March 5, 1929. J. T. HUME 1,704,129

IRONING MACHINE

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Fig. 1.

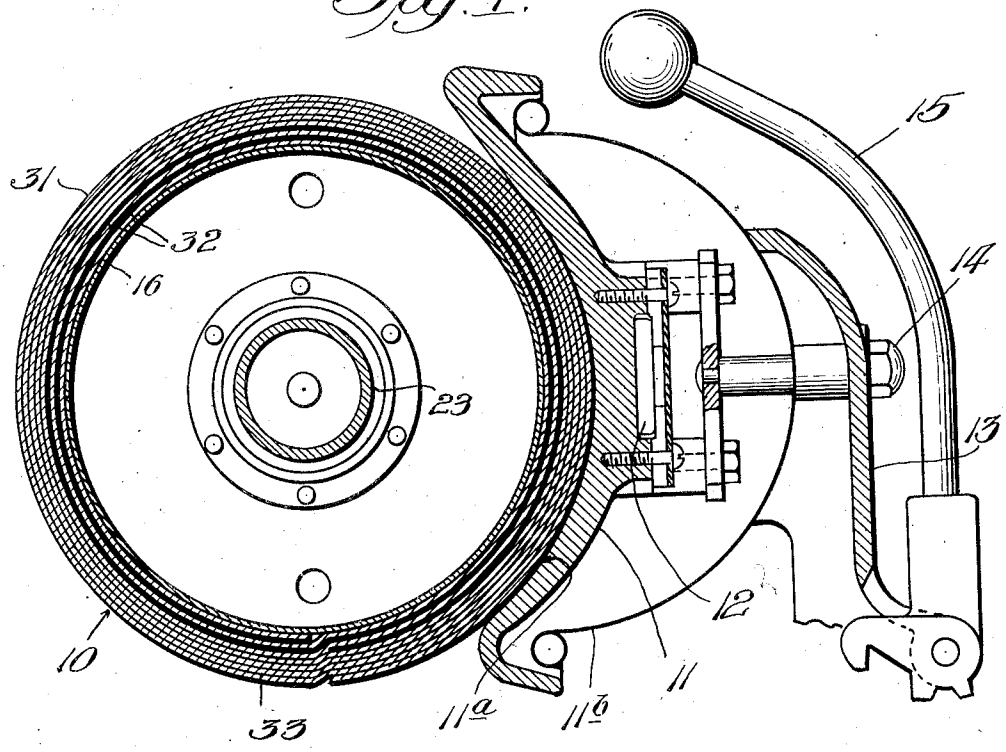
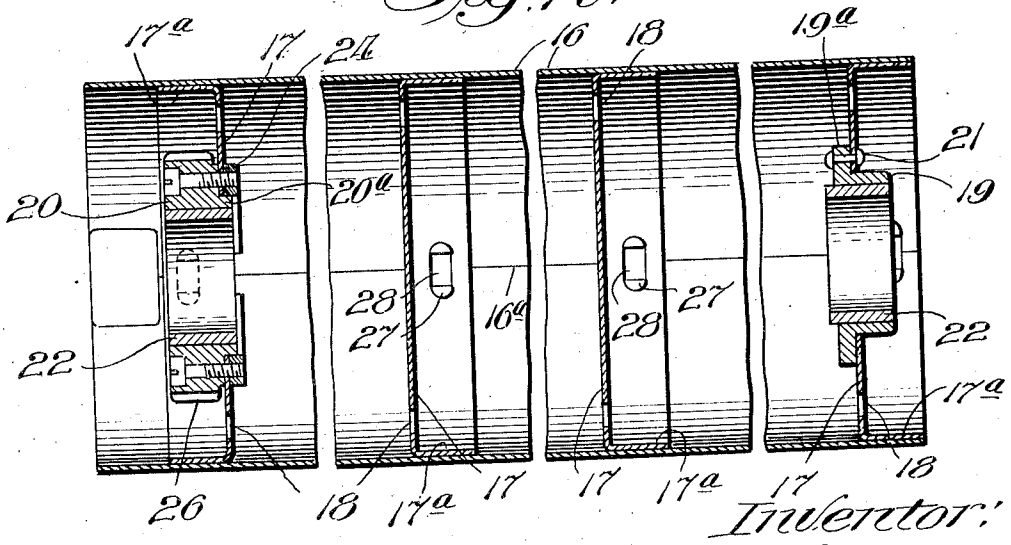


Fig. 2.



Inventor:
John T. Hume
By Rector, Hibben, Davis & Macauley
Attys.

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Fig. 3.

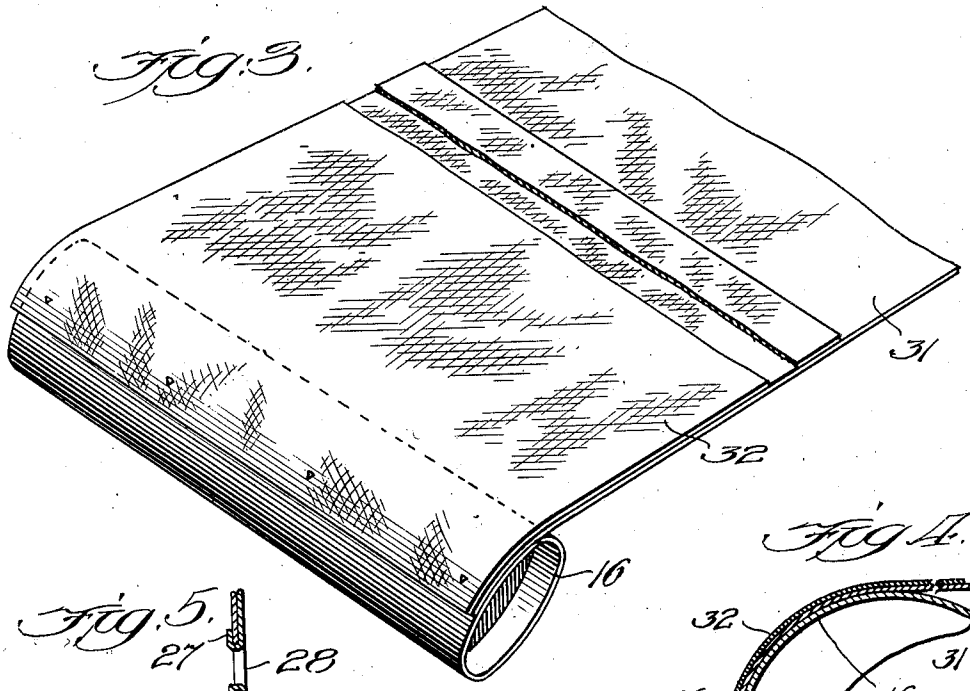


Fig. 4.

Fig. 5.

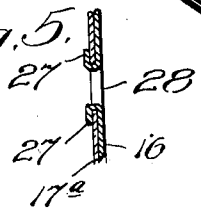
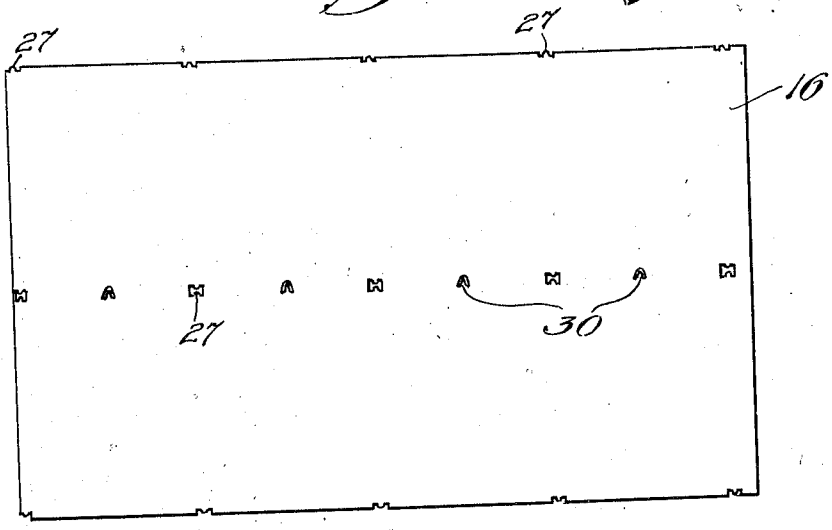


Fig. 6



Inventor
John T. Hume
by Rector, Hibben, Davis & Macauley
Attys

Patented Mar. 5, 1929. 1,704,129

UNITED STATES PATENT OFFICE.

JOHN T. HUME, OF CHICAGO, ILLINOIS, ASSIGNOR TO ELECTRIC HOUSEHOLD UTILITIES CORPORATION, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

IRONING MACHINE.

Application filed January 21, 1927. Serial No. 162,459.

This invention relates to improvements in ironing machines and its purpose is to provide means for increasing the efficiency and durability of the ironing elements. The principal object of the invention is to provide an improved rotatable ironing roll embodying means for preventing the deterioration thereof in use. It has been the practice heretofore to employ ironing rolls comprising a more or less rigid cylinder or frame having wound thereon a covering of fabric adapted to form a cylindrical surface to cooperate with an ironing shoe and with the clothes being ironed. One of the ironing elements, preferably the shoe, is ordinarily heated by electrical or other suitable means and when the hot shoe is brought into engagement with the damp clothes which are passed around the cylinder or roll during the process of ironing, a quantity of steam is produced which penetrates the fabric of the roll and has heretofore given rise to much difficulty because of its tendency to cause the supporting structure of the roll to rust and disintegrate.

The foregoing objections are overcome in the present invention by providing an ironing machine having a roll in which the supporting structure is protected from moisture arising from the steam produced during the process of ironing by a waterproof protecting element, which may be interposed between the fabric of the roll and the inner supporting structure thereof and which is preferably wound on the supporting structure in conjunction with the ironing of the inner turns of the fabric. A further feature of the invention is the provision of an improved structure of the ironing roll embodying improved means for attaching the fabric and waterproof protection thereto and including, preferably, means for effecting the ventilation of the interior of the roll. Other objects relate to various features of construction and arrangement which will appear more fully hereinafter.

The nature of the invention will be understood from the following specification taken with the accompanying drawings, in which one embodiment is illustrated.

In the drawings, Figure 1 shows a partial end view of an ironing machine illustrating the relative arrangement of the ironing roll and the cooperating heated ironing shoe; Fig. 2 shows a vertical longitudinal section taken through the cylindrical supporting structure of the ironing roll; Fig. 3 is a perspective view illustrating a relative arrangement of the parts at the commencement of the operation of winding the fabric covering and the waterproof protection on the metallic supporting structure of the roll; Fig. 4 shows a vertical section taken transversely to the axis of the roll illustrating the engagement of the fabric covering and the waterproof protection with the roll at the commencement of the operation of winding these parts on the supporting structure; Fig. 5 is a detail sectional view showing the method of attaching the metallic cylinder of the roll to the inner supporting disks or spiders; and Fig. 6 shows a top plan view of the metallic cylinder of the roll with the fabric covering removed.

As illustrated in the drawings, the invention is embodied in an ironing machine comprising a rotatable roll 10 and a relatively movable ironing shoe 11. The roll is rotated during the operation of the machine by suitable mechanism provided for that purpose and the shoe 11 is capable of being moved toward and from the roll, as desired, during the operation of the machine by suitable mechanism actuated preferably by the same mechanism which, through suitable connections, drives the roll 10. For example, the roll and shoe may be actuated by the mechanism shown in my co-pending application, Serial No. 750,725, filed November 19, 1924. The shoe 11 has a concave face 11^a which is adapted to conform to the curvature of the peripheral surface of the roll 10, and the shoe 11 is provided with an electrical heating device 12 by which the shoe is maintained in a suitable hot condition by electrical means during the operation of the machine. The heating element and other parts mounted on the back of the shoe 11 are preferably enclosed within the housing 11^b which forms a part of the shoe. The shoe 11 is mounted on an arm 13 by means of a bolt 14 and the position of this arm on this support is controlled by a handle 15, as more fully described in the application above referred to. When the arm 13 is swung by suitable mechanism on its support, the shoe 11 may be moved toward or from the roll 10.

The roll 10 comprises a sheet metal cylinder 16 which is formed preferably by rolling a sheet of metal into cylindrical form with the edges thereof meeting, as shown at 16^a. The

metal of the cylinder 10 is rolled around a plurality of radially extending disks or spiders 17 having outer cylindrical flanges 17ª which contact with the inner surface of the cylinder 16. The disks 17 are spaced apart longitudinally of the cylinder 10 and are preferably provided with apertures 18 to permit a circulation of air through the interior of the roll. The disks at the ends of the cylinder 10 are provided with enlarged central apertures adapted to receive the hubs 19 and 20. The hub 19 has a flange 19ª which is secured to one end disk by rivets 21. The hub 19 has a bushing 22 secured within it and this bushing is adapted to rotate on the stationary axle 23 of the ironing machine, as indicated in Fig. 1. The other hub 20 has a flange 20ª extending within the opening in the other end disk 17 and the disk is secured between the hub and a collar 24 by means of studs 25. The hub 20 is further provided with gear teeth 26 so that it forms a gear adapted to mesh with a pinion actuated by the driving mechanism of the machine, thereby rotating the roll. The hub 20 also has a bushing 22 secured within it and journaled on the axle 23.

The sheet metal of the cylinder 16 is suitably stamped or punched at intervals around the periphery of the cylinder in alignment with the flanges 17ª of the disks, so that tongues 27 are formed in the cylinder in positions to be bent inwardly around the edges of rectangular apertures 28 which are formed in the flanges 17ª, as illustrated particularly in Figs. 2 and 5, thus securing the cylinder wall in assembled relation on the disks. It will be understood that the punching of the sheet metal of the cylinder is done before the sheet is wrapped around the disks and that the tongues 27 are then bent inwardly and under the edges of the apertures 28, as shown in Fig. 5, thereby securing the parts together without other fastening means. The sheet metal of the cylinder 16 is also punched at points located preferably between the circular rows of tongues 27 in a manner adapted to form a plurality of sharp outwardly projecting spikes 30, these spikes being inclined to the peripheral surface of the cylinder, as indicated particularly in Fig. 4.

Having formed the metallic supporting cylinder illustrated in Figs. 2 and 6, the next operation is to wind thereon the fabric covering which is adapted to contact with the clothes being ironed. This fabric covering 31 is preferably in the form of a long sheet which is wound spirally on the cylinder 16 after first engaging the end of the fabric with the spikes 30. In order to protect the sheet metal cylinder 16 and the connected metal parts from the action of the moisture which would otherwise be transmitted thereto through the fabric of the roll, a waterproof protecting sheet 32 is provided in conjunction with the inner layers of the fabric 31. In applying the fabric and the waterproof protecting sheet 32 to the cylinder 16, the ends of the fabric and the sheet 32 are both engaged by the spikes 30, as shown in Fig. 3 and then, upon rotating the cylinder 16, the fabric 31 and the waterproof sheet 32 are both wound on the cylinder with a layer of the waterproof material interposed between adjacent layers of the fabric. The waterproof sheet 32 which may be formed of oil cloth, oil linen or other material adapted to prevent the passage of moisture therethrough, is of the same width as the fabric sheet 31 and should be of sufficient length to provide one or more complete turns around the cylinder 16, preferably a plurality of turns, although it will be understood that the fabric sheet 31 is ordinarily much longer than the waterproof sheet 32, so that the outer portion of the cloth covering 33 of the roll, as illustrated in Fig. 1, is formed entirely of the fabric 31. The outer portion of the covering of the roll may thus be penetrated by the steam created by the action of the heated shoe 11 on the damp materials being ironed, but this steam cannot penetrate through the covering to the sheet metal cylinder 16 and parts within the cylinder, so that these parts are preserved from rust or other deteriorating influences. By means of this improved construction, the life of the ironing machine is greatly prolonged and at the same time the presence of rust or other accumulations which might damage the clothes is prevented.

Although one form of the invention has been shown and described by way of illustration, it will be understood that it may be embodied in various other forms within the scope of the appended claims.

I claim:

1. An ironing machine having a rotatable roll comprising a metallic cylinder, a fabric covering wound on said cylinder, and a waterproof covering wound on said cylinder between layers of said fabric covering.

2. An ironing machine having a roll comprising a metallic cylinder, a fabric sheet and a waterproof sheet wound on said cylinder with said waterproof sheet interposed between adjacent layers of said fabric sheet, said waterproof sheet being of shorter length than said fabric sheet having its inner end on the outer side of said fabric sheet.

3. An ironing machine having a roll comprising a cylinder, a sheet of fabric, and a sheet of waterproof material, both of said sheets having their inner ends attached to said cylinder and being wound thereon with said waterproof sheet interposed between layers of said fabric sheet.

4. An ironing machine having a roll comprising a sheet metal cylinder having spikes formed thereon, a fabric sheet, and a waterproof sheet, both of said sheets having their

inner ends engaging said spikes and being wound on said cylinder to form a covering therefor.

5. An ironing machine having a roll comprising a sheet metal cylinder having spikes formed thereon, a fabric sheet, and a waterproof sheet, both of said sheets having their inner ends engaging said spikes and being wound on said cylinder to form a covering therefor, said water proof sheet being shorter in length than said fabric sheet whereby the outer portion of said covering is composed entirely of fabric.

In testimony whereof, I have subscribed my name.

JOHN T. HUME.