J. N. Pease,

Clothes Wringer.

No. 54,764. Patented May 15, 1866.

FIG. 3

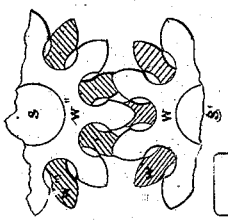


FIG. 2.

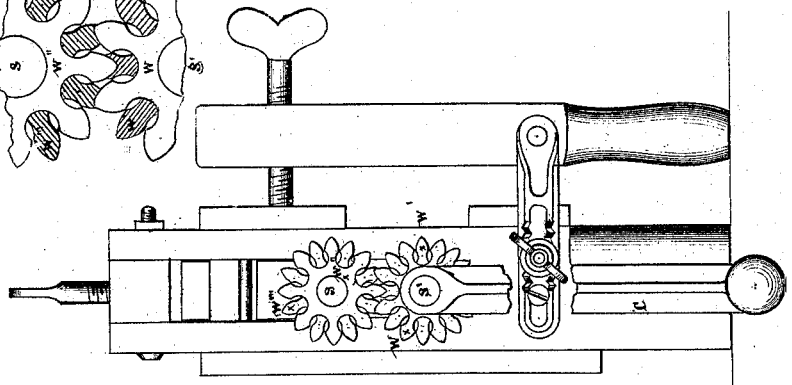
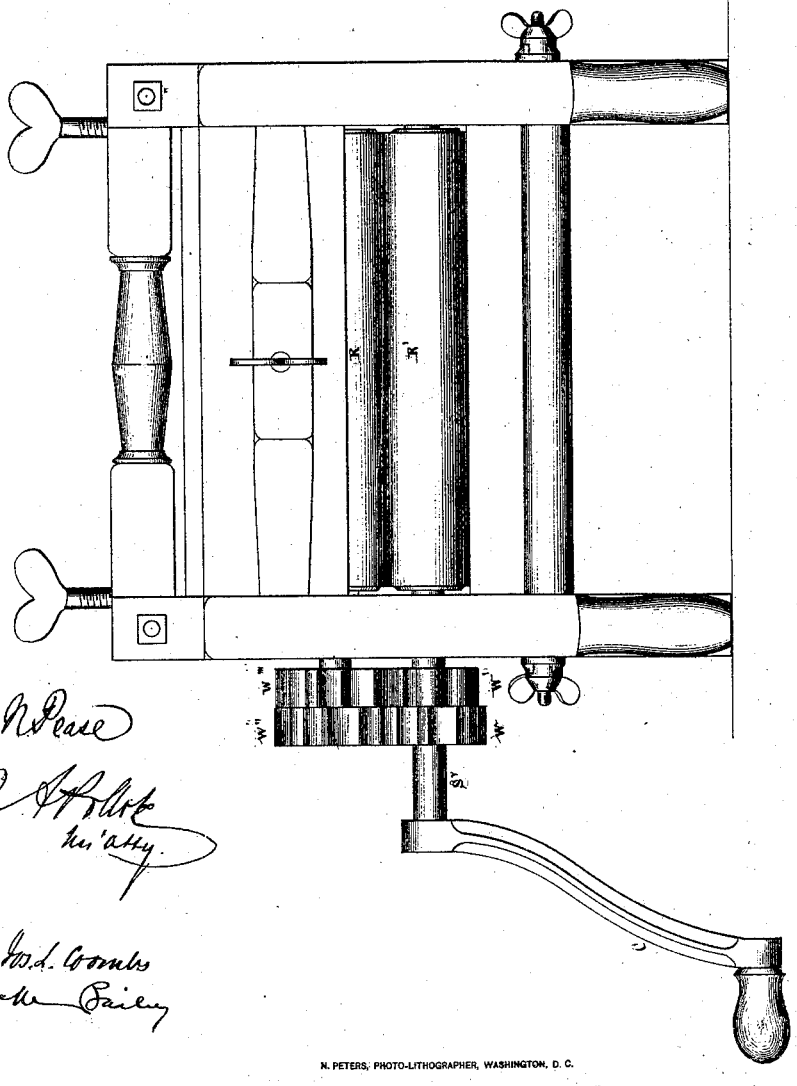


FIG. 1.



J. N. Pease
by A. Pollok
his atty.

WITNESSES. Geo. L. Combs
M. Bailey

UNITED STATES PATENT OFFICE.

JAMES N. PEASE, OF PANAMA, NEW YORK, ASSIGNOR TO METROPOLITAN WASHING MACHINE COMPANY.

IMPROVED CLOTHES-WRINGER.

Specification forming part of Letters Patent No. **54,764**, dated May 15, 1866.

To all whom it may concern:

Be it known that I, JAMES N. PEASE, of Panama, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Clothes-Wringers; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation; Fig. 2, a side view of a clothes-wringer constructed in accordance with this my invention, and Fig. 3 a detail of gear therein employed.

This invention relates to the method of gearing the rolls of wringers, and has for its object the equable movement of the driven roll—*i. e.*, the moving in perfect unison of both rolls—allowing at the same time the rolls, and consequently the wheels, to move apart or from each other to a greater extent without binding or other inconveniences attending such motion than this can be done with any other cog or toothed gear.

However perfect the tracing of the teeth of wheels of transmission may be, they operate in the desired condition only in theory, or at best when new. Continued use of such wheels will gradually wear off the teeth, and when revolved the spaces between the teeth thus enlarged will cause minute jerks, which are a source of loss of power, and if the wheels be mounted on wringer-rolls this wear causes one of the rolls to slip upon the other, engendering to a limited degree (more or less, according to the spaces between the teeth) a felting or rubbing action on the clothes, which is a serious objection. This effect in ordinary wheels is the greater the more the wheels are separated from each other and the greater the spaces between the teeth. Hence one of the desiderata is to reduce the spaces between the teeth. This, however, cannot be done without making the teeth proportionately small, the consequence of which is that the wheels would admit of no play between them, and the rolls could not be moved apart without throwing the wheels out of gear. By my improved mode of gearing I am enabled virtually to diminish the spaces between the teeth to any extent without shortening the teeth or without interfering with the transverse play of the rolls.

Other important advantages incidental to this my improvement will readily suggest themselves to the practical engineer and mechanic. It is therefore deemed unnecessary here to elaborate them.

My invention consists in doubling or multiplying the cog or toothed gear in the manner hereinafter described—that is to say, by the employment upon each of the shafts geared together of two or more sets of cogs or teeth of like number, configuration, or construction, each set being situate in different planes, but in such a fixed relation in respect to the other set or sets as that the spaces between the cogs or teeth of either set shall be equally divided by the cogs or teeth of the other.

For all practical purposes only two sets of cogs or teeth are needed, but for very large rolls three or more sets may be used, according to circumstances.

To enable others to make and use this my invention, I shall now proceed to describe the manner in which the same is or may be carried into effect.

In the figures of the accompanying drawings, R and R′ are the elastic rollers of a clothes-wringer of otherwise ordinary or suitable construction. The shafts upon which these rollers are mounted have their bearings in boxes in the side piece of the frame, one of which boxes is capable of a sliding motion in uprights or guides in the side frame, and thus to yield to the inequalities of the clothes passed through the rolls. Motion is imparted to these rollers by means of a crank, C, mounted on the shaft S′ of the lower roll, and by means of cog or toothed wheels presenting the following peculiarities: Instead of two wheels, one wheel or one set of cogs or teeth upon each shaft, there are two, which in this case are equal in size, configuration, and number of teeth. The two wheels or sets of teeth W W′ are arranged contiguously in such relation to each other as that angles formed by radial planes passing through the center of the teeth of the one set or wheel shall be bisected by the radial planes passing through the centers of the teeth of the other set or wheel. The

wheels W″ W‴ are similarly arranged on the other shaft, and the four wheels mesh together, so that wheel W is geared with wheel W″, while the teeth of wheel W′ engage those of the wheel W‴.

It will be understood that on movement being imparted by the crank to the roller R′ the two pairs of wheels W W″ and W′ W‴ will come alternately in gear, so that any given tooth begins to act on the other in the one pair before that which precedes it in the other pair is ceasing to touch the corresponding tooth in the other wheel, and thus the wheels of either pair will always be in working contact on the center line, or the line which the centers of the two pairs of wheels, or at the point where their corresponding pitch-lines touch. By this arrangement it will be seen that not only is friction greatly reduced, but risk to the wheels from fracture is lessened also, and that the wheels are capable of working apart without becoming disengaged at a greater distance than with the same size single gear, according to the number of teeth used, two teeth of wheels of either the one or the other pair being in contact at the tangent point of the pitch-lines, notwithstanding that the wheels of the two rollers may be so far apart as that both the teeth preceding and succeeding are out of contact.

In the accompanying drawings I have shown my invention applied to rollers of small or domestic wringers. For larger rolls three or more wheels or sets of teeth may be used, arranged relatively to each other according to the principle of this invention.

Other modifications may be introduced without departure from my invention. Thus the additional or auxiliary wheels or sets of teeth need not be contiguous, as shown in the drawings. They may be placed in the same fixed relation, as shown and explained, on the opposite ends of the shafts.

The wheels, if contiguous, may be cast in one piece, or they may be made separate and secured onto their respective shafts in the usual manner.

Having thus described my said invention and the manner in which the same is or may be carried into effect, I claim—

The improved method of gearing wringer-rolls by doubling or multiplying the toothed wheels in the manner hereinbefore described—that is to say, by the employment upon each of the shafts geared together of two or more sets of teeth of like number, configuration, or construction, each set being situate in different planes, but in such a fixed relation in respect to the other set or sets as that the spaces between the teeth of either set shall be equally divided by the teeth of the other.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

JAMES N. PEASE.

Witnesses:

A. M. BAILEY,

GEORGE LEWIS.