April 22, 1958 T. D. WALKER 2,831,729

SPOTTING APPARATUS

Filed June 18, 1956

Fig. 1

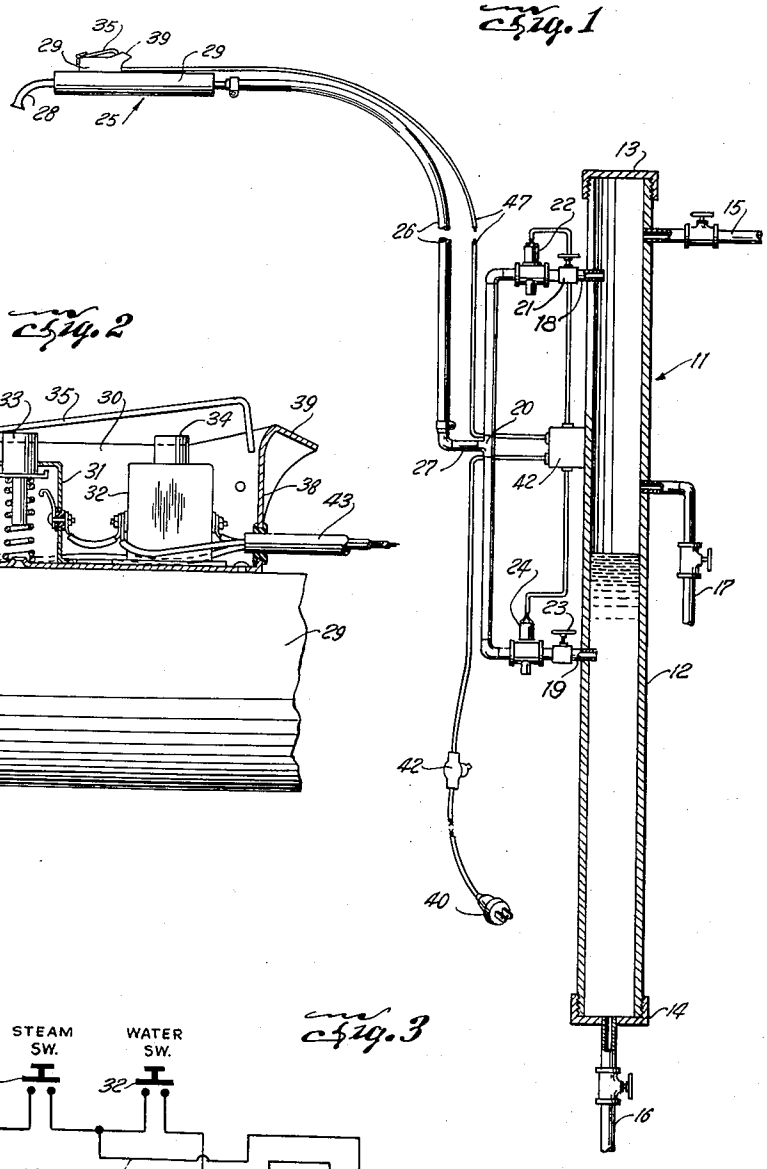
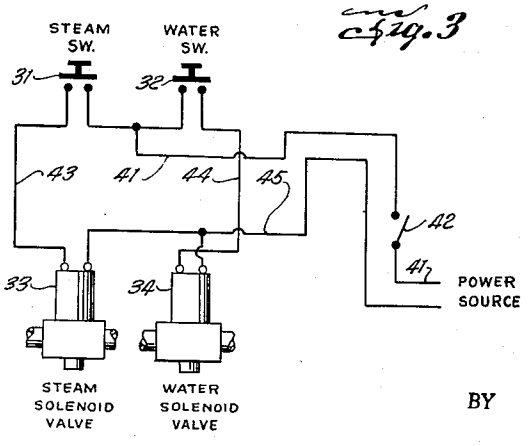


Fig. 2

Fig. 3



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SPOTTING APPARATUS

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4 Claims. (Cl. 299—87)

This invention relates to the dry cleaning industry, more particularly to apparatus for applying relatively dry steam or wet steam to spots on fabrics to remove or assist in the removal of same.

The various apparatus designed for such use generally are known in the trade as spotters. They include a nozzle connected to a dry steam supply and a wet steam supply controlled by valves which are operated by means of foot-pedals.

The nozzle is usually mounted in a conveniently shaped handle forming a spotting tool, the nozzle being connected by a flexible conduit to the aforesaid foot pedal control valves, supported under a work-board near the floor. This limits the movement of the operator, in most instances to at least one side of the board, which often proves to be a considerable handicap and hardship. It often requires several rearrangements of the fabric or article being cleaned. If the apparatus were arranged with the control means mounted on or in the spotting tool, the operator would have far more freedom for movement, find the work much less tiring and could accomplish more.

Accordingly it is the principal object of the invention to provide a new and improved spotting apparatus which, among other things, includes controls built into or on the spotting tool.

Generally, the invention comprises a suitable steam condensation chamber to which are connected a valved steam supply pipe, a valved bottom drain pipe, and another valved drain for bleeding off excess condensation as it accumulates in the chamber above a fixed level. A steam outlet pipe and a water (condensation) outlet pipe lead from the chamber to a T fitting where mixing occurs. A needle valve and then a solenoid operated valve are located in each of these outlet pipes between the chamber and the mixing T. The flow rate is regulated by the needle valves and the solenoid valves are "on and off" stop valves. A spotting tool, having a suitable nozzle and conveniently shaped handle, is connected to the T-fitting by means of a flexible conduit or hose.

Upon the spotting tool handle, two spring type normally open push button switches are arranged in a switch box with the push buttons accessible from the exterior thereof. Adjacent these buttons there is a thumb rest formed on one end of the switch box to facilitate depressing either or both buttons. The switches are electrically connected to a power source and to the solenoid valves so that one switch, when depressed by the thumb of the operator holding the spotting tool, supplies steam to the nozzle, while the other switch in similar fashion supplies hot water. Depressing both buttons supplies wet steam to the nozzle.

The invention has been tested through actual use in a commercial dry cleaning establishment and has proven to be highly satisfactory. Better workmanship is achieved and performance is expedited with less effort.

Other objects and advantages of the invention will be apparent to those skilled in the art from the more detailed description to be given presently, when considered in connection with the claims and drawing accompanying this application. The drawing illustrates one form of the apparatus made in accordance with the invention, wherein:

Fig. 1 is an elevation view of the invention showing the steam condensation chamber in vertical section on a plane passing through the center line;

Fig. 2 shows the switch box in vertical section mounted on the nozzle handle;

Fig. 3 is a wire diagram of the electrical connections between the power source, the switches and the solenoid valves.

Continuing with the more detailed description, reference numeral **11** of Fig. 1 of the drawing designates the steam condensation chamber comprising a suitable length of pipe **12**, closed at both ends, **13**, **14**, to which are connected a valved steam supply pipe **15**, a valved bottom drain pipe **16**, and the valved drain pipe **17** for drawing off excess condensation from said chamber. A steam outlet pipe **18** and a water (condensation) outlet pipe **19**, lead from said chamber to a T fitting **20**, where mixing of dry steam and water occurs when both said outlet pipes are opened as will be presently explained. A needle valve **21**, and then a solenoid operated on and off valve **22**, are provided in the said steam outlet pipe between the said chamber and said mixing T fitting. Likewise a needle valve **23**, and solenoid operated valve **24**, are provided in said water outlet pipe between said chamber and said mixing T fitting. The flow rate of the steam to said mixing T and the flow rate of the water thereto, are determined by adjustment of their respective needle valves, the solenoid valves functioning only as on and off valves. There is the spotting tool **25**, connected by means of the flexible conduit **26**, to the pipe **27**, extending from the said mixing T fitting. The said spotting tool has the nozzle **28**, and a conveniently formed handle **29**, upon which an electric switch box **30**, is mounted. Two spring-type normally open push button switches **31**, **32**, are mounted in said switch box with the push button of each, **33**, **34**, protruding upwardly therefrom. A bar **35**, supported on one end by hinge **36**, Fig. 2, mounted on the end **37**, of said switch box, extends over said push buttons to a point adjacent the opposite end **38**, of said switch box. A thumb-rest **39**, is arranged on said opposite switch box end. Partially depressing said bar closes switch **31**, which opens solenoid valve **22**, supplying steam to said nozzle. Further depression of the bar closes switch **32**, which supplies water to the mixing T, thus delivering wet steam to the nozzle. The amount of water and steam are regulated and proportioned by manual adjustment of the said needle valves.

The electric plug **40**, Figs. 1, 3, is connected to a source of power, Fig. 3, and a lead **41**, through the switch **42**, connects to one side of each of said electric switches **31**, **32**. A lead **43**, from the other side of switch **31**, connects to one side of solenoid valve **33**, and a lead **44** from the other side of switch **32** connects to one side of solenoid valve **34**. A common return lead **45** connects each of the solenoid valves back to the said plug. The leads **41**, **43**, **44** Fig. 3 extending between said handle switch box and junction box **46**, Fig. 1, are contained in one three-wire cable **47**, mounted alongside of the said flexible steam conduit for ease of handling the spotting tool.

This concludes the description of the invention.

It will be apparent to those skilled in the art that various changes and modifications can be made in the form illustrated on the drawing and described herein without departing from the invention, and it is intended that the specifications and the appended claims include

such modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. In a spotting apparatus, a steam supply source and a water supply source; a steam conduit from said source and a water conduit from said source leading to and joining in a common outlet means; a spotting tool having a nozzle and a handle; flexible means connecting said common outlet means to said spotting tool nozzle; flow rate regulating means in each of said conduits; stop valves in each of said conduits beyond said regulating means; means for opening and closing said stop valves; and means mounted on said spotting tool controlling said stop valve operating means to supply steam or steam and water to said spotting tool nozzle for discharge therefrom.

2. In a spotting apparatus, a steam and condensation chamber; a valved steam supply conduit connected to said chamber; condensation level-limiting means connected to said chamber; a steam conduit and a condensation conduit leading from said chamber and connected to a common outlet means; a spotting tool having a nozzle and a handle; flexible means connecting said common outlet means to said spotting tool nozzle; needle valves in each of said conduits; stop-valves in each of said conduits between said needle valves and said common outlet means; means for opening and closing said stop-valves; and means mounted on said spotting tool controlling said stop-valve operating means.

3. Spotting apparatus, including a spotting tool having a nozzle and a handle; a valved steam supply and a valved water supply; means connecting said steam supply and said water supply to said nozzle; regulating valves in said connecting means, one regulating steam flow therethrough and another regulating water flow therethrough; a power source of supply; solenoid operated stop-valves in said connecting means, one controlling the flow of said steam and another controlling the flow of said water therethrough; manually operated electric switch means mounted on said spotting tool electrically connected to said power supply and to each of the solenoids of said stop valves.

4. The structure described in claim 3 wherein the manually operated switch means comprises an electric switch box in which two single pole normally open spring-type push-button switches are mounted with said push buttons protruding upwardly; a bar movably mounted by means of a hinge at the top edge of one end of said switch box; said bar extending over said push buttons to a point adjacent the opposite end of said switch box and arranged to close one switch when partially depressed and both switches when further depressed; and a thumb rest arranged on said opposite end of said switch box.

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