July 11, 1939. J. D. FOSTER 2,165,541

SPRAY IRON

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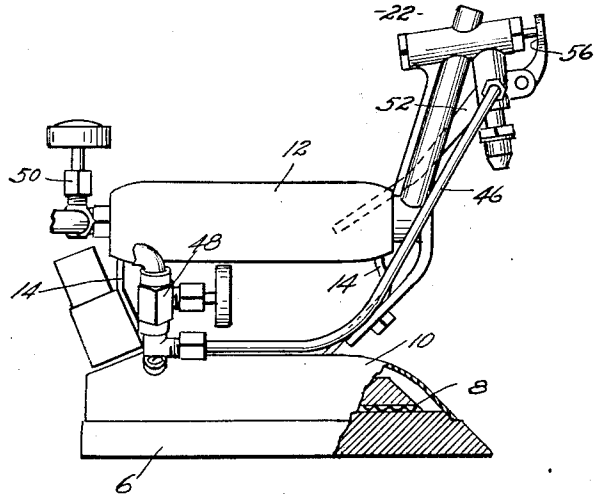


Fig. 1

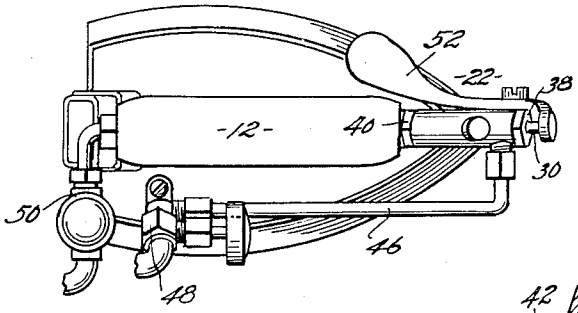


Fig. 2




Fig. 4

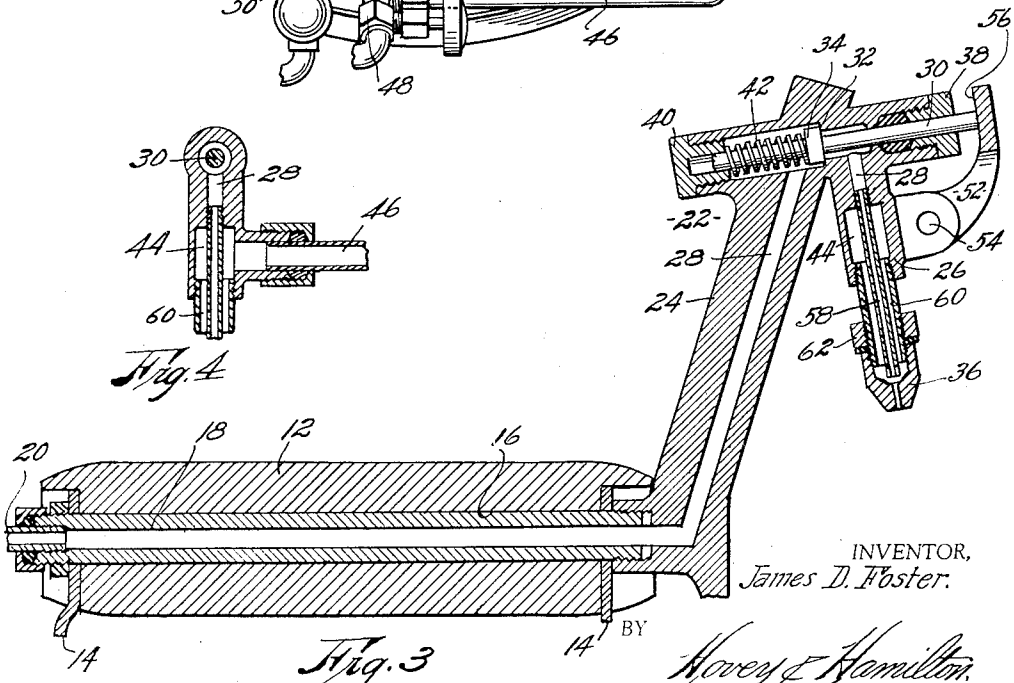


Fig. 3

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## SPRAY IRON

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2 Claims. (Cl. 38—78)

This invention relates to pressing irons of the types having attachments thereto for applying a spray of liquid to the fabric being pressed, and the primary object is the provision in such an iron, of novel, unique and effective parts that will operate simply and efficiently and without damage to the articles being pressed.

One of the important aims of this invention is the provision of an iron of the aforementioned character, wherein is incorporated a mixing head, supported by the grip of the iron, and having an operating lever extending from the said head to a point adjacent the said grip, whereby a valve member, forming a part of the mechanism in the mixing head, might be actuated.

A yet further object of this invention is to provide in a spray iron, means for projecting a quantity of water in the form of a fine spray against an area in front of the sole plate of the iron, from a nozzle disposed an appreciable distance thereabove, which nozzle is maintained completely evacuated by a continuous stream of air which is caused to pass therethrough, regardless of the condition of the water valve during the operation of the iron.

Minor objects of the invention, including the specific form of mixing head, manner of mounting the same, unique way of introducing water thereto through a conduit extending through the grip of the iron, and manner of supplying a continuous stream of air so that no objectionable drip will occur, will appear during the course of the following specification, referring to the accompanying drawing, wherein:

Figure 1 is a side elevation of a spray iron made to embody the present invention.

Fig. 2 is a top plan view of the same.

Fig. 3 is an enlarged, fragmentary, detailed, sectional view, taken through the mixing head and grip of the iron, and,

Fig. 4 is another detailed, fragmentary, sectional view through a portion of the mixing head, illustrating the manner in which air is introduced.

It is known that sad irons used in pressing garments, and having various means for applying water to the garments being pressed, have heretofore been developed, but the complicated character and objections with respect to an excessive amount of water being applied have rendered them commercially impractical.

The iron contemplated by this invention comprises the ordinary electric iron, having a sole plate 6, heating element 8, casing 10 and grip 12, the latter being mounted upon casing 10 by the usual brackets 14, all of which is well known, and with which parts embodying this invention are combined. Grip 12 has a central longitudinal bore 16 provided therethrough which, under normal conditions, receives the elongated bolt but which, in practicing this invention, carries a conduit 18, having connection at one end thereof with a pipe 20, extending to any suitable source of water supply. The other end of conduit 18 is in communication with mixing head 22 so that a supply of water may be passed therethrough as desired.

Mixing head 22 is novelly constructed and comprises a casting made to present a substantially V-shaped body, having legs 24 and 26, provided with a continuous passageway 28 therethrough. Mixing head 22 has a valve member in the form of a plunger 30 journalled therein at the bight of the V-shaped body.

A valve seat 32, formed in the body, co-operates with valve head 34 of plunger 30 in creating means for controlling the flow of liquid through head 22 and out nozzle 36 carried by the end of leg 26. Plunger 30 extends beyond head 22 at its one end, and screw members 38 and 40 support plunger 30 for rectilinear reciprocation. A spring 42 yieldably maintains plunger 30 at one end of its path of travel and also holds valve head 34 against seat 32 to effectively close passageway 28.

An enlarged portion 44 is formed in leg 26 to create a chamber of greater cross sectional dimension than that dimension of passageway 28, and it is into this chamber that air passing through pipe 46 will enter the head and be discharged therefrom through nozzle 36. Pipe 46 is in connection with a source of compressed air through the medium of valve 48 and it is notable that the aforementioned valve structure which controls the flow of water, will not effect the flow of air and the connection between pipe 46 and head 22 is at a point between the water controlling means and nozzle 36. This arrangement is an advantage because during use the continuous flow of air through nozzle 36 will definitely preclude the collection of large drops of water which would otherwise fall upon the fabric being pressed when no water was desired. A master valve 50 may be used to shut off the supply of water to passageway 28. This valve also governs the volume of water reaching mixing head 22.

Means for actuating plunger 30 is preferably in the form of a lever 52 that is pivotally mounted as at 54 upon head 22. One end of lever 52 has

a friction face 56 created thereon for engagement with the projected end of plunger 30. The other end of lever 52 is disposed to one side of grip 12 and in a place where the thumb of the hand of the operator may be used to actuate the lever without removing the hand from grip 12. Spring 42 holds valve plunger 30 in the closed position at one end of its path of travel, and as the end of the lever near grip 12 is pressed downwardly through a path having its center of rotation at 54, plunger 30 will be moved so that valve head 34 will leave valve seat 32 as spring 42 is compressed. Thus the desired amount of water will enter that part of passageway 28 in leg 26 and the flow of air outwardly through nozzle 36 will project the water in spray from over an area on the article being pressed in front of sole plate 6.

A tube 58 forms a part of the water passageway and the space 60 around said tube conveys air from pipe 46 to nozzle 36 so that the air and water are mixed at said nozzle. This construction is of the conventional injector nozzle character and nozzle 36 is in screw-threaded engagement with the end of leg 26 so that adjustment with respect to fineness of spray might be made. A lock nut 62 may be employed to hold nozzle 36 in the desired set position.

The operation of a spray iron embodying this invention is apparent to one skilled in the art, and the advantages with respect to a continuous spray of air at once present themselves. The small amount of air that passes through pipe 46 and out nozzle 36 has no effect upon economy of operation and a vast amount of refinishing of fabrics is avoided by maintaining nozzle 36 free from collected water. When the water control valve is closed, the flow of air will maintain nozzle 36 and adjacent parts entirely free from liquid, and if any water does have a tendency to migrate toward nozzle 36, it will be converted into a fine spray, and projected past the end of sole plate 6 to the supporting surface of the iron. If the spray happens to strike an article being ironed, it will merely moisten an area that can quickly be dried out in pressing as the iron is moved forwardly. If two or three large drops of water fall upon fabric being pressed, they often spot and cause damage to the extent that rewashing is necessary.

Positioning nozzle 36 an appreciable distance above the normal supporting surface of the iron contributes to the efficiency of the structure which has been found commercially advantageous because the spray is less concentrated and therefore, may be more quickly dissipated when the iron passes thereover.

The preferred embodiment of the invention has been illustrated and described, and since it is conceivable that modifications might be made without departing from the spirit of the invention, it is desired to be limited only by the scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a spray iron of the character described, a sole plate and a grip provided with a longitudinal bore, a conduit extending through said bore; a water supply pipe in connection with one end of the conduit; an inverted V-shaped head, provided with a continuous passageway extending longitudinally through the legs thereof and having the end of one leg in connection with the other end of the conduit; a valve member intersecting the passageway at the bight of said head and having a portion thereof projecting exteriorly of the head; an operating lever for the valve member, pivotally mounted on the head and extending into close proximity to the grip for manipulation by the operator; a nozzle on the end of the other leg; and an air supply pipe in connection with the last mentioned leg between said nozzle and said valve to direct a constant stream of air through said nozzle as water is supplied to the nozzle through manipulation of the said valve, the last mentioned leg of said V-shaped head being shorter than the first mentioned leg whereby the nozzle on the end of the shorter leg is positioned above and forwardly of the grip of the iron.

2. In a spray iron of the character described, a sole plate and a grip provided with a longitudinal bore, a conduit extending through said bore; a water supply pipe in connection with one end of the conduit; an inverted V-shaped head, provided with a continuous passageway extending longitudinally through the legs thereof and having the end of one leg in connection with the other end of the conduit; a valve member intersecting the passageway at the bight of said head and having a portion thereof projecting exteriorly of the head; an operating lever for the valve member, pivotally mounted on the head and extending into close proximity to the grip for manipulation by the operator; a nozzle on the end of the other leg; and an air supply pipe in connection with the last mentioned leg between said nozzle and said valve to direct a constant stream of air through said nozzle as water is supplied to the nozzle through manipulation of the said valve, the last mentioned leg of said V-shaped head being shorter than the first mentioned leg whereby the nozzle on the end of the shorter leg is positioned above and forwardly of the grip of the iron, the bore through said shorter leg along a part of its length between the nozzle and the valve being enlarged to provide a chamber and space therein for the passage of air from the air supply pipe to the nozzle, said shorter leg having a tube therein extending from the bore, through said chamber and space to a joint within the chamber spaced inwardly from the outer end of the nozzle and within the stream of air passing through the chamber and space to the nozzle.

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