Nov. 6, 1962 T. G. GREGORY 3,061,958

ELECTRIC STEAM IRONS

Filed May 18, 1959

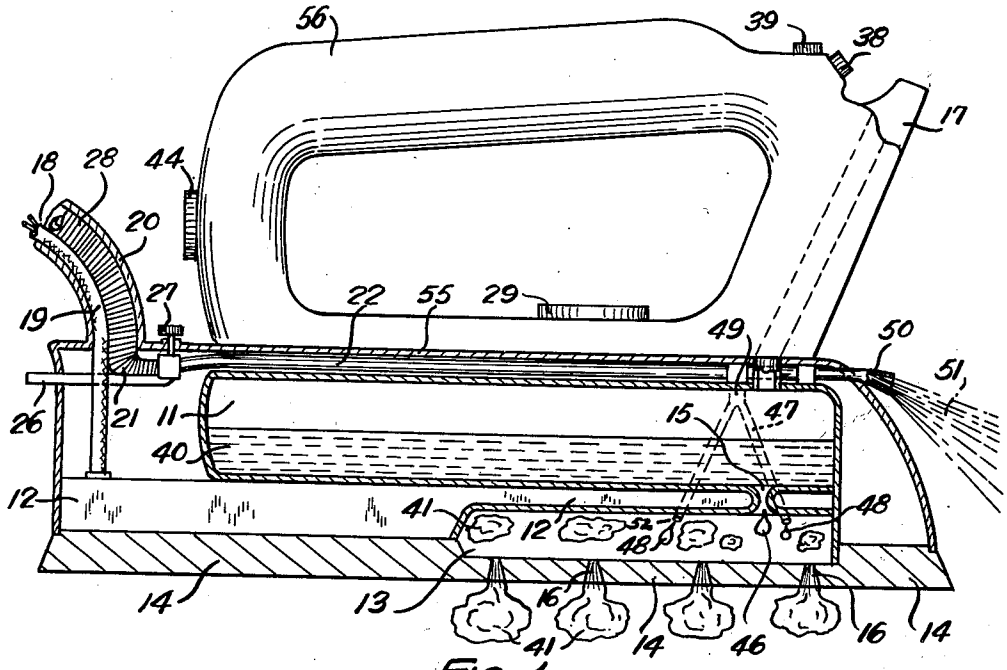


FIG. 1

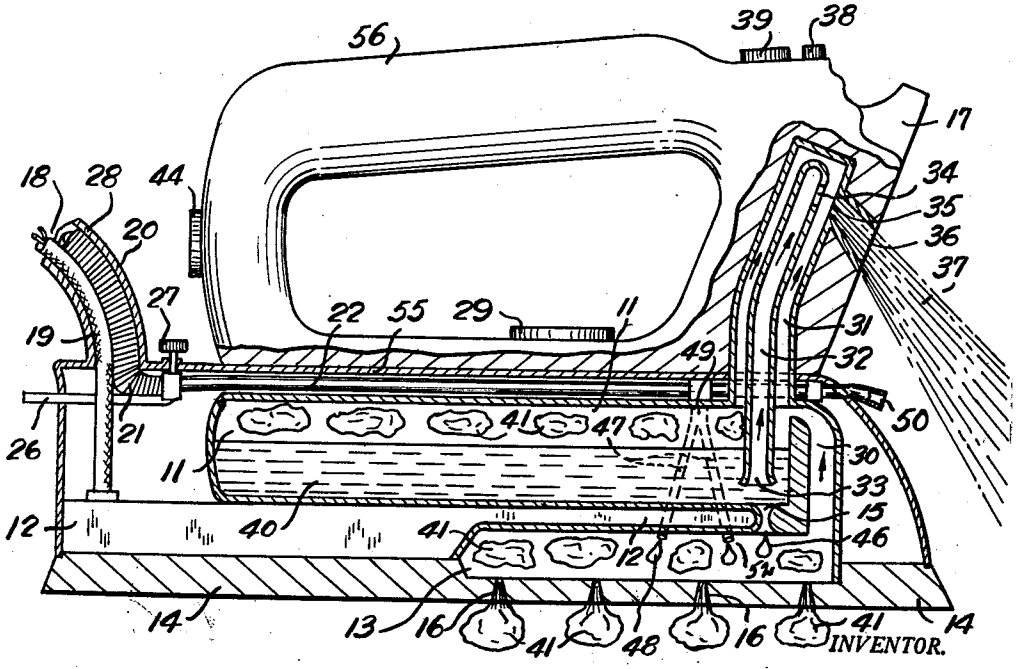


FIG. 2

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United States Patent Office 3,061,958
Patented Nov. 6, 1962

3,061,958
ELECTRIC STEAM IRONS

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Filed May 18, 1959, Ser. No. 813,820
1 Claim. (Cl. 38—77)

This invention relates broadly to movable hand-propelled electric steam irons and electric spray irons by which is meant hand-propelled electric flat irons used for hand-pressing clothes and cloth. Both are referred to herein as electric irons. Steam iron is a broad term and embraces both steam iron and sprinkle iron. More specifically, this invention relates to a new and useful pipe structure of steam irons this pipe structure being a bypass pipe structure. The steam irons and spray-sprinkle irons now in use and the herein disclosed new iron can, at will, be converted instantaneously into a dry iron if and when desired.

The objects of this invention are:

To provide an electric steam iron and electric sprinkle iron with a self-contained water-storage reservoir of the iron by which is meant that a water-storage reservoir of the iron is contained in the iron by which is meant positioned within the iron itself into which said self-contained water-storage reservoir water may be poured manually by hand after the order of the presently prevailing practice and into which said iron water can be caused to flow as piped water through a long hollow flexible piping means herein termed a cord one end of which said hollow flexible piping means is attached to the iron and the other end of the said hollow flexible piping means is attached to an outside source of water supply which is removed an appreciable distance from the body portion of the iron while the iron is in use as a steam iron or sprinkle iron;

To, when desired, alternatively pipe flowing water as by-passed water by which is meant to cause water which is piped to the iron to by-pass the self-contained water storage reservoir of an iron and flow directly into the steam-forming chamber or steam-forming chambers of the iron without the by-passed water entering into the water storage reservoir of that iron;

To, by means of by-passed continually flowing water, enable the user of an iron with a self-contained water-storage reservoir to steam iron or to sprinkle uninterruptedly for long periods of time without having to pour water into the self-contained water-storage reservoir of the iron and without having to empty the self-contained water storage reservoir of the iron when the ironing is completed;

To, by means of by-passed continually flowing water, form a continuous supply of steam within a self-contained steam-forming chamber of an iron for a long period of time without having to pour water into the self-contained water storage reservoir of that iron;

To, by means of by-passed flowing water, provide at will larger quantities of continually forming steam within a self-contained steam-forming chamber in a steam iron with a self-contained water-storage reservoir thereby making possible faster as well as more effective ironing;

To, by means of by-passed flowing water, employ when desired a hotter iron which has a self-contained water-storage reservoir this advantage being made possible by the presence of an increased quantity of steam which said increased quantity of steam inhibits scorching or glossing of cloth even though the iron is highly heated;

To, by means of by-passed flowing water, provide a larger quantity of water for steam ironing and for sprinkling without increasing the weight of the iron by the presence of stored water within the self-contained water-storage reservoir of that iron;

To, by means of by-passed flowing water, sprinkle without the necessity of having steam pressure for that purpose by which is meant to be able when desired to spray sprinkle with a hot dry iron which has a self-contained water-storage reservoir this being of special consequence when ironing cotton cloth with a hot dry iron;

To, by means of water flowing to the iron from a remote source of water supply through a long hollow flexible cord, be able to admit this flowing piped water into an iron for steam ironing and spray sprinkling while retaining the alternative feature of hand pouring water into the self-contained water storage reservoir of the iron for short intermittent periods of steam ironing:

To, by means of water flowing to the iron from a remote source of water supply through a long hollow flexible cord, overcome the necessity of pouring water by hand into a self-contained reservoir of a steam iron as from a pitcher or water tumbler;

To provide a steam iron with a self-contained water-storage reservoir and a long hollow flexible attached water conveyor cord which said cord is an essential part of the iron when the iron is in prolonged and uninterrupted use as a steam iron or as a sprinkle iron.

Referring to the drawings:

FIGURE 1 is a diagrammatic drawing, partly in section with operating details not shown, of an electric steam iron, electric sprinkle iron and electric dry iron in which number **11** denotes the water-storage reservoir; number **12** denotes the heating element of the iron; number **13** denotes a steam-forming chamber; number **14** denotes the bottom portion of the iron which has the smooth flat surface for pressing while hot. It is designated herein as the plate and it is also designated herein as the flat ironing plate of the iron. Number **15** denotes a hole through which water drops one drop at a time; number **16** denotes holes in and through the ironing surface portion of the iron through which steam flows; number **17** denotes the part of the iron through which water may be poured by hand as from a pitcher or water glass into water reservoir **11** of the iron and it also denotes the facility for opening and closing the entry; number **18** denotes a dual-purpose flexible conveyor cord; number **19** denotes electric wiring to convey flowing electric current in a circuit to heat the iron; number **20** denotes an external hollow flexible rubber or like cord to convey water from a remote outside source (not shown) to a round or other shaped piping means **22**; number **21** denotes that the flexible electric wiring portion and the hollow flexible water conveyor cord diverge at or within the iron the electric wiring continuing on to the electric heating element **12** and the hollow water conveyor cord or a metallic extension thereof operatively connecting to the piping means **22**; number **26** denotes an auxiliary means which, due to the weight of the iron, shuts off the flow of inbound water when the iron is set upright on its rear end; number **27** denotes an optional thumb screw valve or snap button valve operative to stop the flow of water either partially or fully through the flowing-water intake means of which that valve is a part pipe **22** being operatively connected to this flowing-water intake means; number **28** denotes that in this instance the hollow water conveyor cord **20** for the conveyance of the water and the insulated electric wiring **19** are formed into a single dual-purpose conveyor cord; number **29** denotes a conventional control and gauge for regulation of the heat of the iron; number **38** denotes a control button of conventional type for opening and closing orifice **49** and opening and closing piping means **22** at that point; number **39** denotes a conventional spray-sprinkle on-and-off button; number **40** denotes water in the reservoir; number **41** denotes steam; number **44** denotes a water flow volume control which in effect is a steam volume control; number

46 denotes drops of water dropping from water reservoir 11 into hot steam-forming chamber 13; number 47 denotes by-pass pipes by means of which water flows from pipe 22 and enters directly into steam-forming chamber 13; number 48 denotes drops of by-passed water which have come directly from piping means 22 into steam-forming chamber 13; number 49 denotes the orifice by which water from pipe 22 enters pipes 47; number 50 denotes a spray nozzle; number 51 denotes spraying sprinkle water. Number 55 denotes the body of the iron and number 56 denotes the handle of the iron.

FIGURE 2 is a diagrammatic drawing, partly in section with operating details not shown, of an electric steam iron, electric sprinkle iron and electric dry iron in which number 11 denotes the water-storage reservoir; number 12 denotes the heating element of the iron; number 13 denotes a steam-forming chamber; number 14 denotes the bottom portion of the iron which has the smooth flat surface for pressing while hot. It is designated herein as the plate and it is also designated herein as the flat ironing plate of the iron. Number 15 denotes a hole through which water drops one drop at a time; number 16 denotes holes in and through the ironing surface portion of the iron through which steam flows; number 17 denotes the part of the iron through which water may be poured by hand as from a pitcher or water glass into the water reservoir 11 in the body of the iron and it also denotes the facility for opening and closing the entry; number 18 denotes a dual-purpose flexible conveyor cord; number 19 denotes insulated electric wiring to convey flowing electric current in a circuit to heat the iron; number 20 denotes an external hollow flexible rubber or like cord to convey water from a remote outside source (not shown) to round or other shaped pipe 22; number 21 denotes that the flexible insulated electric wiring portion and the hollow flexible water conveyor cord diverge at or within the iron the electric wiring continuing on to the electric heating element 12 and the hollow water conveyor cord operatively connecting to piping means number 22 this pipe 22 being a part of the bypass pipe structure; number 26 denotes an auxiliary means which due to the weight of the iron shuts off the flow of inbound water when the iron is set upright on its rear end; number 27 denotes an optional thumb screw or snap button means operative to stop the flow of water either partially or fully through the flowing water intake means of which that valve is a part; number 28 denotes that in this instance the hollow conveyor cord 20 for the conveyance of the water and the insulated electric wiring 19 are all formed into a single dual-purpose conveyor cord; number 29 denotes a conventional control and gauge for regulating the heat of the iron; number 30 denotes a channel-way through which steam from chamber 13 goes into water reservoir 11 and occupies the space above the water; number 31 denotes a column through which some steam may flow; number 32 denotes a pipe with open end 33 immersed in the water in the reservoir and opening 34 of the pipe 32 positioned opposite to opening 35 in the steam column 31; number 36 denotes an opening in the housing of the iron. Number 37 denotes spraying sprinkle water; number 38 denotes a control button for opening and closing orifice 49 and opening and closing pipe 22 at that point; number 39 denotes a conventional spray-sprinkle on-and-off button; number 40 denotes the water in the reservoir; number 41 denotes steam; number 44 denotes a water-flow volume control which in effect is a steam volume control; number 46 denotes drops of water dropping from water reservoir 11 into hot steam-forming chamber 13; number 47 denotes by-pass pipes by means of which water flows from pipe 22 directly into steam-forming chamber 13; number 48 denotes drops of by-passed water which have come directly from pipe 22 into steam-forming chamber 13; number 49 denotes the orifice by which water from pipe 22 enters pipes 47; number 50 denotes a spray nozzle

at the end of pipe 22 and is operative from flowing water. When nozzle 50 is in use flowing water flows therefrom in the general form of the steam-propelled spraying water which is shown as number 37. Number 55 denotes the body portion of the iron and number 56 denotes the handle of the iron.

It is common practice for the electricity which heats the irons now in use to flow in and out of the iron by means of an insulated electric wire device, termed a cord, and this cord usually is attached to or near the top of the iron and positioned towards the back of the iron whereas the water is poured by hand into the front of the iron. These conventional irons contain two principal compartments within the body of the iron these being a water-storage reservoir and a steam-forming chamber. The compartment which holds the stored water supply is positioned above the steam-forming chamber which said steam-forming chamber is likewise positioned above the thick heated flat ironing portion of the body of the iron. This thick heated bottom ironing portion of the iron forms a part of the hot steam-forming chamber. One small opening usually is provided relatively near to the front of the iron for water to drop one drop at a time from the self-contained water supply storage reservoir down into and upon the inside hot bottom portion of the iron and this water is there converted into steam in this lower hot steam-forming compartment. The steam so generated within the steam-forming chamber of the iron is emitted through holes in the bottom of the metal face of the iron while this hot metal face of the iron is in contact with and is moved backwards and forwards upon the cloth being ironed. When such an iron is being used as an electric spray iron some of the steam generated in the steam-forming chamber of the iron is caused to flow up into the water reservoir within the iron which said reservoir is never quite full of water. The steam being lighter than the water it accumulates above the water in the self-contained water reservoir of the iron. The pressure of this steam forces some of the water out of the self-contained water-storage reservoir of the iron in the form of a spray. This spray-sprinkles the cloth which is about to be ironed. In these irons now in use the presence of the steam and the steam pressure are essential to achieve the sprinkling of the cloth. Usually the water for spray-sprinkling is emitted through an orifice reserved for that purpose and usually it is positioned at the front of the iron well above the pressing surface so that the cloth being pressed can, when desired, be spray-sprinkled before the heated iron is moved over the sprinkled cloth. Such irons as well as the new iron disclosed herein are equipped with simple means such as push buttons or turn dials to convert the iron at will into either a steam iron, a spray-sprinkle iron or a dry iron. It is universal practice to manually pour water by means of a pitcher or funnel or an open spout into the water-storage reservoir which is on the inside of the body of the iron hand-pouring this water through an opening at the front end of the iron. This opening leads from the front end of the outside of the iron into the inside of the body of the iron. This water intake is put at the front end of the iron so that the iron can be set upright on its rear end and the water in the self-contained storage reservoir not flow out of the intake opening. This conventional intake opening is equipped with a means to open the inlet to receive the water and thereafter to close the inlet to entrap the steam within the iron and thereby to force the steam through the hole or holes in the bottom ironing surface of the iron or for the entrapped steam to force some of the stored water out of the iron in the form of a spray to sprinkle the cloth or both. This intake means is also equipped with a means to shut off the formation or the flow of steam so that the iron may be used as a dry iron. By dry iron is meant that the iron is used as a hot iron but without the employment of either

steam or sprinkle water while ironing therewith as a dry hot iron.

In order for the above described irons which are now in use not to be too heavy for the comfort of prolonged users of the iron it is present practice to make the body of these electric steam irons and electric sprinkle irons relatively small. In fact they are usually so small that the water storage reservoir which is within the iron cannot hold more than approximately one tea cup full of water. Such a small quantity of water lasts only a short period of time when the iron is used as a steam iron and it lasts for only a very brief period when it is employed to spray-sprinkle the cloth to be ironed. Therefore, one of the principal annoyances in using such irons is the frequently recurring interruptions for putting a new supply of water into the iron. Another great annoyance is that due to the small quantity of water which may be stored within the reservoir in the body of the iron the water must be conserved to an uncomfortable degree. By this is meant that only a very small amount of water is permitted to flow at any one time from the self-contained water-storage reservoir to the steam-forming chamber of the iron. This small quantity of water going into the steam-forming chamber of the iron results in the formation of only a minor amount of steam during any given period. Due in large part to the small quantity of water which it is possible to put into the internal water-storage portion of the irons now in use the number of drop-by-drop exit holes is limited to one and this one water hole for admitting water into the steam-forming chamber is very small in size and the drops of water are small and relatively infrequent. The supply of steam therefore is small at any given time and the person using the iron as a steam iron moves the iron slowly which results in appreciable loss of time. Water has to be hand-poured into the iron at frequent intervals.

I have discovered that the above described annoyances are overcome and the above described advantages are achieved by making an iron with a conventional size self-contained water-storage reservoir as a part of the iron into which the usual small quantity of water may be poured by hand through an intake channel means in the conventional manner for steam ironing for short periods of time but also to provide an additional water-intake opening in that same iron for, when desired, conveying into the iron water which is piped to the iron this piped water being conveyed to the iron from an outside source of water supply which is removed an appreciable distance from the iron and conducting this conveyed water by by-pass means around or through or by the self-contained water-storage reservoir of the iron conducting this by-passed water as flowing water preferably but not necessarily drop by drop into the steam-forming chamber or steam-forming chambers of the iron this flowing water reaching the iron through a relatively limp flexible hollow water-conveyor cord one end of which said flexible hollow water-conveyor cord its attached to the iron and the other end of the flexible hollow water-conveyor cord is attached to an outside source of water supply which said outside source of water supply is removed a considerable distance from the body of the iron while the iron is in use as a steam iron. If desired, this incoming water, which is designated herein as "flowing water" and is thereby distinguished from water which is hand poured into the self-contained water-storage reservoir of the iron may enter the steam-forming chamber or steam-forming chambers of the iron drop by drop or in the form of a very small stream or may be atomized into the steam-forming chamber or chambers. All of these are included in the term flowing water and in such terms as continuous and continually. I have also discovered that this conveyance of the by-passed water to the iron preferably is achieved by making the cord of the iron as a dual-purpose flexible conveyor cord connected to the iron preferably at or near to the rear of the iron the dual purpose cord preferably but not necessarily constituting a permanent part of the iron. By dual-purpose cord is meant for one portion of the flexible conveyor cord to be flexible insulated electric wiring to convey electricity in a circuit in the conventional manner whereby to heat the iron and another portion of the flexible conveyor cord to be a flexible hollow means of the order of a pipe made of rubber or like flexible substance to convey water to the iron and by means of metal or like heat-resisting piping means to convey this flowing water as by-passed water by-passing the self-contained water reservoir of the iron and flowing directly into the steam-forming chamber or steam-forming chambers of the iron. The preferred dual-purpose cord contains two insulated electric wires, single or cable-like, and at least one hollow flexible water conveyor piping means connectible to a removed outside source of water supply such as a plumbing water faucet or a remote small or large tank of water which is removed a considerable distance from the body of the iron. By this by-passing means the flow of by-passed water can be as prolonged as is the flow of electricity and the by-passed water entering the iron can be increased in quantity as and when desired. Therefore a person can steam iron as long as is desired, all day if necessary, and use as much water and as much steam as desired at any given time without interruption to fill or to refill the reservoir of the iron while retaining the option of filling the iron by hand if desired. Many other advantages result from the employment of the respective means of this invention as are more fully disclosed elsewhere herein.

A means is provided either inside of the body of the iron or outside of the body of the iron, or both, to cut off the flow of the flowing water or, if desired, to lessen or to increase the flow of the flowing water through the heat-resisting conveyor pipes of the iron. The quantity of water which enters the steam-forming chamber or steam-forming chambers at any one time determines the quantity of steam which is produced at that time. The dual-purpose cord may be of any desired length. Preferably it is between four feet long and thirty feet long the two parts diverging at an appropriate point preferably somewhat distant from the housing of the iron the electric wiring portion of the dual-purpose cord extending to an electric outlet either direct or by means of an extension cord and the hollow flexible water-conveyor portion extending in similar manner to the remote water supply source. It is preferred that the dual-purpose cord be permanently attached to the iron but such permanent attachment is not essential to this invention. The parts of the iron through which the electricity enters the iron and through which the water enters the iron may, if desired, be entirely separate from each other so that a person may buy the electrical cord at one time and use the iron without the employment of flowing water which is mechanically piped to the iron and then at some later time buy the hollow water-conveyor cord or a dual-purpose cord for that same iron.

It is pointed out that all electric irons of every kind must have an attached cord to convey electricity into the iron and that it does not add a burden to the user of an electric iron to have that same cord bring water also into that iron as herein described. Uninterrupted ironing and ample supplies of water and steam are achieved without additional work. The term rubber is used broadly herein and is intended to embrace pliable natural rubber and pliable synthetic rubber such as pliable neoprene and pliable GR–S rubber which is the copolymerization of styrene and butadiene as well as other flexible substances which are equivalent to rubber for the purposes of this invention. By pliable is meant soft, bendable and flexible as distinguished from hard stiff substances of which hard ebonite is an example. The remote water supply in the form of a plumbing water faucet or a tank

must be an appreciable distance removed from the body portion of the iron by which is meant that the length of the connecting cord must be a minimum of at least three feet in order to give freedom of action in the movement of the iron. Preferably the length of this cord should be between six feet and thirty feet but the maximum length is not limited to the thirty feet.

Now to return to the drawings: In FIGURE 1 water may be poured into water-reservoir **11** by hand in the usual manner as now generally prevails through conventional intake means number **17** and the iron used as a steam iron so long as that supply of water lasts after which the water reservoir may be refilled by hand as many times as desired. Alternatively, water which is mechanically piped to the iron may be caused to flow in the iron by means of pipe **22** the water reaching the iron through hollow flexible water-conveyor cord **20** the outmost end of which is attached to a remote water supply source the water flowing either as a result of plumbing faucet water pressure or as the result of pressure applied in or upon a remote water supply tank or it may be caused to flow as a result of gravity caused by the remote water tank being positioned higher than the surface of the ironing board. This water from hollow water-conveyor cord **20** travels through pipe **22** which said pipe **22** may be of single pipe type or of manifold type. The water is conveyed by this pipe **22** to by-pass pipe or pipes **47** by means of which said pipe or pipes the flowing water by-passes or is piped through the water-reservoir **11** and goes directly to steam-forming chamber **13** where this by-passed water drops preferably one drop at a time through hole or holes **52**. The by-passed water does not enter the reservoir or become a part of the water which may be in the reservoir of the iron. The by-pass **47** may be a single pipe or two or more such pipes. If these pipes pass through a water-storage reservoir which is in the iron without the flowing water in the pipes flowing into the said water-storage reservoir these are by-pass pipes and by-pass the water-storage reservoir and this piped flowing water is by-passed water for the purposes of this invention. Whether the water drops or otherwise flows from water reservoir **11** through opening **15** or drops or otherwise flows from opening or openings **52** this water is thereafter converted into steam by means of the heat in hot steam-forming chamber **13**. The steam is then emitted through the bottom flat ironing plate **14** of the iron by means of holes **16**. This flat ironing plate is also designated as the sole plate. There may be one, two or more such steam-forming chambers and there may be one, two or more exit holes **16** or entry holes **52** in each steam-forming chamber. Such steam-forming chamber or steam-forming chambers may be positioned at the rear of the iron with one or more by-pass piping means leading to each such rear positioned steam-forming chamber. This makes it possible to place steam exit holes at the rear of the iron. Due to the larger supply of water because of it being flowing water which is mechanically piped to the iron from an outside source of supply the drops of water can be larger and more frequent and if desired the holes can be larger and not clog up as easily. The increase in the quantity of water flowing into the steam-forming chambers may be achieved by making the holes larger or by increasing the number of holes or both. The pipe **22** may be a single pipe or it may be manifold with off-shoots which respectively extend to and open into respective steam-forming chambers within the iron or it may be in a finger-like pattern all of which are referred to herein by the general term of pipe. By means of the by-pass the water is conveyed from a remote water supply which is outside of the iron directly into the steam-forming chamber or chambers of the iron and is converted into steam within a steam-forming chamber in the iron as is shown in the drawings. When it is desired to steam iron by means of water hand-poured into the self-contained water-storage reservoir of the iron the water flowing from a remote source is either shut off or disconnected and the gauge **39** is set at steam. When it is desired to steam iron by the employment of flowing by-passed water and without the employment of sprinkle water, pipe **22** is opened only as far as orifice **49** and orifice **49** is also opened by means of turn button number **38** which controls the conventional multiple valve. This permits water to flow continuously from piping means **22** through by-pass means **47** into steam-forming chamber **13** when the iron is in ironing position and makes possible the continuous formation of steam in any desired quantity and makes possible uninterrupted steam ironing for as long as may be desired. When it is desired to spray-sprinkle with flowing water piped to the iron from a remote source and in the presence of steam formed by by-passed water, control button **38** is turned another notch and pipe **22** is opened all the way to nozzle **50** and orifice **49** is also opened. When it is desired to spray-sprinkle with a hot dry iron, control button **38** is turned another notch to close orifice **49** and to close by-pass means **47** and open piping means **22** all the way from the flowing water intake shown at **27** to and through nozzle **50**. There are numerous such multiple valves and valve assembly devices well known in the industry. It is preferred that the inflowing mechanically piped water first reach the iron at a rear portion of the iron and then thereafter be re-routed if desired. It is also preferred that the dual-purpose conveyor cord be attached to the iron at the rear of the iron. By the terms at the rear of the iron and at a rear portion of the iron is meant within a range between a point at the extreme rear of the iron and approximately three and one-half inches from the extreme rear of the ironing portion of the iron. By the term "operatively connected" is meant that the piping of the by-pass pipe structure is connected in a conventional manner so as to be operative for the flow of the by-passed water for the purposes shown herein. By such expressions as the essentials of the iron is meant those things that are necessary to the functioning of the invention but it does not mean to exclude the numerous unessentials to this invention which such unessentials are well known in the art and are conventionally used as parts of electric irons.

FIGURE 2 differs from FIGURE 1 by the addition of other parts to the iron this FIGURE 2 illustrating one form of steam pressured sprinkle iron. In FIGURE 2 number **30** denotes a channel-way or piping means through which when open steam from chamber **13** goes into water reservoir **11** and occupies space above the water; number **31** denotes a column through which some steam may flow; number **32** denotes a pipe with open end **33** immersed in the water in the reservoir and opening **34** positioned opposite to opening **35** in steam column **31** and number **36** denotes an opening in the housing of the iron. When the face of the iron is down in ironing position and the steam channel is open and steam is being formed in the steam-forming chamber **13** steam rises into the water reservoir and the pressure of the steam upon the surface of the water forces water up to and through opening **34** and the steam in column **31** blows upon the water emanating from pipe **32** and assists in converting it into the spray **37**.

In either variation of this two-fold-water-intake invention when flowing water which is piped to the iron is employed through pipe **22** the sprinkling can be effected as from a garden hose or as from an old-fashioned flower sprinkler type of sprinkler head when the flowing water pressure is relatively high and without the assistance of steam pressure. If desired the flowing water may even be atomized. The auxiliary thumb screw or snap button valve **27** of the flowing-water intake means of which that valve is a part may be employed if desired as an additioned or alternative control or regulator of the flow of water and steam especially when there is high flowing

water pressure. It may also be used to entirely shut off the flowing water intake opening of the flowing-water intake means. The simple water shut-off means number 26 is to cut off the flow of incoming water which is piped to the iron when the iron is set on end. By the term "flowing-water intake means" is meant that structural part of the iron by means of which the water which is piped to the iron from a remote outside source enters pipe 22 or its equivalent of the by-pass pipe structure of the iron valve 27 being a part of that flowing-water intake means structure.

In hard water areas the water from the remote plumbing water faucet or the remote water tank may be caused to flow through a small chamber which is attached to or is positioned near to the faucet or tank which said small chamber houses demineralizing matter and the flowing water be thereby demineralized before the flowing water reaches the iron. The cost of the small quantity of demineralizing matter which is required to demineralize the small amount of water used for steam ironing is so insignificant that the used demineralizing matter may be thrown away without reclamation. When the long flexible hollow water-conveyor cord is connected directly to a plumbing water faucet the supply of water is practically endless. When the water for the iron is supplied by a small remote tank of from a quart or two to a few gallons to be hung high on a door frame or window frame to achieve the best flow of water or set atop a tall piece of furniture it is a simple matter to demineralize this small quantity of water by stirring the elements together or by flowing the water through a small container of demineralizing matter as above described. By merely setting such tanks lower than the ironing board the flow of water is easily and quickly shut off. If desired, a larger tank or even a pressure tank may be employed. By the herein disclosed two-fold water-intake invention a reservoir of water may be present within the iron for simple brief steam ironing jobs or by alternatively employing flowing water which is piped to the iron one can steam iron and spray sprinkle for long periods of time, all day if desired, without having to stop to hand-pour water into the iron. A large or small quantity of continually forming steam can be had when desired. One can also spray-sprinkle with a hot dry iron as well as employ the iron as a hot dry iron without employing sprinkle water or steam. The employment of this invention does not require any additional operations or any additional work when the iron is used as a steam iron or sprinkle iron because all steam irons of every kind and all sprinkle irons of every kind must have a cord attached to the iron.

A consideration of the detailed description given in the above disclosure taken in connection with the accompanying drawings wherein satisfactory embodiments of the invention are shown make clear the objects and advantages of the invention. However, it is to be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claim.

Having described my invention, I claim:

A hand-propelled steam iron comprising a sole plate, a heating element in said iron adjacent said sole plate, a steam forming chamber formed between the said sole plate and the heating element, a manually fillable water reservoir supported in said iron and positioned above said steam forming chamber, means communicating between said water reservoir and said steam forming chamber to allow water to enter said chamber and form steam, a flow-water intake means formed in the rear of said iron, a by-pass pipe structure constructed of heat resistant material operatively connected with said intake means, said by-pass pipe structure including a pipe portion which by-passes the water storage reservoir and extends to and opens into said steam forming chamber to provide said steam forming chamber with a continuous supply of water which is formable into additional steam, and outlet means communicating between said steam forming chamber and said sole plate to direct steam onto material being ironed.

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