

Aug. 25, 1936.

S. LIFSITZ

2,052,310

ATTACHMENT FOR IRONING MACHINES OR MANGLES

Filed May 20, 1935

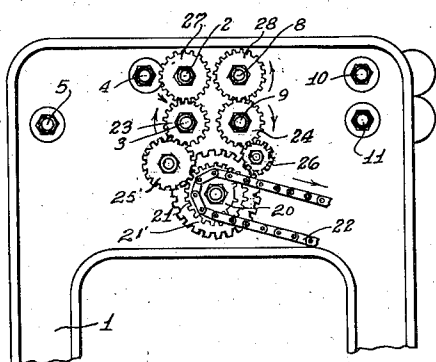


Fig. 1

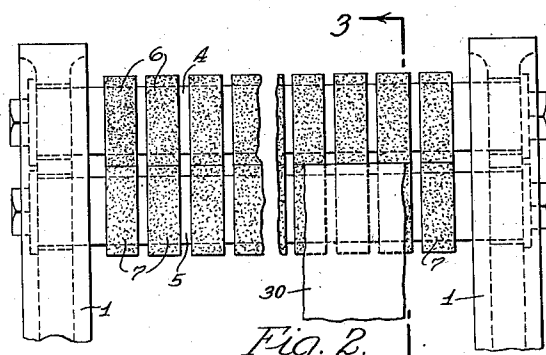


Fig. 2.

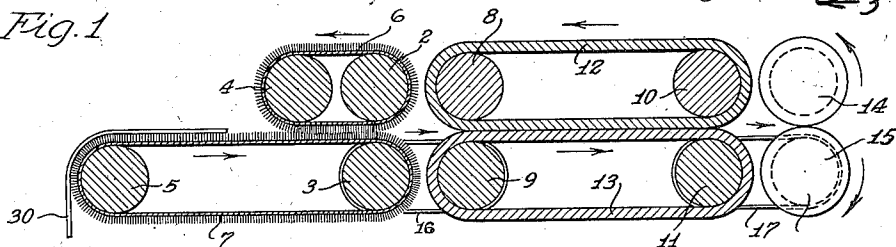


Fig. 3.

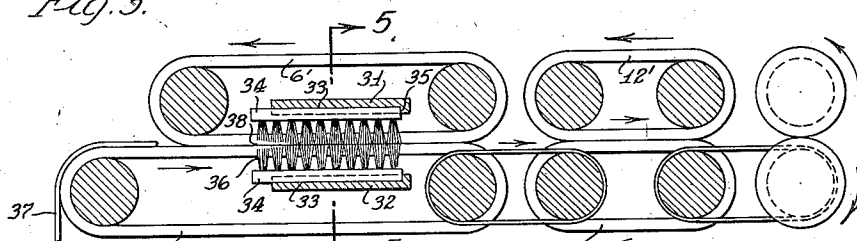


Fig. 4.

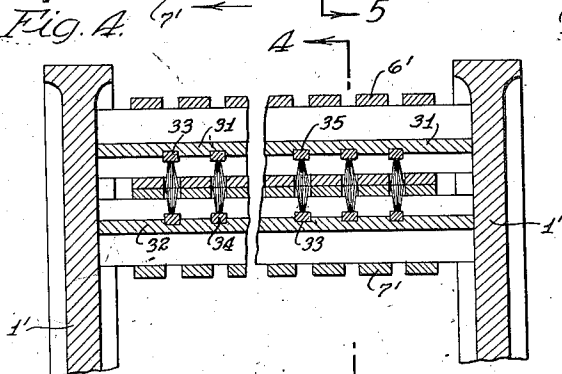


Fig. 5.

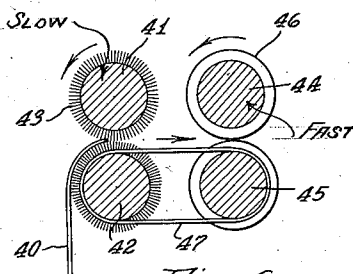


Fig. 6.

INVENTOR.

Sol Lifszitz

BY

Samuel Weisman

ATTORNEY.

UNITED STATES PATENT OFFICE

2,052,310

ATTACHMENT FOR IRONING MACHINES OR MANGLES

Sol Lifszitz, Detroit, Mich.

Application May 20, 1935, Serial No. 22,390

11 Claims. (Cl. 271—45)

The present invention pertains to a novel attachment for ironing machines or mangles, and the object is to provide a mechanical means for replacing the usual manual operation of moving out the work as it is fed to the ironing machine or mangle.

Ordinarily, the operator first pulls or stretches the end to be first inserted in the machine and thereafter progressively smooths out the remainder of the piece of work in similar manner as it is being drawn into the machine. This is considered distinct operation in laundry work, from the standpoint of expense and time consumed. The present invention provides a device that performs mechanically and automatically the smoothing operation ordinarily performed by hand.

The invention is based on the principle of pulling a piece of work through a stationary or slower moving device adapted to effect a brushing action on both surfaces of the work as it is pulled there-through. The operator smooths out the entering end of the work and inserts it in the slower moving device, and thereafter the slip of the work between the brushing surfaces of this device has the effect of smoothing out the remainder of the piece of work before it reaches the ironing machine or mangle.

The faster or pulling unit consists of contacting belts or contacting rollers. The slower unit consists of contacting brush belts or brush rollers or of plain belts carrying the work between stationary, contacting brushes. The invention requires at least two conveying belts, one faster than the other, but also contemplates the use of more than two units of progressively increasing speeds in the direction towards the ironing machine or mangle.

The terms ironing machine and mangle are used synonymously throughout the specification and claims.

The invention is fully disclosed by way of example in the following description and in the accompanying drawing in which

Figure 1 is a side elevation of the frame of the machine;

Figure 2 is an end view of the machine;

Figure 3 is a section on the line 3—3 of Figure 2;

Figure 4 is a longitudinal section of a modified construction, on the line 4—4 of Figure 5;

Figure 5 is a section on the line 5—5 of Figure 4, and

Figure 6 is a detail longitudinal section of another modification.

Reference to these views will now be made by use of like characters which are employed to designate corresponding parts throughout.

Figures 1 and 2 illustrate a pair of side frame members 1 between which are journaled several rollers as will presently be described. One such pair is indicated by the numerals 2 and 3, the members of this pair being one above the other as clearly shown in Figure 3. Associated with the rollers 2 and 3 are idlers 4 and 5 respectively, positioned forwardly of the members 2 and 3, with the roller 5 preferably forward of the roller 4 for a purpose which will presently be described. The pair 2, 4 carries a belt 6 of brush material, and the pair 3, 5 carries a similar belt 7 engaging the lower lap of the belt 6.

Another pair of rollers 8, 9 is mounted adjacent to the rollers 2, 3 respectively and at approximately the same levels. Back of these are idlers 10 and 11 also journaled in the frame members 1 as may be seen in Figure 1. The pair 8, 10 carries a belt 12, and the pair 9, 11 a belt 13. These belts may consist of ordinary belting material and are in engagement with each other at the lower lap of belt 12 and the upper lap of belt 13.

A portion of a mangle, or conveyor to a mangle, is illustrated by the rollers 14 and 15. Work is passed through the machine from the forward lower roller 5, between the belts 6 and 7 and between the belts 12 and 13, and finally between the rollers 14 and 15. All of the belts are preferably provided in the form of spaced strips as may be seen in Figure 2. Between the strips, the lower rollers 3 and 9 carry endless cords 16 for transferring the work from the top of belt 7 to the top of belt 13. Similarly, the rollers 11 and 15 are connected by endless cords 17 to transfer the work from the top of belt 13 to the top of roller 15.

The drive gearing is shown in Figure 1 and may be provided at either side or both sides of the frame structure. A concentric sprocket wheel 20, gear 21 and gear 21' are mounted below the space between the rollers 3 and 9. A chain 22 engages the sprocket wheel to drive the gear 21 in the direction indicated by the arrows. The rollers 3 and 9 carry gears 23 and 24 respectively, and these mesh respectively with idlers 25 and 26 respectively which in turn are in mesh with the gears 21 and 21'. It is to be noted that the gear 25 is larger than the gear 26 so that the gears 23 and 24, which are of equal size, turn at different speeds, the gear 24 being the faster in peripheral velocity. The gears 23 and 24 mesh in turn with the gears 27 and 28 on the rollers 2 and 8 respectively. All of these

four gears are of equal size so that the rollers 2 and 8 turn at the same rate as the rollers 3 and 9 respectively. The brush belts 6 and 7 travel at equal speeds but slower than the smooth belts 12 and 13, for a purpose which will now be described.

The numeral 30 represents a piece of laundry in sheet form to be ironed, such as a towel, bed sheet or pillow case. The edge which is to be inserted first in the machine is straightened by the operator pulling this edge crosswise to its full length. The edge is laid upon the belt 7 and permitted to travel between the belts 6 and 7 to be conveyed to the strings 16 and between the belts 12, 13. Ordinarily, in feeding work to a mangle, the work is progressively pulled and straightened transversely by hand. This operation is performed mechanically by the present machine when the work is gripped between the belts 12, 13. Since these belts travel faster than the belts 6, 7, the work is caused to slip between the belts 6, 7. The effect of the brush material on the work during the slippage is equivalent to the aforementioned hand operation of smoothing out the work while feeding it to the mangle. Due to engagement of brush material with both surfaces of the work, the sheet is smoothed out whether it be creased on the upper surface or on the lower surface. The belts 12, 13 obviously deliver the work to the strings 17 which in turn deliver it to the mangle mechanism 14, 15.

The slower moving parts 6, 7 may be of any suitable material having the frictional effect of a brushing action on the work 30. Also, the members 12, 13 may be of the same material as the members 6, 7, although the principal function of the parts 12, 13 is to engage the work firmly and to pull it between the parts 6, 7. The belts 12, 13 may not grip the work until it reaches a point nearly half way between the rollers 8, 10, and in that case there would be still more brushing and smoothing action up to that point if the belts 12, 13 were of brush material.

In the modification shown in Figures 4 and 5, the several belt rollers are mounted in the manner already described. The belt members 6', 7', 12' and 13' are in the form of spaced strips as already described, and the members 6', 7' as well as the members 12', 13' are of ordinary belt material.

The brushing action on the work is accomplished by means of small brushes positioned to engage both surfaces of the work. Supporting bars 31 and 32 are mounted across the frame members 1', the former between the laps of the belt 6' and the latter between the laps of the belt 7'. The bars are grooved at 33 in the direction of travel to receive brush backs 34 facing the contacting laps of the belts 6', 7'. At the forward end of each groove 33 is a stop shoulder 35 for the brush back received therein. The backs are in line with the spaces between the belt strips, and the bristles 36 are received in these spaces at the contacting laps as clearly shown in Figures 4 and 5. The surface of contact between the two sets of bristles is in the same plane as the surface of contact of the belts.

The work 37 is applied to the belt 7' in the manner already described and is conveyed between the two sets of brushes. At the receiving end, the bristles are preferably cut away to form a notch 38 whereby the work is subjected initially to a lighter but progressively increasing brushing action until the work reaches the point

where the bristles are in full contact with each other.

The belts 12', 13' merely pull the work, but at a faster rate than permitted by the belts 6', 7' alone, so that the work is caused to slip between the bristles in the same manner as between the brush belts 6, 7 in Figures 2 and 3, and with the same effect. Ordinarily there is sufficient pressure between belts 12', 13' to pull the work from between bristles 36 and belts 6', 7'. Even if there is not sufficient pressure for this purpose, the slower belts constantly feed the work to the faster belts which slip over the work and exert a brushing action thereon until the work has been entirely discharged from the lower belts. If the ironing machine draws the work in at a speed greater than that of the faster belts, the work is pulled between the belts and another brushing action is effected.

Each belt with its two rollers may be replaced by a single roller covered with suitable material. This form of construction is shown in Figure 6. The work 40 is fed between rollers 41 and 42 covered with a material 43 having a brushing effect when the work is pulled between the rollers. Another pair of rollers, 44, 45 travels at a greater speed than the rollers 41, 42 and is covered with a material 46, such as ordinary leather belting, adapted to grip the work and pull it between the rollers 41, 42. The work is conveyed from the first pair of rollers to the second by means of strings 47 joining the rollers 42 and 45.

The invention also contemplates the use of more than two conveying units, if desired, increasing progressively in speed towards the mangle and the slower ones having a brushing action on the work.

Although specific embodiments of the invention have been illustrated and described, it will be understood that various alterations in the details of construction may be made without departing from the scope of the invention, as indicated by the appended claims.

What I claim is:

1. An attachment for ironing machines comprising two conveying units, each unit adapted simultaneously to engage the work on both surfaces, one being nearer the machine than the other and propelled at a faster rate than the other, the nearer unit being adapted to grip and pull the work through the other unit, and the other unit having brushing surfaces engaging the work as it is pulled therethrough.

2. An attachment for ironing machines comprising two conveying units, each unit adapted simultaneously to engage the work on both surfaces, one being nearer the machine than the other and propelled at a faster rate than the other, the nearer unit being adapted to grip and pull the work through the other unit, and the other unit having moving brushing surfaces engaging the work as it is pulled therethrough.

3. An attachment for ironing machines comprising two conveying units, each unit adapted simultaneously to engage the work on both surfaces, one being nearer the machine than the other and propelled at a faster rate than the other, the nearer unit being adapted to grip and pull the work through the other unit, and brushes associated with the slower unit and between which the work is carried by said unit.

4. An attachment for ironing machines comprising two conveying units each adapted to engage the work on both surfaces, one being nearer

the machine than the other and propelled at a faster rate than the other, the nearer unit being adapted to grip and pull the work through the other unit and the other unit having brushing surfaces engaging the work as it is being pulled therethrough, and means for transferring the work from the slower to the faster unit.

5
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15
20
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30
35
5. An attachment for ironing machines comprising two double belt conveying units, one unit being nearer the machine than the other, each unit including a belt superimposed on and in contact with another belt, means for propelling all the contacting belt parts in the same direction and the unit nearer the machine at a faster rate than the other unit, the faster unit being adapted to grip and pull the work through the slower unit, the slower unit having brushing surfaces engaging the work as it is pulled therethrough.

6. An attachment for ironing machines comprising two conveying units, each adapted to engage the work on both surfaces, one being nearer the machine than the other and propelled at a faster rate than the other, the nearer unit being adapted to grip and pull the work through the other unit, and the other unit having spaces formed in its belts, brushes mounted in said spaces and engaging each other in the plane of contact of said belts.

7. An attachment for ironing machines comprising two pairs of rollers, the members of each pair being in superimposed relation and in manual contact, one pair being nearer the machine than the other, means for propelling the unit nearer the machine at a faster rate than the other, the faster unit being adapted to grip and pull the work through the slower unit, the slower

unit having brushing surfaces engaging the work as it is pulled therethrough.

8. An attachment for ironing machines comprising two conveying units, each adapted to engage the work on both surfaces, one being nearer the machine than the other and propelled at a faster rate than the other, the nearer unit being adapted to grip and pull the work through the other unit, and the other unit having brushing surfaces engaging the work as it is pulled therethrough, and means for transferring the work from the slower to the faster unit.

9. An attachment for ironing machines comprising two conveying units, each unit adapted simultaneously to engage the work on both surfaces, one unit being propelled at a faster rate than the other, one of said units having brushing means adapted to engage the work.

10. An attachment for ironing machines comprising two conveying units, each unit adapted simultaneously to engage the work on both surfaces, one being nearer the machine than the other and propelled at a faster rate than the other, the nearer unit being adapted to grip and pull the work through the other unit, one of said units having moving brushing surfaces adapted to engage the work.

11. An attachment for ironing machines comprising two conveying units, each adapted to engage the work on both surfaces, one unit being propelled at a faster rate than the other, one of said units having brushing means adapted to engage the work, and means for transferring the work from the slower to the faster unit.