Dec. 31, 1935. G. T. FIELDING 2,026,422

DAMPENING AND STEAMING ASSEMBLY FOR PRESSING IRONS

Filed Oct. 3, 1933 2 Sheets-Sheet 1

Fig. 1.

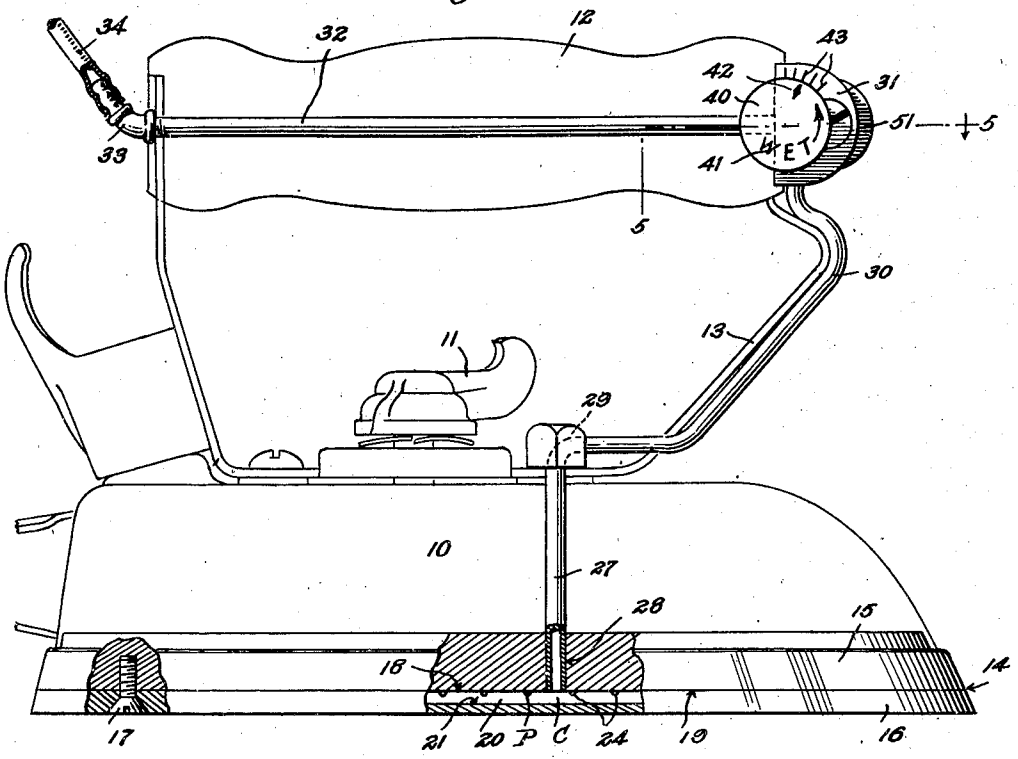
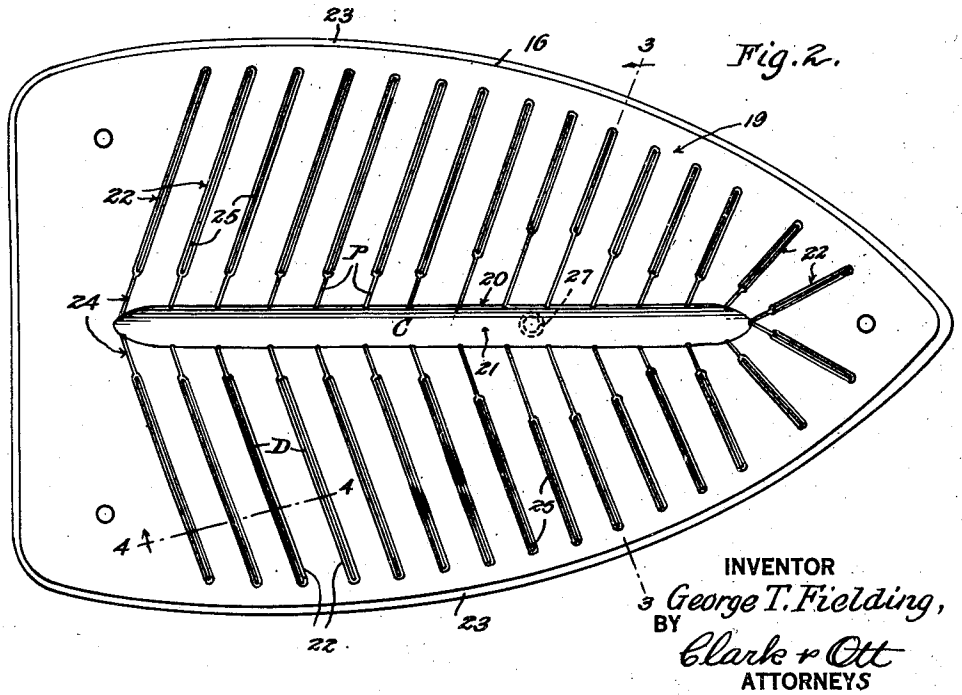


Fig. 2.



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Fig. 3.

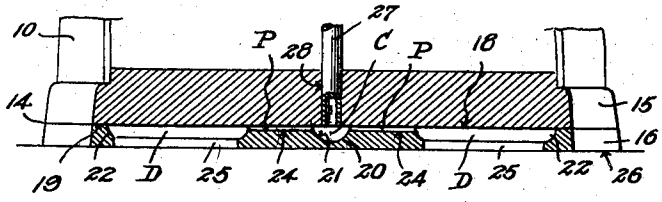


Fig. 4.

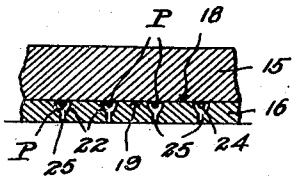


Fig. 5.

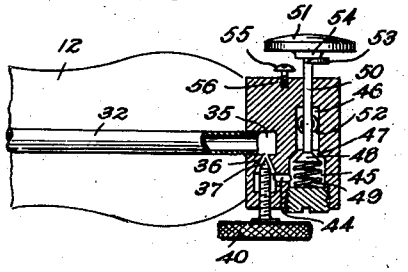


Fig. 8.

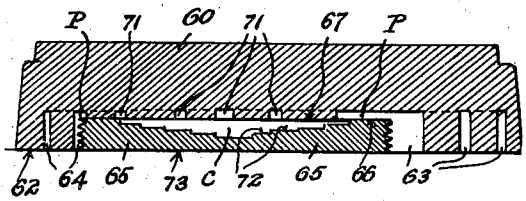


Fig. 7.

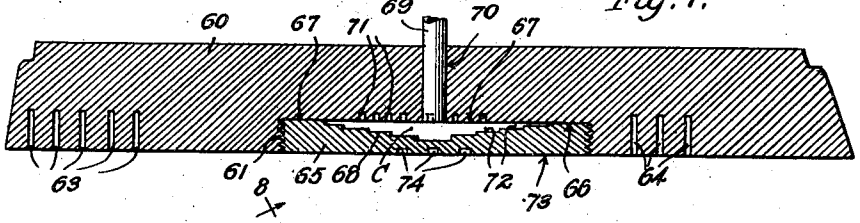
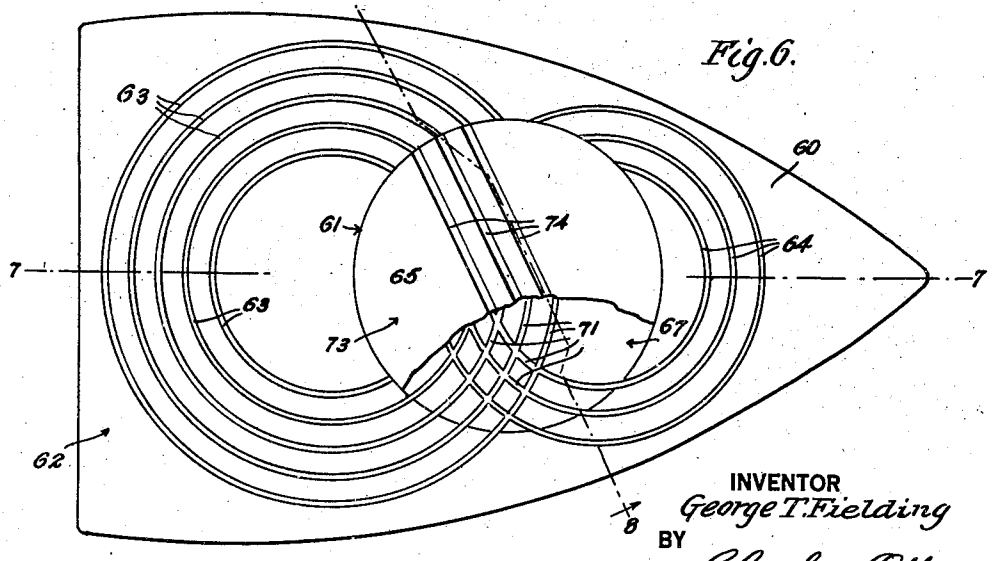


Fig. 6.



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2,026,422

DAMPENING AND STEAMING ASSEMBLY FOR PRESSING IRONS

George T. Fielding, Stamford, Conn.

Application October 3, 1933, Serial No. 691,952

5 Claims. (Cl. 68—26)

This invention has general reference to pressing irons and refers more particularly to an assembly which is in the nature of an accessory or adjunct therefor, applicable to standard types of pressing irons without requiring any material alterations in the construction thereof and which assembly is constructed in such a manner and so cooperates with the iron when heated, as to effect a dampening or steaming of the materials, fabrics or articles as they are being ironed or pressed, thereby eliminating the necessity of such other and separate operations as sponging, sprinkling, steaming or otherwise dampening the materials, fabrics or articles prior to or during the ironing or pressing of the same.

While it is realized that attempts to accomplish this purpose have been made, they have been more in the nature of specially constructed irons which have been found deficient and open to the objection that they fail, from a practical standpoint, to satisfactorily accomplish their purpose. The deficiency or failure is mainly attributed to the fact that when employed for the purpose of dampening the materials to eliminate the usual hand sprinkling or sponging operations, said previous devices, due to their construction and mode of operation, generate a volume of steam in a steam chamber which escapes therefrom in the form of a cloud of vapor through a series of separate outlets or passages in the bottom of the sole plate of the iron and merely passively, gently or inertly moisten the fabric, material or article being ironed or pressed, to such a slight degree and thus fails to properly and uniformly dampen the material, fabric or article and provide an adequate substitute for the usual hand sprinkling and sponging operations.

The usual and correct method of sprinkling clothes, or other articles or fabrics, prior to ironing the same, requires the usual spraying or sprinkling of water thereon, the rolling of the same compactly and the elapse of a sufficient period of time within which the dampness uniformly penetrates throughout the entire area of each article before the ironing operation is started. Likewise, in sponging and pressing an article, it is the proper practice to uniformly apply water to the fabric or to a pressing cloth laid thereover, and immediately thereafter when the hot iron is brought into contact with the wet article or pressing cloth, the water particles are exploded or shattered and driven into the fabric to remove the wrinkles.

The present invention provides an improved assembly as an accessory or attachment for practically any standard make of electric, gas or other type of pressing irons, which assembly is so constructed and so cooperates with the heated iron, that the iron may be optionally used, either in its ordinary manner or for the purpose of properly ironing the materials or articles with the same results as if the same had been separately sprinkled by hand under the usual method heretofore mentioned or employed for sponging and pressing fabrics or articles with results at least equal, if not superior, to those where the sponging is done in accordance with the aforementioned hand method.

More specifically, the invention resides in the provision of an assembly as an accessory or attachment for a pressing iron, which includes an explosion or generator chamber so constructed and so located with reference to the ironing or pressing surface of the sole plate of the iron, and having such means of communication therewith that when water is fed, drop by drop, to the heated surface of said chamber, it is exploded, shattered and forcibly driven in the form of one or more continuous sheets of hot moisture through outlets and into the threads and interstices of the fabric, material or article to function as a proper substitute for the hand sprinkling or sponging operations.

The invention also makes provision for control means, by virtue of which the feed of the water to the explosion or generator chamber may be regulated proportionate to the heat of the iron, so as to supply to the material, fabric or article being ironed or pressed, any degree of dampness from a wetting thereof to a light damping or to supply a dry steam, where a steaming operation alone is desired.

As a further feature, the invention provides outlets, leading from the explosion or generator chamber and opening through the pressing or ironing surface of the sole plate of the iron, which are in the form of continuous passages or slots so arranged or located with respect to said surface and each other, as to insure a complete and uniform dampening or wetting, simulating precisely or serving as a substitute for the usual hand sprinkling or sponging operations.

The invention aims for some of its other objects to provide an improved assembly as an accessory or attachment for irons which embodies few parts easily disassembled for cleaning or repairs and which parts are simple and not complicated in their construction, thus admitting of their economical production, assembly and incorporation

in the standard types of pressing irons, irrespective of the manner in which they are heated, and which accessory functions to perform its objects and purposes with a high degree of efficiency.

With the above recited and other objects in view, reference is now made to the following specification and accompanying drawings in which there has been disclosed several preferred embodiments of the invention, while the appended claims cover, in addition to the forms shown, other variations and modifications which fall within the scope and spirit of the invention.

In the drawings:

Fig. 1 is a side view of a dampening and steaming assembly for a pressing iron with parts broken away and shown in section to disclose the underlying structure and illustrating the same associated with an electric iron having a heat regulating means, the iron being shown in light phantomed lines.

Fig. 2 is a top plan view of the lower sole plate section.

Fig. 3 is a transverse sectional view taken approximately on the line indicated at 3—3 in Fig. 2.

Fig. 4 is a detailed fragmentary sectional view taken approximately on the line 4—4 of Fig. 2.

Fig. 5 is a fragmentary horizontal sectional view taken approximately on the line indicated at 5—5 in Fig. 1 and particularly illustrating the control valve structure.

Fig. 6 is a bottom plan view of a modified form of assembly partially broken away to disclose the underlying structure.

Fig. 7 is a longitudinal sectional view taken on a plane indicated by the line 7—7 in Fig. 6.

Fig. 8 is a transverse sectional view taken on the line indicated at 8—8 in Fig. 6.

Referring to the drawings by characters of reference, 10 designates the body portion of a pressing iron which, in the present instance, is of the electrically heated type and is equipped with a manipulating element 11 for manually controlling the degree of temperature to which the iron is heated, although it is to be understood that this is merely illustrative of one form or type of iron to which the invention is applicable. The iron includes a handle 12 connected with the body by a bail 13 and a sole plate designated generally by the reference character 14.

In one form of the invention as disclosed in Figs. 1 to 4 inclusive, the sole plate 14 includes upper and lower mating sections 15 and 16 which may be connected in any desired manner, but in the present disclosure, are connected by screws 17. The lower face 18 of the upper section is machined or otherwise treated to present a smooth flat surface and the upper face 19 of the lower section is also machined or treated to present a smooth flat surface which surfaces 18 and 19 are designed to intimately contact with each other when the sections 15 and 16 of the sole plate are properly connected together. The upper face or surface 19 of the lower section is provided with a longitudinally extending groove or depression 20 located medially of the width thereof and terminating at its opposite ends in spaced relation to the point or toe portion of the front of the sole plate of the iron and the heel portion of the rear of the iron. The groove or depression 20 is preferably, as shown, of cross sectionally concave arcuate formation presenting a continuous smooth concave arcuate wall 21. The upper surface 19 of the lower section is also provided with a plurality of distributor grooves or depressions 22, extending in a direction approximately transversely of the sole plate of the iron and located between the side edges 23 of the sole plate and the side edges of the longitudinal groove or depression 20. The distributor grooves 22 terminate in spaced relation to the side edges 23 of the sole plate and the side edges of the longitudinal depression 20. Feed grooves 24 of lesser depth and width than the grooves 22, extend from the inner ends of the distributor grooves 22 to the longitudinal groove 20 and open respectively into the grooves 20 and 22.

Outlet slots 25 corresponding approximately in length to the length of the distributor grooves 22 are formed in the sole plate section 16 and open through the lower or pressing surface 26 thereof and through the bottom wall of the distributor grooves 22, respectively. When the upper and lower sections 15 and 16 of the sole plate are assembled and connected in mated relation, it will be apparent that the then covered longitudinal groove 20 defines a closed chamber C which will be hereinafter referred to as the explosion or steam chamber, while the covered feed grooves form feed passages P leading from the explosion or generator chamber C to the distributor ducts D defined by the grooves 22 when covered by the lower surface 18 of the upper sole plate section 15.

In order to supply water to the chamber C, a conduit pipe 27 is employed, the lower end of which extends through an opening 28 in the upper section 15 of the sole plate, thence upwardly through the body structure of the iron and communicates through an elbow structure 29 with a conduit section 30 which extends forwardly and upwardly to a control valve 31, mounted on and carried by the forward portion of the handle 12. In the present disclosure, a water conduit pipe 32 extends rearwardly from the control valve 31 through the handle 12 to a nipple 33 protruding from the rear of the handle structure and which nipple is adapted to have removably fitted thereover, a flexible water conduit 34, leading from a source of water supply, not shown, but which may be in the form of a reservoir, located at an appropriate distance above the ironing board, to effect a gravity feed of the water to the control valve intake chamber.

As the water is supplied to the explosion or steam generator chamber C in a succession of drops, assuming the sole plate to be heated to the proper degree, the drops spin and roll in globular form along the heated surface of the wall 21 of the longitudinal groove 20, exploding and shattering at various points throughout the length of the chamber C, into tiny water particles which are thereby forcibly driven into and throughout the fabric through the outlets 25, to which outlets they are directed by the feed passages P and distributor ducts D. By virtue of the continuous formation of the outlet slots, the fabric is exposed to one or a succession of continuous moving sheets of hot moisture as the iron passes thereover, to properly effect a uniform dampening of the fabric in the path traversed by the iron.

It should here be noted that the distributor slots 22 defining the ducts D, which are located in close proximity to the point of supply of water to the explosion or generator chamber C, have their inner ends proportionately spaced a relatively greater distance from the generator chamber than those remote from the point of supply, so as to avoid the feeding of too great a volume of water particles at this point and to more uni-

formly effect the distribution of the water particles throughout the various outlet slots **25**. It should also be observed that by providing the outlets in the form of continuous relatively narrow elongated slots, a complete and uniform dampening or wetting of the material, fabric or article being ironed or pressed is insured so as to simulate more precisely and serve as a true substitute for the hand sponging or sprinkling operations.

The control valve **31** is constructed so as to perform two functions, namely, to provide means acting as a throttle regulating the volume of the flow of water to the explosion or steam chamber, and to provide the user of the iron with means for optionally cutting off or premitting of the flow of water to the chamber. As illustrated in Fig. 5, the control valve is provided with an intake chamber **35** with which the forward end of the conduit pipe **32** communicates. The inlet chamber is provided with a valve seat **36** with which the terminal **37** of a needle valve shank **38** is designed to cooperate to vary the size of the orifice defined by the seat **36**, by turning of the exposed manipulating head **40** to advance the terminal **37** towards or retract the same from the seat **36**. In order that the user may be guided as to the setting of the needle valve, suitable indicia **41** and a pointer **42** may be provided on the outer face of the manipulating head **40** and graduations **43** with which the pointer cooperates, may be inscribed on the adjacent face of the control valve casing **31**. The valve casing is provided with a passage **44** leading from the intake chamber **35** to a secondary or intermediate chamber **45** which, in turn communicates with an outlet chamber **46** through a valve seat **47** which is controlled by a valve head **48**, normally urged into seated relation with the seat **47** by a spring **49**. The valve head **49** is provided with a stem **50** which protrudes from the valve casing and is provided with a push button **51** located in a convenient position to be actuated by the thumb of the user to unseat the valve head **48** from the seat **47** to permit of the flow of the water from the secondary chamber **45** to the outlet chamber **46**. It is apparent that upon release of the push button **51**, the spring **49** will automatically seat the valve head **48** and cut off the flow of the water from the secondary chamber **45** to the outlet chamber **46**. The conduit pipe **30** communicates with the outlet chamber **46** through an opening **52** so that the water entering the outlet chamber **46** is conveyed therefrom downwardly through the conduit **30**, the elbow **29** and conduit **27** to the chamber C.

If for any reason it is found desirable to retain the valve head **48** in open relation to its seat **47** to permit of a continuous flow of water from the secondary chamber **45** to the outlet chamber **46** for continuously supplying water to the chamber C without manually holding the push button pressed inwardly, means is provided for this purpose. The means may be of any desired form, but as ilustrated in the present instance, a semi-annular flange **53** is provided on a boss **54** on the inner side of the push button **51**, said flange being spaced from the push button and being adapted to engage under the detent head **55** of a stud or screw **56** upon turning of the push button head, after it has been moved inwardly to unseat the valve head **47**.

Obviously, under this construction and arrangement, the volume of water which is admitted to the chamber C, coupled with the degree of temperature to which the sole plate is heated, determines the degree of dampness which will be supplied to the material, fabric or article being ironed or pressed and it is obvious that a small volume of water admitted with a high degree of heat of the sole plate of the iron, will cause the generation of practically dry steam in the chamber C which will escape through the outlets when a steaming operation alone is desired. By increasing the volume of water and decreasing the temperature of the heat of the sole plate, the device, in accordance with the character of the material being pressed or ironed, may produce any degree of dampness up to a thorough wetting thereof. It is, of course, apparent that the regulation in the volume of water alone will likewise accomplish the purpose where the assembly is applied to pressing irons which are not equipped with a heat control means.

In the modified form of the invention as disclosed in Figs. 6, 7 and 8, the sole plate **60** is machined or is otherwise formed with a threaded circular recess **61** which opens through its lower pressing surface **62** and a plurality of sets of preferably concentric grooves **63** and **64** constituting continuous outlets which also open through said surface **62** and intersect the recess. A circular plug **65** having peripheral threads is threadedly engaged in the recess **61**. The inner or upper end wall **66** of the plug intimately contacts with the inner end wall **67** of the recess **61** except for the medial portion thereof which is depressed as at **68** to define together with the recess wall **67** an explosion or steam chamber C with which chamber a water supply conduit **69** communicates through an opening **70** in the sole plate. The outlet grooves **63** and **64** are of greater depth than the recess **61** so that the portions **71** thereof, which intersect the recess, are sunk below the inner end wall **67**, and together with the inner or upper end wall **66** of the plug, define feed passages P for directing the water particles from the chamber C to the outlet grooves **63** and **64**. Preferably, the medial depressed portion has a stepped surface **72** so as to centralize the explosive action and thereby uniformly distribute the water particles to the several grooved outlets **64** and **65**.

The outer or lower wall **73** of the plug **65** is finished and polished so as to conform to the pressing surface **62** of the sole plate and is provided with one or more grooves **74** which, in addition to serving as means with which a screwdriver or other implement is engaged for turning the plug to screw and unscrew the same, also functions, when properly set, to communicate with the outlet grooves **64** and **65**, as continuations thereof for distributing the water particles or steam over the fabric covered by the plug wall **73**. In principal, the operation is obviously the same as in the first form of the invention and the location and arrangement of the elements of the assembly are such as to subject the fabric to continuous moving sheets of hot moisture to effect a uniform dampening of the fabric in the path traversed by the iron.

What is claimed is:

1. A pressing iron including a sole plate having a water explosion chamber within the confines thereof and having a plurality of relatively narrow elongated outlets opening through the lower pressing surface thereof, a distributor duct for each outlet of a length approximately equal thereto and in direct continuous communication therewith throughout its entire length, and a pas-

sage leading from each distributor duct to and communicating with the explosion chamber, a water conduit leading from a source of supply to said chamber to feed water thereto in a succession of drops which are adapted to freely roll in globular form over the surface of the chamber and to individually explode and shatter into water particles which are driven by the force of the explosion from the explosion chamber through the passages, the distributor ducts and outlets and directly into the fabric while in water particle form.

2. A sole plate for a pressing iron having an elongated water receiving explosion chamber extending longitudinally thereof from a point adjacent the toe to a point adjacent the heel of the iron, a plurality of narrow passages extending laterally from the chamber on both sides thereof at longitudinally spaced points throughout the length thereof, a distributing duct communicating with each passage, extending in the same general direction as its passage and of relatively larger cross sectional area than the passage, said ducts each terminating in an elongated outlet coextensive with the duct and opening through the bottom of the sole plate, and means for supplying water to said explosion chamber.

3. A sole plate for a pressing iron having a water explosion chamber located in a plane in close proximity to the plane of the lower smoothing surface thereof, said sole plate having a plurality of narrow elongated distributor ducts arranged to extend from a point adjacent the explosion chamber to a point adjacent the margin of the sole plate, said ducts each terminating in an elongated relatively narrow outlet coextensive with its duct and opening through the smoothing surface of the iron, and a plurality of narrow relatively short passages establishing communication between the explosion chamber and the distributing ducts.

4. A sole plate for a pressing iron having a water explosion chamber located in a plane in close proximity to the plane of the lower smoothing surface thereof, said sole plate having a plurality of narrow elongated distributor ducts arranged to extend from a point adjacent the explosion chamber to a point adjacent the margin of the sole plate, said ducts each terminating in an elongated relatively narrow outlet coextensive with its duct and opening through the smoothing surface of the iron, a plurality of narrow relatively short passages establishing communication between the explosion chamber and the distributing ducts, and means for supplying water to the explosion chamber, the passages adjacent the point of supply of the water to the explosion chamber being of relatively greater length than those remote from said point of supply.

5. A method of dampening and smoothing a fabric, consisting in shattering water by heat and projecting the shattered water particles directly by the force of the shattering into every portion of a selected area of the fabric to dampen the same uniformly throughout said area and, while in its dampened condition, applying heat and pressure to that area so as to dry and smooth the fabric.

GEORGE T. FIELDING.