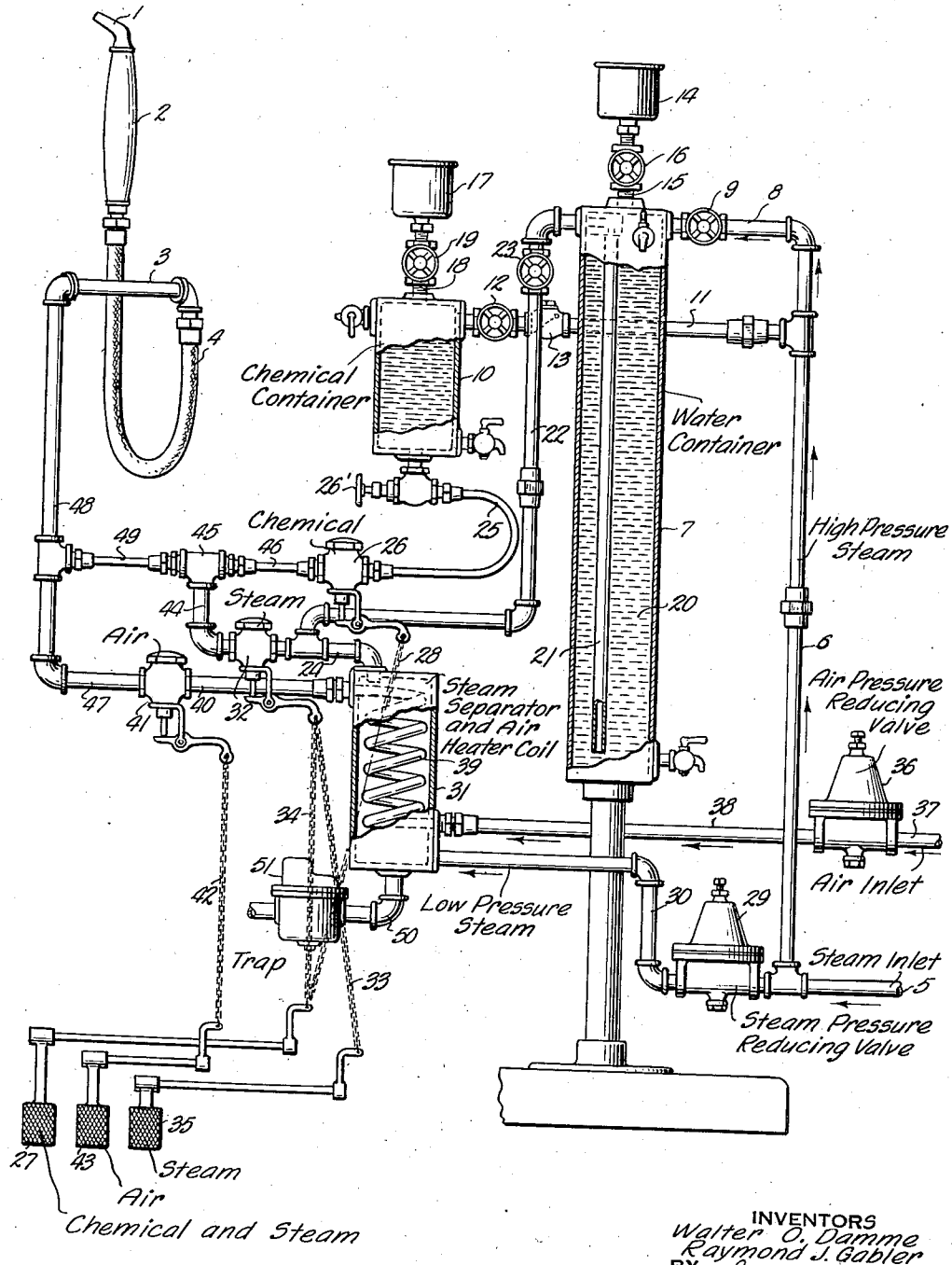
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SPOTTING BOARD

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SPOTTING BOARD

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Our invention relates to spotting boards, and more particularly to a device used in dry cleaning establishments to remove spots formed by inks, paints, sugars, and the like which are not removed during the customary dry cleaning operation. In the art of dry cleaning, an organic solvent such as naphtha, carbon tetrachloride and the like is employed. This solvent, while it will remove greasy soil, will not touch sugar stains, rust spots, and chemical stains produced by fruit juices, inks, paints and the like. After a garment is dry cleaned, it is sent to a "spotter" who treats the stains remaining on the garment with soap solutions, chemicals and the like. A jet of steam is an excellent detergent for water soluble stains and, if this jet of steam is reinforced with a detergent such as a soap or chemical solution, most spots and stains can be readily and expeditiously removed from garments.

One object of our invention is to provide a spotting board in which water laden steam or steam carrying a suitable detergent may be directed on spots on dry cleaned garments to remove them.

Another object of our invention is to provide a novel spotting board in which the character of the steam may be changed at the will of the operator with respect to its dryness, humidity and detergent content.

Other and further objects of our invention will appear from the following description.

In the accompanying drawing which forms part of the instant specification and is to be read in conjunction therewith, the figure is a diagrammatic view of a spotting arrangement, showing one embodiment of our invention.

More particularly referring now to the drawing, a nozzle 1 having a handle 2 connected to a pipe 3 by means of a flexible conduit 4 is used by the spotter to direct a jet of steam against the garment placed upon a suitable support known as a "spotting board." Steam from a suitable boiler (not shown) is led to the apparatus through a pipe 5 at a pressure above 50 pounds per square inch. A branch pipe 6 provides communication between the high pressure steam pipe 5 and a water tank 7 through a pipe 8 which is controlled by a valve 9. The branch pipe 6 also provides communication between a high pressure steam pipe 5 and a detergent or chemical container 10 through a pipe 11 which is controlled by a valve 12 and a check valve 13. The water container 7 is filled through a funnel 14 and pipe 15 which is controlled by a valve 16. The detergent tank 10 is filled through a funnel 17 and a pipe 18 which is controlled by a valve 19. The pressure of the steam upon the water 20 within the water container 7 causes it to flow upwardly through pipe 21, through pipe 22, which is controlled by valve 23 to a low pressure steam pipe 24. A pipe 25 controlled by a needle valve 26 permits detergent in the tank 10 to flow under the pressure of the high pressure steam to a valve 26 which is controlled by a suitable foot pedal 27 acting through a flexible connection 28. A reducing valve 29 is adapted to reduce the high pressure steam from pipe 5 to a pressure of about 50 pounds per square inch. The steam at reduced pressure leaves the reducing valve through pipe 30 and flows through a heat exchange housing 31. The pipe 24 communicates with the upper portion of the housing 31. The pipe 24 is controlled by a valve 32 which is operated through connecting members 33 and 34. Member 33 is operated through a foot pedal 35, and member 34 is operated by the foot pedal 27. Air from any suitable source of compressed air is led to a reducing valve 36 through a pipe 37. The air, reduced in pressure, leaves the reducing valve 36 through a pipe 38 which communicates with a heat exchange coil 39 positioned within the heat exchange housing 31. The heated air leaves the heat exchange coil 39 through a pipe 40 which is normally closed by means of a valve 41. The valve 41 is operated by a connecting member 42 through a foot pedal 43. The outlet of the low pressure steam valve 32 communicates through pipe 44 to a T 45. A pipe 46 connects the outlet of valve 26 with the T 45. The outlet of air valve 41 is connected by pipe 47 to a manifold 48. The manifold 48 communicates with the T 45 through a pipe 49. Manifold 48 communicates with the flexible conduit 4 through the pipe 3. Water of condensation from the heat exchanger 31 leaves the housing through a pipe 50 which is controlled by a steam trap 51.

In use, if the spot be simply sugar or other material which is readily water-soluble, the operator simply depresses foot pedal 35. This opens the valve 32 and permits steam to pass to the nozzle 1 which is directed to the spot. The moisture content of the steam can be adjusted by means of valve 23. Due to the fact that the pressure of the water container is higher than the pressure in the steam pipe 24, a predetermined amount of water will be forced through the steam and commingled therewith on its way to the nozzle. If desired, a foot operated valve can be placed in the pipe 22. We have found, however, that this is not necessary as a very small amount of water

is fed and this amount can readily be adjusted by means of the valve **23**.

After the spot has been removed by the detergent action of the steam, foot pedal **43** is depressed. This opens valve **41** and permits hot air to be ejected through the nozzle **1** which dries the spot moistened by the steam. If the spot be of a more resistant nature, foot pedal **27** is depressed. This operates both valves **32** and **26** simultaneously, permitting the moisture and saturated steam to be augumented by a detergent such as soap solution or the like. The amount of this detergent is controlled by valve **26**. The detergent-laden steam will serve to remove most spots. By means of our apparatus, iodine spots, for example, can be removed in five seconds.

After the spot is removed, it is dried by means of a hot air blast. Sometimes it is desirable to treat the area from which the spot was removed with clean steam so as to remove any traces of soap or reaction products, if a heavy charge of chemical-laden steam be used.

It will be seen that we have accomplished the objects of our invention. The salient feature of our invention is the production of an unbalanced condition to employ the unreduced pressure of the steam in a steam line to force water or chemical into a manifold into which steam at reduced pressure flows. We enable an operator to carry on his work in an expeditious and efficient manner.

It will be understood that certain features and sub-combinations are of utility and may be employed without reference to other features and sub-combinations. This is contemplated by and is within the scope of our claims. It is further obvious that various changes may be made in details within the scope of our claims without departing from the spirit of our invention. It is, therefore, to be understood that our invention is not to be limited to the specific details shown and described.

Having thus described our invention, we claim:

1. An assembly for removing spots from fabrics including in combination a source of steam under pressure, a water container, a pipe connecting said water container and said high pressure steam source, a detergent container, a pipe connecting said detergent container and said high pressure steam source, a reducing valve, a pipe providing communication between said high pressure steam source and said reducing valve, a nozzle, a manifold connected to and communicating with said nozzle, a conduit connecting said manifold and the outlet of said reducing valve, a pipe providing communication between said detergent container and said manifold, a first valve for controlling said last pipe, a pipe providing communication between said water container and said conduit, a second valve controlling the pipe connecting the water container to the conduit, and a third valve for controlling said conduit.

2. An assembly for removing spots from fabrics including in combination a source of steam under pressure, a water container, a pipe connecting said water container and said high pressure steam source, a detergent container, a pipe connecting said detergent container and said high pressure steam source, a reducing valve, a pipe providing communication between said high pressure steam source and said reducing valve, a nozzle, a manifold connected to and communicating with said nozzle, a conduit connecting said manifold and the outlet of said reducing valve, a pipe providing communication between said detergent container and said manifold, a first valve for controlling said pipe, a pipe providing communication between said water container and said conduit, a second valve controlling said pipe, and a third valve in said conduit intermediate the manifold and the juncture of the water pipe and the conduit, means for operating said third valve and separate means for simultaneously operating said first and third valves.

3. An assembly for removing spots from fabrics including in combination a high pressure steam pipe communicating with a source of steam under pressure, a housing adapted to contain water, a pipe providing communication between said high pressure steam pipe and said water containing housing, a container adapted to contain a detergent, a pipe providing communication between said high pressure steam pipe and said detergent container, a reducing valve connected to said high pressure steam pipe, a heat exchanger housing, a pipe connecting the outlet of said reducing valve and said heat exchanger housing, a nozzle, a manifold, a flexible conduit providing communication between said manifold and said nozzle, a conduit for conducting steam under reduced pressure from said heat exchanger housing to said manifold, a heat exchange coil within said housing, means connecting the outlet of said heat exchange coil to said manifold, means for connecting the inlet to said heat exchange coil with a source of compressed air under pressure, a first valve for controlling said steam conduit, means providing communication between said detergent container and said steam conduit at a point thereon between said valve and said manifold, a second valve for controlling said last means, a pipe providing communication between said water containing housing and said steam conduit, a valve for controlling said pipe, means for simultaneously operating said first and second valves, and separate means for operating said first valve.

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