

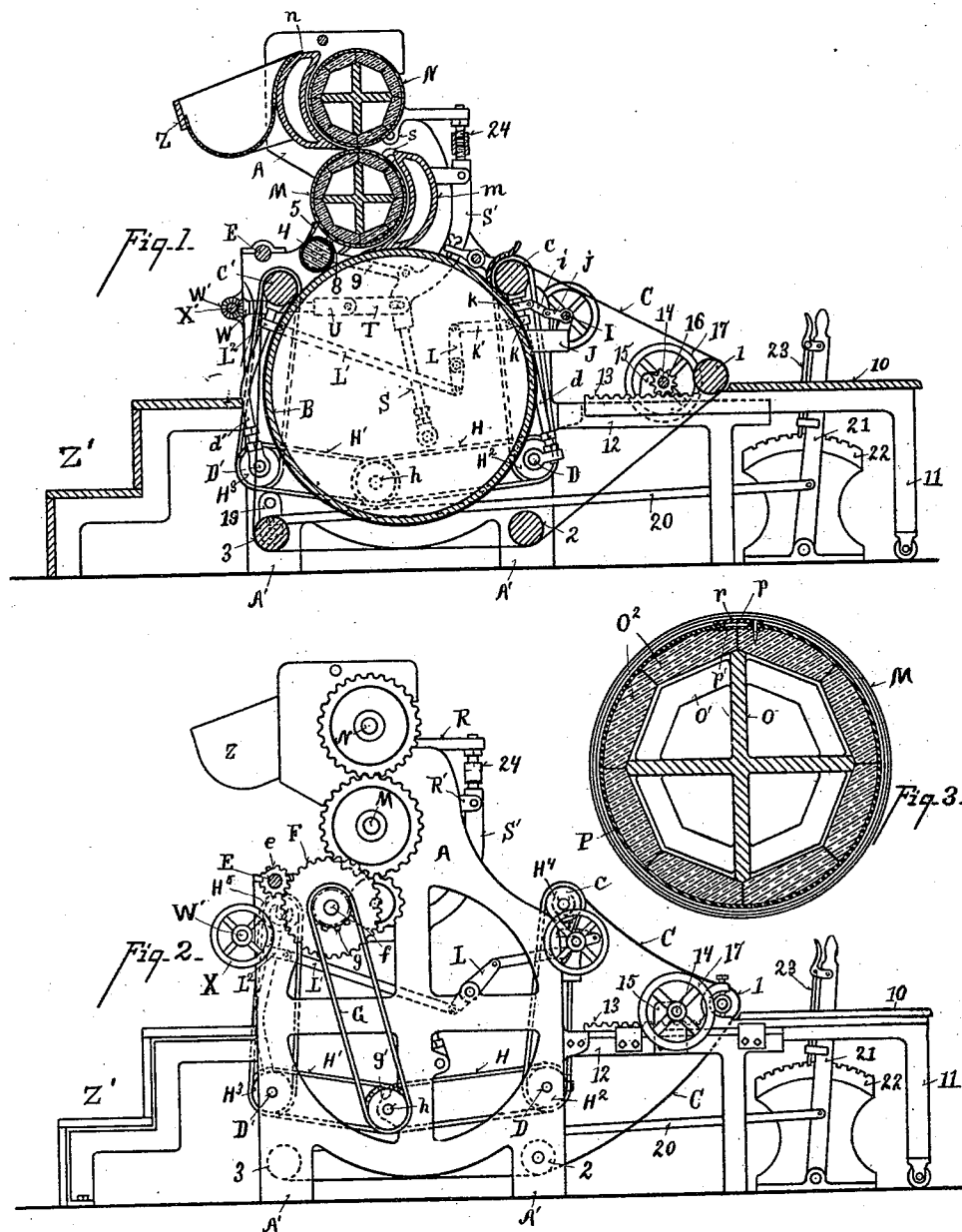
(No Model.)

2 Sheets—Sheet 1.

A. M. DOLPH, J. H. SLACK & W. A. SAUNDERS.
MANGLE.

No. 554,584.

Patented Feb. 11, 1896.



Witnesses

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*Alex. M. Dolph, John
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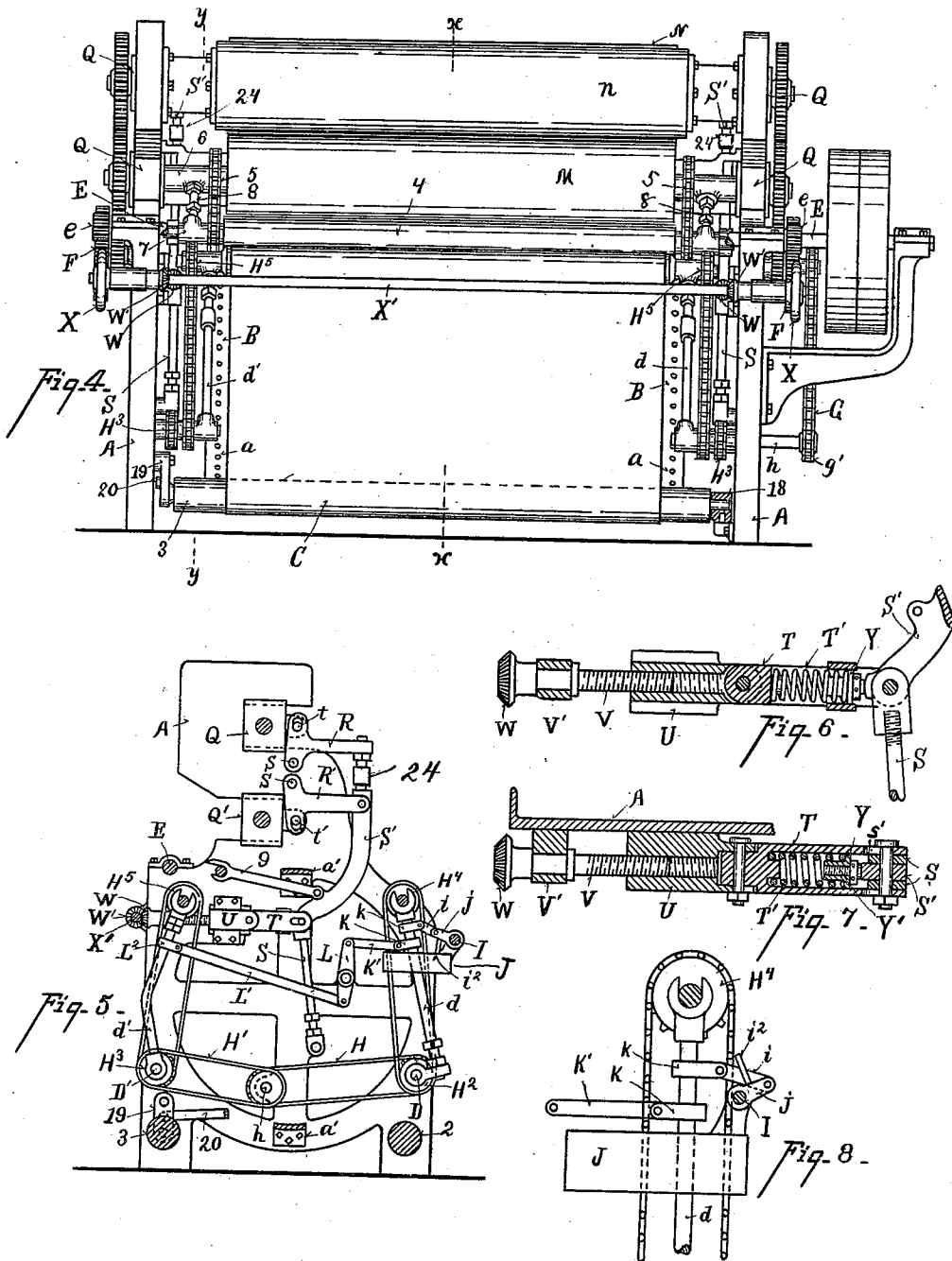
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UNITED STATES PATENT OFFICE.

ALEXANDER M. DOLPH AND JOHN H. SLACK, OF CINCINNATI, OHIO, AND
WILLIAM A. SAUNDERS, OF COVINGTON, KENTUCKY, ASSIGNORS TO THE
AMERICAN LAUNDRY MACHINERY COMPANY, OF CINCINNATI, OHIO.

MANGLE.

SPECIFICATION forming part of Letters Patent No. 554,584, dated February 11, 1896.

Application filed April 15, 1895. Serial No. 545,825. (No model.)

To all whom it may concern:

Be it known that we, ALEXANDER M. DOLPH and JOHN H. SLACK, residing in Cincinnati, county of Hamilton, State of Ohio, and WILLIAM A. SAUNDERS, residing at Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Mangles, of which the following is a specification.

The object of our invention is to provide a stationary drying-drum operating in conjunction with smoothing-rolls and concave beds, around which drum the garments to be smoothed and dried are carried by means of an endless apron after having been operated on by the mangle-rolls.

Another object of our invention is to provide means for removing the endless apron from contact with the drying-drum.

Another object of our invention is to provide means for removing the mangle-rolls from close contact with the concave beds when the machine is not in operation.

Another object of our invention is to provide spring-pressure applied to the journal-boxes of the mangle-rolls so as to yieldingly adjust them to the concaves and to hold them in the adjusted position.

Another object of our invention is to provide an improved mangle-roll which is so constructed as to prevent the staining of the garments by rust from the metal parts of said roll, and also to provide means for taking up the contraction and expansion of the periphery of said roll.

The features of our invention will be more fully set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a sectional elevation on line *xx*, Fig. 4. Fig. 2 is a side elevation of Fig. 1. Fig. 3 is a central vertical section of one of the mangle-rolls. Fig. 4 is a front elevation with the steps and clothes-basket removed and parts of the driving mechanism omitted on the left-hand side. Fig. 5 is an inside sectional elevation of one end of the frame on line *yy*, Fig. 4. Fig. 6 is a vertical sectional elevation of the spring-housing operating the roller-journals. Fig. 7 is a transverse section of Fig. 6. Fig. 8 is a detailed view of one of

the apron-rolls with the adjusting mechanism retracted.

A represents the main frame of the machine supported upon posts *A' A'*.

B represents the drum, which is preferably composed of sheet metal connected to circular heads by rivets *a*.

a' represents brackets by means of which the drum is bolted to the frame. This drum is heated in the usual manner by currents of steam or hot air.

C represents an endless apron. It travels upon the idler-rolls 1 2 3 and driving-rolls *c c'*. The rolls *c c'* are pivotally supported by means of rods *d d'* upon the stud-shafts D D'. The rolls *c c'* are driven by the following mechanism:

E represents the main driving-shaft. Upon it at each end is mounted a pinion *e*, each of which meshes with and drives a pinion F upon the stud-shaft *f*, there being two pinions F and two stud-shafts *f*. G represents a sprocket-chain engaging with sprocket-wheel *g*, secured to pinion F on stud-shaft *f* and with sprocket-wheel *g'* on the shaft *h*, around which the chain G travels. On shaft *h* are mounted two other sprocket-wheels which drive the sprocket-chains H H', transmitting motion to sprocket-wheels H² H³. These in turn drive the sprocket-wheels H⁴ H⁵ on the ends of the shafts of the rollers *c c'*. The endless apron C is thus caused to continuously travel around the periphery of the drying-drum. In order that the said apron may be removed from contact therewith when the machine is not in operation, we provide the following instrumentalities:

I represents a shaft journaled to arms of the yoke-guards J, each of which guards is simply a horizontally-arched frame of such form as will permit passage of the mechanism concerned in moving the apron to and from the drum. To said shaft I is keyed or secured a crank-arm *j*, which engages with the link *i*, which is pivoted to the stirrup *k* engaging the rod *d*. K represents a stirrup connecting said rod *d* through link K' with the crank-arm L.

L' represents a connecting-rod connected to the crank-arm L, and to the stirrup L², secured to the rod *d'*. When the shaft I is

turned in its bearings the link *i* is moved from the position shown in Fig. 8 to the position shown in Fig. 5. This moves inwardly the pivotal rods *d d'*, upon which the rollers *c c'* are journaled, thereby drawing the apron C carried on said rolls up against the periphery of the drum. A reverse movement carries the rollers *c c'* outwardly and loosens the apron, as shown in Fig. 2, thereby preventing it from becoming unduly heated when the same is not in use.

*i*² represents a stud on the crank-arm *j*, which travels over to a bearing-contact with the guard-arm J, as shown in Fig. 5, to arrest the motion and hold the rolls *c c'* in a rigid position for operation, the link *i* and crank-arm *j* being then substantially in line with each other.

M N represent the mangle-rolls, which are revolved and operated in conjunction with the concave beds *m n*, which concave beds are heated in the usual manner, the devices for which are not shown. The mangle-rolls are constructed as follows:

O represents a series of arms of spider form extending the whole length of the roll. O' represents a series of connecting-ribs cast at intervals along the arms. O² represents a series of wooden segments securely attached to said ribs O' and form the barrel of the cylinder. P represents the outside facing for said roll and is preferably formed of zinc, a sheet of which is wrapped around said roll, the ends not quite coming in contact, leaving the space *p* between them. *p'* represents a piece of zinc seated in the recess formed between the ends of the facing. *r* represents a strip of metal tacked to one end of the facing-sheet and projecting out and overhanging the other end. The object of this is to allow the contraction and expansion of the sheet metal without interfering with the cover of the roll and to confine the facing on the roll. Said metal facing is covered over with suitable fibrous material. By this construction the discoloring of the garments by contact with the roll is prevented, and the contraction and expansion are duly provided for inside of the outer covering. These rolls M N are journaled at each end in sliding boxes Q Q'. The concave beds *m n* are rigidly connected to the frame in any suitable manner.

When the mangle-rolls are not in use it is desirable to remove them from close contact with the concave beds, so that the covering will not become unduly heated or scorched. To accomplish this we provide the following instrumentalities:

S represents lever-arms pivoted to the sides of the frame at one end, the opposite end being hinged respectively to the lever-arms S', as shown in Figs. 6 and 7. T represents an arm provided with a housing in which is seated the coil-spring T', one end of which seats against the arm S'. The arms T S S' and their connected parts are applied to each side of the machine. To said arms S' are attached

crank-arms R R' connecting with the sliding boxes Q Q' in which the mangle-rolls are journaled. Each arm T is provided in one end with a slot *s'* that connects with the hinge-pin or pivotal connection of the arms S S' to permit a yielding connection of the several arms. Said arms R R' are pivoted by ears *s* to the sides of the frame. *t t'* represent loose hinged connections of the arms R R' with the journal-boxes Q Q'. The arm T is supported upon a sliding support U. V represents a screw-threaded shaft journaled in bracket V' and screwed into threads in the sliding support U. W represents a beveled pinion on the end of each shaft V. The pinions W are driven by the beveled pinions W', to which motion is imparted by means of the hand-wheel X on shaft X', to which said beveled pinions W' are keyed. When said shaft X' is revolved the pinions W' drive the pinions W and move the sliding supports U out or in, as the case may be, which transmits motion through the arms S' R R' to the journal-boxes Q Q' and simultaneously adjusts said mangle-rolls to or from their respective concave beds. In order that the tension of each spring T' may be regulated we provide an adjustable seat Y operated by a nut on the screw Y', by means of which the tension is increased or decreased as desired.

At the upper front portion of the machine, adjacent to the concave bed *n*, is a basket Z to receive the garments, and steps Z' may be provided to give access to the basket.

The garments are fed forward from the basket Z between the concave bed *n* and the roll N, from which they are delivered to the roll M and passed between it and the concave bed *m*, from whence they are delivered onto the drum B, being fed forward on the drum by roll 4. This roll is driven from the roll M by means of the chain belts 5, one at each side of the machine, the roll 4 being connected to the shaft of the roll M by sleeves 6 7 and connecting-rods 8, the roll resting by its own weight on the face of the drum B. 9 represents an arm pivoted to the hinged arm S' at each side of the machine, which lift roll 4 from the face of the drum at the same time that the mangle-rolls M N are shifted away from the concave beds. As the garments pass from roll 4 they are caught by the apron and carried around the drum B upon which they are pressed and dried and delivered onto the table 10.

It will be understood that the devices for adjusting the mangle-rolls and for driving and tightening the endless apron and for moving it to and from the stationary drying-drum, and the devices for operating the roll 4, are duplicated on opposite sides of the machine.

When the machine is not in operation the mangle-rolls are moved out of contact with the heated parts and the endless apron is slackened as described.

In order to strain the apron we provide the following devices: The table 10 is made ex-

tensible. 11 represents legs supported on casters. The top of the table travels on ways formed on rails 12. 13 represents rack-bars secured to the table, and roller 1 is journaled thereon. 14 represents a shaft journaled on the pillow-blocks 15 attached to the rails 12. 16 represents a pinion engaging with a rack 13, a pinion and rack being located at each side of the machine. 17 represents a hand-wheel on shaft 14. The hand-wheel is turned to run the pinions 16, moving the rack-bars to move the table out or in. The roller 1 moves with the table and controls the strain of the apron.

15 In order to cause the apron to travel in a true path on the face of the drum we provide the following devices to regulate the lateral strain of said apron: Roll 3 is journaled at one end on a swiveling journal-box 18, and the journal upon the opposite end is supported upon crank-arm 19. 20 represents a crank connecting-rod hinged at one end to the crank-arm 19 and at the other end to setting-lever 21. 22 represents a toothed segment; 23, a lock-lever pivoted to the setting-lever and its lower end engaging with the teeth of the segment. When said setting-lever is moved out or in it rocks the crank-arm 19, and the roll 3 is moved to a greater or less angle to the axis of the drum B, thereby guiding the apron across the face of the drum and making it travel around the drum in the desired lateral plane. In order to regulate the pressure of each of the rolls M N, we provide a turnbuckle 24 connecting the levers R R', so that the sliding boxes Q Q' may be moved to and from each other, thereby giving a greater or less pressure to either of said rolls against its respective concave bed, as required, the pressure of said rolls to the concave beds being made by the hand-wheels X through the arms T S S' and their connections.

By making the drum stationary and employing an apron which is drawn around it by suitable driving-rolls, the apron and drum perform the function of ironing or smoothing the goods as well as drying them, so that the use of the preliminary mangle is not at all times necessary.

50 We claim—

1. A mangle-roll, the barrel of which is composed of a wooden rim and split metallic facing secured thereto at one end, the free end being confined by a metallic bridge-piece, whereby the facing is allowed to contract or expand, substantially as specified.

2. The combination with the mangle-rolls and their sliding journal-boxes, of the levers S S', a longitudinally-movable arm T to which said levers are hinged, the crank-arms R R'

attached to the arm S' and pivotally connected with the said journal-boxes, and means for moving the arm T longitudinally to adjust the journal-boxes of the rolls simultaneously, substantially as described.

3. The combination with the mangle-rolls and their sliding journal-boxes, of the longitudinally-movable arm T, the levers S R R' and the coil-spring T' forming a yielding seat for the hinged connection of the arms S S' and connected journal-boxes, substantially as described.

4. In a mangle, the combination of the concave beds, the mangle-rolls mounted in movable journal-boxes, yieldingly-supported crank-lever mechanism for adjusting said boxes, the stationary cylindrical drying-drum located beneath said rolls, the endless apron stretched around the sides and lower part of the drum, and means for adjusting said apron to and from the drum, substantially as described.

5. In a mangle, the combination of the stationary cylindrical drying-drum, the endless apron stretched around the sides and lower part of said drum, the rolls for driving said apron, mechanism for simultaneously adjusting said driving-rolls of the apron to and from the drum, and the concave beds and adjustably-mounted mangle-rolls, substantially as described.

6. In a mangle, the combination with the stationary drying-drum and its endless apron, of the concave beds *m n*, the mangle-rolls M, N, provided with sliding journal-boxes Q Q' the crank-levers R R' pivoted to said boxes, the arms S S', a hinged connection for said arms, a yielding seat for said hinged connection and means for moving said arms to adjust the journal-boxes of the rolls simultaneously, substantially as described.

7. In a mangle, the combination with the stationary cylindrical drying-drum and its endless apron, of the adjustable driving-rolls *c c'* the idler-rolls 1, 2, 3, an extension-table upon which one of the idler-rolls is mounted, a swiveling journal-box and a swinging crank-arm in which the ends of another idler-roll are journaled, and lever connections for actuating said crank-arm to adjust said last-named roll to an angle with the axis of the drying-drum, substantially as described.

In testimony whereof we have hereunto set our hands.

ALEXANDER M. DOLPH.
JOHN H. SLACK.
WILLIAM A. SAUNDERS.

Witnesses:

W. R. WOOD,
C. W. MILES.