(No Model.) 2 Sheets—Sheet 1.

C. WHEELER, Jr.

CLOTHES WRINGER.

No. 459,340. Patented Sept. 8, 1891.

FIG. 1.

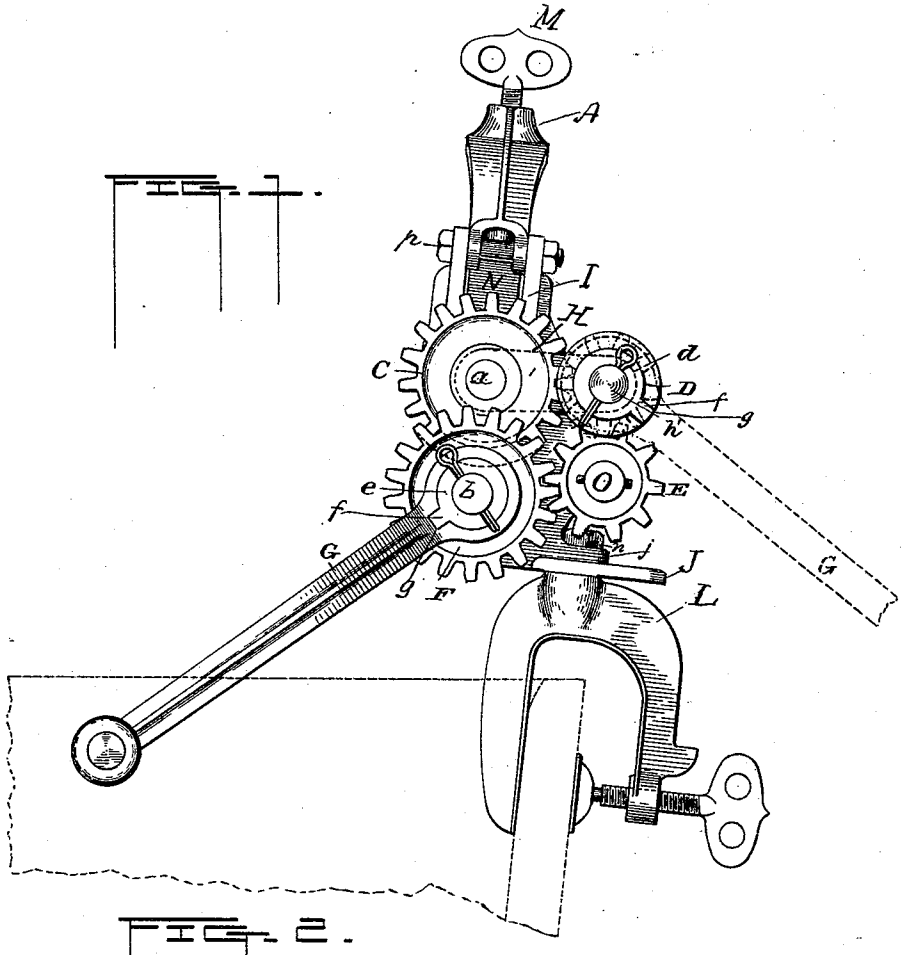
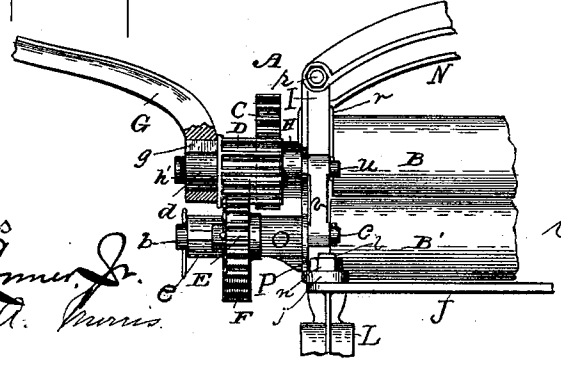


FIG. 2.



Witnesses
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(No Model.) 2 Sheets—Sheet 2.

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CLOTHES WRINGER.

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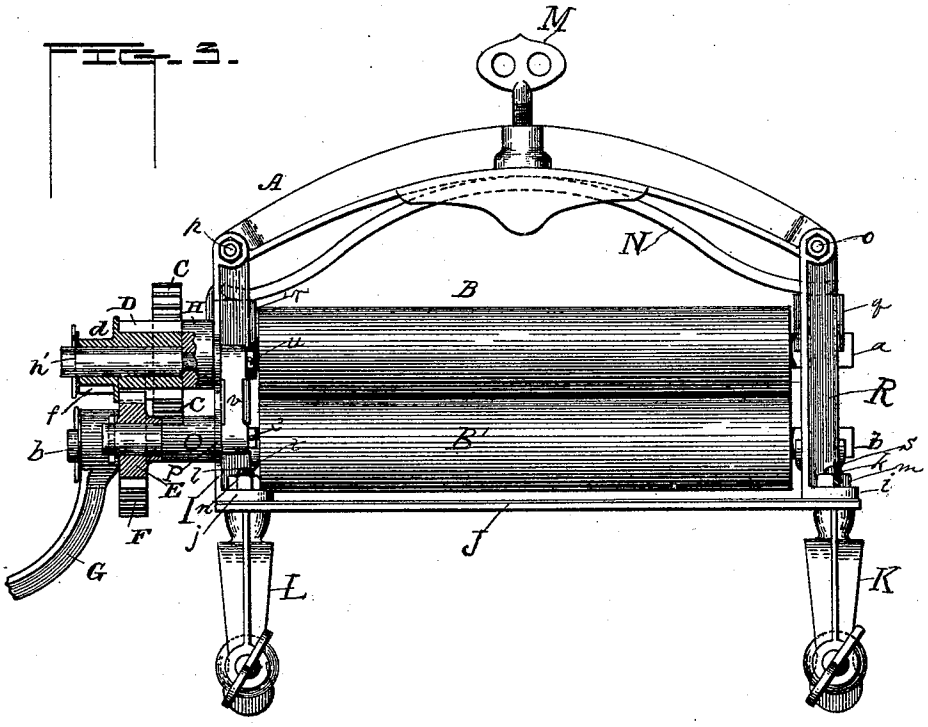

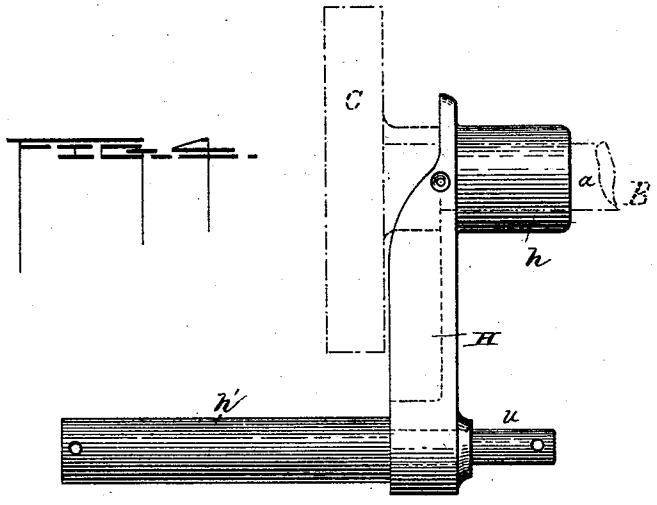

Witnesses

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UNITED STATES PATENT OFFICE.

CYRENUS WHEELER, JR., OF AUBURN, NEW YORK.

CLOTHES-WRINGER.

SPECIFICATION forming part of Letters Patent No. 459,340, dated September 8, 1891.

Application filed October 16, 1890. Serial No. 368,303. (No model.)

To all whom it may concern:

Be it known that I, CYRENUS WHEELER, Jr., a citizen of the United States, residing at the city of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Clothes-Wringers, of which the following is a specification.

My invention relates to that type of machines known as "purchase-gear clothes-wringers," by which is understood wringers wherein the two rolls are so connected together by a train of gearing that they are driven in unison, but at a rate of speed less than that of the hand-crank used to drive them; and it consists of a novel arrangement of gearing located at one end of the rolls, consisting of but four gear-wheels, which are so arranged that they may be of a size sufficient to give the requisite strength to the smaller or driving wheel or pinion of the train, and yet permit a "full-purchase-gear" arrangement—that is, an arrangement where the crank turns twice to the rolls once.

It further consists in so constructing and arranging the gearing that a hand-crank may be readily connected therewith in such a way that the machine may be operated either as a full-purchase-gear machine or as what is known as a "cog-wheel wringer"—that is, one wherein the rolls move in unison together and with rotations corresponding to the motions of the hand-crank, thus producing in one machine a full-purchase-gear wringer and a cog-wheel wringer, which can be used either way, as the operator may prefer or the character of the work may require. In operating upon light material, if used as a cog-wheel wringer, the work being easy it can be rapidly performed. In operating upon heavy material, if used as a purchase-gear machine, but one-half the force is required, and the the work is to the same degree more easily performed.

In the following description of the machine the end to which the hand-crank is applied will be termed the "right-hand" end and the opposite the "left-hand" end. That side of the machine where the material enters the rolls will be termed the "front" side and the opposite the "back" or "rear" side.

In the accompanying drawings, on two sheets, Figure 1 is a view of the right-hand or gearing end of the machine. Fig. 2 is a view of the back side of the right-hand or gearing end of the machine, with the hand-crank at its point of attachment shown in section. Fig. 3 is a back view of the machine with the gearing shown in section. Fig. 4 is a view of the arm with the thimble-bearing for the shaft of the upper roll, axle for the small gear-pinion, and the gear-wheel of the upper roll and the journal of its shaft shown in dotted lines.

The same letters indicate like parts in all the figures.

In the drawings, B is the upper and B′ the lower roll, which have metal shafts, of which *a* is the upper and *b* the lower. These shafts have a covering of elastic rubber and project beyond the rubber at the ends far enough to serve as journals and for attaching the gear-wheels. As the diameter of the rolls for practical purposes seldom exceeds two inches, and is generally less, the diameter of the gear-wheels used on the rolls of the ringer when arranged in the same plane is necessarily limited by the diameters of the rolls, making it difficult to construct a wringer so geared as to give to the crank double the power it will have if used directly upon the shaft of the lower roll. Gear-wheels C and F of as large diameter as can be used on the shafts of the rolls are provided and firmly fastened to the shafts outside of the right-hand end piece, the wheel C being fastened to shaft *a* of the upper roll B and the wheel F to the shaft *b* of the lower roll B′. These gear-wheels are placed on the shafts at different distances outward from the end piece I, so as to be in separate vertical planes and so that one gear will not interfere with the other, this disposition of these gear-wheels being necessary, as they are of larger diameter than the rolls B and B′. To support these rolls and their gear-wheels and the connecting gear-wheels, to be hereinafter described, a frame-work is provided consisting of slotted metal end pieces, R being the left-hand one and I the right-hand one. These end pieces have formed with them foot-pieces *i* and *j*, which project backward from them. A cross-bar J is united to these foot-pieces by the spindles *k* and *l* and nuts *m* and *n* of the tube-clamps K and L.

An arched bar A is inserted in the tops of the end pieces and fastened to them by the bolts *o* and *p*. This arched bar is provided in its center with a thumb-screw M, which serves to increase or diminish the pressure of the spring N upon the boxes *q* and *r* of the upper-roll shaft. The end pieces have journal-bearings or half-boxes formed in the bottoms of their slots, *t* being the right-hand one and *s* the left-hand one. In these boxes the shaft of the lower roll rests. The right-hand or gearing end of the upper roll B is journaled in the thimble *h* of the swinging arm H. This arm H has an axle *h'* at its rear end, which projects outward parallel to the thimble *h*, and has a stud *u* in line with it that projects from the opposite side of the arm H. (See Fig. 4.) On the axle *h'* is mounted the small gear-wheel D, which has formed with it a projecting hub *d*, which has a rib or lug *f*. A hand-crank G is provided, having a hole formed in it to fit the hub *d* and a groove *g* to lock with the lug *f*. This pinion or small gear D is made somewhat longer than the combined thickness of the two gear-wheels C and F. The gear-wheel D is preferably made with half the number of teeth contained in either of the wheels C and F. The gear-wheel D at its inner end meshes with gear C of the upper roll. To transmit motion from this pinion-gear D to the gear-wheel F on the lower roll the right-hand end piece I is provided with a fixed axle O, that projects outward from it. On this axle is mounted the gear-wheel E in a position to mesh with the gear-wheel F of the lower roll and the outer end of the long pinion-gear D. In line with the axle O on the opposite side of the rib P a fixed stud *c* projects. On this stud one end of the link *v* is pivoted, its other end being pivoted to the stud *u* of the arm H. This link *v* and arm H serve to keep the gears in proper working contact as the upper roll rises and falls vertically in the slots of the end pieces I and R. With the gear-wheel F of the lower roll a hub *e* is formed, which corresponds in size and form to the hub *d* on the long pinion-gear D. The crank G is so formed as to fit either of the hubs and is readily changed from one to the other, as the operator may prefer or the work to be performed may require.

In using the machine the rolls being connected by the train of four gear-wheels will revolve in unison. With the hand-crank applied to the hub of the pinion-gear D the operator has a purchase-gear wringer, the rolls being operated with one-half the power required in machines operated by a crank on the lower-roll shaft, whether the same is geared or without gears. In using it on heavy material this is of great advantage, as work can be performed with ease that would be difficult without the purchase-gear. On light material rapidity of performance has its advantages. With the crank applied to hub *e* of the gear-wheel F these advantages are obtained, the work being rapidly performed. I have thus combined in one machine all the advantages of two different types of machines.

As a full-purchase-gear machine I produce with four gear-wheels all the advantages of machines using five gears and a long counter-shaft under the lower roll. I thus am able to make the end pieces of the frame-work much shorter and lighter and correspondingly cheapen its construction as a purchase-gear machine, and with very small additional expense produce a machine so organized that by the simple change of the crank the machine is adapted to use on heavy or light material, as the character of the work may require.

Having fully described my invention, what I claim as new, and desire to obtain a patent for, is—

1. In a clothes-wringer, the combination of the frame-pieces, the rolls, the gear-wheels, of the same size but larger than the rolls, mounted on the roll-shafts in separate vertical planes, an intermediate gear-wheel on a fixed axle meshing with the gear-wheel on the shaft of the lower roller, a small elongated gear-wheel mounted on a movable support and meshing with the gear of the upper roller and with the said intermediate gear-wheel, and link-pieces connecting the support for the elongated gear-wheel with the axle of the upper movable roll and with a support in line with the axle of the said intermediate gear-wheel, substantially as set forth.

2. In combination with the rolls of a clothes-wringer supported in a frame-work having slotted end pieces, the gear-wheels of the same diameter affixed to the shafts of the rolls in separate vertical planes, the gear-wheel on the fixed axle meshing with that on the shaft of the lower roll, the small gear mounted on the axle of the arm arranged to mesh with the gear on the upper-roll shaft and the gear on the fixed axle and provided with a projecting ribbed hub, the gear on the lower roll being also provided with a like hub, the hand-crank adapted to embrace and lock with and be applied to either of said hubs at the pleasure of operator, and the link *v*, substantially as shown and described.

CYRENUS WHEELER, JR.

Witnesses:
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