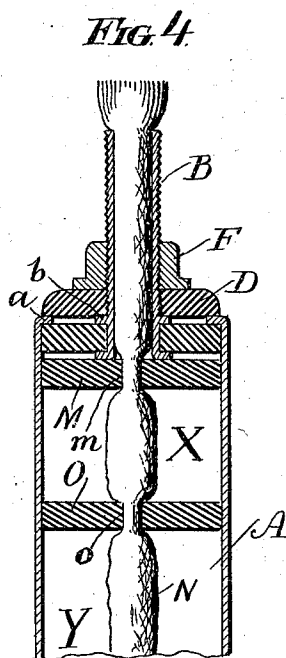
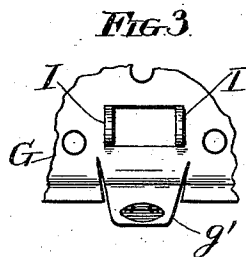
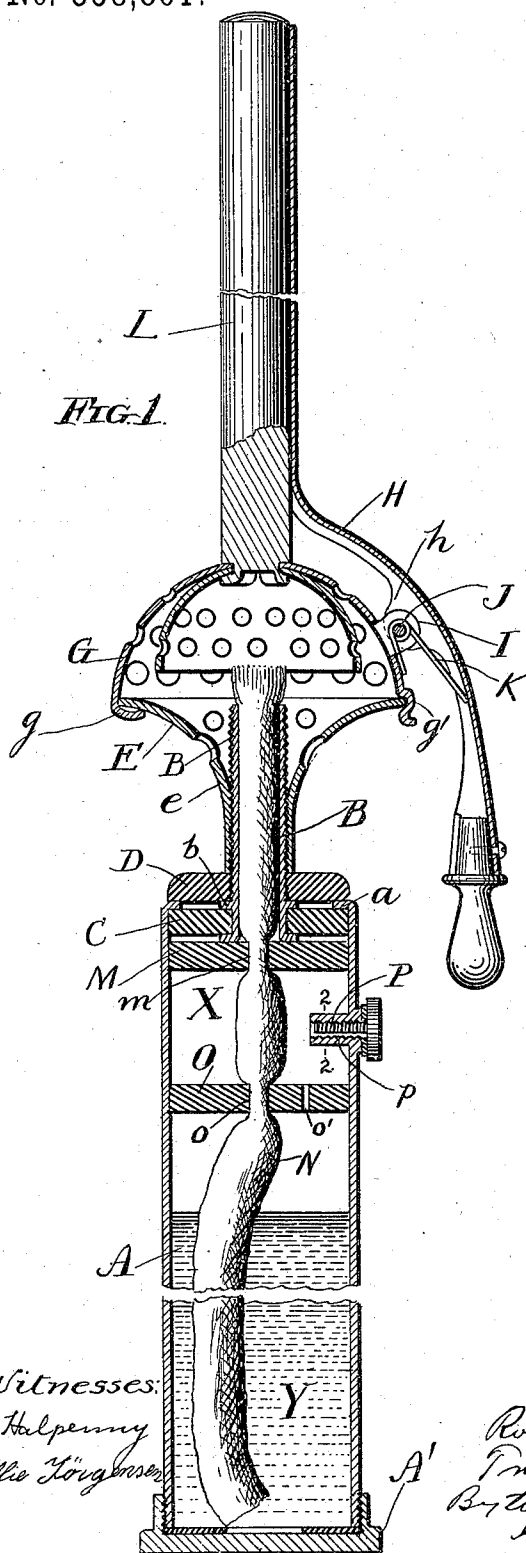


(No Model.)

R. T. THOMAS & T. B. GORTON.
CURLING IRON.

No. 558,861.

Patented Apr. 21, 1896.



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UNITED STATES PATENT OFFICE.

ROBERT T. THOMAS AND TRUMAN B. GORTON, OF CHICAGO, ILLINOIS.

CURLING-IRON.

SPECIFICATION forming part of Letters Patent No. 558,861, dated April 21, 1896.

Application filed July 25, 1894. Serial No. 518,534. (No model.)

To all whom it may concern:

Be it known that we, ROBERT T. THOMAS and TRUMAN B. GORTON, citizens of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Curling-Irons, of which the following is a specification, reference being had to the accompanying drawings, which are made a part hereof, and in which—

Figure 1 is a central longitudinal section of an iron embodying the invention. Fig. 2 is a section of a portion thereof on line 2 2, Fig. 1. Fig. 3 is a detail view showing the manner of attaching the clamp to the bulb. Fig. 4 is a central section of a portion of the improved curling-iron under a slight modification.

The present invention relates to that class of devices that are known to the trade as "self-heating" curling-irons, or, in other words, curling-irons in which a reservoir for containing alcohol is arranged in or forms the handle and to which is suitably secured a wick-tube, to which latter in turn is attached a bulb carrying the curling-iron proper.

One of the particular difficulties to be overcome in making a successfully-operating curling-iron of this description is the variation in the flame, which variation is due partly to the moving of the curling-iron from an upright to a horizontal or inverted position. In practice the wick-tube and bulb are held out of direct contact with each other by means of a material which is a poor conductor of heat; but even when so insulated a small amount of heat will reach the upper portion of the reservoir, and in proportion to the heating of the reservoir by whatever means vapor will be generated within it. While the curling-iron is in upright position this vapor will of course remain in the upper heated portion of the reservoir; but as soon as the reservoir is turned to a horizontal or inverted position this vapor will of course change places with the alcohol, and by coming in contact therewith and with the cooler portion of the reservoir will be condensed, thereby forming in the reservoir a partial vacuum, the effect of which is to produce a suction within the wick-tube and lower or extinguish the flame.

The particular object of the present inven-

tion is to provide a curling-iron of the character in question with a suitable chamber or reservoir within which this vapor, which is generated in the upper portion of the reservoir, may accumulate and from which it may be conducted by the wick-tube for feeding the flame, the arrangement of said vapor chamber or reservoir being such that when the curling-iron is inverted the vapor-reservoir retains its vapor and holds it out of contact with the liquid fuel, this latter being held in a separate reservoir.

Another object of the present invention is to provide improved means for securing the wick-tube to the reservoir and at the same time separating the one from the other by means of a suitable insulating material.

Another object of the invention is to simplify and cheapen the construction of the bulb, at the same time providing a bulb which may be opened to give access to the upper end of the wick-tube.

To these ends the invention consists in the features of novelty that are particularly pointed out in the claims.

In the drawings, A represents the hollow handle, which consists of a metallic tube closed at one end by a screw-cap A' and provided at the other end with an inturned flange *a*.

B represents the wick-tube, which is provided with a shoulder *b*.

C represents a disk, of vulcanite or other material which is a poor conductor of heat, having a central opening through which the lower portion of the wick-tube is passed, the extremity of said tube being upset against the under side of the disk so as to clamp the disk rigidly between the shoulder and the upset portion, thereby rigidly uniting the wick-tube and disk. This disk is located within the handle and bears against the under side of the inturned flange *a*.

D is a second disk, which may or may not be threaded to engage threads on the exterior of the wick-tube and which bears against the top side of the flange *a*, and E is the base of the two-part bulb, which is provided with a tubular portion *e*, internally screw-threaded and screwed onto the wick-tube until it comes to the firm bearing of the disk D, whereby the disks C and D are forced toward each

other, so as to clamp the flange *a* between them, thus closing the upper end of the tube of which the handle is formed and rigidly connecting the wick-tube thereto.

5 If desired, a nut *F* may be screwed onto the wick-tube, below the base of the bulb, as shown in Fig. 4, in which case the bulb is relieved of all strain excepting such as results from pressure upon it or its accessories.

10 Heretofore it has been the custom to connect the two parts of the bulb by means of a hinge; but this is expensive, and in order to obviate it we prefer to provide the upper part or dome *G* with a lip *g* and a spring-clamp *g'*,
15 arranged at opposite points, so that when one side of the base *E* is placed in engagement with the lip *g'* the other side may be pressed into engagement with the spring-clamp and the two parts thus united with sufficient
20 firmness for practical purposes.

In order to provide a simple and effective means for attaching the clamp *H* to the bulb, we provide said clamp with a pair of perforated ears *h*, and we provide the bulb with a
25 pair of perforated ears *I*, which are formed of the material of the bulb, and we pass through these several perforated ears a pivot *J*.

K is a wire spring which is coiled at an intermediate point around the pivot *J* and which bears at one end against the bulb *G* and at the other end against the under side of the handle of the clamp for the purpose of holding the clamp normally against the curling-iron proper, *L*.
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M is a disk which is located within the hollow handle, close to the inner end of the wick-tube, and provided with a central opening through which the wick *N* passes, the opening being of such size that the wick is compressed, as shown at *m*.
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O is a diaphragm which fits within the hollow handle some distance from the top thereof, so as to divide its interior into two compartments or chambers *X* and *Y*, which serve as reservoirs, the former for holding vapor and the latter for holding the liquid fuel, said diaphragm being provided with a central opening, through which the wick passes, said
50 opening being of such diameter that the wick is compressed at *o*. Through this diaphragm we prefer to form a second opening *o'*; but this opening may be omitted, as shown in Fig. 4. We prefer also to provide the wall of the
55 vapor-reservoir *X* with a vent opening to the atmosphere and to provide said vent with a screw-valve *P*, by which it may be closed or opened when desired; but this vent and valve may also be omitted, as shown in Fig. 4.

60 The disks *C*, *D*, and *M* are all preferably made of vulcanite or some material which is a poor conductor of heat, and while they prevent the heating of the handle to a temperature that cannot be borne by the hand they will not prevent the heating of the reservoirs to a slight degree. This heating of the reservoirs generates a vapor, which of course as-

cends and occupies the upper portion of the reservoirs while the curling-iron is in upright position; but without some means to prevent it when the curling-iron is turned to a horizontal or inverted position all of the vapor in the hollow handle and alcohol will change places in the manner and with the results above described. It is the object of the diaphragm *O* to prevent this vapor which accumulates in the upper part of the hollow handle from coming into contact with and being chilled by the alcohol and the cooler portions of the handle.
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We believe ourselves to be the first to construct a curling-iron with two reservoirs, one adapted to hold liquid fuel and the other adapted to hold the vapor apart from the liquid when the curler is inverted and deliver it through a tube for feeding the flame, and we desire to have it understood that in its broadest aspect our invention is not limited to a vapor-reservoir constructed or located precisely as shown in the drawings, but comprehends any reservoir however constructed or located that will produce the desired result.
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The object of the opening *o'* is to give vent to the liquid-reservoir, and it should be of such size that alcohol will not flow freely by gravity through it and into the vapor-reservoir.
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The object of the vent and valve is to regulate the flame. It will readily be understood that if the pressure of the vapor within the wick-tube and vapor-reservoir be excessive the flame will be too large, and in order to reduce it and keep it any desired size it is simply necessary to properly adjust the valve *P*.
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Having thus described our invention, the following is what we claim as new and desire to secure by Letters Patent:

1. In a curling-iron, the combination with the iron proper and a handle therefor, of two reservoirs adapted to hold liquid fuel and vapor, respectively, a passage through which said reservoirs communicate, said passage being of small capacity so that when the iron is inverted vapor will be retained in said reservoir, a tube communicating with the vapor-reservoir and serving to conduct vapor therefrom for feeding the flame, and a wick extending from the liquid-reservoir, through the vapor-reservoir and into the wick-tube, substantially as set forth.
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2. In a curling-iron, the combination with the iron proper and a handle therefor, of two reservoirs adapted to hold liquid fuel and vapor, respectively, a passage through which said reservoirs communicate, said passage being of small capacity so that when the iron is inverted vapor will be retained in the vapor-reservoir, a tube communicating with the vapor-reservoir and serving to conduct vapor therefrom for feeding the flame, and a wick compressed in the passage between the reservoirs, substantially as set forth.
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3. In a curling-iron, the combination with

the iron proper and a handle therefor, of two reservoirs adapted to hold liquid fuel and vapor, respectively, a passage through which said reservoirs communicate, said passage being of small capacity so that when the iron is inverted vapor will be retained in the vapor-reservoir, a tube communicating with the vapor-reservoir and serving to convey vapor therefrom for feeding the flame, and a wick compressed in the passage between the reservoirs and compressed in the passage through which vapor is conducted to the flame, substantially as set forth.

4. In a curling-iron, the combination with the iron proper and a handle therefor, of two reservoirs adapted to hold liquid fuel and vapor, respectively, a passage through which said reservoirs communicate, said passage being of small capacity so that when the iron is inverted vapor will be retained in the vapor-reservoir, a tube communicating with the vapor-reservoir and serving to conduct vapor therefrom for feeding the flame, a wick, a venting-opening communicating with the vapor-reservoir, and a valve for controlling said opening, substantially as set forth.

5. In a curling-iron, the combination with the iron proper and a hollow handle therefor, of a diaphragm arranged within said handle and dividing it into two reservoirs adapted to hold liquid fuel and vapor respectively, an opening through said diaphragm, a wick filling said opening so that when the iron is inverted vapor will be retained in the vapor-reservoir, and a tube communicating with the vapor-reservoir and serving to conduct vapor therefrom for feeding the flame, substantially as set forth.

6. In a curling-iron, the combination with

the iron proper and a hollow handle therefor, of a diaphragm arranged within said handle and dividing it into two reservoirs adapted to hold liquid fuel and vapor, respectively, an opening through said diaphragm, a second diaphragm arranged in the handle above the first, an opening through said second diaphragm, a wick extending through and compressed in the openings of the two diaphragms, and a tube communicating with the vapor-reservoir through the opening of the upper diaphragm, and serving to conduct vapor from said reservoir for feeding the flame, substantially as set forth.

7. In a curling-iron, the combination of a reservoir having at top an inturned flange, a disk located within the reservoir and fitting against said flange, a wick-tube securely fastened to said disk, a second disk surrounding the wick-tube and bearing against the top of the flange of the reservoir, and means for forcing said disks together, substantially as set forth.

8. In a curling-iron, the combination of a reservoir having at top an inturned flange, a disk located within the reservoir and fitting against said flange, a wick-tube securely fastened to said disk, a second disk surrounding the wick-tube and bearing against the top of the flange of the reservoir, and a bulb screwed onto the wick-tube and engaging the second disk for forcing the two disks together, substantially as set forth.

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