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FABRIC STEAMING AND BRUSHING DEVICE

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Fig. 1.

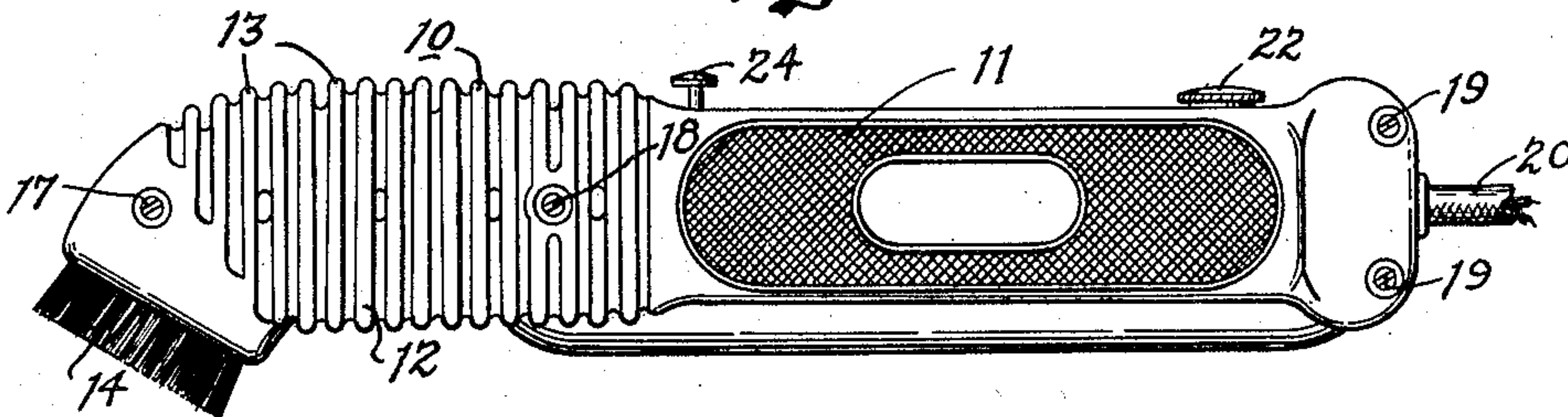


Fig. 2.

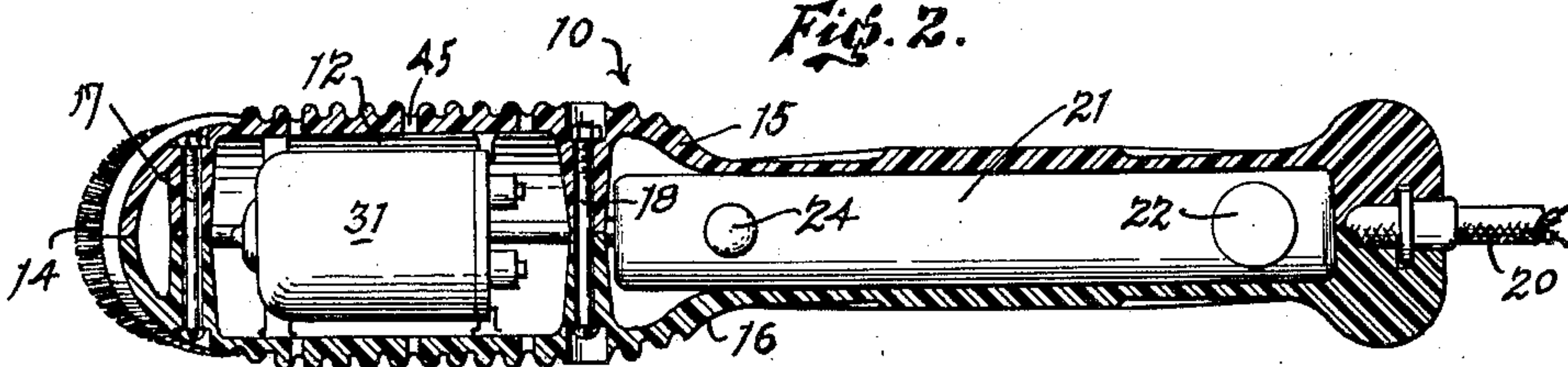


Fig. 3.

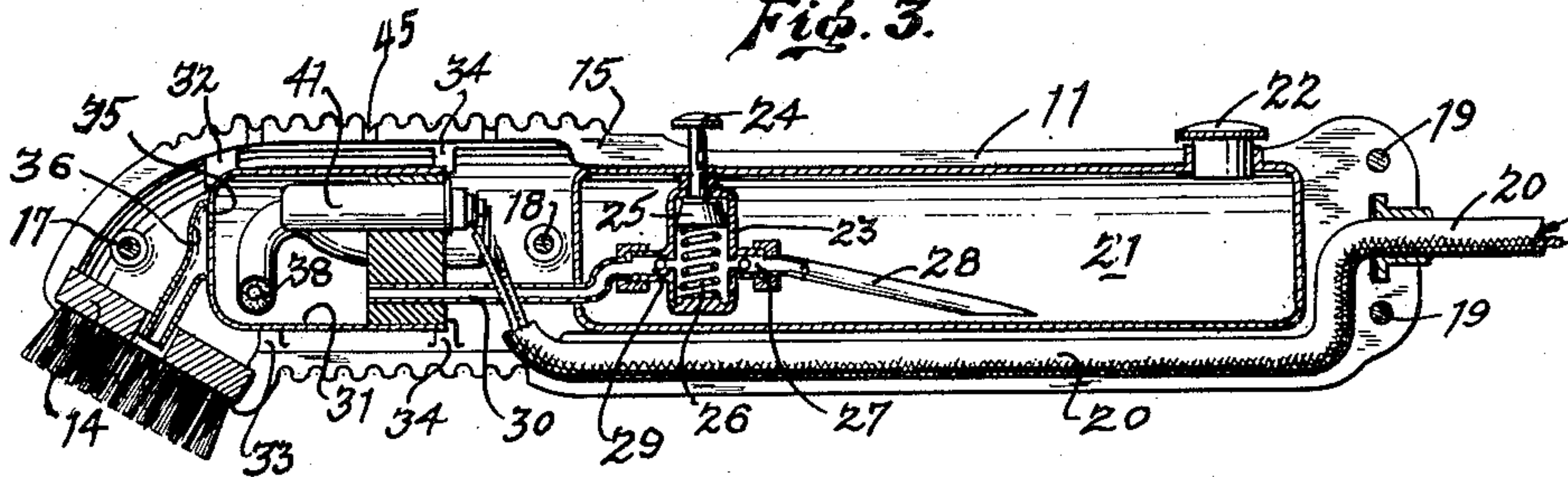


Fig. 4.

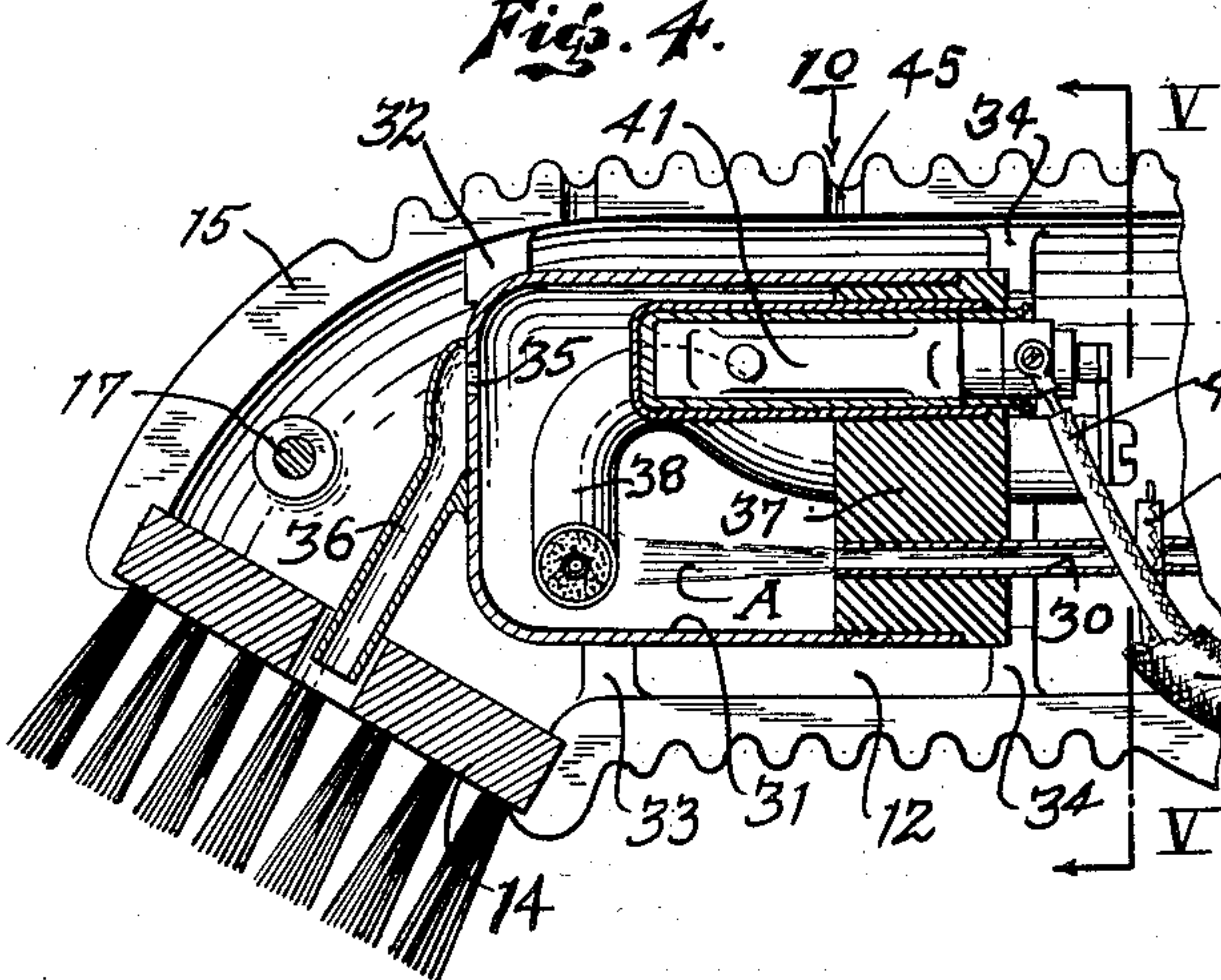
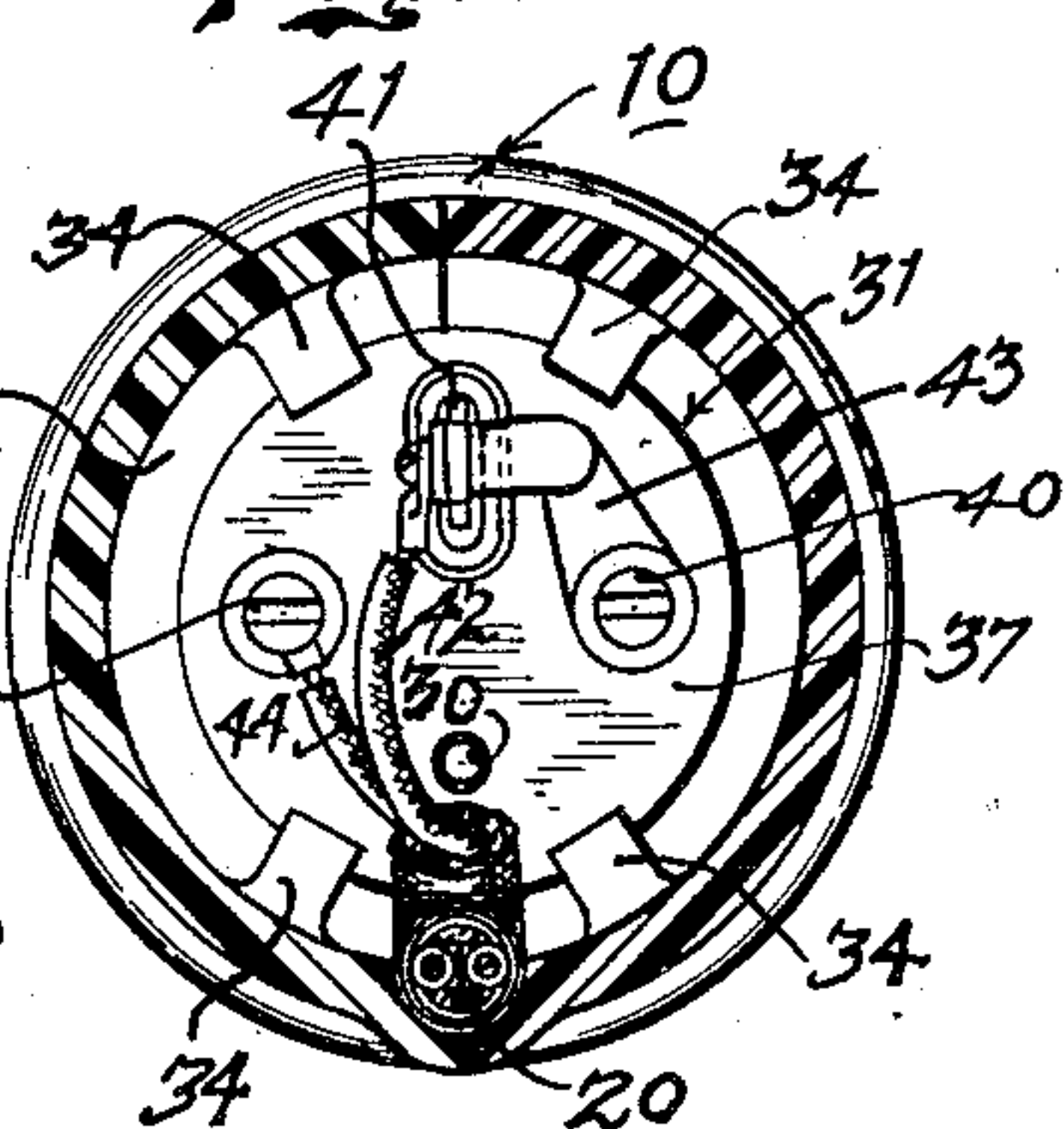


Fig. 5.



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FABRIC STEAMING AND BRUSHING DEVICE

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5 Claims. (Cl. 15—133)

This invention relates to fabric cleaning and brushing equipment and more particularly to a fabric steaming and brushing device of novel and practical construction.

An object of the invention is to provide a fabric steaming brush of practical and inexpensive construction in which a supply of dry steam is generated and applied to a fabric in a safe and efficient manner.

A further object of the invention is to provide a fabric steaming brush in which steam may be safely generated and continuously or intermittently applied to a fabric simultaneously with a brushing operation and under the control of an operator as the need for steam arises when the brush is in use.

Another object of the invention is to provide a steam generating system for fabric steaming devices in which the steam supply may be intermittently replenished in measured quantities as its need requires.

A further object of the invention is to provide a self-contained fabric steaming device in which steam is generated in a flash manner and without the use of a pressurized retaining boiler and in which the need for safety relief devices is avoided.

Other objects and advantages of the invention will be in part evident to those skilled in the art and in part pointed out hereinafter in connection with the accompanying drawing wherein there is shown by way of illustration and not of limitation a preferred embodiment thereof.

In the drawing, Figure 1 is a side view of a preferred embodiment of my fabric steaming brush constructed in accordance with the invention.

Figure 2 is a horizontal sectional view of the two piece housing with other elements, shown in full and located therein, taken along the central plane of Figure 1.

Figure 3 is a vertical sectional view taken longitudinally through the device as shown in Figure 1.

Figure 4 is a substantially full-size view showing details of the brush and steam generating unit, and

Figure 5 is a sectional view taken along line V—V of Figure 4, looking in direction of arrows.

For an understanding of what I consider to be my invention, reference is now made to the accompanying drawing wherein like numerals referred to like parts throughout the several views. As shown in Figures 1 to 3 of the drawing, my improved steam brush in its preferred form contemplates a moulded plastic housing formed of two substantially symmetrical parts that are secured together along a longitudinal center and vertical plane. This housing, designated generally by the numeral 10, has a rearwardly extending hand-grip portion 11 and a forward chamber forming portion 12. The chamber 12 as here shown is provided with annular ribs 13 which serve to provide an increased heat radiating area at this point and at the outer end of the chamber 12 there is a bristle brush 14. The brush 14 is preferably mounted at an angle with respect to the hand-grip portion 11 of the device. In this particular instance the two halves of the

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housing 10, designated by the numerals 15 and 16, are secured together by suitable bolts 17, 18, and 19, and extending along the under-side of the hand-grip portion 11, there is a channel into which an electric current conducting lead 20 is disposed. This current conducting lead 20 may be of any suitable length outwardly from the hand-grip portion and at its end it will have a suitable plug-in circuit connector, not shown.

By referring to Figure 3 of the drawing it will be noted that the hand-grip portion 11 is made hollow so as to accommodate a liquid carrying tank 21. This tank 21 is provided with a removable filler cap 22 that extends outwardly at the heel of the hand-grip portion 11 of the housing 10. At the forward end of the tank 21 and preferably located therein, I show a piston pump 23 that has a plunger operating member 24, which is exposed at the forward end of the hand-grip portion 11. This operating member 24 serves as a means for operating a plunger or piston 25 against the action of a compression spring 26. As additional parts of the piston pump 23 there is also shown a ball-type check valve 27 which operates to close a suction pipe 28 when the piston 25 is moved downwardly by the operating member 24. At the other side of the pump there is a ball check valve 29 which operates in a reverse manner to open when the piston 25 is forced downwardly by the operating member 24 and close when the piston 25 is moved upwardly by the compression spring 26. Extending from the ball-type check valve 29 there is a fluid discharge conduit 30 which terminates within a steam generating chest or boiler 31, which is to be described in more detail hereinafter. The steam generating chest 31 is here shown as mounted in spaced relation with the walls of the chamber 12 by extending bosses 32, 33, and 34, and this way the housing 10 is held to a convenient and comfortable external temperature. At the forward end of the steam generating chest 31, there is a small exhaust port 35 which communicates with a steam directing nozzle 36 that terminates centrally within the area covered by the bristle brush 14.

As is more clearly shown in Figures 4 and 5 of the drawing the steam generating chest 31 is of metal of cup-like configuration. At its open or rearward end the steam chest 31 is closed by a metallic plug-like member 37 which serves as a support for a hot-rod electrical heating unit 38 that is formed with a depending loop so that at its outer end it will be disposed in alignment with the fluid discharge conduit 30 leading from the piston pump 23. This heating unit 38 is connected to terminal studs 39 and 40, which extend outwardly from the refractory member 37. Also supported by the refractory member 37 there is an encased thermostatic cut-out switch 41. As is more clearly shown in Figure 5 of the drawing, one side of the power line is connected to the switch 41 as by a conductor 42 of the current conducting lead 20. At its other side the thermostatic cut-out switch 41 is connected to the stud 40 by a jumper 43 and the other side of the power line as provided by the current conducting lead 20 is connected to the stud 39 as by a conductor 44. In this arrangement the setting of the thermostatic cut-out switch 41 will be such that the power circuit will be opened whenever the temperature within the steam chest 31 reaches a predetermined or dangerous temperature. In operation it will be readily seen that when the hot-rod heater unit 38 is fully energized the projection of a jet of water thereupon as at the point A in Figure 4, the steam generating unit acting on the flash principle will immediately convert each jet of water impinging thereon into steam. Under these conditions the steam pressure and/or the amount of steam within the steam generating chest 31 can be closely controlled

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as the operator need only repeat the injection of water into the steam generating unit at such a rate as will produce the desired result. With a minimum of water, a dry steam will result and if wet steam is desired a more frequent operation of the pump 23 will be required. At this point it may be noted that in addition to the annular ribs 13, the chamber 12 is also provided with a plurality of air circulating ports 45 which further serve to maintain the housing 10 at a comfortable temperature.

While I have, for the sake of clearness and in order to disclose the invention so that the same can be readily understood, described and illustrated a specific form and arrangement, I desire to have it understood that the invention is not limited to the specific form disclosed, but may be embodied in other ways that will suggest themselves to persons skilled in the art. It is believed that this invention is new and therefore all such changes as come within the scope of the appended claims are to be considered as part of this invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A self-contained steam generating brush comprising an elongated housing having a chamber at its forward end and a rearwardly extending hollow hand grip portion, a steam generating boiler in said chamber, a liquid containing reservoir mounted within the hand grip portion of said housing, said steam generating boiler having an electrically energized heating unit for converting a jet of water into steam, circuit connections for said electrical unit carried by said hand grip portion and extending therefrom for connection to a source of electric power, a thumb operated pump mounted within said handle portion and associated with said fluid containing tank to project a jet of water from said tank upon the electrically energized heating unit of said steam generating boiler, whereby upon each operation of said pump a quantity of water will impinge upon said heating unit and steam will be flash generated in said boiler, a fabric engaging brush at the forward end of said housing, and a steam directing nozzle extending from said steam generating boiler and terminating at said brush.

2. In a self-contained fabric steaming brush having a housing of the character described, the combination of a steam chest having an electrical steam generating unit with an exposed heated surface disposed therein, connections for supply of current to said electrical steam generating unit, a tank containing a fluid supply also mounted within said housing, a pump having an intake connection with the interior of said tank, a discharge connection for said pump directed upon the exposed heated surface of the steam generating unit within said steam chest, means for manually operating said pump when said housing is held in the hand of an operator, whereby said operator may periodically project a jet of water directly upon the exposed surface of said heating unit and produce a quantity of steam upon each operation of said means, a bristle brush extending from one end of said housing, and a steam directing conduit extending from said steam chest and terminating within the area encompassed by the bristles of said brush.

3. In a self contained fabric steaming and brushing device, the combination of an enclosed heat insulating housing having a steam confining chest at its forward end and a rearwardly extended hollow hand grip portion, a hot-rod electric steam generating unit mounted in an exposed position within the steam confining chest of said housing, a fabric working brush at the forward end of said housing forming a closure for said housing with its bristles extending outwardly therefrom, a steam directing nozzle extended from said steam confining chest and terminating within said brush, a liquid containing tank mounted within the hand grip portion of said housing,

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and a single stroke fluid pump connected between said container and said steam confining chest for projecting a jet of water from said tank and directly upon the hot-rod of said steam generating unit, and a pump operating member carried by said hand grip portion adapted and arranged to be operated by the thumb of an operator when using the brush, whereby a measured quantity of steam may be intermittently generated and directed as a jet to a fabric under said brush upon each operation of said pump.

4. In a self-contained steam generating unit for a fabric treating hand tool of the character described, the combination of a supporting housing having a hand grip portion, an elongated liquid supply tank mounted within the hand grip portion of said housing, a piston pump with check valves mounted within said liquid supply tank having an operating member exposed upon said hand grip portion and above said tank for engagement by the thumb of an operator, a steam chest mounted within said housing adjacent to and in alignment at one end of said tank, a liquid conduit between said piston pump and said steam chest through which water within said tank will be projected therefrom and into said steam chest as a jet upon each operation of said piston pump, an electrically energized heating unit having an exposed hot surface enclosed within said steam chest upon which jets of water when projected from said tank by said pump will be converted into steam, a steam exhaust nozzle connected to said steam chest for directing the steam generated in said steam chest to a brush, and a fabric treating brush at the end of said supporting housing through which the steam exhaust from said nozzle may be directed upon a fabric.

5. In a self-contained steam generating unit for a fabric treating hand tool of the character described, the combination of a heat insulating and supporting housing having a hand grip portion, an elongated liquid supply tank mounted within the hand grip portion of said housing, a piston pump with check valves mounted within said liquid supply tank having an operating member exposed upon said hand grip portion for engagement by the thumb of an operator, a steam chest mounted within said housing adjacent one end of said tank, a liquid conduit between said piston pump and said steam chest through which water within said tank will be projected therefrom and into said steam chest as a jet upon each operation of said piston pump, an electrically energized heating unit having an exposed hot surface enclosed within said steam chest upon which the jets of water projected from said tank by said pump will impinge and be converted into steam, a steam exhaust nozzle through which steam generated in said steam chest may flow, a temperature responsive cutout switch means for controlling the flow of current to said electrically energized heating unit, and a fabric treating brush carried by said supporting housing through which steam flowing from said steam chest is directed by said steam exhaust nozzle to the surface of a fabric to be treated.

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