



US 20180313025A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2018/0313025 A1**
Moalem (43) **Pub. Date: Nov. 1, 2018**(54) **CORDLESS STEAM IRON SYSTEM**(71) Applicant: **Farhad Moalem**, Alexandria, VA (US)(72) Inventor: **Farhad Moalem**, Alexandria, VA (US)(21) Appl. No.: **15/962,231**(22) Filed: **Apr. 25, 2018****Related U.S. Application Data**

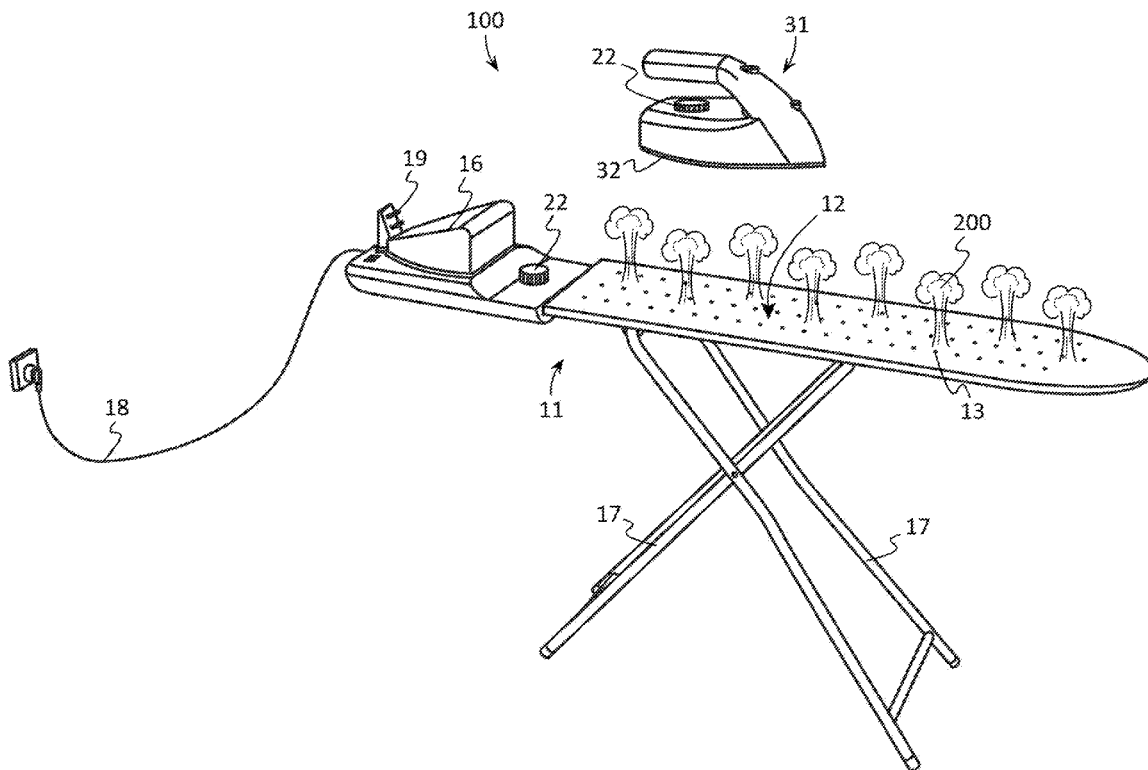
(60) Provisional application No. 62/490,163, filed on Apr. 26, 2017.

Publication Classification(51) **Int. Cl.**
D06F 81/08 (2006.01)(52) **U.S. Cl.**CPC **D06F 81/08** (2013.01); **D06F 75/38** (2013.01)

(57)

ABSTRACT

A steam ironing system may include an ironing board and an iron. The ironing board may have an ironing surface having a plurality of steam apertures. A steam generator may be configured to generate steam from water, and a steam chamber may store and/or communicate the steam from the steam generator to the steam apertures. An iron base may support the iron and provide an electrical connector may provide an electrical connection between the iron and ironing board when the iron is supported by the iron base. The iron may include a sole plate which may generate heat using the electric power provided by the electrical connector. An object that is to be ironed may be placed on the ironing surface. Steam may be applied to the object via the steam apertures. Additionally, the iron may be moved across the object by the user while heat is applied to the object via the sole plate.



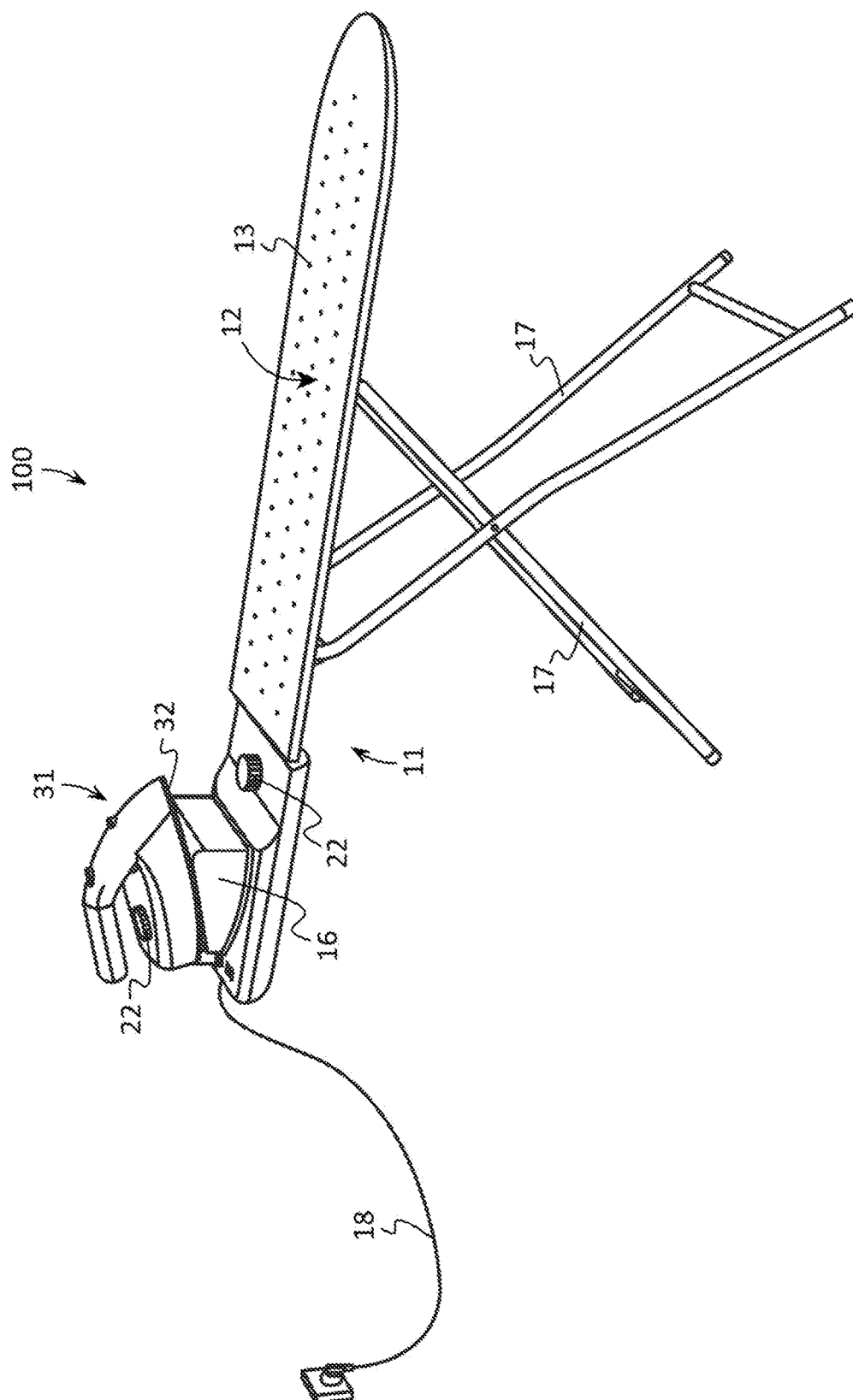


FIG. 1

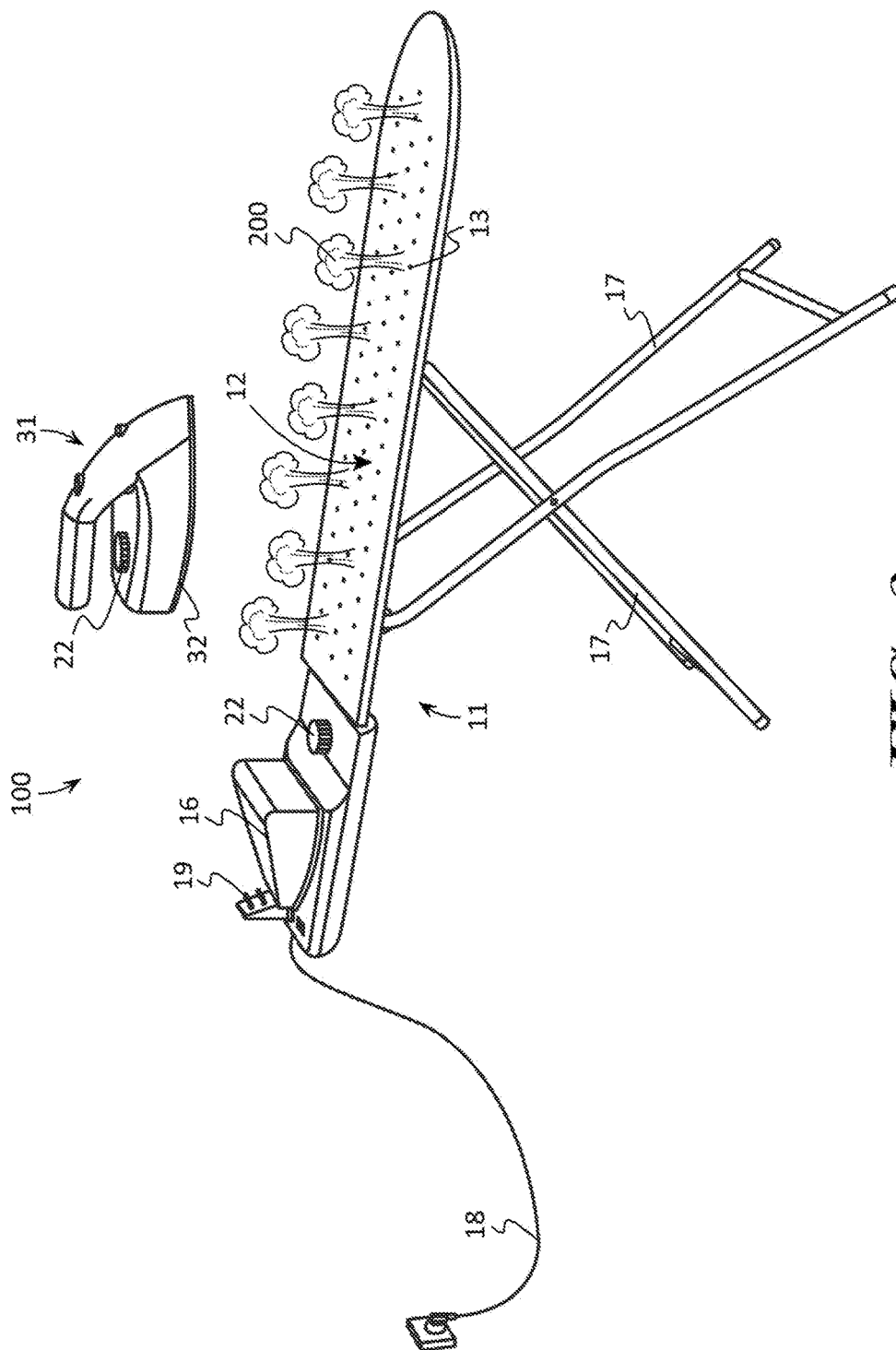


FIG. 2

100

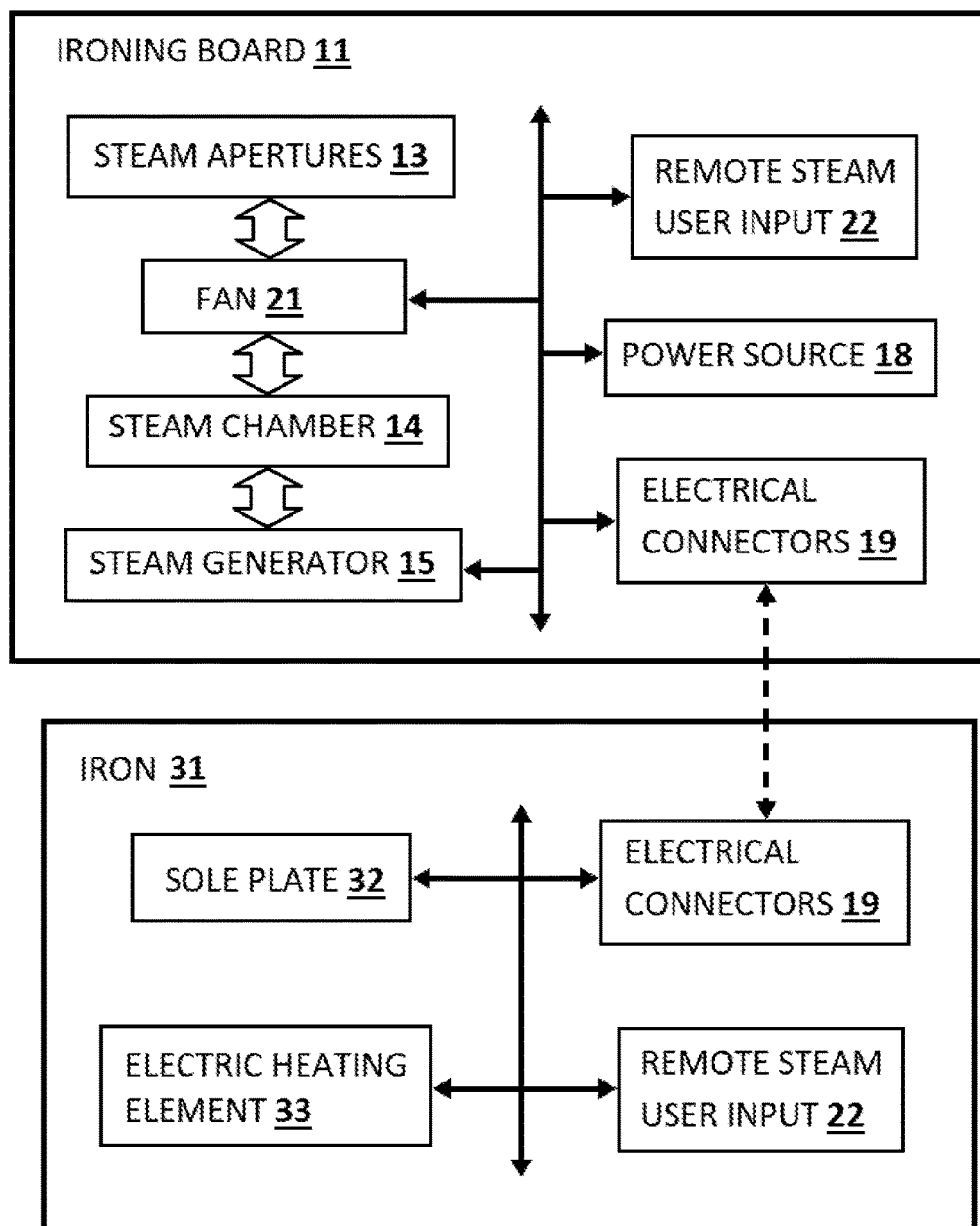


FIG. 3

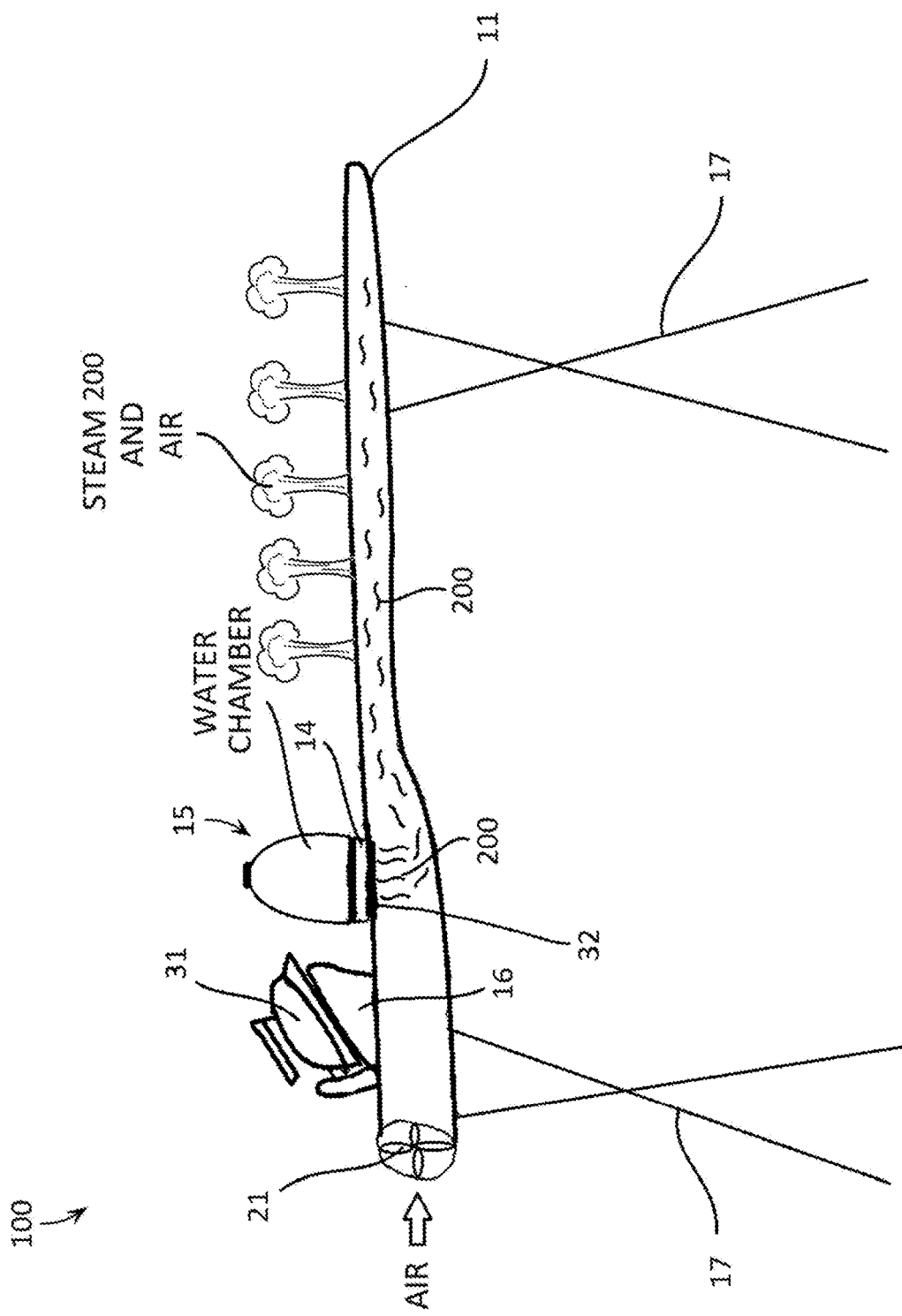


FIG. 4

CORDESS STEAM IRON SYSTEM

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to and the benefit of the filing date of U.S. Provisional Application No. 62/490,163, filed on Apr. 26, 2017, entitled “Cordless Steam Iron System”, which is hereby incorporated by reference in its entirety.

APPENDIX TO THE SPECIFICATION

[0002] This application contains an appendix labeled as “Appendix_A”. The entire contents of which are hereby incorporated by reference in their entirety.

FIELD OF THE INVENTION

[0003] This patent specification relates to the field of devices and systems for ironing and removing wrinkles from cloth and clothes. More specifically, this patent specification relates to a system for providing improved steam generation for ironing and removing wrinkles from cloth and clothes.

BACKGROUND

[0004] The cordless steam iron was invented to address the convenience of operation and safety hazards associated with corded steam iron. These irons typically consist of a base with an electrical connection to electrical outlet with a temporary electrical connection formed between steam iron and the base when the iron is on the base. This electrical connection is used to cause the soleplate of the iron to heat up while on the base. As the user picks up the iron to start ironing, the electrical power gets disconnected and the iron uses the stored heat in the soleplate to convert water to steam and also it uses the remaining heat to straighten and dry the fabric. Steam generation happens inside the iron chamber after the electrical disconnection.

[0005] However, the performance of these cordless steam irons is often less than desirable as heat stored in the soleplate is not usually adequate enough to address the demand for heat and steam to the fabric during different ironing operations. Some existing cordless steam irons attempt to improve their ironing performance by adding more mass to the soleplate and asking the customers to keep the iron at the base longer to ensure enough heat is stored into soleplate for different ironing operations. But these irons are both heavier and require a longer wait time at the base defeats the purpose of convenience.

[0006] Therefore, a need exists for novel systems for providing improved steam generation for ironing and removing wrinkles from cloth and clothes.

BRIEF SUMMARY OF THE INVENTION

[0007] A steam ironing system is provided which may be used to generate steam and heat which may be used for ironing purposes or for any other purpose. In some embodiments, the system may include an ironing board and an iron. The ironing board may have an ironing surface having a plurality of steam apertures and an electrical connector. A steam chamber may be in communication with the steam apertures and a steam generator. The steam generator may be configured to generate steam from water, and the steam chamber may store and/or communicate the steam from the

steam generator to the steam apertures. The ironing board may include an iron base which may support the iron and the iron base may include the electrical connector that may provide an electrical connection between the iron and ironing board when the iron is supported by the iron base. The iron may include a sole plate which may generate heat using the electrical connection provided by the electrical connector. An object that is to be ironed may be placed on the ironing surface. Steam may be generated by the steam generator and applied to the object via the steam apertures. Additionally, the iron may be moved across the object by the user while heat is applied to the object via the sole plate.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Some embodiments of the present invention are illustrated as an example and are not limited by the figures of the accompanying drawings, in which like references may indicate similar elements and in which:

[0009] FIG. 1 depicts a perspective view of an example of a steam ironing system according to various embodiments described herein.

[0010] FIG. 2 illustrates a perspective view of an example of a steam ironing system generating steam according to various embodiments described herein.

[0011] FIG. 3 shows a block diagram of an example of a steam ironing system according to various embodiments described herein.

[0012] FIG. 4 depicts a perspective view of another example of a steam ironing system according to various embodiments described herein.

DETAILED DESCRIPTION OF THE INVENTION

[0013] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. As used herein, the term “and/or” includes any and all combinations of one or more of the associated listed items. As used herein, the singular forms “a,” “an,” and “the” are intended to include the plural forms as well as the singular forms, unless the context clearly indicates otherwise. It will be further understood that the terms “comprises” and/or “comprising,” when used in this specification, specify the presence of stated features, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, steps, operations, elements, components, and/or groups thereof.

[0014] Unless otherwise defined, all terms (including technical and scientific terms) used herein have the same meaning as commonly understood by one having ordinary skill in the art to which this invention belongs. It will be further understood that terms, such as those defined in commonly used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and the present disclosure and will not be interpreted in an idealized or overly formal sense unless expressly so defined herein.

[0015] In describing the invention, it will be understood that a number of techniques and steps are disclosed. Each of these has individual benefit and each can also be used in conjunction with one or more, or in some cases all, of the other disclosed techniques. Accordingly, for the sake of clarity, this description will refrain from repeating every

possible combination of the individual steps in an unnecessary fashion. Nevertheless, the specification and claims should be read with the understanding that such combinations are entirely within the scope of the invention and the claims.

[0016] For purposes of description herein, the terms “upper”, “lower”, “left”, “right”, “rear”, “front”, “side”, “vertical”, “horizontal”, and derivatives thereof shall relate to the invention as oriented in FIG. 1. However, one will understand that the invention may assume various alternative orientations and step sequences, except where expressly specified to the contrary. Therefore, the specific devices and processes illustrated in the attached drawings, and described in the following specification, are simply exemplary embodiments of the inventive concepts defined in the appended claims. Hence, specific dimensions and other physical characteristics relating to the embodiments disclosed herein are not to be considered as limiting, unless the claims expressly state otherwise.

[0017] Although the terms “first”, “second”, etc. are used herein to describe various elements, these elements should not be limited by these terms. These terms are only used to distinguish one element from another element. For example, the first element may be designated as the second element, and the second element may be likewise designated as the first element without departing from the scope of the invention.

[0018] As used in this application, the term “about” or “approximately” refers to a range of values within plus or minus 10% of the specified number. Additionally, as used in this application, the term “substantially” means that the actual value is within about 10% of the actual desired value, particularly within about 5% of the actual desired value and especially within about 1% of the actual desired value of any variable, element or limit set forth herein.

[0019] A new system for ironing and removing wrinkles from cloth and clothes is discussed herein. In the following description, for purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of the present invention. It will be evident, however, to one skilled in the art that the present invention may be practiced without these specific details.

[0020] The present disclosure is to be considered as an exemplification of the invention and is not intended to limit the invention to the specific embodiments illustrated by the figures or description below.

[0021] The present invention will now be described by example and through referencing the appended figures representing preferred and alternative embodiments. FIGS. 1-4 illustrate examples of a steam ironing system (“the system”) 100 according to various embodiments. The system 100 may be used to generate steam 200 and heat which may be used for ironing purposes or for any other purpose. In some embodiments, the system 100 may comprise an ironing board 11 and an iron 31. The ironing board 11 may have an ironing surface 12 having a plurality of steam apertures 13. A steam chamber 14 may be in communication with the steam apertures 13 and a steam generator 15. The steam generator 15 may be configured to generate steam 200 from water, and the steam chamber 14 may store and/or communicate the steam 200 from the steam generator 15 to the steam apertures 13. The ironing board 11 may include an iron base 16 which may support the iron 31 and provide an electrical connection between the iron 31 and ironing board

11 when the iron 11 is supported by the iron base 16. The iron may include a sole plate 32 which may generate heat using the electrical connection provided by the iron base 16. An object that is to be ironed may be placed on the ironing surface 12. Steam may be generated by the steam generator 15 and applied to the object via the steam apertures 13. Additionally, the iron 31 may be moved across the object by the user while heat is applied to the object via the sole plate 32.

[0022] The system 100 may comprise an ironing board 11 which may be configured in any shape and size. The ironing board 11 may comprise an ironing surface 12 which may also be configured in any shape and size and preferably with a generally planar shape. Optionally, the ironing board 11 may comprise one or more support legs 17 which may be configured to support the ironing board 11 and which may optionally be adjustable in height so that the ironing surface 12 height may be adjustable.

[0023] The ironing board 11 may comprise one, two, three, four, five, six, seven, or more, such as a plurality of steam apertures 13. Steam apertures 13 may be configured in any shape and size. In some embodiments, the steam apertures 13 may be evenly distributed across the ironing surface 12. In further embodiments, the steam apertures 13 may be disposed in one or more groups in one or more locations on the ironing surface 12.

[0024] The system 100 may comprise one or more steam generators 15 which may provide steam to one or more steam apertures 13. In some embodiments, a steam generator 15 may be coupled to the ironing board 11. A steam generator 15 may comprise any device which may be configured to generate steam 200 from water. For example, a steam generator 15 may comprise an electric heating element in communication with a water reservoir.

[0025] In some embodiments, the system 100 may comprise a steam chamber 14 which may be configured to communicate steam 200 generated by the steam generator 15 to one or more steam apertures 13. A steam chamber 14 may be configured in any shape and size. Optionally, the system 100 may comprise a fan 21, such as an axial-flow fan, centrifugal fan, cross-flow fan, bellows, Coandă effect air mover, electrostatic air mover, or any other device or method capable of moving air or other type of air motivator, which may be used to blow or otherwise motivate steam 200 out of the steam apertures 13.

[0026] The system 100 may comprise an iron base 16 which may be coupled to the ironing board 11. The system 100 may also comprise a power source 18 which may provide electric power to the iron base 16, steam generator 15, and/or any other element of the system 100. The iron base 16 may be configured to support an iron 31 such as when the iron is not being manipulated by a user. The iron base 16 may also comprise one or more electrical connectors 19 which may provide electrical power to an iron 31, preferably while the iron 31 is being supported by the iron base 16.

[0027] The system 100 may comprise one or more irons 31. In some embodiments, an iron 31 may be configured as a corded iron so as to have a wired electrical connection which is used to supply electricity for the heating of the sole plate 32 of the iron 31. The wired electrical connection may be provided via a wired connection with the ironing board 11, wall electrical outlet, or other power source. In preferred embodiments, an iron 31 may be a cordless iron 31 which

may receive electrical power by being placed in contact with one or more electrical connectors **19** of an iron base **16**. Optionally, the iron **31** may comprise a battery or other electric storage device. The iron **31** may comprise an electric heating element **33** which may be used to heat the sole plate **32** to one or more desired temperatures. Optionally, an iron **31** may comprise a steam generator **15** and one or more steam apertures **13** which may be configured to release steam **200** from one or more locations on the sole plate **32**.

[0028] In preferred embodiments, the sole plate **32** of the iron **31** may be heated while the iron **31** is supported by the iron base **16**. In further preferred embodiments, when the iron **31** is removed from the iron base **16** and/or rested or moved across the ironing surface **12**, steam **200** may be released by one or more steam apertures **13** of the ironing board **11** and/or iron **31**. In still further preferred embodiments, the system **100** may comprise one or more remote steam user inputs **22**, such as a button, switch, knob, or other controller which may be operated by a user, which may be operated by a user to start, stop, increase, decrease, or otherwise control steam **200** generated by a steam generator **15** of an ironing board **11** and/or iron **31**. For example, an ironing board **11** may comprise a remote steam user input **22** which may be operated by a user to start, stop, increase, decrease, or otherwise control steam **200** generated by a steam generator **15** of the ironing board **11** and/or an iron **31**. As another example, an iron **31** may comprise a remote steam user input **22** which may be operated by a user to start, stop, increase, decrease, or otherwise control steam **200** generated by a steam generator **15** of an ironing board **11** and/or the iron **31**.

[0029] While some materials have been provided, in other embodiments, the elements that comprise the system **100**, such as the ironing board **11**, iron **31**, and/or any other element discussed herein, may be made from or may comprise durable materials such as aluminum, steel, other metals and metal alloys, wood, hard rubbers, hard plastics, fiber reinforced plastics, carbon fiber, fiber glass, resins, polymers or any other suitable materials including combinations of materials. Additionally, one or more elements may be made from or may comprise durable and slightly flexible materials such as soft plastics, silicone, soft rubbers, or any other suitable materials including combinations of materials. In

some embodiments, one or more of the elements that comprise the system **100** may be coupled or connected together with heat bonding, chemical bonding, adhesives, clasp type fasteners, clip type fasteners, rivet type fasteners, threaded type fasteners, other types of fasteners, or any other suitable joining method. In other embodiments, one or more of the elements that comprise the system **100** may be coupled or removably connected by being press fit or snap fit together, by one or more fasteners such as hook and loop type or Velcro® fasteners, magnetic type fasteners, threaded type fasteners, sealable tongue and groove fasteners, snap fasteners, clip type fasteners, clasp type fasteners, ratchet type fasteners, a push-to-lock type connection method, a turn-to-lock type connection method, a slide-to-lock type connection method or any other suitable temporary connection method as one reasonably skilled in the art could envision to serve the same function. In further embodiments, one or more of the elements that comprise the system **100** may be coupled by being one of connected to and integrally formed with another element of the system **100**.

[0030] Although the present invention has been illustrated and described herein with reference to preferred embodiments and specific examples thereof, it will be readily apparent to those of ordinary skill in the art that other embodiments and examples may perform similar functions and/or achieve like results. All such equivalent embodiments and examples are within the spirit and scope of the present invention, are contemplated thereby, and are intended to be covered by the following claims.

What is claimed is:

1. A steam ironing system, the system comprising:
 - an ironing board having an ironing surface;
 - a plurality of steam apertures disposed in the ironing surface;
 - a steam aperture in communication with the plurality of steam apertures
 - an iron base configured to support an iron; and
 - an electrical connector configured to provide electric power to an iron.
2. The system of claim 1, further comprising an iron having a sole plate which is configured to generate heat using the electric power provided by the electrical connector.

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