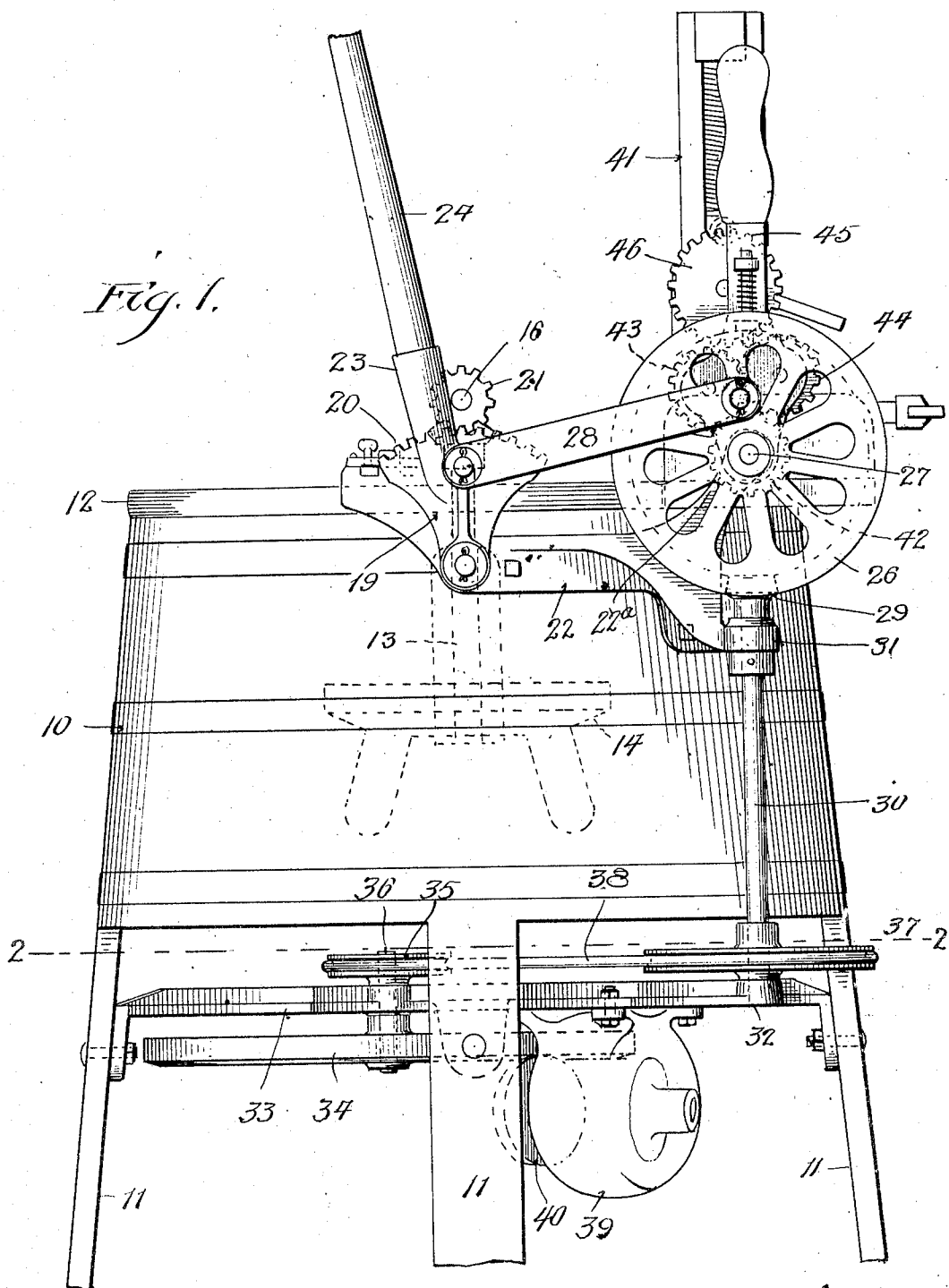


A. B. CHRISTENSEN & F. VONDRASEK.
GEARING FOR LAUNDRY MACHINERY.
APPLICATION FILED APR. 17, 1911.

Patented May 7, 1912.

2 SHEETS-SHEET 1.

1,025,685.



Witnesses:
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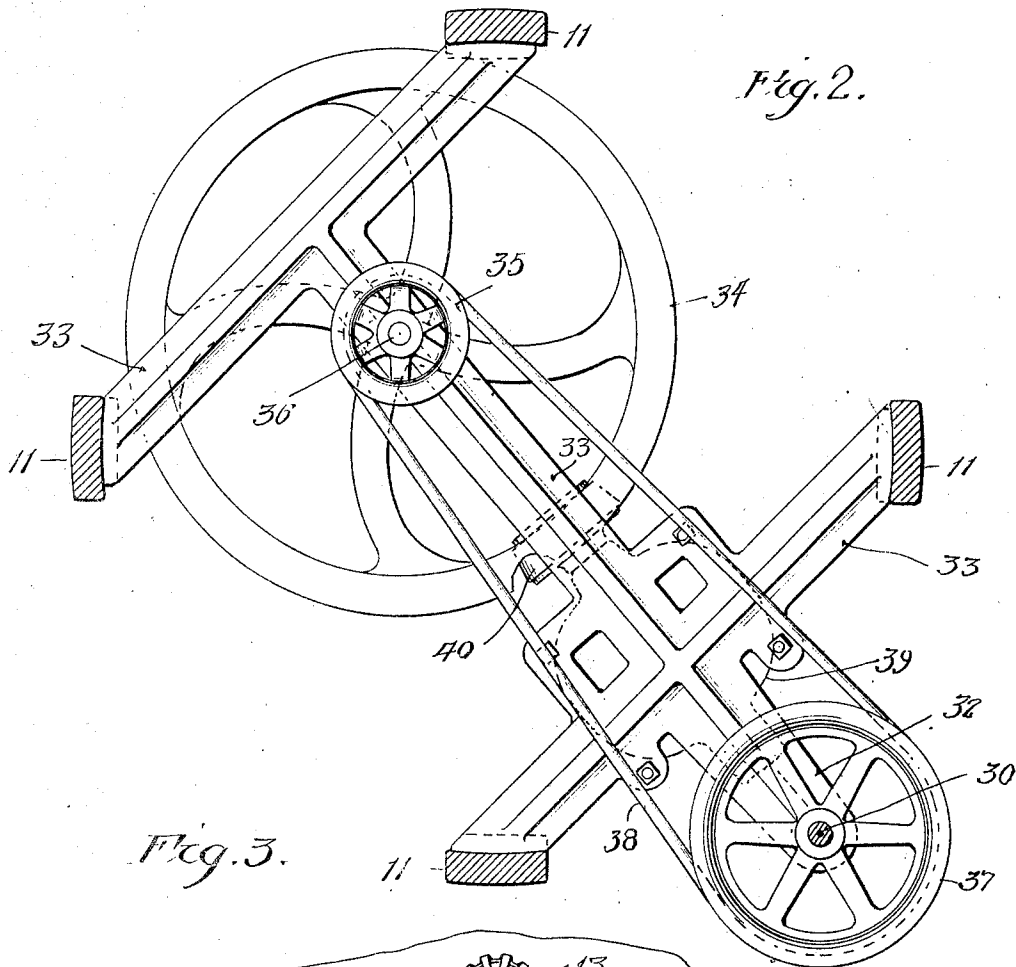
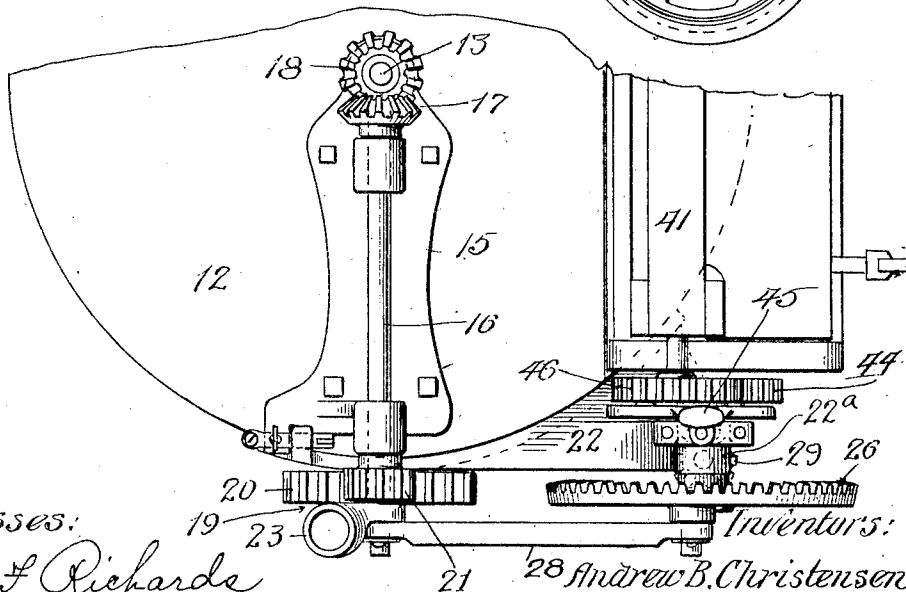


Fig. 3.



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UNITED STATES PATENT OFFICE.

ANDREW B. CHRISTENSEN AND FRANK VONDRASEK, OF CHICAGO, ILLINOIS, ASSIGNORS TO THE THISTLE MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

GEARING FOR LAUNDRY MACHINERY.

1,025,685.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed April 17, 1911. Serial No. 621,735.

To all whom it may concern:

Be it known that we, ANDREW B. CHRISTENSEN and FRANK VONDRASEK, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Gearing for Laundry Machinery, of which the following is a specification.

This invention relates to gearing for laundry machinery, of that class employing a stirrer for agitating the clothes within a tub, and having a fly wheel for facilitating the work.

One of the objects of this invention is to provide operative connections, between the stirrer shaft and a fly wheel located underneath the tub, having a construction whereby the lid of the tub may be raised without disturbing any of the elements of said connections, and in which the lid may be raised from its closed position regardless of the position of the elements comprising the operative connections.

Another object is to provide gearing between the stirrer shaft and a motor driven fly wheel located underneath the tub whereby the mechanism may be driven by power or by hand as desired.

Another object is to provide operative connections between such gearing and an auxiliary laundry device carried by the tub, as for instance a wringer, mangle or the like.

Other objects and advantages will appear in the course of this specification and to such ends this invention consists in the several novel features of construction and arrangement set forth in the following specification and particularly pointed out in the claims.

In the drawings furnished herewith, Figure 1 is a side elevation of mechanism embodying the present improvement in a washing machine and wringer, Fig. 2 is a view partly in plan and partly in horizontal section, the line of section being indicated at 2-2 Fig. 1, and Fig. 3 is a plan of the upper elements of the gearing and a fragment of the lid, and wringer.

Referring to said drawings 10, represents a tub carried by legs 11, and having a lid 12, hinged to the top of the tub and locked

thereto in accordance with the common practice. A vertical stirrer shaft 13, carrying a stirrer 14, is journaled in a frame 15, on the lid and projects down into the interior of the tub as is customary. The frame 15, is secured to the lid of the tub and has two upwardly extending brackets in which is journaled a rock shaft 16, that carries upon its inner end a bevel pinion 17, meshing with a bevel pinion 18, secured to the top of the stirrer shaft 13. Mechanism is provided for rocking the rock shaft 16, one form of mechanism comprising, as shown, a rocker member 19, having a gear segment 20, that meshes with a pinion 21, fast upon the outer end of the rock shaft 16. It is obvious that by rocking the rocker member a rotary reciprocal movement is imparted to the stirrer shaft. Said rocker member 19, is fulcrumed upon a frame 22, secured to the side of the tub, and if desired, may be formed with a handle socket 23, arranged to receive a handle 24, by means of which the rocker member may be worked by hand. To facilitate the work, a fly wheel 34, is provided, and between said rocker member and fly wheel are operative connections, including speed increasing gearing, whereby the movements of the rocker member may be transformed into a continuous rotary movement of the fly wheel at a comparatively high rate of speed. The particular form of operative connections shown between the rocker member and fly wheel will now be described. A bevel gear wheel 26, carried by a shaft 27, journaled in a bracket 22^a, of the frame 22, is connected to the rocker member 19, by a link 28, as shown, whereby the rocking motion of the rocker member may be transformed into a continuous rotary movement of the bevel gear wheel 26, and reversely the rotary motion of the bevel gear wheel may be transformed into a rocking motion of the rocker member. Said bevel gear wheel 26, meshes with a bevel pinion 29, fast upon the upper end of a vertical, rotary shaft 30, journaled in brackets 31, 32, formed upon the frames 22, 33, respectively. The frame 33, is located below the tub and is secured to the legs 11, thereof.

The fly wheel 34, is journaled upon the underside of the frame 33, and is operatively connected with the rotary shaft 30, by mechanism here shown as comprising a small belt pulley 35, secured upon the shaft 36, of the fly wheel 34, a larger belt pulley 37, fast upon the rotary shaft 30, and a belt 38, trained around said pulleys. For convenience, construction and arrangement, we have placed the frame 33, between the pulley 35, and fly wheel 34, said pulley resting upon the frame and supporting the fly wheel therebelow.

In the operation of the machine thus far described, the rocker member 19 is rocked back and forth by hand, whereby a rotary reciprocal movement is imparted to the stirrer shaft and a continuous rotary movement is imparted to the bevel gear wheel 26; said bevel gear wheel in turn drives the rotary shaft 30, at a comparatively high rate of speed, by reason of the difference in size between the bevel gear wheel and pinion, and the rotary shaft 30, drives the fly wheel 34, at a high rate of speed, whereby energy may be stored up by reason of the momentum of the fly wheel, and said energy utilized until spent, in operating the stirrer shaft.

Power mechanism is provided for driving the gearing and as shown one form of power mechanism comprises an electric motor 39, secured to the underside of the frame 33, and having a pinion 40, engaging the fly wheel 34, to rotate the same whenever the electric motor is set in operation. In the present form the pinion 40, is of the friction type, and is shown as of beveled formation, arranged to frictionally engage with the underside of the rim of the fly wheel, which is beveled to correspond with the bevel surface of the friction pinion 40. It is evident that when the electric motor is set in motion the fly wheel will be rotated at a high rate of speed, which motion, in turn, will be transmitted to the stirrer shaft, through the instrumentality of the vertical rotary shaft 30, the connections between the fly wheel and said shaft 30, and the connections between said shaft and the stirrer shaft. The mechanism heretofore referred to as the speed increasing gearing now becomes a speed decreasing gearing and said gearing will be hereafter termed as speed converting gearing.

An auxiliary device 41, such as a wringer, mangle or the like, is carried by the tub 10, and may be operatively connected to the gearing of the washing machine. As shown in a companion application for gearing for laundry machinery, Serial Number 621,734, filed on even date herewith, the shaft 27, of the gear wheel 26, bears a pinion 42, that meshes with one of a pair of pinions 43, 44, carried by a shift lever 45, either of said

pair being arranged to be brought into mesh with a pinion 46, fast upon one of the wringer roll shafts. The construction and operation of this feature of the device is fully set forth in our companion application and requires no further description herein.

It is to be observed that the lid and gear mechanism carried thereby may be raised without disturbing the remainder of the gearing. The fly wheel and part of the operating mechanism, including the motor, is located under the tub and out of the way. Other advantages are readily apparent from the above description.

We realize that various alterations and modifications of this device are possible, without departing from the spirit of our invention, and we do not therefore desire to limit ourselves to the exact form of construction shown and described.

We claim as new and desire to secure by Letters Patent:

1. Gearing for laundry machinery, comprising in combination, a vertical, rotary reciprocal stirrer shaft, a motor driven wheel having a continuous rotary motion and arranged in a horizontal plane below said stirrer shaft, operative connections between said stirrer shaft and wheel for transforming the movement of one into that of the other, and including a vertical, rotary shaft and speed converting gearing arranged in such manner that said stirrer shaft has a slow movement as compared with the movement of said wheel.

2. Gearing for laundry machinery, comprising in combination, a vertical rotary reciprocal stirrer shaft, a wheel located below said stirrer shaft, a power driven friction wheel arranged to continuously rotate said first named wheel in one direction, and operative connections between said stirrer shaft and first named wheel for transforming the movement of one into that of the other, said connections including speed converting gearing arranged in such manner that said stirrer shaft has a slow movement as compared with that of said wheel.

3. Gearing for laundry machinery, comprising in combination, a vertical rotary, reciprocal stirrer shaft, and a horizontal rock shaft, intermeshing gears on said shafts, a fly wheel, having a continuous rotary motion journaled underneath said stirrer shaft, and arranged to be driven by power, operative connections between said rockshaft and fly wheel for transforming the motion of one into that of the other, including speed converting gearing arranged in such manner that the rockshaft has a slow movement as compared with the movement of the fly wheel.

4. Gearing for laundry machinery, comprising in combination, a vertical, rotary re-

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reciprocal, stirrer shaft, a high speed motor driven wheel having a continuous rotary motion and located below said stirrer shaft, and arranged in a horizontal plane, a low speed, vertical rotary shaft driven by said wheel, and operative connections between said stirrer shaft and rotary shaft for transforming the movement of one into that of the other.

5 5. Gearing for laundry machinery, comprising in combination, a vertical, rotary reciprocal stirrer shaft, a motor driven wheel located below said stirrer shaft, a vertical rotary shaft driven by said wheel, and operative connections between said stirrer shaft and rotary shaft for transforming the movement of one into that of the other, said connections including speed converting gearing arranged in such manner that the stirrer shaft has a slow movement as compared with that of the rotary shaft.

6. Gearing for laundry machinery, comprising in combination, a vertical, rotary reciprocal stirrer shaft, a motor driven wheel located below said stirrer shaft, a pulley coupled to said wheel, a vertical rotary shaft, a pulley thereon, belted to the first named pulley, and operative connections between said stirrer shaft and rotary shaft for transforming the movement of one into that of the other, including speed converting gearing arranged in such manner that said stirrer shaft has a slow movement as compared with the movement of said rotary shaft.

7. Gearing for laundry machinery, comprising in combination, a vertical, rotary reciprocal stirrer shaft and a horizontal rockshaft, intermeshing gears on said shafts, a rocker member arranged to rock said rockshaft, a motor driven wheel having a continuous rotary motion and located below said stirrer shaft in a horizontal plane, and operative connections between said rocker member and wheel for transforming the movement of one into that of the other, said connections including speed converting gearing arranged in such manner that the rocker member moves at a slow movement as compared with that of the wheel.

8. Gearing for laundry machinery, comprising a vertical, rotary reciprocal stirrer shaft, a horizontal rockshaft, intermeshing gears on said shafts and a pinion carried on the outer end of said rockshaft, in combination with a stationary support, a rocker member fulcrumed upon said support and having a gear segment meshing with said pinion, said stirrer shaft, rockshaft and pinion being capable of bodily movement relative to said rocker member, a fly wheel arranged to be power driven and lying in a horizontal plane below said stirrer shaft, a vertical, rotary shaft driven by said fly wheel, and operative connections between

said rocker member and vertical shaft for transforming the movement of one into that of the other.

9. Gearing for laundry machinery, comprising in combination, a vertical, rotary reciprocal, stirrer shaft, a rocker member operatively connected thereto and having a handle socket for the reception of a handle, whereby said rocker member may be operated manually, a fly wheel located below said stirrer shaft in a horizontal plane, and arranged to be driven by a motor, operative connections between said rocker member and fly wheel for transforming the movement of one into that of the other, including speed converting gearing arranged in such manner that the movement of the rocker member is slow as compared with the speed of the fly wheel.

10. Gearing for laundry machinery, comprising in combination, a vertical, rotary reciprocal, stirrer shaft, a rocker member operatively connected thereto and having a handle socket for the reception of a handle, whereby said rocker member may be operated manually, a fly wheel located below said stirrer shaft in a horizontal plane and arranged to be driven by a motor, a vertical rotary shaft operatively connected to said fly wheel, a bevel pinion on its upper end, a bevel gear wheel meshing with said pinion, and a link connecting said rocker member with said bevel gear wheel.

11. Gearing for laundry machinery, comprising in combination, a vertical, rotary reciprocal, stirrer shaft, a support therefor, a rocker member arranged at the outer edge of said support and operatively connected to said stirrer shaft, a vertical bevel gear wheel, a link operatively connecting said rocker member with said bevel gear wheel, a vertical rotary shaft, a bevel pinion on its upper end, meshing with said bevel gear wheel, a fly wheel located below said support and driven from said vertical shaft.

12. Gearing for laundry machinery, comprising in combination, a vertical, rotary reciprocal, stirrer shaft, a support therefor, a rocker member arranged at the outer edge of said support and operatively connected to said stirrer shaft, a vertical bevel gear wheel, a link operatively connecting said rocker member with said bevel gear wheel, a vertical rotary shaft, a bevel pinion on its upper end meshing with said bevel gear wheel, and a motor driven fly wheel located below said support and operatively connected to said vertical rotary shaft.

13. Gearing for laundry machinery, comprising a vertical rotary, reciprocal, stirrer shaft, a support therefor, a rocker member for imparting a rotary, reciprocal movement to said stirrer shaft, a bevel gear wheel, a link operatively connecting said rocker member with said bevel gear wheel, a

vertical rotary shaft, a pinion on its upper
end meshing with said bevel gear wheel, a
fly wheel located below said support and ar-
ranged to be driven by a motor, operative
5 connections between said rotary shaft and
fly wheel, and mechanism independent of
said stirrer shaft, said mechanism being car-
ried by said support.

In witness whereof, we have hereunto
signed our names, at Chicago, Cook county, 10
Illinois, this 5th day of April, 1911.

ANDREW B. CHRISTENSEN.

FRANK VONDRASEK.

Witnesses:

WILLIAM A. HEINRICHS,
CURZ CLAUSEN.