Sept. 5, 1961 G. A. SCHAEFFER 2,998,924

STEAM GUN

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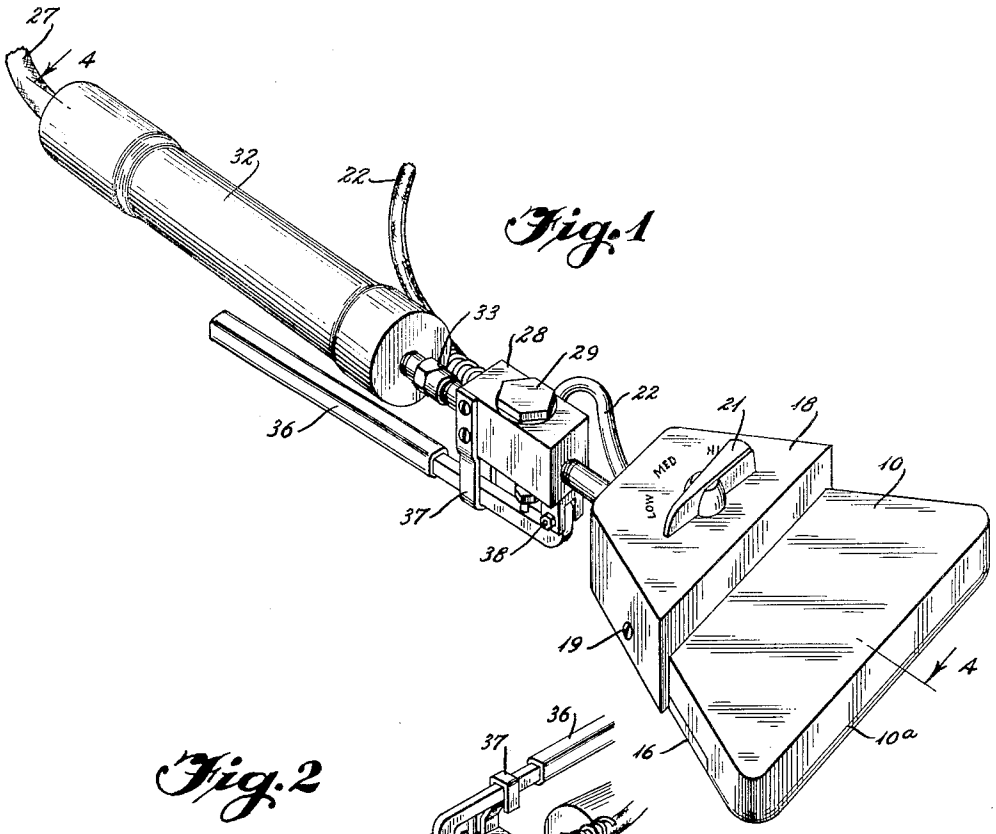


Fig. 1

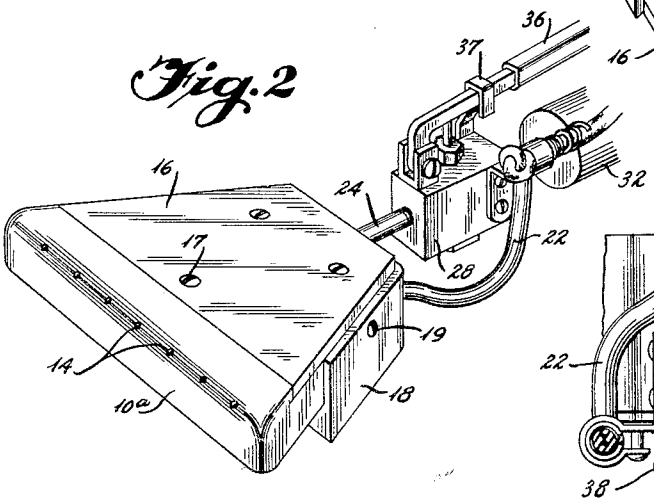


Fig. 2

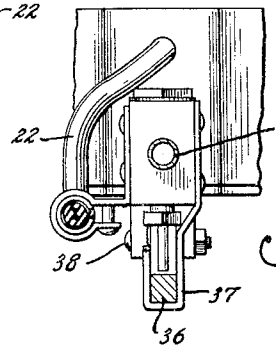


Fig. 3

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Fig. 4

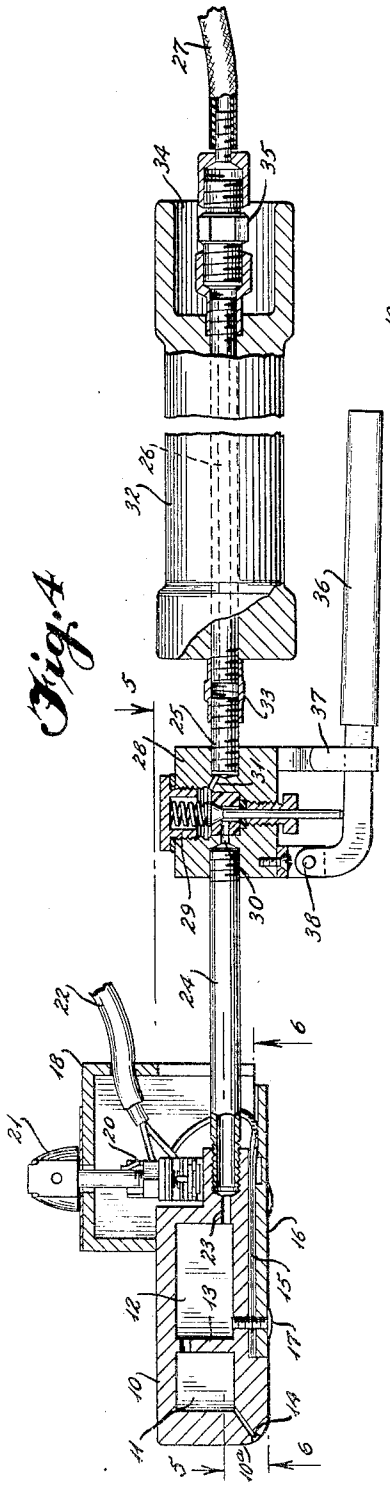


Fig. 6

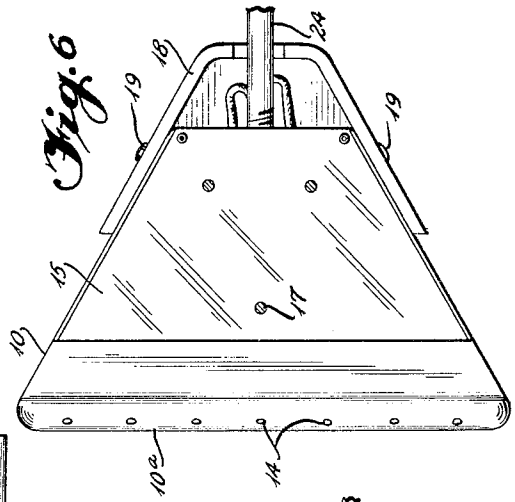
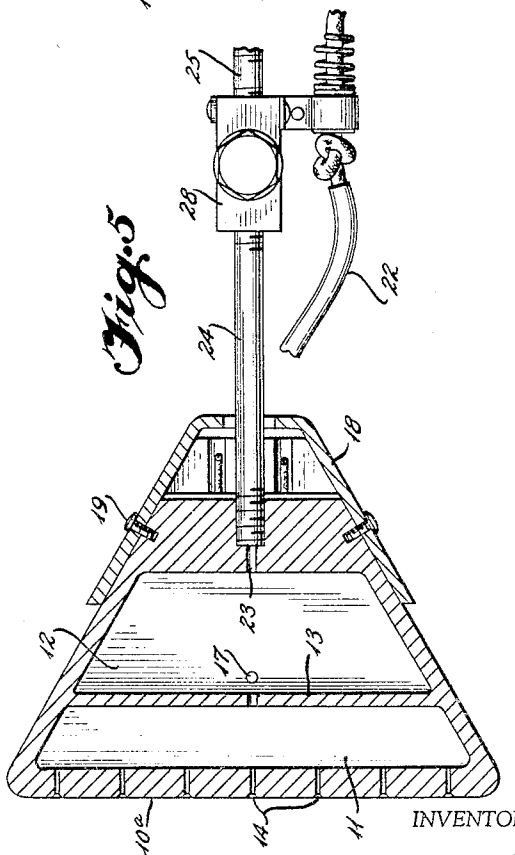


Fig. 5



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STEAM GUN

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The present invention relates to improvements in steam-applying devices, and relates more particularly to portable devices for treating fabrics and furs with jets of steam to renovate such goods and generally improve the appearance thereof.

More specifically, the instant invention is directed to a steam gun of improved construction for applying superheated dry steam to the surface of dress materials and the like thus improving the texture and general appearance of the same, for example, by raising the nap of velvet and similar materials, by removing wrinkles from various materials such as corduroy, nylon, jersey, wool and satins, by restoring the crinkle in chiffon material and by glazing furs.

Heretofore, the method of pressing fabrics consisting primarily of dampening the surface of the fabric with water in any suitable manner, and then passing a pressing iron thereover. Continual application of such a method ultimately resulted in flattening the nap, which normally produced an undesirable glossy appearance.

Furthermore, various constructions of other steam guns have been designed in some of which the steam is generated within the body of the steam gun while in others it is conveyed from an external source through a flexible conduit into a chamber within the steam gun. A serious objection to many of these constructions, especially where they are designed for use in the treatment of delicate textiles, is that condensation from the steam will sometimes pass through the ports in the head of the steam gun and will produce a spot on the textile. Attempts have been made to avoid such result but the steam guns as heretofore constructed do not completely accomplish this purpose. Thus the discharge of even a few drops of water from the steam gun may ruin the article which is being treated.

An important object of this invention is to provide an improved steam gun which, when employed to renovate furs and fabrics, will be free from the foregoing and other disadavntages.

In its broadest aspect, this invention contemplates applying superheated dry steam to the surface of textiles by providing a construction of a steam gun which completely guards against any condensation finding access to the steam spraying head.

Another object of this invention is to provide a steam gun adapted to separate moisture from the steam so that only dry steam will reach the work.

Another object of this invention is to provide a portable steam gun having a supporting handle attached thereto adapted to be easily applied to any fabric or fur, either vertically suspended or disposed flat upon a support.

Still another object of this invention is to provide a steam gun in which the quantity and pressure of the steam may be regulated by the operator during the steam spraying operation.

A further object of this invention is the provision of a steam gun which is simple in construction, exceptionally easy to operate and inexpensive in cost.

Other objects and advantages of this invention, together with certain details of construction and combinations of parts, will appear from the following detailed description and will be pointed out in the appended claims.

In the drawings, wherein a preferred embodiment of this invention is shown,

FIGURE 1 is a perspective view of the steam gun of the instant invention,

FIGURE 2 is a partial bottom view of the device shown in FIGURE 1,

FIGURE 3 is a sectional view of the device shown in FIGURE 1,

FIGURE 4 is a sectional view taken upon the line 4—4 of FIGURE 1,

FIGURE 5 is a sectional view taken upon the line 5—5 of FIGURE 4, and

FIGURE 6 is another partial bottom view of the device shown in FIGURE 1 with certain parts removed.

Like reference numerals indicate like parts throughout the several views of the drawings.

Referring now to the drawing for a detailed description of this invention, reference numeral 10 designates the body of the improved steam gun. The body 10 which is passed over the material to be refreshened is triangular in shape and is preferably formed of some light metal such as aluminum. The use of aluminum is especially preferred because of its relatively high thermal conductivity.

A pair of chambers indicated by reference numerals 11 and 12 are formed integrally with the body 10, interiorly thereof. As clearly shown in FIGURES 4 and 5, the chambers 11, 12 occupy substantially the entire interior of body member 10 and are spaced from each other by means of a partition 13. Each of the chambers has a specific function which will be described hereinafter.

The body 10 is formed with a rounded front end portion 10*a* which is provided with a series of ports 14 for discharging steam from distributing chamber 11 onto the material being refreshened.

An electrical heating element generally indicated by reference numeral 15 is positioned below chamber 12. A cover plate 16 preferably formed of aluminum is positioned below the heating element and is secured to the body 10 by fastening elements 17. Inasmuch as at least one fastening element passes through the heating element, the cover plate thus secures the heating element in position at the base of the body member.

As clearly shown in FIGURES 1 and 2, a hollow housing 18 is affixed to body 10 in substantial dove-tail relation by means of securing elements 19. The housing 18 contains a thermostat generally indicated by reference numeral 20 which controls the temperature of heating element 15. The thermostat is regulated by a knob 21 and is connected in series with the heating element 15 and to an electrical outlet (not shown) by a cord 22.

A steam inlet 23 leading into chamber 12 is located in the rear wall of body 10 and is connected by means of a series of pipes or ducts 24, 25, 26 and 27 to a source of steam (not shown). A portable electric steam generator, however, may be preferred so that the device may be employed in any desired location. As clearly shown in FIGURE 4, the pipe 24 is threaded into the rear wall of body 10 and is positioned adjacent inlet 23. The opposite end of the pipe 24 is threaded into a housing 28 containing a conventional control valve indicated generally by reference numeral 29. The valve body is formed with a port 30 establishing communication with pipe 24. The pipe or duct 25 is threaded into the housing 28 at the opposite side thereof and communicates with the valve 29 by means of port 31.

As clearly shown in FIGURE 4, the pipe 26 extends through an axial passage of a handle 32 and is connected to the duct 25 by means of a conventional coupling 33. The handle is formed with a groove adapted to receive the fingers of the operator's hand gripping said handle.

The handle 32 is recessed at its end remote from the

valve 29 to provide a housing 34 for another conventional coupling 35 securing pipe 27 to the opposite end of pipe 26. The pipe 27 in turn is connected at its opposite end to a steam source (not shown).

Inasmuch as the operation of the steam gun does not contemplate a constant flow of steam through ports 14 onto the material to be refreshened, the valve 29 controls the flow of steam passing through conduits 24, 25, 26, 27 to the chambers 11 and 12. To facilitate the operation of said valve member, a pivoted control lever 36 is provided which is spaced from the handle 32 in parallel relation thereto. A bracket 37 secured to housing 23 limits the swinging of lever 36 about pivot 38. The lever is in such proximity to the handle 32 as to permit relatively simple control of the valve by the operator's hand holding said handle.

As previously set forth, it is one of the objects of this invention to prevent escape of any unvaporized water or condensation of water vapor to the face of the steam gun. To this end, the heating element 15 is employed to superheat the steam upon its entrance through inlet 23 into the superheating chamber 12. The steam upon entering the gun through conduit 27 contains a certain degree of moisture, which, if allowed to condense, may ruin the garments which are to be sprayed. By superheating the steam by means of heating element 15 while said steam is in chamber 12, only dry steam passes through the aperture in partition 13 to the distributing chamber 11 which subsequently discharges the dry steam onto the surface of the garments through ports 14.

The operation of the steam gun of the instant invention is as follows: The conduit 27 is connected to a convenient steam source, and the cord 22 by means of a plug to a source of electrical current. The valve 29 is normally closed; and, therefore, when the steam gun is not in use, no steam will find access to the chambers within body 10. In operation, after the current has been turned on, the operator presses a finger against the lever 36 thereby depressing the same towards handle 32 to open the valve 29 and permit a small quantity of steam to pass from pipe 25 through conduit 24, and inlet 23 into the superheating chamber 12. The steam so admitted will be superheated by means of heating element 15, thereby removing any moisture contained therein. Consequently only dry steam passes through the aperture in partition 13 into the distributing chamber 11. From this point the dry steam is discharged through ports 14 onto the articles being treated. The pressure under which the steam is discharged may be controlled by the operator who can raise this pressure by depressing lever 36 to admit more steam into conduit 24 and thence to superheating chamber 12 and distributing chamber 11 or may reduce the pressure by permitting the valve to seat. Furthermore, the temperature of the heating element may be regulated by thermostat 20 and knob 21.

Although the steam gun of the instant invention may be used while in several positions, it is preferred to hang the textiles to be treated in a substantially vertical position, and then pass the body portion of the device over the surface thereof. The dry superheated steam emitted from ports 14 will materially aid in renewing the textiles so treated.

It should be noted that the device may not only be used for the treatment of dress materials to refreshen the same, but will be found advantageous in the treatment of furniture, millinery, drapes and other materials.

It is to be understood that the foregoing detailed description is given merely by way of illustration and that many variations may be made therein without departing from the spirit of this invention.

What is hereby claimed to be new and desired to be secured by Letters Patent is:

1. A steam gun for use in refreshening materials, said steam gun comprising a body portion, said body portion being divided interiorly into two chambers, an apertured partition separating said chambers, means for admitting steam into one of said chambers from an external steam source, means within the body portion for superheating the steam when in said aforementioned chamber, thus removing the moisture from said steam, means associated with the other chamber by discharging the superheated dry steam onto the material to be refreshened, and a supporting handle associated with said body portion.

2. A steam gun in accordance with claim 1 wherein the body portion is generally triangular in shape and is formed with a rounded front end portion.

3. A steam gun in accordance with claim 2 wherein the rounded front end portion is provided with a plurality of steam discharging ports communicating with the latter chamber.

4. A steam gun in accordance with claim 1 wherein the means for superheating the steam comprises a heating element positioned below said first named chamber and secured to said body portion by means of a cover plate.

5. A steam gun in accordance with claim 4 wherein the temperature of the heating element is controlled by a thermostat.

6. A steam gun in accordance with claim 5 wherein the thermostat is positioned within a hollow housing affixed to the body portion in substantial dove-tail relation.

7. A steam gun in accordance with claim 1 wherein means are provided for controlling the amount of steam admitted into the first named chamber.

8. A steam gun in accordance with claim 7 wherein said means comprises a control valve positioned between a series of ducts conveying the steam from an external steam source to the body portion.

9. A steam gun in accordance with claim 8 wherein the control valve is operated by a pivoted lever spaced from the supporting handle in parallel relation thereto.

10. A steam applying device for use in refreshening materials, said steam applying device comprising a substantially triangular body portion provided with a rounded front end, said body portion being divided interiorly into two compartments, an apertured partition separating said compartments, means for admitting steam into one of said compartments, means for controlling the amount of steam entering said aforementioned compartment, means within the body portion for superheating the steam when in said compartment, means associated with the other compartment for discharging the superheated dry steam onto the material to be heated, and a supporting handle affixed to said steam applying device.

11. A steam applying device in accordance with claim 10 wherein the means for controlling the amount of steam entering said first named compartment comprises a control valve positioned between a series of ducts conveying the steam from an external source through the supporting handle to the body portion.

12. A steam applying device in accordance with claim 11 wherein the valve is controlled by a pivoted lever, said lever also functioning to regulate the pressure of the steam passing through said valve.

13. A steam applying device in accordance with claim 10 wherein the means for discharging the dry steam onto the material comprises a plurality of ports positioned in the rounded front end of the triangular body member.

14. A steam applying device in accordance with claim 10 wherein the triangular body portion is formed from aluminum.

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