Nov. 10, 1925. 1,560,758

E. J. CARROLL

ELECTRICAL HEATING MEANS FOR COLLAR SHAPERS

Filed Nov. 10, 1919 2 Sheets-Sheet 1

FIG. 1.

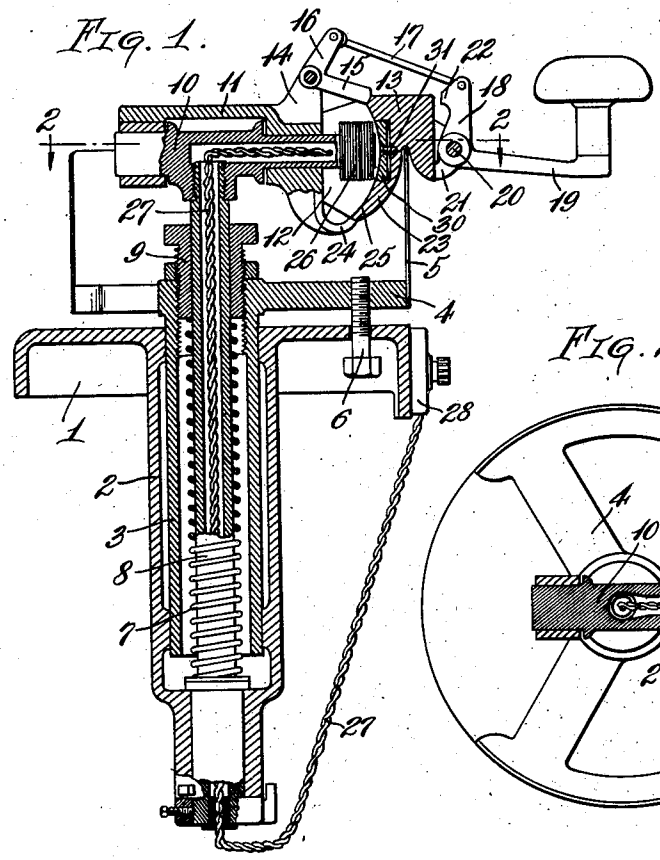


FIG. 2.

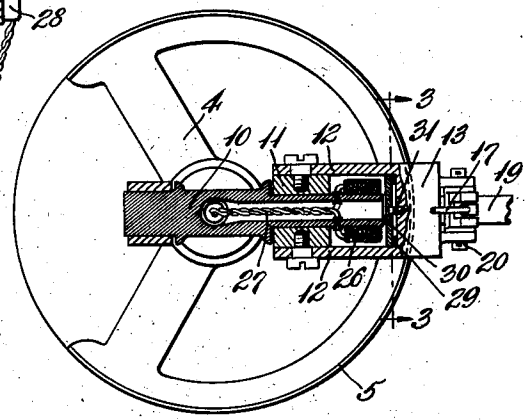


FIG. 4.

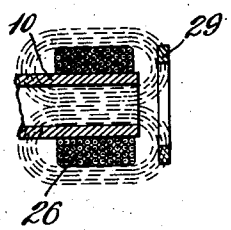
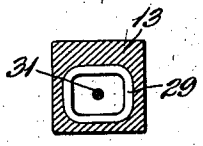


FIG. 3.



INVENTOR

Emil J. Carroll

BY

Brockett & Hyde

ATTORNEYS.

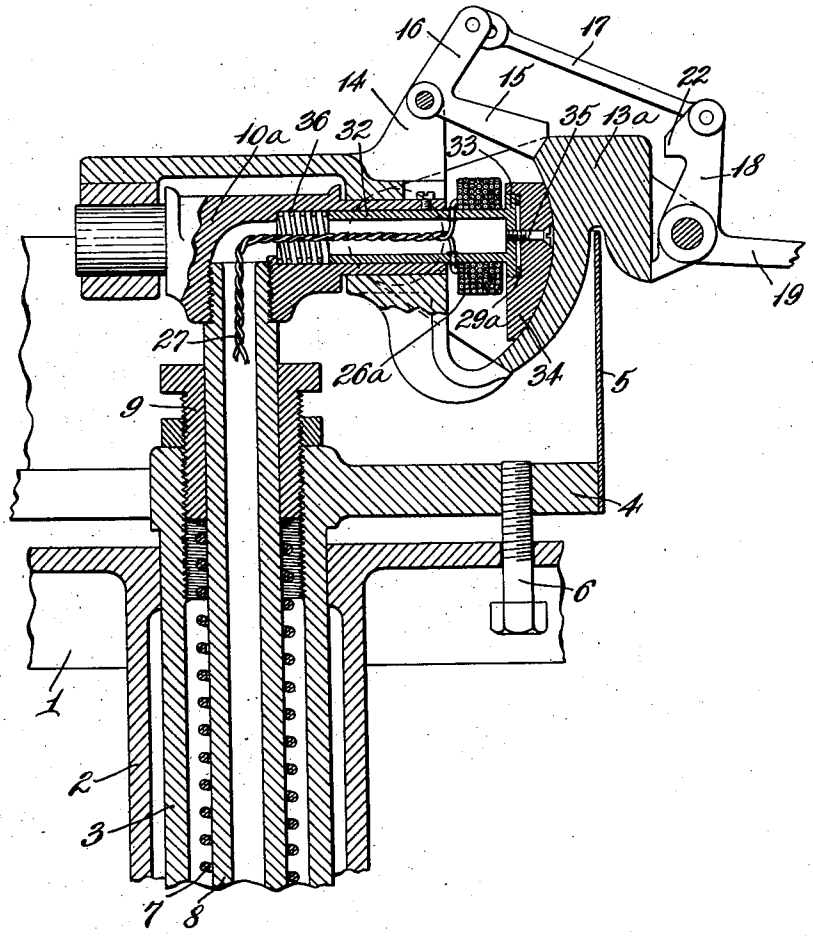
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FIG. 5.



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UNITED STATES PATENT OFFICE.

EMIL J. CARROLL, OF NORWOOD, OHIO, ASSIGNOR TO THE AMERICAN LAUNDRY MACHINERY COMPANY, OF NORWOOD, OHIO, A CORPORATION OF OHIO.

ELECTRICAL HEATING MEANS FOR COLLAR SHAPERS.

Application filed November 10, 1919. Serial No. 336,938.

To all whom it may concern:

Be it known that I, EMIL J. CARROLL, a citizen of the United States, residing at Norwood, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Electrical Heating Means for Collar Shapers, of which the following is a specification.

This invention relates to collar shapers and particularly to the heating means therefor.

The object of the invention is to provide improved electrical means for heating the ironing member, and particularly electrical heating means in which the heat is generated by induction.

Further objects of the invention are in part obvious and in part will appear more in detail hereinafter.

Referring to the drawings, Fig. 1 represents a sectional elevation of one form of collar shaper embodying the invention; Fig. 2 is a sectional plan view on the line 2—2, Fig. 1; Fig. 3 is a detail sectional elevation on the line 3—3, Fig. 2; Fig. 4 is a detail longitudinal section, showing the primary coil, core, secondary ring and the lines of magnetic flux; and Fig. 5 is a detail sectional elevation, corresponding to Fig. 1 and illustrating a modification.

So far as the present invention is concerned, to wit, the construction and operation of the heating means, the particular arrangement of the collar shaper itself is immaterial. Indeed, the invention may be applied to other forms of ironing machine than collar shapers and may be used for heating any one or more of cooperatively related relatively movable ironing or pressing members. For purposes of illustration, however, the drawings show a collar shaper of the general construction and arrangement shown, described and claimed in the two Patents, 1,397,303, granted Nov. 15, 1921, and 1,433,316, granted Oct. 24, 1922 of which the inventor is Charles E. Waream, to which reference may be had for a more complete description thereof. So far as description is necessary for the purposes of this application, the collar shaper comprises a base or body 1 adapted for attachment to a suitable support, such as a table or shelf, and having a depending tubular portion 2 in which slides a sleeve 3 carried by the base 4 of a collar mold 5 provided with a stop screw 6 passing through an opening in the base 1. The collar mold is normally pressed upwardly by a compression spring 7 surrounding a central tube 8 which rotates in the sleeve 2 and a bushing 9 adjustably threaded into the upper end of the sleeve 3 for adjusting the spring pressure. The central tube 8 supports a hollow T-shaped member 10 whose opposite ends serve as trunnions to carry a bracket member 11 to which are pivoted on a horizontal axis the side arms 12 of an ironing shoe or member 13 having the usual ironing groove or recess cooperating with the mold 5. Between ears 14 of the bracket 11 is pivoted a locking member, one arm 15 of which is adapted in depressed position of the iron to engage the upper inner corner of the ironing member to lock the same in its depressed position. The upper arm 16 of said locking member is connected by a link 17 to an arm 18 carried by the operating arm or handle 19 pivoted at 20 to brackets on the front of the ironing member 13 and provided with two abutments 21, 22. The ironing member 13 has a depending portion 23 adapted to engage a fixed stop 24 on the bracket 11, and the inner surface 25 of said ironing member is preferably curved on an arc around the axis on which the ironing member 13 turns.

Fig. 1 shows the parts in ironing position. In this position the handle 19 has been depressed until the ironing member 13 has engaged the stop 24 and the collar mold 5 and has depressed the latter against the spring 7. In this position the iron can be swung around on a collar to iron the same but without liability of increasing the ironing pressure, due to the absence of vertical movement of the hollow post 8 and the abutment of the iron against the stop 24. If the handle 19 is elevated the first motion of said handle turns the same relative to the iron until the abutment 22 strikes the iron. This motion releases the locking arm 15 from the iron and further upward motion of the handle raises the iron out of pressing relation with the collar mold in which position it may be normally held by a suitable spring (not shown) if desired.

The heating means includes a primary coil 26 which surrounds a suitable core, such as the forward extended portion of the hollow member 10, the wires 27 for said coil passing into said tube and through the ver-

tical tube 8 to a suitable switch 28. Associated with the coil 26 and its central core is a secondary member 29, which may either be a short-circuited wire coil or a ring of any conducting metal, preferably copper, and which is shown as a metal ring. This secondary may either be carried by the iron itself, as shown in Fig. 1, or may be so associated therewith as to radiate heat thereto. In Fig. 1 the ring 29 is held in a cavity in the ironing member 13 and is secured therein by a retaining plate 30 secured to the iron by a screw 31.

When current is caused to flow through the wires 27 and coil 26 said coil produces a magnetic field, the lines of flux in which are concentrated by the core, as shown in dotted lines, Fig. 4. This magnetic field, or at least the concentrated portion thereof includes the ring 29, even if said ring is in its upper position due to release of the ironing member from the collar mold 5. The magnetic flux of the primary coil induces current in the secondary member 29, the flow or effect of this current being the production of heat in the secondary sufficient to maintain the ironing member 13 at proper ironing temperature.

In the modification shown in Fig. 5 the hollow T-shaped member 10^a carries a separate inner tubular member 32 provided with an end head 33 fitting a recess in a heating member 34, and in which recess is located the secondary 29^a, said secondary being secured in place by the screw 35 which secures the heating member 34 to the head 33. The outer surface of member 34 is curved to conform to the curvature of the inner face of the ironing member 13^a, and heating member 34 is held in contact with said ironing member by the compression spring 36. The primary coil 26^a surrounds the tube 32, which serves as the core, and is wired in the same manner as in the form shown in Fig. 1. In this arrangement the heat is produced by induction in the heated member 34 and is transmitted by conduction to the ironing member 13^a, the only difference being that in this case the secondary does not alter its position with relation to the primary, as occurs in the form shown in Fig. 1.

In both arrangements the heat necessary for ironing is efficiently produced and the electrical circuits are considerably simplified over what is necessary with an ordinary resistance coil.

What I claim is:—

1. An ironing machine, comprising cooperating ironing members, at least one of which is movable, and means for heating said movable member, comprising a secondary member associated and movable with said movable ironing member to heat the same, and a primary coil with reference to which said secondary is movable, said primary coil being connected to a source of current and associated with said secondary member in its various ironing positions to induce current therein and thereby produce heat.

2. A collar shaper, comprising a collar mold member and an ironing member relatively movable toward and from each other and also relatively movable one along the other for the ironing operation, and electrical heating means for said ironing member including primary and secondary members relatively movable with respect to each other and being associated to produce heat in the secondary by their inductive relation, said secondary member being movable with the ironing member

3. A collar shaper, comprising a collar mold member and an ironing member relatively movable toward and from each other and also movable one along the other for the ironing operation, a secondary member attached to and movable with said ironing member for heating the same, and a primary coil with reference to which said secondary is movable, said primary coil being connected to a source of current and associated with said secondary coil for inducing current and producing heat therein.

4. A collar shaper, comprising a collar mold member and an ironing member relatively movable toward and from each other and also movable one along the other for the ironing operation, a support with relation to which the ironing member is movable, a primary coil carried by and stationary with respect to said support and connected to a source of current, and a secondary movable with the ironing member and relative to said primary so that in the several ironing positions thereof heat is produced by their inductive relation, said secondary being so located and arranged as to heat the ironing member.

5. A collar shaper, comprising a collar mold member, a support, an ironing member movable with said support to traverse the mold member and also movable relative to said support toward and away from the mold member, and heating means for said ironing member, comprising a primary coil carried by and stationary with respect to said support and connected to a source of current, and a movably mounted secondary member movable with said ironing member.

In testimony whereof I affix my signature.

EMIL J. CARROLL.