July 20, 1948. B. J. YANCHENKO 2,445,592

GARMENT SPOTTING APPARATUS

Filed Feb. 1, 1946 2 Sheets-Sheet 1

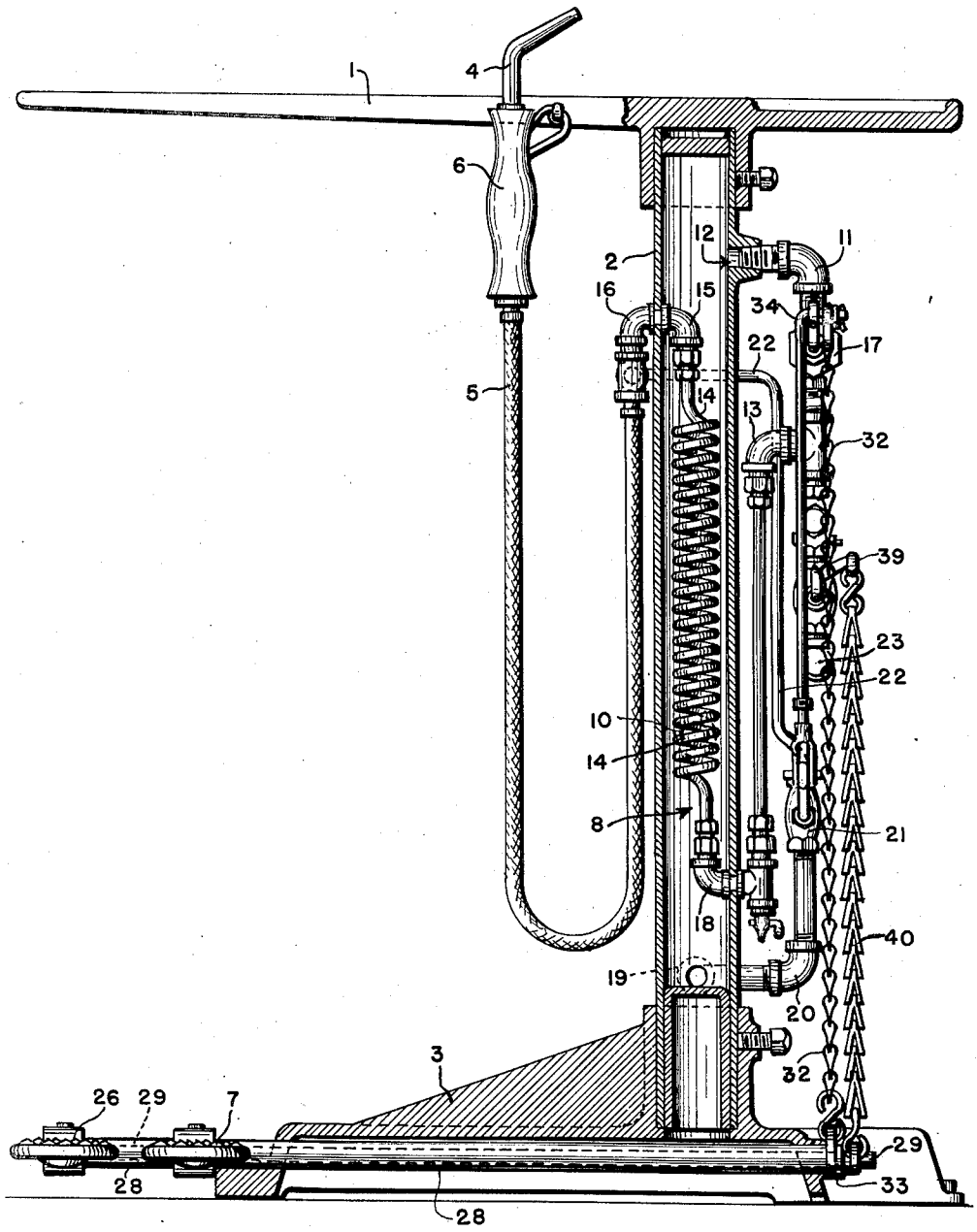


FIG. 1

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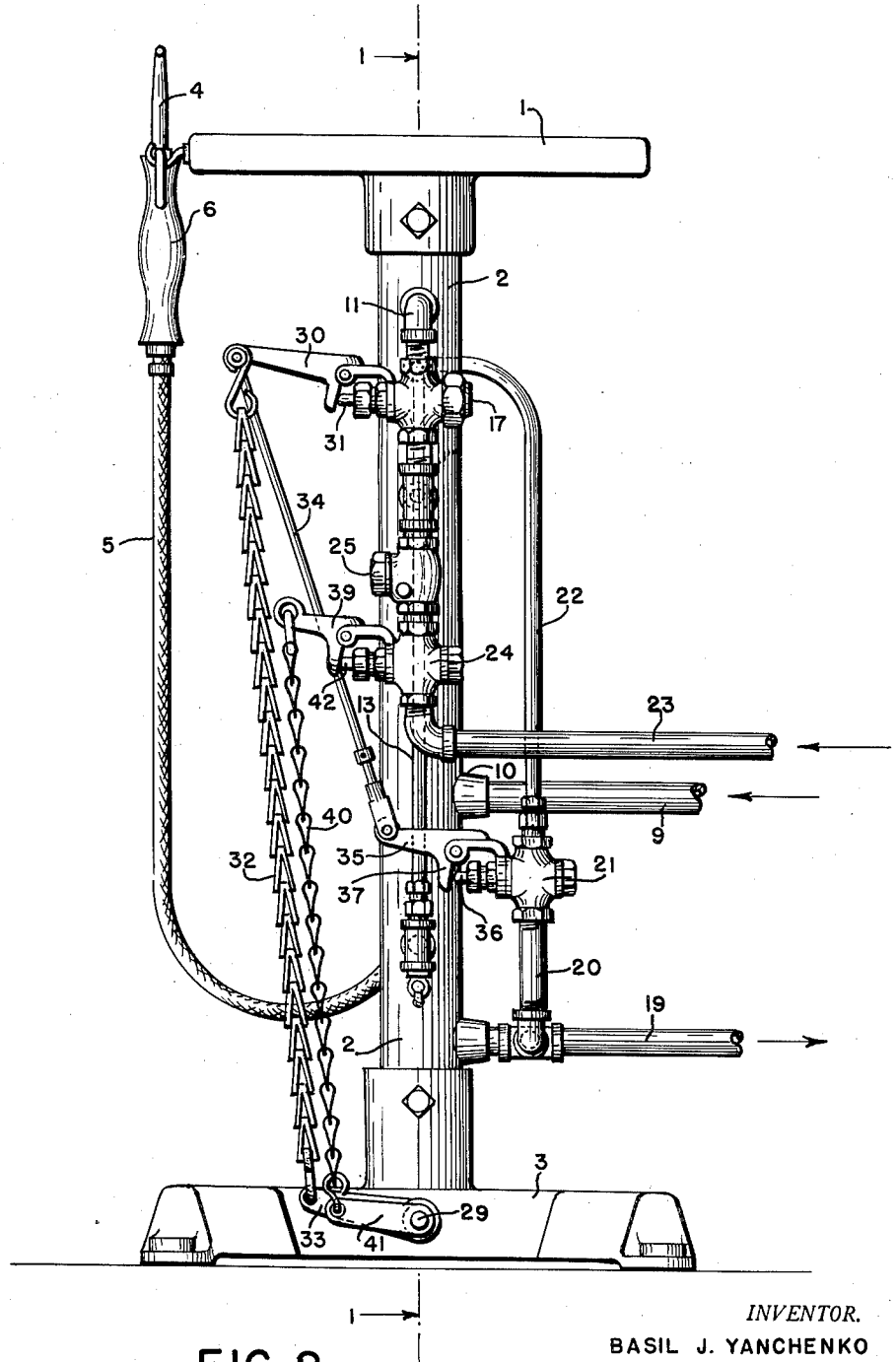


FIG. 2

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Patented July 20, 1948 2,445,592

UNITED STATES PATENT OFFICE

2,445,592

GARMENT SPOTTING APPARATUS

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Application February 1, 1946, Serial No. 644,945

3 Claims. (Cl. 68—5)

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This invention relates to garment finishing boards or what are usually called "spotting heads." It is of the general type shown in the application of Don O. Goodwin of St. Louis, Mo., Serial Number 549,383, filed August 14, 1944, which issued on January 13, 1948, as Patent No. 2,434,404.

The invention has for its object a particularly simple and compact apparatus, wherein dry steam, moist steam and also preferably compressed air can be projected through the garment or article on the spotting head down through the head, at the will of the operator, and the dry steam and the air pass through a heater or heat exchanger on its way to the nozzle while the moist steam, which is added to the dry steam to give it the amount of moisture that may be required, by-passes the heat exchanger for the dry steam, the heat exchanger being located in heat exchanging relation in a steam receiving chamber from which both the dry steam and the moist steam is taken.

The invention further has for its object operating members for valves controlling the dry and moist steam systems or conduits and the air system or conduit, the operating member for the control valves for the dry and moist steam systems being common to both and operable to successively open the valves in the dry and moist steam system at the will of the operator, so that when the dry steam system is first turned on, if it is too dry and requires moisture, additional operation of the common control member opens the moist steam valve, adding moisture to the dry steam.

It will be understood that in removing spots from garments and other articles, the use of dry steam and moist steam is dependent upon the skill of the operator, and oftentimes the dry steam must be moistened an amount determined by the operator, and hence one operating member for both the dry steam valve and the moist steam valve greatly facilitates the removal of the spots, also blowing heated air through the nozzle greatly facilitates the drying out of the area from which the spot has been removed.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a longitudinal, vertical sectional view of this spotting apparatus.

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Figure 2 is an end view looking to the left in Figure 1.

1 designates the so-called spotting head, which is supported by a column 2 rising from a base 3. This head, in so far as this invention is concerned, may be of any suitable form, size and construction. It is here shown in the form of a "board" overhanging the base 3. It has a perforated top at the left end portion or half on which the garment or article is laid, this top having a brush, as in said application referred to, and a hollow chamber or passage into which the steam and air passing through the spot are projected. The passage in the head 1 has a suitable discharge outlet.

4 designates the nozzle or the so-called steam gun, although in this apparatus, it is also an air gun to project air through the article on the head 1. The nozzle has connected thereto a flexible conduit or hose 5 connected in or common to the dry steam, moist steam and compressed air systems. It is provided with a suitable grip handle 6 to manipulate nozzle 4 over the garment. The dry steam system includes a receiving or heating chamber 8 which is here shown as within the column 2, the column being formed hollow for the purpose of providing this chamber 8, a steam supply conduit or pipe 9 opening at 10 into the column, an outlet pipe 11 leading from a port 12 near the top of the column, a transfer pipe 13 leading from the pipe 11 to the lower end of a heat exchanger or coil 14 in the chamber 8, the upper end of which coil is connected through suitable couplings 15, 16 to the hose 5. A dry steam control valve 17 is located in the pipe 11 between the port 12 and the receiving end of a transfer pipe 13, this valve being normally closed. When it is open, however, the steam passes from the chamber 8 through the pipe 11, open valve 17, transfer pipe 13, thence through suitable couplings 18 to the lower end of the heating coil 14, and thence through couplings 15, 16 to the hose 5 to the nozzle through which the steam is projected when the pedal 7 is operated. The chamber 8 is also provided with a return pipe 19 leading from the lower end thereof back to the steam supply or boiler. Moisture or condensation in the steam flows out through this pipe. The moist steam system comprises a conduit 20 leading from the return pipe 19 and having a control valve 21 therein which controls the flow through pipe 22 directly to the flexible hose 5 of the nozzle 4, this conduit 22 thus by-passing the coil 14. As the moist steam conduit leads from the return conduit, it carries moisture therewith, and hence

when the valve 21 is opened, moist steam passes through the nozzle 4, and as will be apparent, mixes with the dry steam, because of the two valves 17 and 21 being successively operable by an operating member, as the pedal 7 is common to both.

The air system includes an air supply pipe 23 which, through a valve 24, communicates with the pipe 13 leading to the lower end of the heating coil 14, so that when the air valve is open, the air passes through the coil 14 and picks up heat, while passing to the nozzle 4 through the hose 5. As this conduit 13 is common to both the dry stream and the air, a check valve 25 is provided set to prevent the steam from normally passing into the air pipe. As the pressure on the steam supply is greater than on the air, this check valve will open to the flow of air when the air valve is opened and the steam valve closed. This check valve may be of any suitable construction.

The operating means for the valves 17, 21 and 24 include an operating member common to the dry steam valve 17 and the moist steam valve 21 to operate them successively and an operating member individual to the air valve 24. The operating members are here shown as pedals 26, 7 mounted respectively on concentric or nested rock shafts 29, 28, the rock shaft 28, which is operated by the pedal 7 being connected through suitable motion transmitting means to a lever 30 pivoted to a suitable bracket on the body of the valve 17 and having an arm, which, when the lever 30 is actuated, depresses the stem 31 of the movable member of the valve 17 to open the valve to the flow of steam therethrough from the upper end of the chamber 8 through the control valve 17, pipe 13, coil or heat exchanger 14, hose 5 to the nozzle 4. Upon the initial movement of the pedal 7, the valve 17 is opened. The motion transmitting means is here shown as a cable or chain 32 connected at one end to the lever 30 and at its other end to a rock arm 33 on the rock shaft 28. The moist steam valve 21 is operated from this same pedal 7 through the rock shaft 28, rock arm 33, chain or cable 32, lever 30 and link 34 connected to a lever 35 pivoted to a suitable bracket on the body of the valve 21 and having an arm 37 which thrusts against the stem 36 of the movable member of the valve 21. There is a lost motion in the connection between the levers 30 and 35, and as here shown, the link 34 is adjustable as to its length, in order to space the arm 37 of the lever 35 away from the end of the stem 36 a sufficient distance so that the valve 21 is not opened until after the pedal 26 has been depressed a predetermined amount sufficient to open the steam valve 17. Then continued movement also opens the valve 21 permitting moist steam to flow from the bottom of the member 8 through the pipes 19, 20, open valve 21 and pipe 22 to the coupling at the inner end of the hose 5. Thus, when the operator notes that the steam is too dry and moisture is necessary to soften or remove the dirt particles of the spot being removed, he depresses the pedal further to permit the moist steam to mix with the dry steam. The coil or heat exchanger 14 normally acts as a drier for removing the moisture from the steam passing through the coil 14. The moist steam by-passes this separator through the pipe 22.

The pedal 26 for operating the air valve and the motion transmitting mechanism between the rock shaft 29 on which it is mounted and the operating lever 39 for the valve 24, consists of a chain or cable 40 connected at its opposite ends

to the lever 39 and to a rock arm 41 on the rock shaft 29. The lever 39 is similar to the lever 35 and operates the stem 42 of the movable member of the air valve 24. Thus, after the spot has been softened and removed, the spotted area is dried by directing the nozzle 4 against that area and shifting the foot from pedal 7 to pedal 26, permitting the air to pass through the pipe 23, air valve 24, past the check valve 25, thence through the pipe 13 and the heating coil or heat exchanger 14 and through the hose 5 and the nozzle 4. The steam and air, after passing through the article, passes into the head 1, which is hollow, and out through a suitable outlet pipe.

What I claim is:

1. In a garment spotting apparatus, a spotting head, a nozzle through which steam can be projected onto the head through the article thereon, a support for the head including a column formed with an internal chamber, a system for supplying steam to the nozzle including said chamber in the column, the chamber having an inlet for the steam, a return pipe communicating with the chamber, a conduit communicating with the chamber to receive steam therefrom and having a control valve therein, a heating coil exposed in said chamber extending vertically thereof, a conduit connecting the lower end of the coil and said valve, a conduit leading from the upper end of the coil to the nozzle, a moist steam conduit leading from the return pipe extending outside of said chamber and said column, a moist steam control valve therein, a conduit from the moist steam conduit extending around and by-passing the coil and connected to the conduit leading from the upper end of the coil to the nozzle, and means for operating the control valves.

2. In a garment spotting apparatus, a spotting head, a column supporting the head and formed with an internal chamber, a nozzle through which steam can be projected onto the head through the article thereon, a system for supplying steam to the nozzle including said chamber, a conduit having a control valve therein leading from the chamber, a steam supply conduit feeding into the chamber, a heating coil in the chamber in heat exchanging relation therewith and connected at its ends with the steam control valve and to the nozzle, an air conduit having a control valve therein and connected to the coil in multiple with said steam conduit, so that upon opening of the air valve, the air passes to the nozzle through the coil and is heated when passing therethrough, and means for operating the control valves.

3. In a garment spotting apparatus, a spotting head, a nozzle through which dry steam, moist steam and air can be projected onto the head through the garment thereon, systems for supplying the dry and moist steam and the air to the nozzle including conduits individual to said systems, and each having a control valve therein, an operating member for successively opening the valves in the conduits for the dry and moist steam and operable upon initial movement to open the dry steam valve only and upon further movement to open the moist steam valve, an operating member operable individually to open the air valve, the dry and moist steam systems including a steam chamber common to both, a conduit leading from said chamber and in which the dry steam valve is located, a heating coil located in the chamber and communicating at one end with the nozzle and having its other end connected in the dry steam valve, whereby when

the dry steam valve is open the steam passes from the chamber through the open valve and through the coil to the nozzle, the moist steam system including a conduit leading from said chamber, and a conduit leading therefrom in which the moist steam control valve is located, and a conduit leading from the moist steam valve to the nozzle and by-passing the coil, the air system including a conduit communicating with the pipe leading to the coil whereby when the air valve is open the air passes to the nozzle through the coil and is heated therein.

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