R. D. TITTLE.

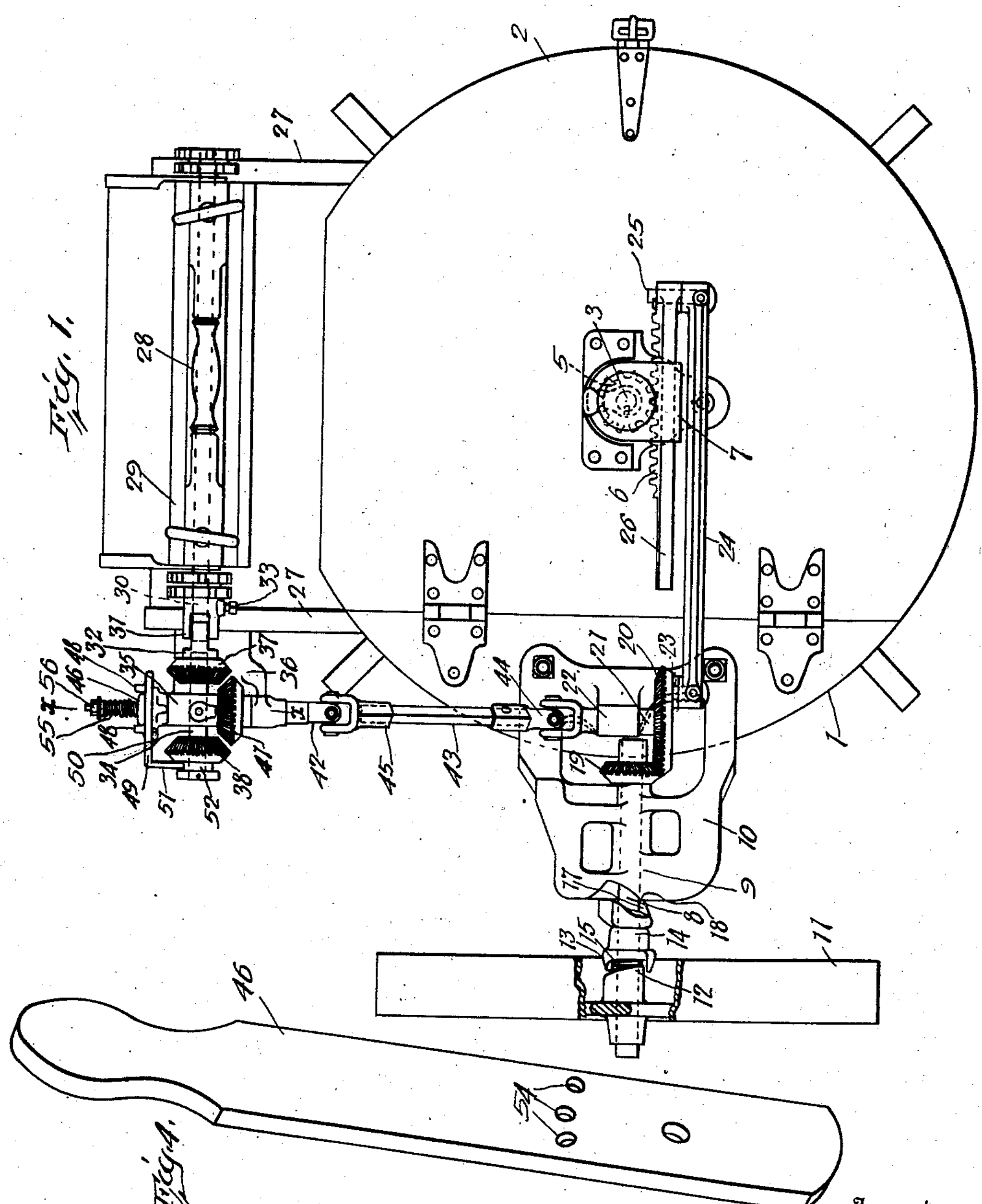
GEARING.

APPLICATION FILED NOV. 28, 1910.

1,010,705.

Patented Dec. 5, 1911.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 2.

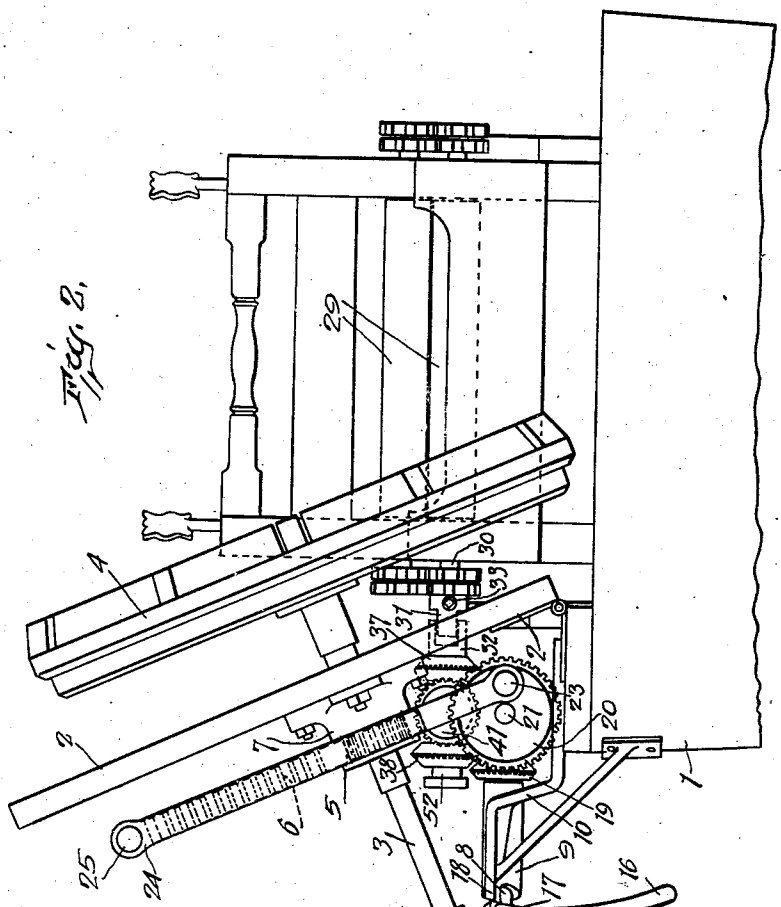
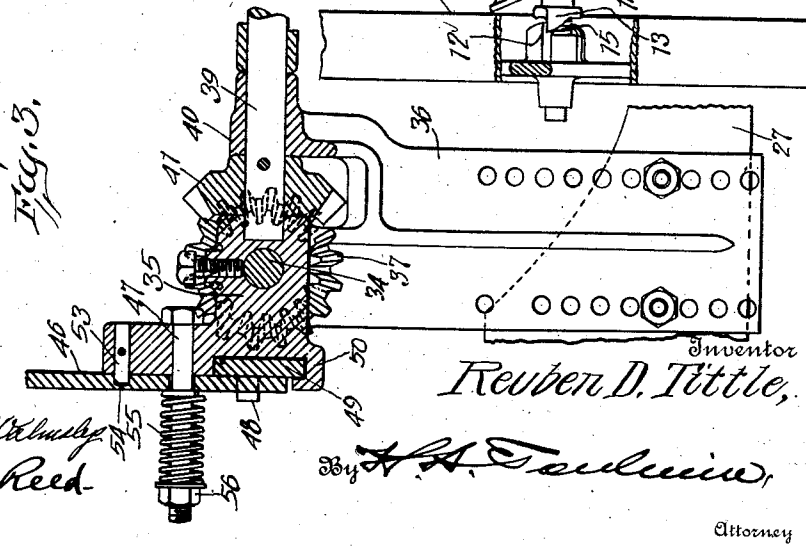


Fig. 3.



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GEARING.

1,010,705. Specification of Letters Patent. Patented Dec. 5, 1911.

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To all whom it may concern:

Be it known that I, REUBEN D. TITTLE, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Gearing, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to gearing and more particularly to gearing comprising a combined operating mechanism for washing machines and clothes wringers.

The object of the invention is to provide a single driving member operatively connected with both the washing mechanism and clothes wringer, the connection between the driving member and the washing mechanism being such that it will be rendered inoperative when the closure for the tub, forming a part of the washing machine, is in its open position.

Further, it is an object of the invention to provide means for connecting the driving member to the clothes wringer which may be applied to wringers now in use.

To this end it is also an object of the invention to provide this connecting means of such a character that perfect alinement is not necessary to its operation and that it can be supported in different relations to the driving member; and further, to provide this mechanism of such a character that it will operate to drive the wringer either forward or rearward.

In the accompanying drawings, Figure 1 is a top, plan view of a washing machine embodying my invention; Fig. 2 is a side elevation of the same showing the closure for the tub in its open position; Fig. 3 is a vertical, sectional view, taken on the line *x x* of Fig. 1; and Fig. 4 is a detail view of the operating handle for controlling the connection between the driving member and the wringer.

In these drawings I have illustrated one embodiment of my invention and have shown the same as applied to a washing machine of a known construction and comprising a tub 1 having a closure 2 hinged thereto. Journaled in this closure is a shaft 3 having on its inner end the usual dolly 4. A pinion 5 is keyed to the shaft at a point above the closure 2 so that the shaft may have longitudinal movement relatively to the pinion but will rotate with the pinion. A rack 6 meshes with the pinion 5 and serves to rock the shaft 3 and dolly 4. This rack is preferably mounted in a suitable guideway formed by a bracket 7 and is operatively connected with the driving member. The driving member may be of any suitable character, but in the present instance the mechanism is designed to be driven from a stationary power plant and this member comprises a driving shaft 8 mounted in a bearing 9 formed in a bracket 10 mounted on that portion of the tub 1 to which the closure is hinged. On the outer end of the shaft is loosely mounted a belt wheel 11 adapted to be connected with the shaft by means of a suitable clutch, one member of which is formed integral with the hub of the wheel, as indicated at 12, and the other member 13 of which is carried by a collar 14 splined to the shaft 8 so as to slide longitudinally thereon but to rotate in unison therewith. A spring 15 confined between the collar 14 and the hub of the wheel 11 tends to move the collar away from the hub of the wheel and disconnect the clutch members. A handle 16 is rigidly connected with the collar 14 and the collar has secured to the end opposite the clutch member 13 an inclined projection or nose 17 adapted to engage a corresponding projection or nose 18 carried by the bearing 9 so that, when the handle is moved in one direction, the nose 17 will ride over the nose 18 to move the collar 14 into a position to cause the clutch members to coöperate to connect the driving wheel 11 to the shaft 8.

The shaft 8 has rigidly secured thereto on the inner side of the bearing 9 a bevel pinion 19 meshing with a bevel gear 20 carried by a short shaft 21 journaled in a bearing 22 carried by the bracket 10. The outer face of the bevel gear 20 is provided with a wrist pin 23 to which is pivotally connected one end of a pitman 24, the opposite end of which is connected by a pin 25 with that end of the rack 6 farthest removed from the bevel gear 20. Consequently, the rotation of the shaft 8 will cause the pitman 24 to reciprocate the rack 6 and actuate the dolly. The rack 6 is provided with a smooth projection 26 extending beyond the toothed portion thereof at that end adjacent to that edge of the closure which is hinged to the tub. When the closure is moved into its open position, as shown in Fig. 2, the pitman will move the toothed portion of the rack be-

yond the pinion 5, but the rack will be held in alinement with its guideway in the bracket 7 by the smooth portion 26 of the rack. In this manner the connection between the driving member and the washing mechanism is automatically rendered inoperative by the movement of the closure into its open position.

Rigidly secured to one side of the tub 1 is a supporting frame 27 on which is mounted a clothes wringer 28 which may be of any suitable character and is here shown as comprising the usual rollers 29, the shaft of one of which extends beyond the frame, as indicated at 30. This shaft is connected with the driving member by a suitable connecting means. This connecting means may be of any suitable character but is here shown as comprising two coöperating connecting members 31 and 32 having interlocking projections. The member 31 comprises a collar adapted to fit over the end of the shaft 30 and to be rigidly secured thereto by a set screw 33. The connecting member 32 is carried by a shaft 34 which is preferably rotatably and slidably mounted in a bearing 35 carried by a bracket 36 mounted on the supporting frame 27. Rigidly secured to this shaft and spaced some distance apart thereon are two bevel pinions 37 and 38, and, in the present construction, the connecting member 32 is preferably rigidly secured to the pinion 37. A shaft 39 journaled in a bearing 40, also carried by the bracket 36, extends at right angles to the shaft 34 and has mounted thereon a bevel pinion 41 which is arranged between the bevel pinions 37 and 38. The short shaft 39 is connected by a gimbal joint 42 with a shaft 43, the opposite end of which is connected by a second gimbal joint 44 with the shaft 21. The gimbal joint 42 is preferably provided with a socket 45 in which the adjacent end of the shaft 43 is loosely mounted, the shaft and the socket being preferably angular in cross section to cause the same to rotate in unison. The relative positions of the pinions 37 and 38 to the pinion 41 are controlled by an operating handle 46. This handle is loosely mounted on a pin 47 carried by the bearing bracket 35 and has its lower end confined between lugs 48 secured to a bar 49 slidably mounted in a guideway 50 carried by the bearing bracket 35. This bar has one end inturned, as indicated at 51, and extending into a slotted hub 52 of the pinion 38 which is rigidly secured to the shaft 34. Consequently, the movement of the handle about its supporting pin 47 will cause the shaft 34 to slide in its bearing, thus moving the pinions 37 and 38 relatively to the pinion 41. The handle is locked in its adjusted position by means of a second pin 53 carried by the bearing bracket 35 and adapted to engage one of the series of holes 54 in the handle 46. The handle is held in its normal position by means of a spring 55 coiled about the pin 47 and confined between the adjacent portion of the handle 46 and a nut 56 on the outer end of the pin 47. In the operation of the handle the upper end thereof is moved outward, against the tension of the spring 55, to free the same from the pin 53. It is then moved about its pivotal support on the pin 47 to adjust the bevel pinions and then released and returned to its normal position by the spring 55.

The interlocking connecting members 31 and 32 are very loosely fitted one within the other and will operate in a satisfactory manner even though the shaft 34 and the wringer shaft 30 be out of alinement. Further, the position of the supporting bracket 36 relatively to the driving member 8 may vary to a considerable extent without affecting the operation of the device as this variation is compensated for by the adjustable connection between the gimbal joint 42 and the shaft 43. It will be apparent, therefore, that the means for connecting the driving member to the wringer may be mounted upon the machine and then any suitable wringer supplied and attached to the connecting means and that it is not necessary that the several parts should occupy exact relations one to the other.

I wish it to be understood that I do not desire to be limited to the details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The combination, with a support having a hinged portion, of a device to be operated comprising a shaft rotatably mounted in the hinged portion of said support, a pinion carried by said shaft, a rack meshing with said pinion and having a smooth extension beyond one end thereof, a driving member, a pitman operatively connected at one end to said driving member and connected at its other end to that end of said rack opposite said extension, the arrangement of the extension relative to the teeth of said rack being such that when the hinged portion of said support is moved into its open position the pitman will move the teeth of said rack beyond said pinion, thereby rendering the connection between said shaft and said driving member inoperative, a second device to be operated, a connection between said driving member and said second device, and means to render said last-mentioned connection inoperative without affecting the operation of said driving member or the connection between said driving member and the first-mentioned device.

2. The combination, with a support, an

operative device carried thereby, a driving member carried by said support and operatively connected with said device, of a second operative device mounted on said support and comprising a shaft, a connecting member mounted on said shaft and having a projection, a second connecting member having a projection adapted to coöperate with the projection of the first-mentioned connecting member, a shaft carrying said last-mentioned connecting member, and means for operatively connecting said shaft with said driving member.

3. The combination, with a support, an operative device carried thereby, a driving member carried by said support and operatively connected with said device, and a second operative device comprising a shaft, of a second shaft slidably mounted near the first-mentioned shaft, coöperating connecting members carried by said sliding shaft and the first-mentioned shaft, bevel gears carried by said sliding shaft, a shaft arranged at an angle to said sliding shaft and connected with said driving member, a bevel gear carried by the last-mentioned shaft and arranged between the bevel gears on said sliding shaft, and means for controlling the relative positions of said bevel gears.

4. The combination, with a support, an operative device carried thereby, a driving member carried by said support and operatively connected with said device, and a second operative device comprising a shaft, of a second shaft slidably mounted near the first-mentioned shaft, coöperating connecting members carried by said sliding shaft and said second device, bevel gears carried by said sliding shaft, a shaft arranged at an angle to said sliding shaft and connected to said driving member, a bevel gear carried by the last-mentioned shaft and arranged between the bevel gears on said sliding shaft, and means for controlling the relative positions of said bevel gears, said connecting members having elongated cooperating projections arranged to interlock with the sliding shaft in any of its several positions.

5. The combination, with a support, an operative device carried thereby, a driving member mounted on said support and operatively connected with said device, and a second operative device comprising a shaft, of a bearing bracket arranged near said second device, a shaft slidably and rotatably mounted in said bearing bracket, two bevel pinions rigidly secured to said shaft, a second shaft arranged at an angle to said sliding shaft and connected to said driving member, a bevel pinion carried by the last-mentioned shaft and arranged between the bevel pinions on said sliding shaft, a connecting member rigidly secured to said shaft and comprising a projection, a second connecting member comprising a collar detachably secured to the first-mentioned shaft and having a projection coöperating with the projection of the first-mentioned connecting member, and means for actuating said sliding shaft to move one of the pinions thereof into or out of engagement with the third pinion.

6. The combination, with a support, an operative device carried thereby, a driving member mounted on said support and operatively connected with said device, and a second operative device comprising a shaft, a bearing bracket arranged near said second device, a shaft slidably and rotatably mounted in said bearing bracket, two bevel pinions rigidly secured to said shaft, a second shaft arranged at an angle to said sliding shaft and connected with said driving member, a bevel pinion carried by the last-mentioned shaft and arranged between the bevel pinions on said sliding shaft, a connecting member rigidly secured to said sliding shaft and comprising a projection, a second connecting member comprising a collar detachably secured to said first-mentioned shaft and having a projection coöperating with the projection of the first-mentioned connecting member, a pin carried by said bearing bracket, a handle loosely mounted on said pin, a pin to hold said handle normally in engagement with said bracket, and a slide bar operatively connected with said sliding shaft and having lugs arranged on opposite sides of said handle.

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

REUBEN D. TITTLE.

Witnesses:
EDWARD L. REED,
J. FRED ANDERSON.