

June 30, 1953

B. L. G. NEWNHAM

2,643,473

IRONING MACHINE

Filed Feb. 20, 1950

3 Sheets-Sheet 1

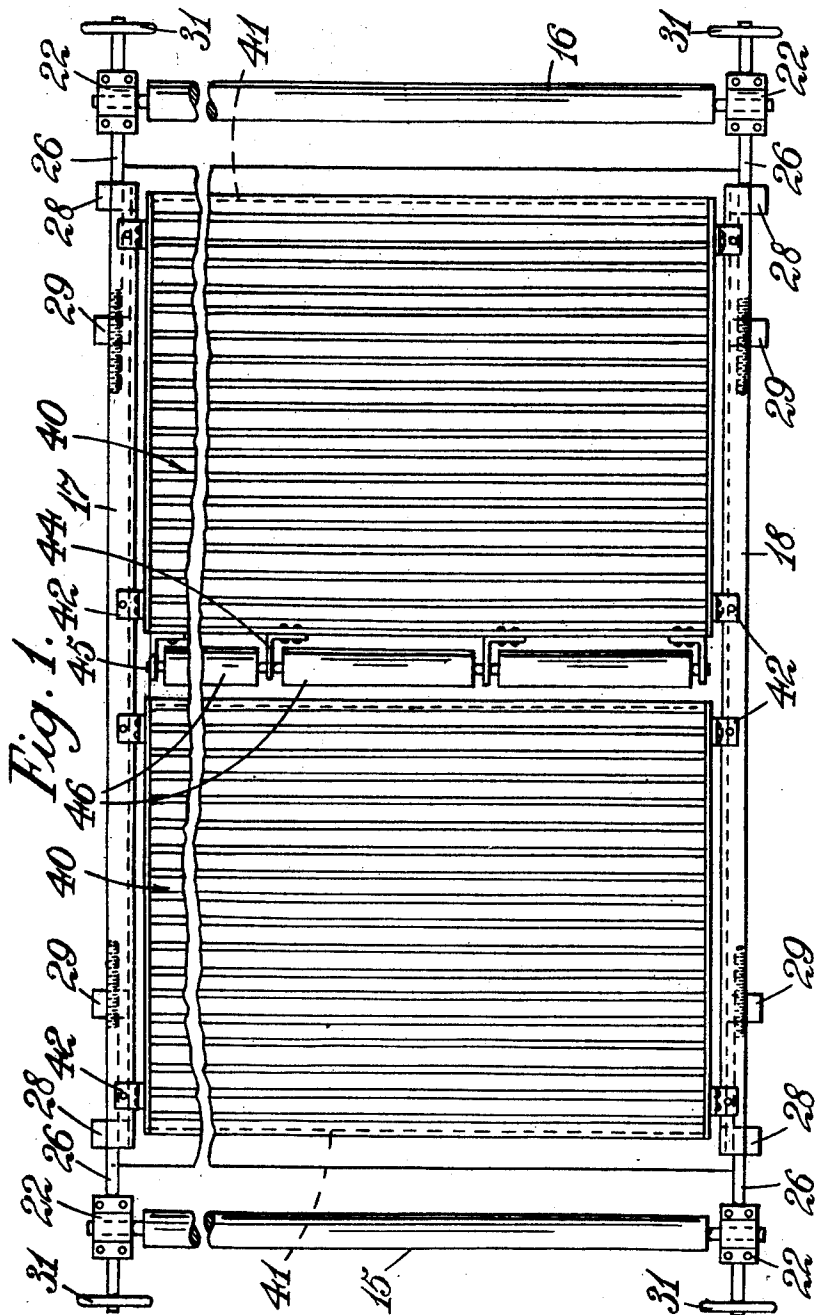


Fig. 1.

INVENTOR

B. L. G. Newnham

By Watson, Cole, Krindler & Watson

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B. L. G. NEWNHAM

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3 Sheets-Sheet 2

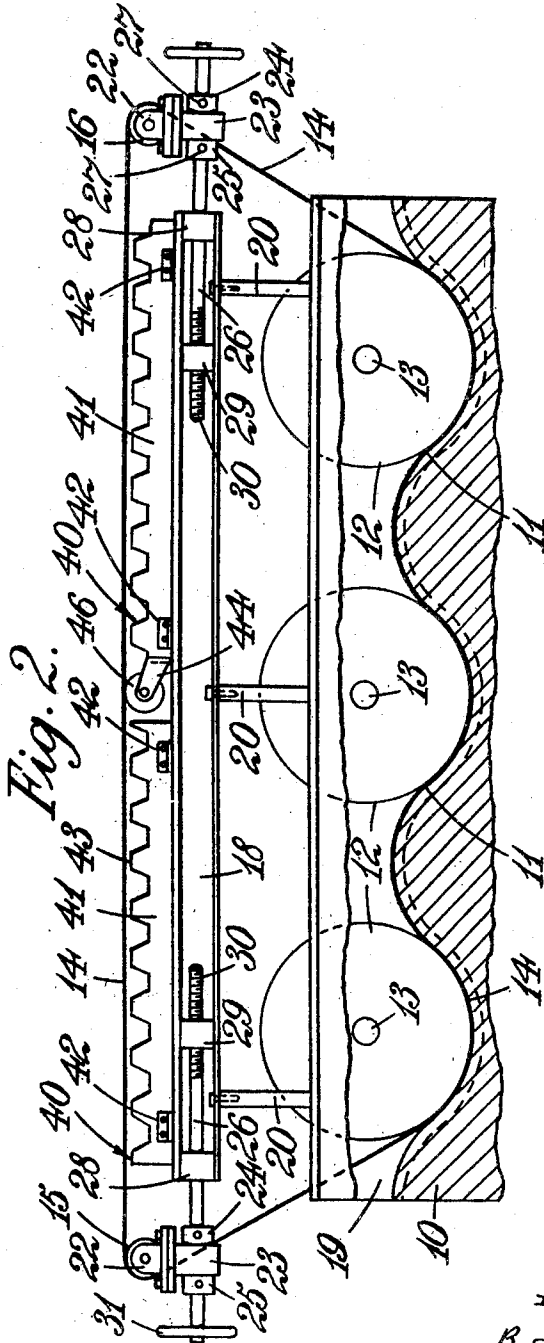


Fig. 2.

INVENTOR
B. L. G. Newnham

By Watson, Col. Grindle & Watson

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B. L. G. NEWNHAM

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3 Sheets-Sheet 3

Fig. 3.

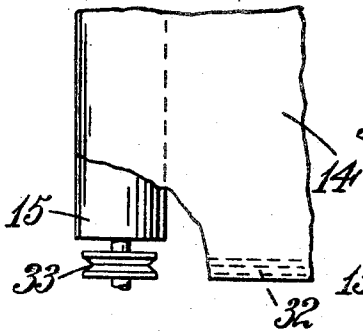


Fig. 5.

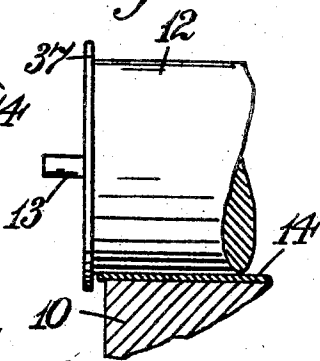


Fig. 4.

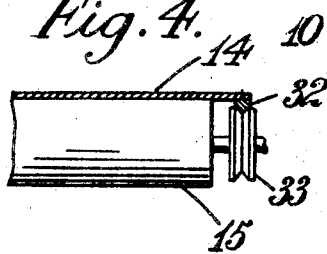
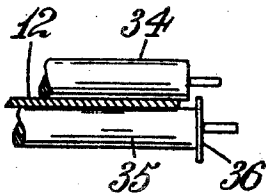


Fig. 7.



Fig. 6.



INVENTOR
B. L. G. Newnham

By Watson, Cole, Krindle & Watson

UNITED STATES PATENT OFFICE

2,643,473

IRONING MACHINE

Bernard Leslie George Newnham, North
Walsham, England

Application February 20, 1950, Serial No. 145,136
In Great Britain February 22, 1949

9 Claims. (Cl. 38—8)

1

This invention concerns improvements in or relating to ironing machines of the well-known type comprising the combination of a heated bed, a superposed conveyor belt system for moving the clothes over the bed, and one or more ironing rollers bearing on the bed. The bed is commonly shaped to serpentine form, with the ironing rollers riding in a series of parallel furrows set across the path along which the clothes travel over the bed.

Up to the present it has been the practise to employ a conveyor belt system consisting of an assembly of endless tapes which run over the bed under the rollers. Such an arrangement has several disadvantages. The tapes have a very short life, of but one week or so; and, moreover, they are very liable to break. In replacing such tapes they must be threaded under the ironing rollers, over the end guide rollers, and then sewn together at their ends, and during this operation the machine and operators remain idle.

The main object of the present invention is to provide an improved conveyor means for passing the clothes or other articles over the bed during the ironing process so as to obviate the use of endless tapes and to provide a more efficient operation of the machine.

According to one feature of the present invention an ironing machine of the type described is provided with a conveyor means for passing clothes or other articles to be ironed over the machine bed under the ironing rollers from one end of the machine to the other comprising an endless band having a width substantially equal to the width of the ironing rollers, substantially parallel rollers between which the band is stretched taut and which are disposed parallel with the ironing rollers and adjacent the ends of the machine, the upper run of band extending in an elevated position over the ironing rollers and the lower run of the band passing under the ironing rollers and over the machine bed, in combination with means for effecting a continuous drying of the upper run of the band during the ironing operation so that the lower run of the band is substantially dry when it enters the machine for its pass over the bed.

In the preferred construction, the band-drying means includes a shield positioned immediately below the upper run of the band for shielding this run or a substantial part of it against moisture-laden steam rising from the bed during the ironing operation, and the shield is made from a material and to a form such that it is capable of absorbing heat rising from

2

the bed and radiating heat to the upper run of the band for drying it. The shield may be in the form of metal sheeting, preferably in the form of corrugated sheet, since this is more readily resistant to buckling by heat.

With a wide band there is a tendency for it to shift laterally, and further features relate to means for tensioning the band and preventing lateral wandering thereof.

Several constructions in accordance with the present invention are illustrated by way of example in the accompanying drawings, in which:

Figure 1 is a top plan view of a conveyor attachment mounted on an ironing machine, the conveyor band being removed;

Figure 2 is a longitudinal sectional elevation of a conveyor attachment and of a portion of the ironing machine shown diagrammatically.

Figure 3 is a fragmentary plan view showing a portion of the conveyor band and of one of the end rollers incorporating means for guiding the band and preventing lateral movement thereof;

Figure 4 is an end view looking towards the left of Figure 3;

Figures 5 and 6 are fragmentary end views illustrating two other means for preventing lateral movement of the conveyor band, and

Figure 7 is a plan view of a crowned end roller for preventing lateral movement of the conveyor band.

The ironing machine to which the conveyor is fitted is of any suitable type. In the conventional machine shown diagrammatically in Figure 2 there is a steam-heated bed 10 of serpentine form, in whose furrows 11 ride ironing rollers 12 carried by shafts 13. Instead of the normal assembly of endless tapes for conveying the clothes or other articles over the bed 10, there is provided a single endless band 14 whose lower run passes under the ironing rollers 12 and over the bed for substantially the full width of the bed. This band runs over and is stretched between two end guide rollers 15, 16 which are fitted in parallel across the ends of a frame incorporating side members 17, 18 of channel section. The frame members 17, 18 are rigidly secured to the machine frame 19 by means of posts or brackets 20.

Each of the end rollers 15, 16 is carried at its ends in bearings 22 fitted to brackets 23 mounted between collars 24, 25 on rods 26 projecting outwardly beyond the frame members 17, 18. The collars are axially adjustable along the rods 26 and are fixed in position by set-screws 27. Each

rod is supported by two spaced bearings 28, 29 fitted within the channel of the adjacent frame member. The inner bearings 29 are of the self-centering type and are internally threaded to receive the inner threaded ends 30 of the rods 26. On the outer end of each rod 26 is fitted a hand-wheel 31.

The tension of the band 14 is adjusted by turning the hand-wheels 31 so as to screw the rods 26 in and out of their bearings and thereby shift the end rollers 15, 16. By a careful adjustment of the hand-wheel, so as to adjust the relative angular position of the end rollers 15, 16, it is possible to prevent any appreciable lateral wandering of the band, at least over prolonged periods, without need for any form of guides for the margins of the band.

As an additional safeguard for preventing lateral wandering of the conveyor band, the two longitudinal margins of the band may be fitted, as shown in Figures 3 and 4, with flexible V-belts 32 which ride in guide pulleys 33 carried at the ends of each roller 15, 16. The belts may be of reinforced rubber capable of resisting the steam and heat rising from the bed of the ironing machine.

In another means for preventing lateral wandering of the band shown in Figure 6, the upper run of the band above the ironing rollers is engaged between one or more pairs of locating rollers 34, 35 and one roller 35 of each pair is fitted at its ends with flanges 36 which overlap the edges of the band 12 and the adjacent roller 34. These flanges thus act as stops for the edges of the band so as to locate the band transversely.

In the further means shown in Figure 5, stop flanges 37 for the band are fitted on the ends of each end ironing roller 12 to overlap the bed of the machine 10.

In another means for preventing lateral wandering of the band, the two end rollers 15, 16 of the band conveyor may be crowned as shown in Figure 7.

Any of these means for preventing lateral movement of the band may be used singly or in combination.

Spanning the two side frame members 17, 18 are two horizontal shields or trays 40. The number of such trays is chosen in accordance with the size of the machine and to facilitate manufacture and handling. Each shield is made as a rectangular unit in plan preferably of aluminium or aluminium alloy, having down-turned flanges 41 at its four sides. The side flanges of the shields are detachably secured by angle brackets 42 bolted to the frame members 17, 18.

The bodies 43 of the shields 40 are formed of corrugated sheet metal; and they are positioned just below the under-surface of the upper run of the band. In this way substantially all the upper run of the band is shielded from the machine bed. At the inner end of one shield is a series of brackets 44 secured to the adjacent side flange 41. These brackets serve as a support for the axle 45 of a multi-section roller 46. The roller 46 is positioned a little above the level of the several shields centrally of the machine so as to act as a support for the upper run of the band 14.

The three-roller ironing machine shown in Figures 1 and 2 is comparatively short, and in longer machines it is usually desirable to provide several such rollers 46 equally spaced between the end rollers 15, 16, there being then a corresponding increased number of shields 40.

During the ironing process the conveyor band 14 is caused to move automatically over the end rollers by reason of the movement imparted by the rotating ironing rollers 12.

The clothes or other articles being ironed pass over the bed under the lower run of the band. The band thus conserves heat by its acting as a jacket to prevent dissipation of heat from the machine bed. Furthermore the band also acts as an ironing machine in conjunction with the ironing rollers 12. It has been found as a result that it is necessary to pass the clothes or other articles only once through the machine instead of twice as is common. In consequence the output of the machine is considerably increased. The shields 40 serve the dual function of protecting the upper run of the conveyor band 14 against moisture rising from the heated bed, and the absorbing of heat rising from the bed and transmitting it to the upper run of the band. In this way the shield acts to dry the band of moisture taken up as it passes over the bed during the ironing process. The band is thus rendered dry, or even heated by the time it again reaches the position for passing under the ironing rollers.

A very suitable material for the band is cotton duck. A stout felt or asbestos "blanket" material may also be used for the band. In this case the necessity for the usual cotton sheeting covers for the ironing rollers is avoided.

I claim:

1. A laundry ironing machine comprising a heated bed of serpentine form, parallel ironing rollers mounted to ride in the furrows of the bed, an endless band of water-absorbent material and of substantially the same width as the ironing rollers for conveying articles to be ironed over the bed under the rollers, guide rollers for the endless band mounted adjacent the ends of the bed parallel to the ironing rollers, said endless band having a lower run passing over the bed under the ironing rollers and an upper run stretched over the guide rollers above the ironing rollers, and a heater device adjacent the upper run of the band for effecting a continuous drying of that run during the ironing operation whereby the band is substantially dry when it enters the machine for its passage over the bed.

2. A laundry ironing machine comprising a steam-heated bed of serpentine form, parallel ironing rollers mounted to ride in the furrows of the bed, an endless band of water-absorbent material and of substantially the same width as the ironing rollers for conveying articles to be ironed over the bed under the ironing rollers, guide rollers for the endless band mounted adjacent the ends of the bed parallel to the ironing rollers, said endless band having a lower run passing over the bed under the rollers and an upper run stretched over the guide rollers above the ironing rollers, and a heater device disposed under and closely adjacent the upper run of the band for effecting a continuous drying of that run, said heater device being of such form and size to act also as a shield for the upper run of band against moisture-laden steam rising from the bed.

3. A laundry ironing machine comprising a steam-heated bed of serpentine form, parallel ironing rollers mounted to ride in the furrows of the bed, an endless band of water-absorbent material and of substantially the same width as the ironing rollers for conveying articles to be ironed over the bed under the ironing rollers, guide rollers for the endless band mounted adjacent the ends of the bed parallel to the ironing

rollers, said endless band having a lower run passing over the bed under the rollers and an upper run stretched over the guide rollers above the ironing rollers, and metal sheeting disposed under and closely adjacent substantially all the upper run of the band above the ironing rollers, the sheeting acting as a shield for protecting the upper run of the band against moisture-laden steam rising from the bed and also being made of heat-conductive metal whereby the sheeting acts as a heater by receiving at its undersurface heat rising from the bed and radiating the heat from its top surface to the superposed run of band for drying that run.

4. An ironing machine as claimed in claim 3, wherein the metal sheeting is corrugated.

5. An ironing machine as claimed in claim 3, wherein the metal sheeting is provided with gaps transverse to the band, and wherein roller means are provided in the gaps for supporting the upper run of the band.

6. An ironing machine as claimed in claim 3, wherein there is provided means for preventing lateral wandering of the conveyor band on the guide rollers comprising V-section belts carried by the longitudinal margins of the conveyor band and guide pulleys carried at the ends of the guide rollers for receiving the said V-section belts.

7. An ironing machine as claimed in claim 3, wherein there is provided means for preventing

lateral wandering of the conveyor band on the guide rollers comprising flanges at the ends of the ironing rollers, said flanges being adapted to overlap the machine bed so as to act as stops for the marginal edges of the conveyor band.

8. An ironing machine as claimed in claim 3, wherein the guide rollers are of crowned formation for preventing lateral wandering of the conveyor band on the guide rollers.

9. An ironing machine as claimed in claim 3, wherein there is provided means for preventing lateral wandering of the conveyor band on the guide rollers comprising at least one pair of transverse locating rollers between which the conveyor band passes, flanges being provided at the ends of the locating rollers so as to overlap the gaps between these rollers at their ends and thereby act as stops for the marginal edges of the conveyor band.

BERNARD LESLIE GEORGE NEWNHAM.

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