, such for instance as that illustrated in Fig. 6. As therein shown the outer pivoted end of the inner crank member is formed with a hook 75 that engages over the pivot pin 73, and is provided with a spring-pressed latch bolt 76 that occupies a recess in said inner swinging member and is normally forced, by a spring 77, arranged behind said recess and bearing against the end of the latch bolt, with its outer end beneath the pivot pin 73 so as to prevent the outer end of said inner member of the jointed pitman from rising. The latch bolt is retracted, against the action of said spring 77, to free it from said pivot pin by means of a pin 78 extending outwardly therefrom through a slot 79 in the hook end of said inner pivoted end of the pitman. Said pin also serves by contact with the outer end of the slot, to limit the outward movement of the latch bolt.

While I have described the structural details of the mechanism shown with considerable particularity, it will be understood that the details of the mechanism may be somewhat varied within the spirit and scope of the invention, and the invention is not limited to the details shown, except as hereinafter made the subject of specific claims.

I claim as my invention:

1. Operating mechanism for washing and like machines comprising, in combination, a shaft capable of rotary reciprocatory motion, actuating means for imparting rotary reciprocatory motion to said shaft, a balance wheel, and speed increasing gear mechanism operatively connected between said actuating means and said balance wheel, embracing a shaft capable of rotating continuously in one direction and provided at both ends with cranks through which it is connected with said balance wheel and said actuating device.

2. Operating mechanism for washing and like machines comprising, in combination, a vertical shaft capable of rotary reciprocatory motion, actuating means for imparting reciprocatory motion to said shaft, a balance wheel arranged below said shaft and speed increasing gear mechanism operatively connected between said actuating means and said balance wheel, embracing a vertical shaft capable of rotating continuously in

one direction and provided at both ends with cranks through which said shaft is connected with said balance wheel and said actuating device.

3. Operating mechanism for washing and like machines comprising, in combination, a vertical shaft capable of rotary reciprocatory motion, actuating means for imparting rotary reciprocatory motion to said shaft, a balance wheel arranged below said shaft and speed increasing gear mechanism operatively connected between said actuating means and said balance wheel, embracing a vertical, rotative shaft provided at both ends with cranks and pivoted pitmen connecting said cranks with said balance wheel and with said actuating means.

4. Operating mechanism for washing and like machines comprising, in combination, a vertical shaft capable of rotary reciprocatory motion, actuating means for imparting rotary reciprocatory motion to said shaft, a balance wheel arranged below the shaft and speed increasing gear mechanism operatively connected between said actuating means and said balance wheel, embracing a vertical, rotative shaft provided at its upper end with a crank, a pitman connecting said crank and actuating device, and speed increasing gears arranged between and connecting the lower end of said rotative shaft with said balance wheel.

5. Operating mechanism for washing and like machines comprising, in combination, a vertical shaft capable of rotary reciprocatory motion, actuating means for imparting rotary reciprocatory motion to said shaft, a balance wheel arranged below the shaft and speed increasing gear mechanism operatively connected between said actuating means and said balance wheel, embracing a vertical, rotative shaft operatively connected at its upper end with said actuating means, a crank at the lower end of said rotative shaft and a pitman connecting said crank and balance wheel.

6. Operating mechanism for washing and like machines comprising, in combination, a shaft capable of rotary reciprocatory motion, actuating means for imparting rotary reciprocatory motion to said shaft, a balance wheel, a rotative shaft provided at one end with a crank, a jointed pitman connecting said crank with the actuating means and speed increasing gear mechanism connected between the other end of said shaft and the balance wheel.

7. Operating mechanism for washing and like machines comprising, in combination, a shaft capable of rotary reciprocatory motion, actuating means for imparting rotary reciprocatory motion to said shaft, a balance wheel, a rotative shaft, speed increasing gears connected between one end of said rotative shaft and said balance wheel, a crank

at the other end of said rotative shaft and a jointed pitman connecting said crank and said actuating means comprising a central portion which reciprocates in a straight path and end portions pivotally connected at their inner ends with the central portion and at their outer ends with said crank and with said actuating means.

8. Operating mechanism for washing and like machines comprising, in combination, a shaft capable of rotary reciprocatory motion, actuating means for imparting rotary reciprocatory motion to said shaft, a balance wheel, a rotative shaft, speed increasing gears connected between one end of said rotative shaft and said balance wheel, a crank at the other end of said rotative shaft, a jointed pitman connecting said crank and said actuating means comprising a central portion which reciprocates in a straight path and end portions pivotally connected at their inner ends with the central portion and at their outer ends with said crank and with said actuating means, and an anti-friction guide bearing for the central portion of said jointed pitman.

9. Operating mechanism for washing and like machines comprising, in combination, a shaft capable of rotary reciprocatory motion, actuating means for imparting rotary reciprocatory motion to said shaft, a balance wheel, a rotative shaft, speed increasing gears connected between one end of said rotative shaft and said balance wheel, a crank at the other end of said rotative shaft, a jointed pitman connecting said crank and said actuating means comprising a central portion which reciprocates in a straight path and end portions pivotally connected at their inner ends with the central portion and at their outer ends with said crank and with said actuating means, and a guide bearing for the central portion of the jointed pitman comprising a casing or housing through which said central portion of the pitman extends and bearing rollers mounted in said casing or housing and arranged to bear against the lateral and upper and lower sides of said central portion of the pitman.

10. Operating mechanism for washing and like machines comprising, in combination, a vertical shaft capable of rotary reciprocatory motion, actuating means for imparting

rotary reciprocatory motion to said shaft, a horizontally arranged balance wheel below said shaft, a vertical, rotative shaft operatively connected at its upper end with said actuating device, a crank at the lower end of said rotative shaft, said balance wheel being provided with a concentric pinion, a horizontally arranged gear wheel meshing with said pinion and provided with an eccentrically located stud, and a pitman connecting said crank with said stud.

11. Operating mechanism for washing and like machines comprising, in combination, a shaft capable of rotary reciprocatory motion, a pinion fixed to said shaft, a rocking gear sector meshing with said pinion, a balance wheel provided with a concentric pinion, a gear wheel meshing with the latter pinion and provided with an eccentrically arranged stud and operative connections between said rocking sector and said gear wheel comprising a rotative shaft provided at both ends with cranks and links connecting said cranks with said stud and with said rocking sector.

12. Operating mechanism for washing and like machines comprising, in combination, a vertical shaft capable of rotary reciprocatory motion, a pinion fixed to said shaft, a rocking gear sector meshing with the pinion, a balance wheel arranged below said shaft, a vertical, rotative shaft operatively connected at its lower end with said balance wheel, a horizontal crank fixed to the upper end of said rotative shaft and a jointed pitman connecting said rocking gear sector with the said crank comprising a central member which reciprocates in a straight path, an outer member pivoted at one end to the outer end of said central member to swing horizontally and pivoted at its other end to said crank and an inner member pivoted at one end to the inner end of said central member to swing vertically and pivoted at its other end to said rocking gear sector.

In testimony that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 23rd day of October A. D. 1909.

GUSTAV N. MEVES.

Witnesses:

A. COLE BLANTON,
J. D. WALL.