C. F. ROBERG & A. A. MALMBERG.

MANGLE.

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1,128,049.

Patented Feb. 9, 1915.

Fig. 1.

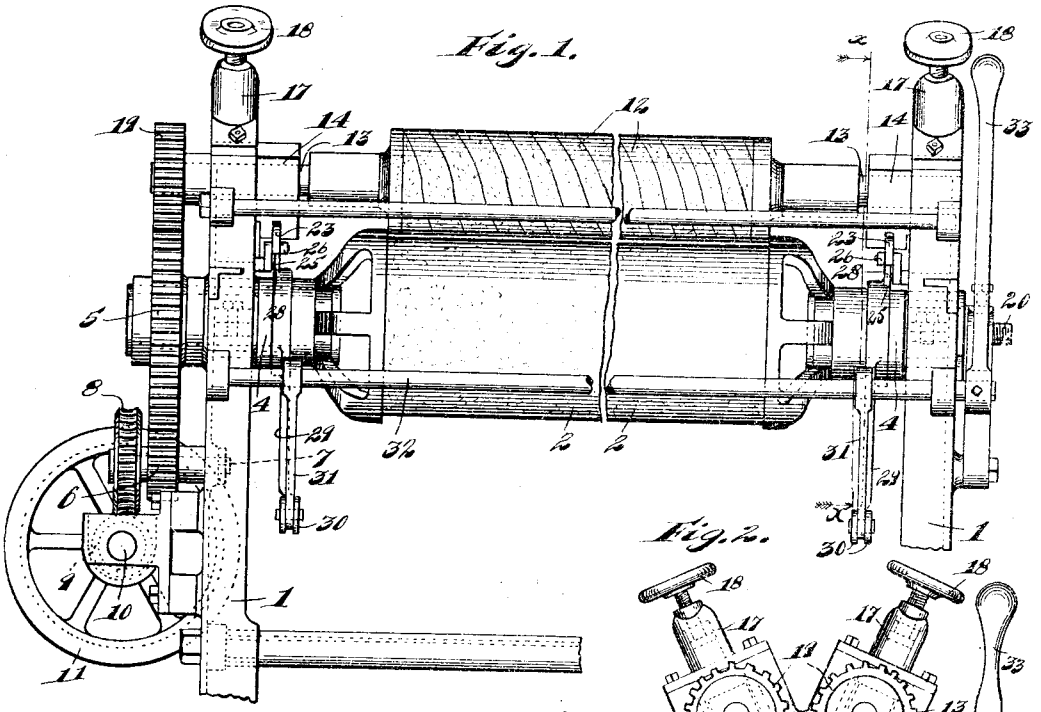


Fig. 2.

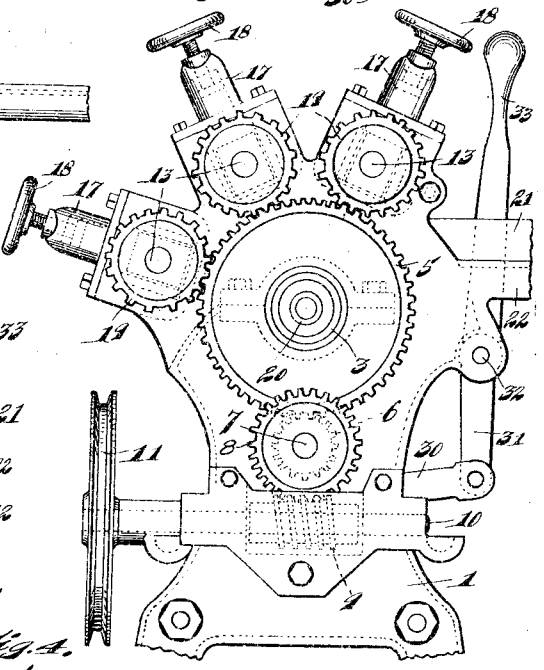


Fig. 3.

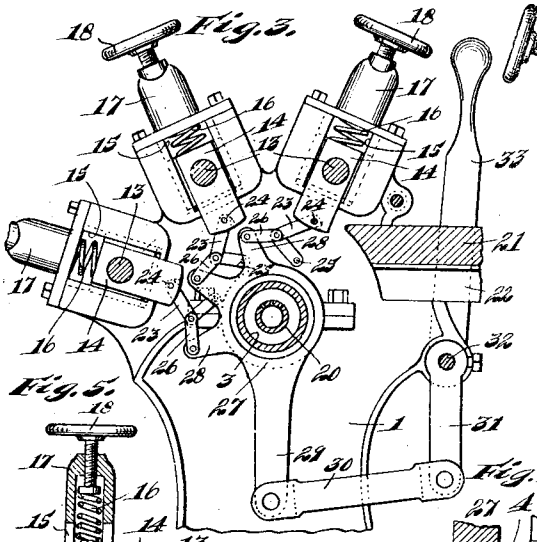
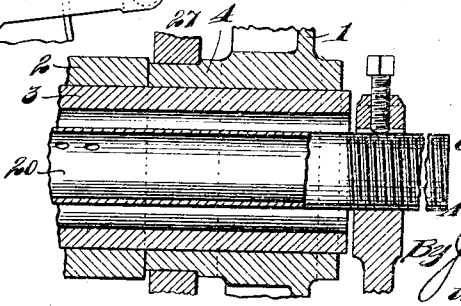


Fig. 5.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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MANGLE.

1,128,049. Specification of Letters Patent. Patented Feb. 9, 1915.

Application filed October 30, 1912. Serial No. 728,565.

To all whom it may concern:

Be it known that we, CLAES F. ROBERG and AUGUST A. MALMBERG, citizens of the United States, and residents of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Mangles, of which the following is a specification.

Our invention relates to laundry mangles, or pressing devices, and has for its object the production of a machine of this character which will be of durable and economical construction, and efficient in operation.

Laundry mangles of the present construction are comprised of a central heated roller and a plurality of padded rollers which, when the machine is in operation, rotate in contact with said heated roller, the article to be pressed being passed between said rollers. By reason of the heated condition of the heated roller in the event of cessation of operation of the machine, if the padded rollers are permitted to remain in engagement with the heated roller, the padding upon the former is burned or otherwise injured to such an extent as to necessitate removal thereof and the provision of new padding. This being so it is essential in the operation of a mangle of the class mentioned, to provide means for effecting ready outward movement of the padded rollers from engagement with the heated roller, the instant that operation of the machine ceases.

It is the object of the present invention to provide such means and so that in the operation of a mangle the padded rollers may be readily and expeditiously moved from contact with the heated roller with the use of minimum exertion on the part of the operator of the machine.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a front elevation of the upper end portion of a mangle embodying our invention, the central portion thereof being broken away, Fig. 2 is an end elevation of Fig. 1, Fig. 3 is a vertical transverse section taken on substantially line x—x of Fig. 1, Fig. 4 is an enlarged sectional detail illustrating the mounting of the respective ends of the heated roller of the device, and Fig. 5 is a sectional detail showing the mounting of the respective ends of the padded or movable rollers embodied in the device.

The preferred form of construction as illustrated in the drawings comprises spaced supporting frame members 1, the lower ends of which (not shown) being of any suitable form for fastening to the floor. Arranged between the upper ends of the supporting frame members 1 is a heated roller 2 the journals 3 of which are mounted in stationary bearings 4 provided in the frame members 1, as clearly shown in Fig. 4. One of the journals 3 is provided with a gear 5 which meshes with a pinion 6 provided upon a stud shaft 7. Also carried by the stud shaft 7 is a worm wheel 8 which meshes with a worm 9 fixed to a shaft 10, the latter being provided with the drive pulley 11 which is adapted for connection with a belt or other suitable means of power transmission for connecting the device with a motor or other means of driving employed.

Arranged around the heated roller 2 is a plurality of padded rollers 12 the journals 13 of which are mounted in bearing blocks 14 which are slidably mounted in slots 15 formed in the frame members 1 disposed radially relative to the axis of roller 2. The rollers 12 are normally held at their inner terminals of movement in contact with the heated roller 2 through the medium of helical compression springs 16 the inner ends of which contact with the bearing blocks 14 as clearly shown in Fig. 5. The outer ends of said springs are arranged in housings 17 which are provided at the outer ends of slots 15, said housings evidently serving to maintain the springs in operative position. Threaded in the outer ends of housing 17 are hand screws 18 the inner ends of which contact with the adjacent ends of said springs 16, the arrangement being such that the tension of said springs may be varied or adjusted by simply manipulating said screws 18 as will be readily understood.

Provided at corresponding ends of the journals 13 are pinions 19 which mesh with the gear 5, the arrangement being such that, in the operation of driving pulley 11 and hence the heated roller 2, the padded rollers will be simultaneously rotated. The teeth of pinions 19 and gear 5 are of such a length

that when said padded rollers are moved outwardly by reason of the outward sliding of the bearings 14 thereof in slots 15, said teeth will move out of mesh and permit of free rotation of said padded rollers. This is of special advantage in that the wrapping of the padding strips around said rollers or the unwrapping of said strips thereof, may be more readily effected when said rollers are free so that the same may be rotated by the hand in the wrapping or unwrapping thereof. Without this arrangement in the wrapping or unwrapping of the padded rollers, it would be required to rotate the entire mechanism with which said rollers are operatively connected during operation of the mangle.

Arranged within the heated roller is the usual tubular fuel burner 20 which, when the device is in use, is connected with any suitable source of fuel supply, the flames or jets which are supported by the fuel issuing from said burner serving to heat the roller 2. Arranged at one side of said roller is a table 21 which is supported upon arms 22 projecting from the frame members 1. In the operation of the mangle the articles to be pressed or ironed are fed from the table 21 to a position between the padded and heated rollers, the article in the course of its pressing passing partially around the heated roller successively into engagement with the padded or movable rollers. The gears 19 are so proportioned relative to each other that in the operation of the machine, the second of said rollers will be rotated slightly faster than the first and the third slightly faster than the second, the first gear being preferably provided with twenty teeth, the second gear with nineteen teeth and the third with eighteen teeth. Through this arrangement, the article, as the same passes through the mangle, will be stretched in the passage thereof from one of the padded rollers to the next which will serve to remove any transverse wrinkles and thus conduce to perfection in the work turned out.

Coöperating with the bearing blocks 14 of each of the padded rollers are toggles 23, the outer ends of said toggles being pivotally connected at 24 with said bearing blocks, the under sides of said bearing blocks being recessed as clearly shown in Figs. 3 and 5 for the reception of said ends of said toggles. The opposite ends of said toggles are pivotally connected at 25 with the frame members 1, said pivotal points being in alinement with the center lines of said blocks or being positioned in planes passing through the axes of the heated and movable rollers, as clearly shown in Fig. 3. The knee joints of the toggles at corresponding ends of the mangle are connected by links 26 with a circular actuating member 27 which is rotatably mounted upon an extension of the bearing 4 at the corresponding end of the machine, said actuating member being provided with arms 28 for connection with said links, as shown. The arrangement is such that, upon clockwise oscillation of the members 27, the toggles 23 will be simultaneously actuated to cause outward movement of the padded rollers. When the padded rollers are at their outer terminals of movement the toggles 23 will be in straightened position or at dead centers, thereby effecting the locking of said toggles and hence said rollers in this position, inward or return movement of said rollers being permitted only upon breaking of said knee joints by reverse movement of the actuating members 27.

Depending from the actuating members 27 are arms 29 with which engage links 30 connected at their forward ends with rocker arms 31 depending from a rock shaft 32 the extremities of which are mounted in frame members 1. Thus the actuating members 27 at the opposite ends of the device are connected for simultaneous movement and so that when the rock shaft 32 is operated both ends of the padded rollers will be correspondingly moved. Provided at one end of the shaft 32 is an upwardly projecting handle or lever 33 whereby said shaft may be manually rocked to effect the desired movement of the padded rollers of the device.

With this arrangement it will be seen that in the operation of the mangle in the event of the rollers ceasing operation, the padded rollers may be readily and expeditiously moved out of engagement with the heated roller by simply rocking the lever 33. Through the use of toggles great leverage results and therefore rocking of the lever 33 to effect outward movement of the padded rollers may be effected with little exertion applied to said lever.

A mangle of the construction set forth is durable and economical in construction, the same may be readily and easily operated and is of high efficiency.

While we have illustrated and described the preferred forms of construction for carrying our invention into effect, this is capable of variation and modification without departing from the spirit of the invention. We, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail ourselves of such variations and modifications as come within the scope of the appended claims.

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

1. In a mangle, the combination of a heated roller having stationary bearings; a plurality of movable rollers arranged

around said heated roller and adapted to coöperate therewith; rotatable actuating devices at the ends of said heated roller; toggles connected with said movable rollers, adapted when actuated, to move said rollers; and links connecting said actuating devices with said toggles whereby, when said actuating devices are oscillated, said rollers will be moved outwardly, said toggles, when said movable rollers are at their outer terminal of movement, extending substantially in planes with the axes of the heated and movable rollers and being locked on dead center, substantially as described.

2. In a mangle, the combination of a heated roller having stationary bearings; a plurality of movable rollers arranged around said heated roller and adapted to move toward and from the same; rotatable actuating devices at the ends of heated roller; toggles connected with said movable rollers, adapted when actuated, to move said rollers; links connecting said actuating devices with the knees of said toggles; and means for operating said actuating devices to move said toggle knees into planes passing substantially through the axes of the heated and movable rollers, substantially as described.

3. In a mangle, the combination of a heated roller having stationary bearings; a plurality of radially movable rollers arranged around said heated roller and adapted to normally contact therewith; toggles having corresponding terminals connected with the bearings of said movable rollers and having their opposite terminals pivotally connected with stationary supports; rotatable actuating devices at the ends of said heated roller; and links connecting said actuating devices with the knees of said toggles whereby, upon rotation of said devices, each of said toggle knees will be positioned in a plane passing substantially through the axis of the heated roller and the axis of the corresponding movable roller to simultaneously move said movable rollers outwardly from said heated roller, substantially as described.

4. In a mangle, the combination of spaced supporting frame members; a heated roller arranged between said frame members and having stationary bearings arranged therein; a plurality of movable rollers arranged around said heated roller and having bearings slidably mounted in slots provided in said frame members disposed substantially radially relative to said heated roller; toggles having corresponding terminals connected with the bearings of said movable rollers, and having their opposite terminals pivoted to said frame members, the terminals of each of said toggles being arranged in a plane passing substantially through the axis of the heated roller and the axis of the corresponding movable roller; rotatable actuating devices at the ends of said heated roller; and an operative connection between the knee joints of said toggles and said actuating devices whereby, when said actuating devices are rotated, each of said toggles will be moved into a plane including the terminals thereof to cause outward movement of said movable rollers, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CLAES F. ROBERG.
AUGUST A. MALMBERG.

Witnesses as to Claes F. Roberg:
JOSHUA R. H. POTTS,
ARTHUR A. OLSON.

Witnesses as to August A. Malmberg:
JOSHUA R. H. POTTS,
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