Jan. 4, 1944. H. M. RUMBAUGH 2,338,601

GUIDING AND FEEDING DEVICE FOR IRONERS

Filed Dec. 5, 1941

Fig. 1.

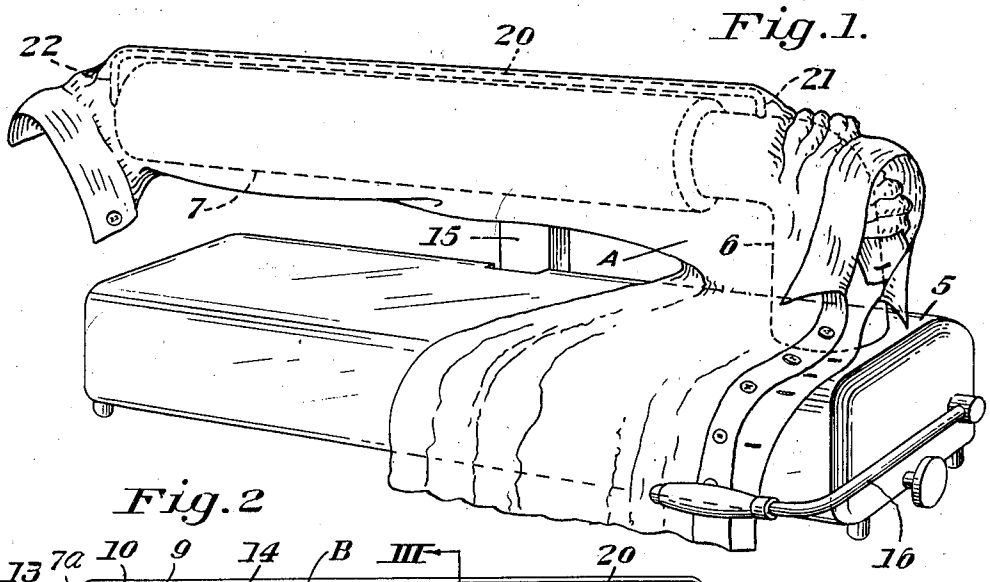


Fig. 2

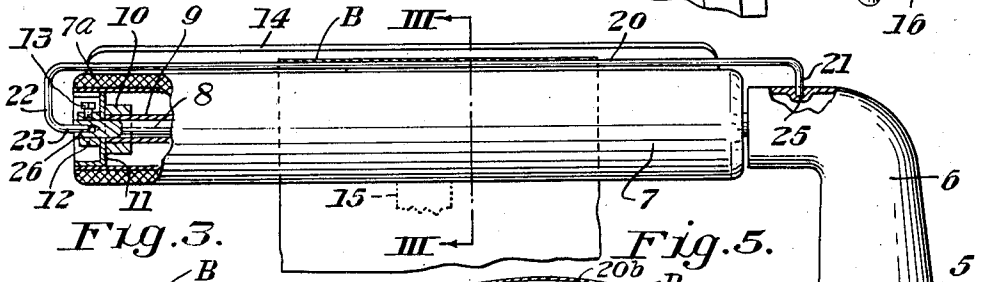


Fig. 3.

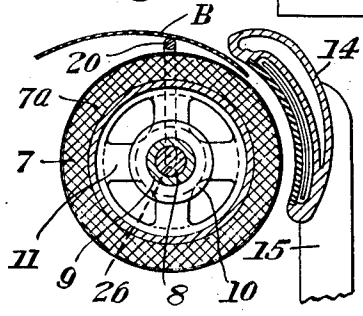
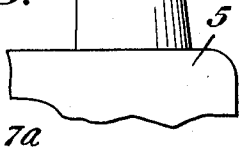


Fig. 5.



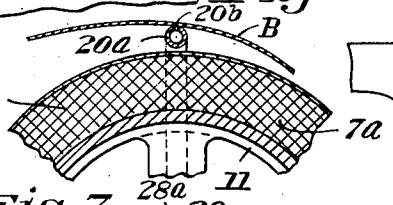


Fig. 6.

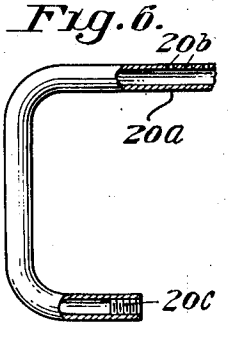


Fig. 7.

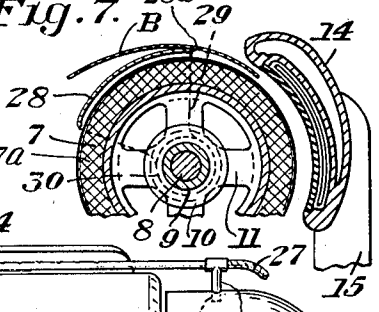
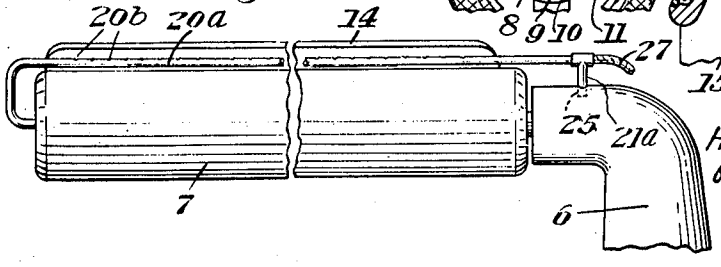


Fig. 4.



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UNITED STATES PATENT OFFICE

2,338,601

GUIDING AND FEEDING DEVICE FOR IRONERS

Hugh M. Rumbaugh, Cincinnati, Ohio

Application December 5, 1941, Serial No. 421,741

10 Claims. (Cl. 38—64)

This invention relates to an adjunct for an ironing machine especially of the character having a rotatable ironing roll and a coacting shoe.

In operating such an ironing machine there is considerable friction between the contact surface or periphery of the roll, which is usually of cloth, and articles in the process of being ironed thereon, proving quite troublesome and complicating the ironing operation and more specifically causing wrinkling, gathering or roughening rather than effective flattening, guiding and smooth ironing of the engaged portions of the articles.

My present invention aims to overcome such objectionable condition and a prime object is to provide simple and efficient means as an adjunct to the ironing machine to facilitate the guiding and smooth feeding of the articles between the roll and shoe in such manner as to minimize or eliminate frictional engagement or contact between the roll and all portions of the articles except those actually in gripped engagement between the roll and shoe.

I also aim to provide such an adjunct which is capable of manufacture in at least one form in a single piece, to provide such an adjunct capable of being secured in place through its inherent resilience, and to provide such an adjunct as may serve as a conduit to convey steam to the article in the process of ironing.

While the principles of my invention may be utilized in machines having ironing rolls of any practical diameter, yet for example, I may mention the fact that the invention is advantageously employed in an ironing machine primarily adapted for domestic use such as that disclosed in my copending application Serial Number 346,119, filed July 18, 1940, allowed October 20, 1941, now Patent No. 2,280,719, as well as advantageously employed in carrying out the method of ironing set forth in my copending application Serial Number 365,190, filed November 12, 1940, Patent No. 2,280,720.

Various additional objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawing, illustrating examples of embodiments of the invention.

In such drawing:

Fig. 1 is a perspective view of an ironing machine embodying my invention and having a man's shirt positioned thereon with a sleeve of the shirt telescoped over the roll thereof;

Fig. 2 is a part side elevational and a part sectional view showing flat-work positioned for ironing;

Fig. 3 is a vertical sectional view taken on line III—III of Fig. 2;

Fig. 4 is a fragmentary side elevational view showing the use of a modified form of a material guide element;

Fig. 5 is a detail sectional view taken transversely of the roll of Fig. 4 showing a flat-piece of material in ironing position;

Fig. 6 is a part sectional and part elevational view of a portion of the material guide member of the form of Fig. 4; and

Fig. 7 is a transverse section similar to Fig. 3 showing a still further modified form of material guide member.

In referring to the drawing more in detail, I will first generally describe the construction and operation of one form of ironing machine to which the instant invention is particularly applicable, solely as a preface for better understanding my invention and the problem in the art leading to its conception. The machine generally conforms to that disclosed in my aforesaid Patent No. 2,280,719. Of such machine, 5 indicates a casing designed for housing an electric motor and portions of the roll drive mechanism, together with a shoe actuating mechanism of any preferred construction. A housing 6 extends upwardly from the casing 5 and contains portions of the roll drive mechanism which cooperates with the said mechanism within the casing 5.

A cylindrical rotatable roll 7, usually peripherally padded with cloth or the equivalent at 7a, and which may be of relatively small diameter as disclosed in my aforesaid patents, extends in a generally horizontal direction and in a substantially parallel spaced relation to the top of the casing 5 and is supported from one end only by a suitable connection with the housing 6. This construction provides an unsupported free roll end and facilitates the performance of various ironing operations on wearing apparel and other articles. The portion of the power mechanism illustrated includes a rotatable drive shaft 8 which is located within a hollow, non-rotatable, tubular member 9 extending from adjacent the housing and mounting a supporting collar 10 which may be an anti-friction bearing located near the opposite end of the roll. Adjacent and rigidly attached to the free end of the shaft 8 and to the wall of the roll is a flanged driving element 11. This driving element 11 has a hub 12 seated on and suitably secured to shaft 8 as by means of a set screw 13.

Disposed rearwardly of the roll is a shoe 14 having its working face shaped in conformity with

the curvature or contour of the periphery of the roll. This shoe is adjustably and movably supported on a bracket 15 and is adapted for movement into and out of operative position relatively to the roll. As preferred it is an electrically heated structure and is adapted to be moved laterally towards and away from the roll in parallelism to the axis of rotation of the latter through movements imparted by rocking an arm 16 and suitable cooperating mechanism, not shown, mounted within casing 5.

With more specific reference to my present invention and considering first the form of Figs. 1, 2 and 3, a guide or feed means is employed in the form of a rod 20, straight throughout the major portion of its length, bent at one end to form a right angular lug 21 and at its opposite end bent to provide a hook 22 having an inwardly extending terminal 23. As illustrated and as preferred, the major portion of rod 20 is positioned above and relatively close to the ironer roll in parallelism therewith and otherwise is so arranged relatively to the roll and the coacting ironer shoe that there is practically no frictional engagement or contact between an article being ironed, such as B in Fig. 2, and the cloth contact surface of the roll, until the ironer shoe is closed in operative position. This is also true in the act of ironing a sleeve of a man's short A, the sleeve being telescoped over the roll 7, for example, as shown in Fig. 1.

The rod or element 20 may be fixed on or removably applied to the ironer in any desired manner. As shown, I preferably provide an indentation or socket 25 on the housing 6 adapted to have the end portion or lug 21 of the rod entered therein and a bearing or socket 26 formed in the end of the shaft 8 at the free end of the roll into which the terminal end 23 is inserted and freely mounted. Since rod 20 is metallic, it is inherently resilient to enable attachment and detachment and also since the rod is normally of the shape shown best in Fig. 2, lug 21 will be afforded a spring or snap action at socket 25 to securely but removably fasten the rod in the position shown.

The guide rod or feed element 20 provides an edge parallel to the periphery of the roll over which is effectively fed either the flat-work such as at B or the tubular or circular-work as at A without the necessity of changing the position of the said member or element relatively to the ironer roll or any other part of the ironer structure.

The feed element 20 forms an exceedingly simple and efficient means for guiding or feeding of the articles to be ironed to an ironer roll like 7 without allowing the articles to be brought into clinging, adhering or undesirable frictional contact with such ironer roll but allowing such frictional contact only immediately before the ironing operation proper or when the initial pressing and ironing action is begun, thereby avoiding the disadvantages and troubles heretofore present in this type of ironer, attributable to the frictional contact between the cloth covered roll and the articles being ironed, whether the operation is to be performed on flat-work or on more difficult circular or tubular work.

Various changes may be resorted to as for instance in Fig. 4 where I have shown a form of feed element consisting of a rod 20*a*, usually metallic, and hollow or tubular, forming a conduit through which steam from any suitable source may be supplied by a connection 27. Rod 20*a* has discharge perforations at 20*b* to direct steam onto the article being ironed. A lug 21*a* is carried by rod 20*a* to function through the inherent resilience of the latter rod, like the lug 20. A screw plug 20*c* closes the hook end of rod 20*a*.

In the further modified form of Fig. 7, the feed guide is in the form of a plate or apron element 28 rather than a rod or tine as in the preceding figures. Plate 28 has an edge 28*a* parallel to the periphery of the roll over which the material is fed to the latter. Said guide plate 28 extends across and is concentric with the periphery of the roll but slightly spaced therefrom and has a supporting arm 29 adjacent each end of the roll, only the one at the free end of the roll being shown in the drawing. This arm has a hub 30 seated freely on the shaft 8 which extends in this particular instance beyond the end of the roll sufficiently to provide a bearing for the hub. The arm at the opposite end of the plate is of similar structure and adapted to be fastened to the upright housing 6 and to thereby rigidly support the plate.

It should be understood that by the provision of the simple and efficient means for guiding and feeding articles present in my invention, much care and considerable manual labor on the part of the operator in performing an ironing operation is eliminated and ironing is made much easier.

I claim as my invention:

1. In combination with an ironing machine having a rotatable ironing roll, driving means extending into said roll and a mounting for said roll; an element disposed lengthwise of the roll for guiding contact with articles passed thereover in the process of ironing the latter, said element at opposite ends being interengaged with and supported by said driving means and mounting.

2. In combination with an ironing machine having a rotatable ironing roll, driving means extending into said roll, and a mounting for said roll; an element disposed lengthwise of the roll for guiding contact with articles passed thereover in the process of ironing the latter, said element at opposite ends being interengaged with and supported by said driving means and mounting, said element being resilient for flexing to enable attachment and detachment.

3. In combination with an ironing machine having a rotatable ironing roll, a driving shaft therein and a mounting for said roll; said shaft at one end having a socket, an element disposed lengthwise of the roll for guiding contact with articles passed thereover in the process of ironing the latter, said element at one end being of hook shape and engaged in said socket, and means securing the other end of the element to the mounting.

4. In combination with an ironing machine having a rotatable ironing roll, a driving shaft therein and a mounting for said roll; said mounting having a socket, an element disposed lengthwise of the roll for guiding contact with articles passed thereover in the process of ironing the latter, said element at one end having a lug engaged in said socket, and means securing the other end of the element on said driving shaft.

5. In combination with an ironing machine having a rotatable ironing roll, a driving shaft therein and a mounting for said roll; said shaft at one end having a longitudinally extending socket and said mounting having a socket disposed angularly with respect to the first socket,

a removable resilient element disposed lengthwise of the roll for guiding contact with articles passed thereover in the process of ironing the latter, said element at one end being of hook shape and terminally engaged in the first socket and at the other end having a lug engaged in the other socket.

6. In combination with an ironing machine having a rotatable ironing roll supported at one end and open and free at the other end, roll driving means therein and a mounting for said roll, a guide element disposed lengthwise of the roll for guiding contact with articles passed thereover in the process of ironing the latter, a guide supporting element terminating and supported axially within the free end of the roll, said guide element having end terminals interengaged with the said supporting element and mounting.

7. In combination with an ironing machine having a rotatable ironing roll, a mounting therefor including driving means to rotate the roll, said roll at one end being free for telescoping of tubular articles thereover, an element secured to said mounting disposed generally lengthwise of the roll for guiding contact with such tubular articles in the process of ironing the latter, said element having a hook-shaped portion disposed diametrically at said free end of the roll and terminating axially of said roll so that such tubular articles may be telescoped over both the said free end of the roll and the element.

8. In combination with an ironing machine having a rotatable ironing roll, a mounting therefor including driving means to rotate the roll, said roll at one end being free for telescoping of tubular articles thereover, an elongated element disposed generally lengthwise of the roll for guiding contact with such tubular articles in the process of ironing the latter, said element having a portion extending interiorly of the roll at said free end and secured to said mounting.

9. In combination with an ironing machine having a rotatable ironing roll, a mounting therefor including driving means to rotate the roll, said roll at one end being free for telescoping of tubular articles thereover, an element disposed generally lengthwise of the roll for guiding contact with said tubular articles in the process of ironing the latter, said element having one end extending interiorly of the roll at said free end and having the other end secured to said mounting beyond the roll.

10. In combination with an ironing machine having a rotatable ironing roll, a mounting therefor including driving means to rotate the roll, said roll at one end being free for telescoping of tubular articles thereover, an element disposed generally lengthwise of the roll for guiding contact with said tubular articles in the process of ironing the latter, said element having angularly related ends, said mounting having a socket interiorly of the roll and a socket beyond the roll engaged by said angularly related ends and said element being of sufficient inherent resilience to enable application and removal.

HUGH M. RUMBAUGH.