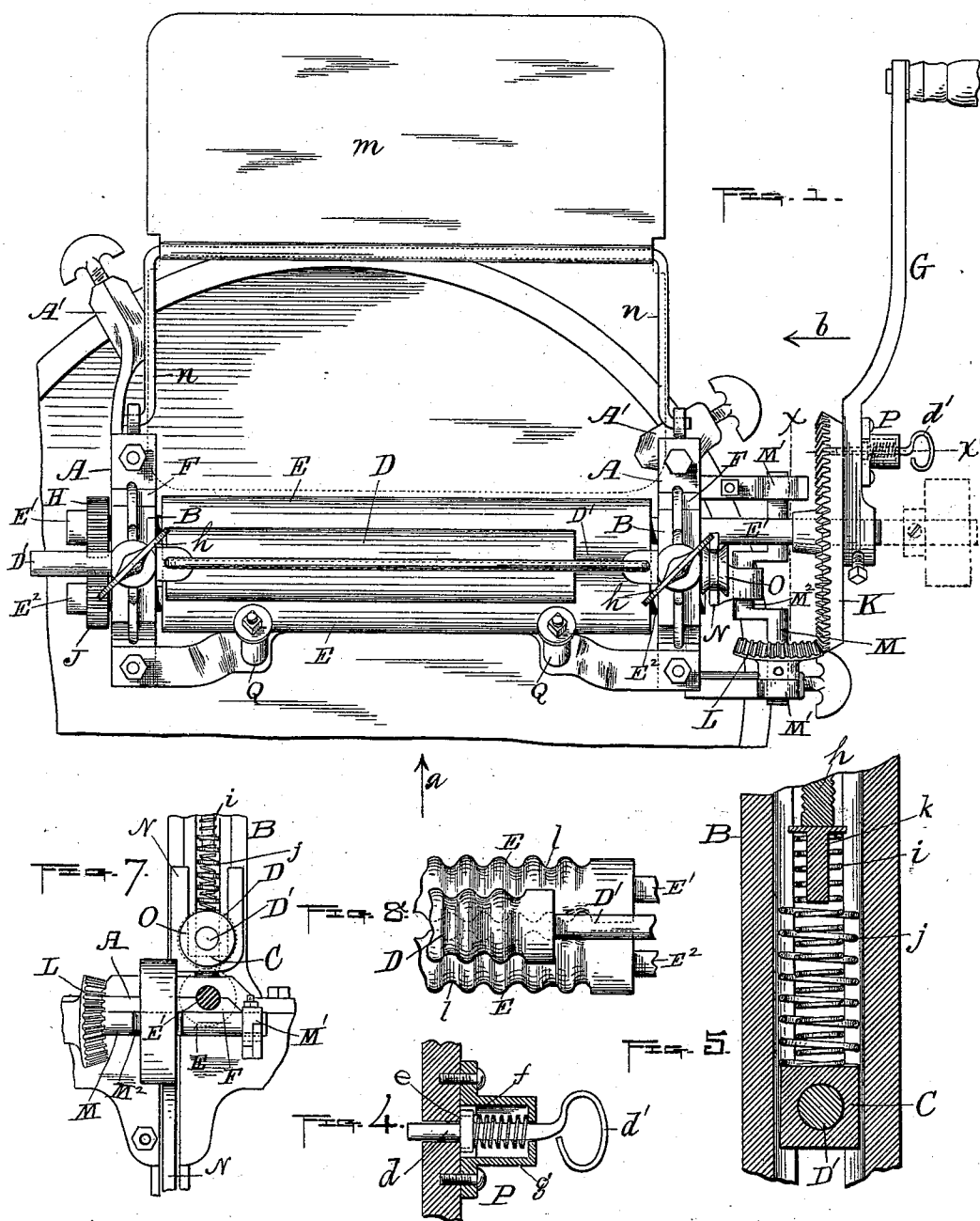


2 Sheets—Sheet 1.

No. 534,027.

Patented Feb. 12, 1895.



Witnesses;

W. B. Nowise,

Fred E. Buss.

Inventors,

Elias B. Anderson.

Olof Hammarstrom.

By A. A. Barker. Att'y

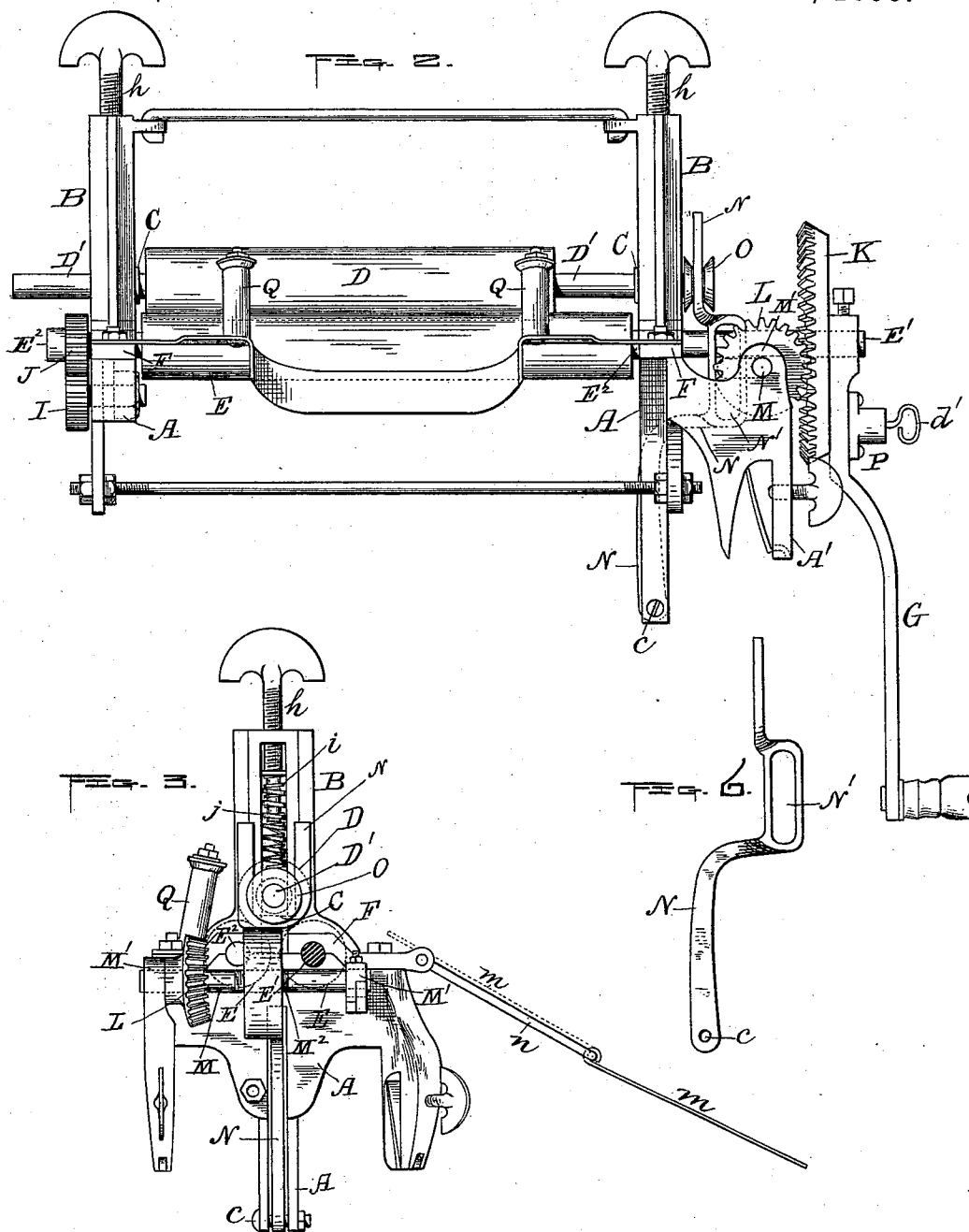
(No Model.)

2 Sheets—Sheet 2.

E. B. ANDERSON & O. HAMMARSTROM.
WASHING MACHINE.

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UNITED STATES PATENT OFFICE.

ELIAS B. ANDERSON AND OLOF HAMMARSTROM, OF WORCESTER,
MASSACHUSETTS.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 534,027, dated February 12, 1895.

Application filed September 22, 1893. Serial No. 486,247. (No model.)

To all whom it may concern:

Be it known that we, ELIAS B. ANDERSON and OLOF HAMMARSTROM, of the city and county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in a Combined Clothes Washing and Wringing Machine; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being
10 had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a top or plan view of our said improved washing and wringing machine, and part of an ordinary wash-tub to which it is applied. Fig. 2 is a front side view of said machine looking in the direction of arrow *a* Fig. 1. Fig. 3 is a transverse section on line *x*, Fig. 1, looking in the direction of arrow *b*, showing an end view of the machine beyond said section line. Fig. 4 is an enlarged sectional view through the crank-lever locking device, taken in line with the central, longitudinal line of said crank-lever. Fig. 5 is an enlarged vertical section of one of the roll-bearings and housings of the machine, also showing two spiral springs of different sizes and diameters, for producing a yielding, downward pressure upon said bearing, as and for the purpose hereinafter described. Fig. 6 is a detached side view of the pivoted forked arm, connected with an eccentric for imparting longitudinal reciprocating movements to the top roll when the machine is in operation. Fig. 7 represents so much of the parts shown in Fig. 3 as is necessary to illustrate a modification in the construction whereby two, instead of three rolls may be employed as will be hereinafter more fully explained, and Fig. 8 shows a modification in the construction of said rolls which will also be hereinafter described.

Our invention relates to certain improvements upon a similar machine invented jointly by us as in this case, and upon which
45 we have filed an application for Letters Patent still pending in the United States Patent Office.

Said invention consists in combining one or more bottom rolls fitted to turn only, in suitable bearings, with a top roll arranged parallel

to said bottom roll or rolls, and fitted to turn as well as to reciprocate longitudinally in suitable bearings, and suitable mechanism for thus operating said rolls, as will be hereinafter more fully set forth.

In order that others may better understand the nature and purpose of our said invention, we will now proceed to describe it more in detail.

In the drawings, A represents the main supporting frame-work, which is provided with suitable clamping arms A', whereby the machine may be secured to a wash tub or tray. To said frame are secured the upright standards or housings B B, which form vertical guide-ways for the bearings C C of the top roll D, the journals D' D' of said top roll being fitted to turn and also to slide longitudinally therein.

Two bottom rolls, E E are preferably employed arranged centrally under and parallel to the top roll as is shown in Fig. 3, but if desired a single bottom roll may be used centrally under the top roll, as is shown in Fig. 7, without departing from the principle of our invention. Said bottom rolls have no longitudinal movements as is the case with the top roll, but simply turn in suitable, stationary bearings F. The top roll has no special means for turning it other than by frictional contact with the bottom rolls, which are turned by means of the crank G, secured to the outer ends of one of the bottom roll-shafts E', when two rolls are used; the other bottom roll being likewise turned thereby through the gear H, secured to the opposite end of said roll-shaft; the intermediate gear I fitted to turn on a stationary stud or frame A, and engaging with gear H, and the gear J secured to the other roll-shaft E', and engaging with said intermediate gear.

When only one bottom roll is used as aforesaid, the gears H, I and J for transmitting the power from one roll to the second one would of course be dispensed with; otherwise the construction is the same for either one, or two bottom rolls.

The operation of the crank G not only serves to turn the bottom rolls as aforesaid, but also imparts to the top roll its longitudinal recip-

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rotating movements through the bevel gears KL, double crank-shaft M, the pivoted, forked arm N, and grooved wheel O.

The larger bevel-gear K is fitted to turn loose on shaft E', while the small gear L, is secured to crank shaft M, which is fitted to turn in suitable bearings M', M'.

The arm N is pivoted at the bottom, at c, and its upper, forked end fits in the groove of wheel O, secured to the outer end of one of the top roll-journals D'. The crank portion M² of shaft M fits in the opening N' of pivoted arm N, and thus imparts the motion of said crank to the arm, and in consequence through the aforesaid connections, causes the top roll to be moved longitudinally with short, reciprocating movements, while at the same time it is slowly turned by contact with the bottom roll or rolls.

When the machine is used for washing clothes both the top and bottom rolls are operated as aforesaid, but in wringing out said clothes only the bottom rolls are operated. Said result is accomplished by providing the crank lever G with a suitable device P whereby said lever may be locked and unlocked to and from the loose gear K. In this instance, we have shown a spring-latch d, whose inner end is adapted to engage with a suitable hole or holes in the gear K, when it is desired to lock the parts together, and which may be withdrawn and unlocked therefrom by pulling upon its handle d' and turning the latch so that a shoulder e thereon will hold upon a suitable shoulder or projection f upon the gear, or case g containing said spring-latch. As various similar devices may be adopted for the same purpose we do not limit ourselves to the one shown.

When the machine is used for washing the thumb-screws h are turned out so that they will press only against the tops of the lighter and longer springs, i i, arranged in housings B, B, and thus produce only a light pressure upon the top-roll D; but when used for wringing, said thumb-screws are turned in against the larger, shorter and heavier springs, j j, arranged outside of springs i i, thus producing the heavy pressure required to properly wring out the clothes. A suitable loose bearing piece k is preferably employed at the inner ends of the thumb-screws adapted to bear against the tops of the springs as is shown in Fig. 5, but we do not limit ourselves thereto.

If desired, the machine may be provided with a pulley G', (see dotted lines Fig. 1,) for operating the same by any suitable power other than by hand.

In all but Fig. 8, of the drawings the rolls are shown with smooth surfaces, while in said figure they are shown as being provided with transverse corrugations l to produce rough surfaces.

The application of our invention to practice has demonstrated the fact that smooth rolls are preferable, but we reserve the right to employ either smooth or roughened rolls, and we also reserve the right to use two bottom rolls or only one, as previously specified.

In wringing out clothes it is desirable to have a flat surface for the clothes to pass out unto from between the rolls, and for this purpose we have provided a swinging plate or sheet of metal m mounted on a suitable wire or other frame n pivoted to the main frame work, or some other stationary part. In Fig. 3, we have shown by dotted lines said plate swung over into the position that it occupies when the machine is adjusted for use as a wringer, and in said figure and Fig. 1, by full lines swung out into the position it occupies when the machine is adjusted for use in washing clothes, the last named position, as will be seen, removing it out of the way so as not to impede the passage of the clothes from between the rolls into the tub or tray to which the machine is attached. In practice, we find that two or three passages of the clothes, even when badly soiled, through between the rolls, is sufficient to thoroughly cleanse them.

Suitable guide-rolls Q Q are preferably used for guiding the clothes in between the rubbing and wringing rolls, but we do not limit ourselves thereto. Said rubbing and wringing rolls may be made as usual of rubber, or any other suitable material.

Having described our invention, what we claim therein as new, and desire to secure by Letters Patent, is—

In a clothes washing and wringing machine, the bottom and top rolls thereof fitted respectively to rotate, and to rotate and reciprocate longitudinally as described, also arranged parallel to each other and supported in suitable bearings, in combination with mechanism for thus operating said rolls consisting of means for turning one bottom roll-shaft; suitable intermeshing gears secured to the bottom roll shafts for transmitting the power from one to the other; the loose gear K on the bottom roll-shaft; gear L meshing therewith and secured to double crank-shaft M; said crank-shaft fitted to turn in suitable stationary bearings; pivoted, forked arm N engaging with said double crank-shaft M, and with means for engaging with the top roll shaft, and a suitable locking device F for locking and unlocking the driving power to and from the loose gear K, substantially as shown and specified.

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