Oct. 24, 1944. F. Y. SHERBONDY 2,360,985

COMBINATION GARMENT DRIER AND SOLVENT STILL

Filed Jan. 10, 1942

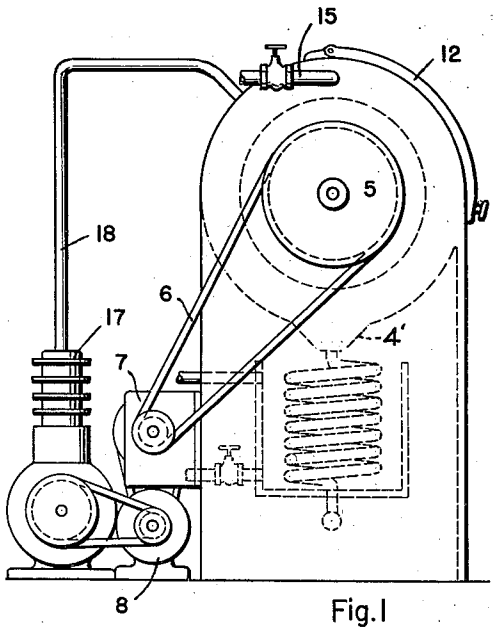


Fig. 1

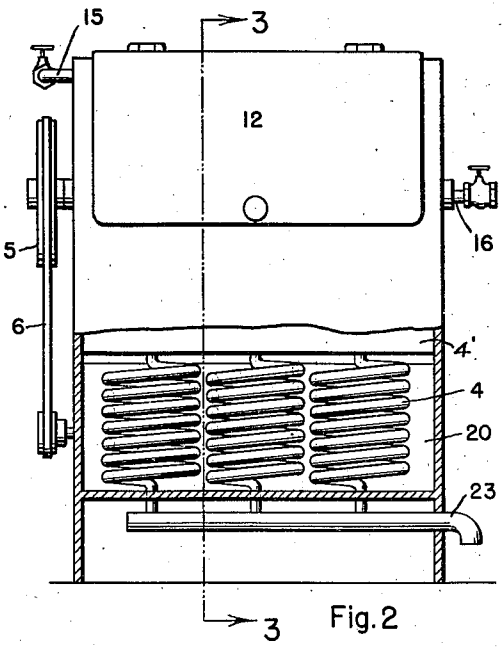


Fig. 2

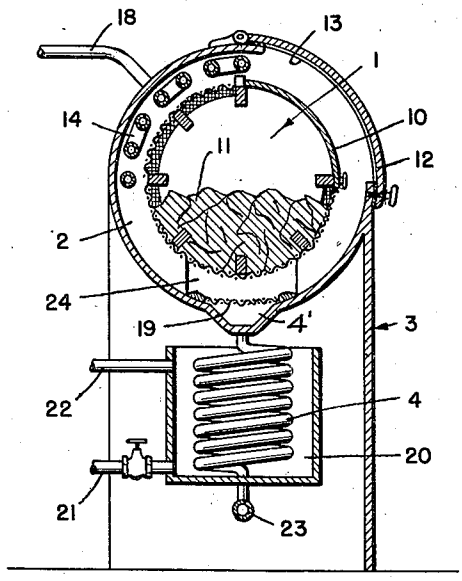


Fig. 3

INVENTOR.

Frank Y. Sherbondy

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COMBINATION GARMENT DRIER AND SOLVENT STILL

Frank Y. Sherbondy, San Antonio, Tex.

Application January 10, 1942, Serial No. 426,346

1 Claim. (Cl. 34—76)

My invention relates to improvements in a machine for the vaporizing of cleaning solvents in order to dry the garments, on which said cleaning solvents have been used, and the provision of means for the recovery of the cleaning solvent vaporized during the drying operation.

An object of my invention is the provision of a machine wherein the vaporizing of the cleaning solvent and the recovery thereof is accomplished automatically.

Another object of the invention is the provision of a machine in which practically all the cleaning solvent carried by the garments when they are placed in the drier is subject to recovery. In present types of driers all the cleaning solvent carried by the garments is vaporized and discharged into the atmosphere thereby representing a total loss of all cleaning solvent carried into the drier with the garments. By combining a still in conjunction with the drier whereby cleaning solvent vaporized from the garments may be condensed and recovered the cost of solvent required in the cleaning operation is substantially reduced.

Other objects and advantages will be apparent during the course of the following specification.

These objects are accomplished as described in the following specification and illustrated in the accompanying drawing in which like reference characters refer to like parts throughout the several views.

In the drawing:

Fig. 1 is an end elevation of the machine.

Fig. 2 is a front elevation, partly in section.

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 2.

An examination of the drawing will disclose that the machine consists of a rotatable tumbler, generally denoted by the numeral 1, carried in the enclosed portion 2 of the housing, generally denoted by the numeral 3, and condensing coils 4 in communication with and adapted to receive the air and vapors discharged from the enclosed portion 2. As is clearly illustrated in Figure 1 of the drawing, each of the coils 4 is in communication from below with the low portion of a well 4' provided in the lowermost part of the housing 3 and extending from one end thereof to the other.

The tumbler 1 is rotated by means of the pulley 5 and belt 6 driven from a suitable reducing gear 7 which is connected with the motor 8. The tumbler 1 is composed of a cylindrical framework whose periphery is enclosed with suitable screening 9 and a loading door 10 for the purpose of loading the tumbler or the removal of garments therefrom. The position of the garments 11 in the tumbler 1 is shown in Fig. 3.

The enclosed portion 2 of the housing 3 is provided with a loading and unloading door 12 which in its normal closed position seats upon a gasket 13 thereby preventing the escape of air or vapors between the housing and its door. Interior the enclosed portion 2 of the housing and located between the housing and the tumbler 1 are a series of heating coils 14 connected with suitable inlet and discharge lines 15 and 16 respectively. The coils 14 are disposed lengthwise between the tumbler 1 and the housing 3 and, as is illustrated in Figure 1, the coils 15 are arranged above the horizontal center of the tumbler 1 and to the side of the vertical center of the tumbler 1 remote from the loading and unloading door 12. This door 12, as illustrated in the drawings, is in the upper portion of the housing 3 and substantially to one side of the vertical center of the tumbler 1.

A compressor 17 driven by the motor 8 discharges through the line 18 to the enclosed portion 2 of the housing preferably at a point above and at substantially the center of the heating coils 14 so as to heat the air as it enters the housing and before it enters the tumbler.

The lower periphery of the enclosed portion 2 is provided with a screen 19 extending the length of the housing and over the well 4'. The coils 4 are supported in a tank 20 provided with suitable cooling liquid inlet and discharge lines 21 and 22 respectively. All of the coils 4 are in communication at their lower ends and below the tank 20 with a solvent discharge line 23 leading to the exterior of the housing at one end thereof. A door 24 at one end of the housing enclosure 2 provides means for the removal of the screen 19 when the screen becomes fouled.

In operation, the doors 12 and 10 of the housing and tumbler respectively are opened to permit the garments to be deposited in the tumbler, as shown in Fig. 3, after which the doors are closed and the motor 8 is started. Since the tumbler 1 and the compressor 17 are both connected to the motor 8 a current of air will be started through the enclosed portion 2 of the housing, the tumbler 1, and the condensing coils 4 simultaneously with the starting of the motor. The heating medium, preferably steam, is next admitted to the coils 14 for imparting heat to the incoming air for the vaporization of solvents contained in the garments. After this the drying and solvent recovering operations are auto-

matic until the garments are dried and all solvent carried by the garments when they were placed in the machine has been recovered through condensation in the coils 4. The screen 19 serves to catch all lint or other fragments of the garments which otherwise might foul the condenser coils 4.

From the foregoing description it is apparent that the current of heated air in passing between and through the garments as they are agitated in the rotating tumbler will serve to vaporize the cleaning solvent carried by the garments and will then convey this vapor to the condensing coils 4 where it will be condensed and the solvent thereby recovered. This is in contrast to the present system employed in drying garments where the cleaning solvent vapors are discharged into the atmosphere thus representing a complete loss of the cleaning solvent carried by the garments when they are placed in the drier.

It is understood that while the preferred construction of the invention is disclosed herein that the invention is not limited to the specific structure so disclosed but may be altered to conform with varying operating conditions so long as said alterations do not depart from the spirit of the invention.

Having thus described the invention, what I claim and desire to secure by Letters Patent of the United States is:

A combination garment drier and solvent still comprising an elongated horizontally disposed housing, vertical end walls and a side wall integral with the housing and supporting the same and forming a chamber below the housing, a cylindrical foraminous walled tumbler supported horizontally within the housing for rotation, said housing wall being formed directly beneath the tumbler to provide a sump extending lengthwise of the housing and enclosed in the upper part of said chamber, means for heating the interior of the housing, means for injecting air into the housing, and a condenser unit within the chamber beneath the sump and comprising a receptacle supported by and between the end walls and a coil within the receptacle having one end opening through the bottom of said sump to receive vapor from the housing.

FRANK Y. SHERBONDY.