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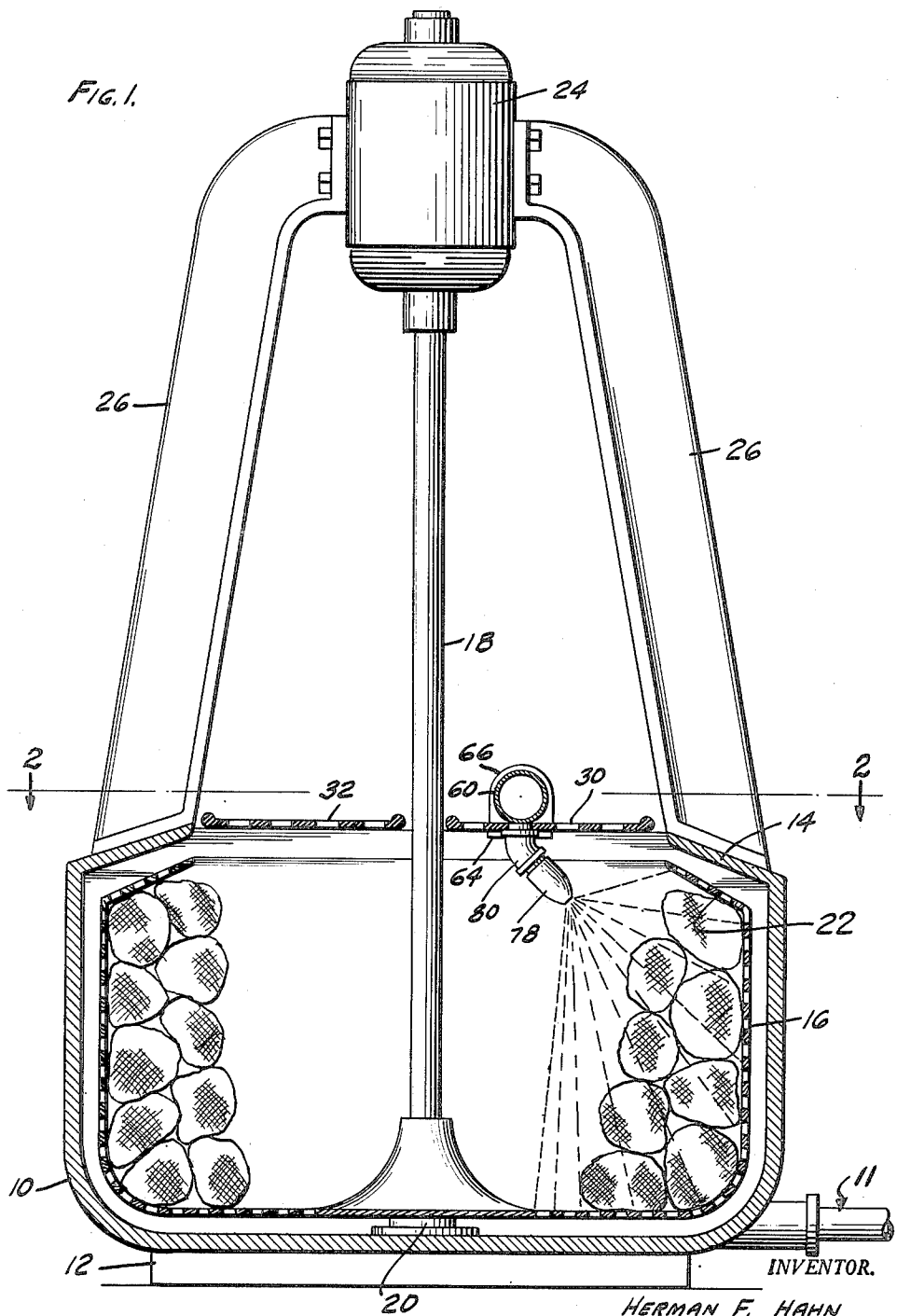
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2,480,921

SPRAYING ATTACHMENT FOR CENTRIFUGAL EXTRACTORS

Filed July 6, 1946

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

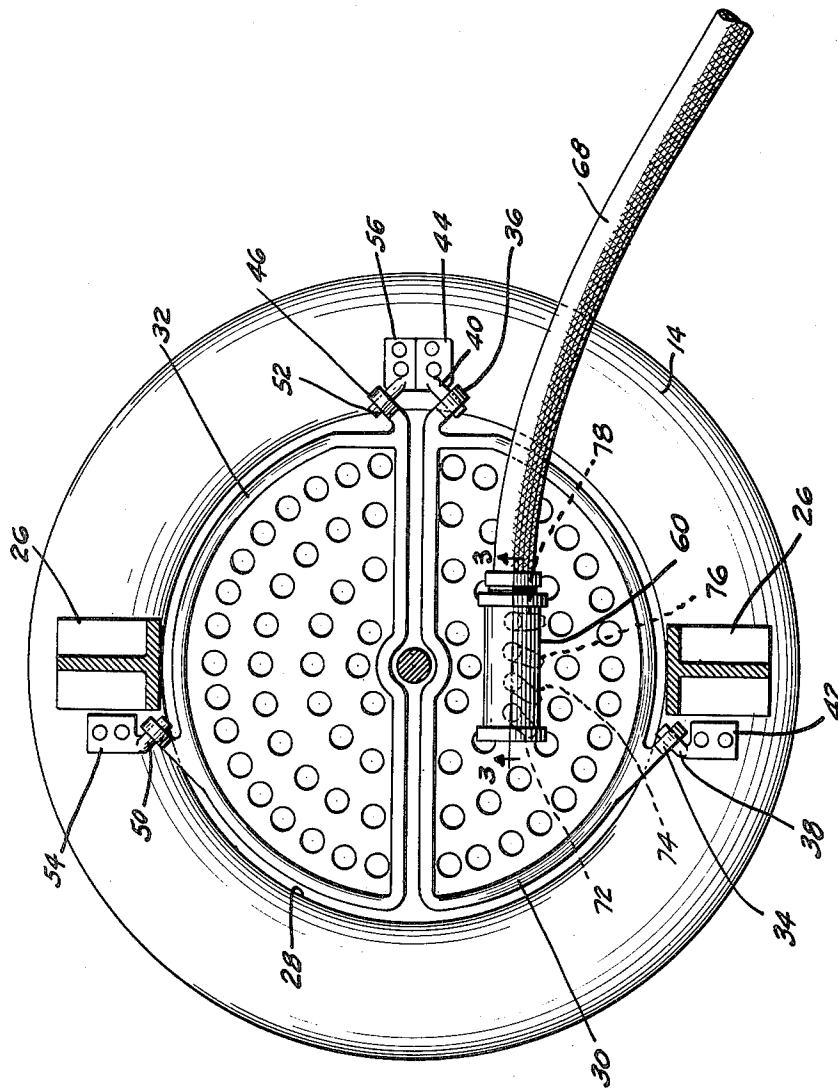


Fig. 2.

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Fig. 3.

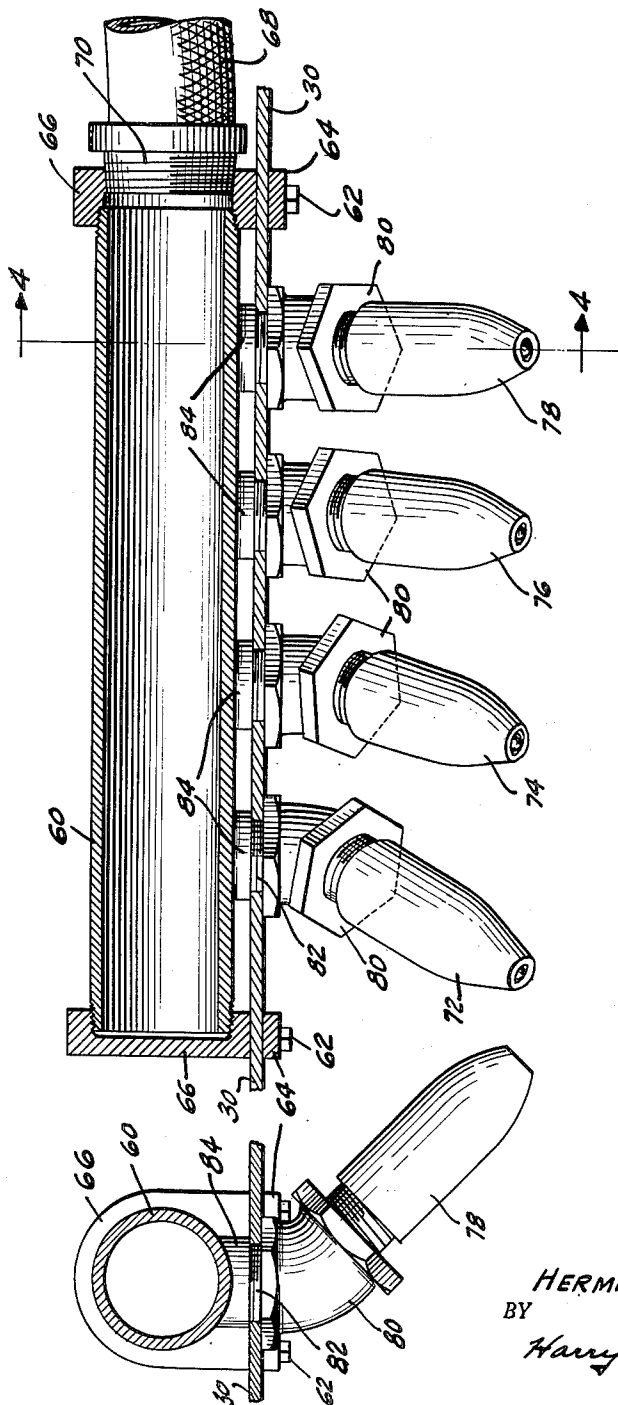


Fig. 4.

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UNITED STATES PATENT OFFICE

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6 Claims. (Cl. 68—148)

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My invention relates to improvements in equipment for laundries. My invention relates more particularly to an improvement in apparatus for rinsing clothes.

The customary method that laundries use today for washing clothes is to place the same into horizontally disposed tumblers, each customer's clothes being placed in a mesh bag and soap and warm water are placed in the tumbler. The clothes are then tumbled about in their respective laundry bags for about fifty minutes after which time the clothes in the individual bags are removed from the tumbler and placed in what is called a centrifugal machine for extracting the soap and water from the clothes. This type of machine is usually a vertical machine that has a vertical drive shaft with a basket at the lower end of the same. The basket receives the bundles of clothes and, as it rotates, the liquid in the clothes is flung off through holes in the basket by reason of the centrifugal action as the basket is revolved at a comparatively high rate of speed. This results in what is commonly called "wet wash" service. In other words, the clothes are still damp and are delivered in this condition to the customer. For complete drying the clothes are taken from the extractor and placed in heated tumblers where, after a given period of time, they are removed in a dried condition.

In the average laundry the process of washing and extracting the water in the centrifugal extractor ordinarily consumes approximately one hour and twenty minutes. With the improved apparatus which I provide, tests have shown that the washing done to finish clothes in the "wet wash" stage can be done in approximately twenty minutes. This is accomplished as follows: clothes are put in the tumbler with soap and warm water and are tumbled from ten to twelve minutes. They are then removed and placed in the vertical extractor or centrifugal drying machine and a large portion of the water that is in the clothes is removed by the centrifugal action.

I then provide means for directing a spray of clear cold hard water that has been filtered to remove all minerals at a point adjacent to the center of the centrifugal drying machine, the spray from the nozzles being directed toward the outside so that the water covers all of the clothes as it is revolving in the vertical drying machine. This water, by reason of the centrifugal action, works its way through the clothes and through the wall of the basket and carries with it dirt and other sediment which may be in the clothes.

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Due to the fact that it is being forced through the clothes, it naturally carries with it all of the original water in which the clothes were washed, so that after treating the clothes to the cold water spray for a period of approximately five minutes the clothes have, in effect, been thoroughly rinsed, any and all dirty water which might have clung to the clothes without this treatment has been removed and the clothes come out in the wet wash stage not only cleaner, but the operation has also been reduced by approximately two-thirds. With the above procedure in mind, the principal object of the present invention is to provide improvements in apparatus for rinsing clothes.

A further object of the present invention is to provide improved apparatus for attachment to a vertical centrifugal drying machine of the type described by means of which a spray of clear water can be directed through the clothes as they are revolving in the centrifugal machine.

A further object of the invention is to provide apparatus of the type described which is capable of providing a spray of cold, clear water over the entire surface of any clothes that may be rotated in the basket of a centrifugal machine.

A further object of the present invention is to provide an apparatus of the type described which may be mounted upon present-day type of centrifugal drying machines, so that it may be worked in cooperation therewith.

A further object of the invention is to provide apparatus of the type described that is constructed as a unit, so that it may be attached to the cover of centrifugal machines and adjusted thereon to give the maximum of efficiency, even though the machines may be of various sizes.

Other objects and advantages will be more apparent from the following description wherein reference is had to the accompanying three sheets of drawings upon which:

Fig. 1 is a vertical sectional view through a centrifugal drying machine of the type that is on the market today showing my improved apparatus in operating position associated therewith;

Fig. 2 is a plan sectional view of the same and is taken generally on the line 2—2 of Fig. 1;

Fig. 3 is a vertical sectional view through the manifold and nozzles which I employ and is taken generally on the line 3—3 of Fig. 2; and

Fig. 4 is a vertical sectional view through the

manifold and one of the nozzles taken generally on the line 4-4 of Fig. 3.

In the embodiment of the invention which I have chosen to illustrate and describe in the drawings, I have shown a vertically disposed centrifugal dryer or hydro extractor which may generally include a cylindrical tub member 10 positioned upon a base 12 and having an inwardly disposed upper lip portion 14. A rotatable basket member 16 conforming generally to the interior shape of the tub 10 may be connected in driving relation to a vertical shaft 18 that is mounted in a suitable combined radial and thrust bearing 20 positioned on the floor of the tub 10. The basket 16 as shown may have a perforated wall so that water and small particles may be passed through the same and it is also provided with an inwardly turned upper lip portion 22 spaced from the lip 14 of the tub. The shaft 18 may be connected to a motor 24 positioned above the tub 10 and supported thereon by a pair of frame members 26.

Referring now to Fig. 2, the cylindrical opening 28 in the top of the tub 10 may be provided with a split cover, the cover being formed by the two generally semi-cylindrical sections 30 and 32. The section 30 may be perforated as shown throughout its entire surface and be further provided with a pair of ear members 34 and 36 which have sockets therein to receive pin portions 38 and 40 of a pair of brackets 42 and 44. The brackets 44 may be suitably fastened upon the top of the lip 14.

The cover member 32 may also have a pair of ears 46 and 48 which receive the pin portions 50 and 52 of a pair of brackets 54 and 56 fastened on the top of the lip 14.

With this construction it can be seen that when it is desired to place bundles of clothes into the centrifugal dryer both of the sections can be swung to a vertical position, thus clearing the opening 18 of the tub 10 and permitting bundles of clothes to be dropped into the basket 16.

To carry out the process which I have previously described, I mount a manifold 60 upon the top of cover member 30 the same being attached thereto by means of suitable cap screws 62 that extend through mounting plates 64 below cover 30 and engage in tapped openings at the ends 66 of the manifold 60. A hose member 68 having a suitable coupling member 70 may be screwthreadedly mounted in the end 66 of the manifold, the hose 68 being of the flexible canvas type and adapted to be connected to a source of clear, filtered, cold, hard water.

Water of the type described is pumped under pressure into the manifold 60 and is adapted to be expelled therefrom through the spray nozzles 72, 74, 76 and 78. The spray nozzles are connected to the manifold by means of a coupling member 80 and a nipple 82 which engages in the coupling and in a tapped bore in the boss 84 of the manifold. As best shown in Figs. 2 and 4, it will be noted that the spray nozzles are all directed at a slightly different angle, so that the stream of water which is sprayed upon the clothes in the basket covers a comparatively large area in a lateral plane and, referring to Fig. 1, it can also be seen that the stream of water covers an area from generally a point near the center of the basket to a point adjacent the opened edge of the lip 22 of the basket. Since, by reason of the centrifugal action, all of the bundles will have a tendency to hug the vertical wall of the basket as it is rotating, none of the bundles will be in an area that is not

completely covered by the spray of water from the nozzles.

As previously mentioned, when the centrifugal dryer has been started it will run for about four or five minutes permitting a large portion of the dirty wash water and dirt to be forced out of the clothes and flow out of the tub 10 through the discharge pipe 11. After most of this water has been forced out, the spray nozzles are turned on and allowed to spray over the clothes as they are rotating for a period of from four to five minutes. During this time the clean, cold water will force its way through the clothes carrying with it any of the dirty water that may be left in the clothes plus other particles of dirt or sediment, thus giving the clothes a complete and thorough rinsing and at the same time accomplishing another action which could not be done, for example, by immersing the clothes into a tub of clear water; that is, the driving out of the dirty water and the sediment which might be in the clothes when the cold water is applied.

While I have illustrated and described a specific embodiment of the invention, it will be apparent to those skilled in the art that changes and modifications may be made without departing from the spirit of the invention. The size or number of nozzles is not critical and the angle at which the same are directed can best be determined by direct relation to the size and depth of the basket that is provided in the particular centrifugal dryer to which the same is applied. Further, where no cover is provided on a dryer, it can be seen that the manifold may be mounted upon a suitable support connected directly to the tub either fixedly or removably.

What I desire to secure and protect by Letters Patent of the United States is:

1. The combination with a vertical centrifugal machine for rinsing clothes of the type having a base, a cylindrical tub member thereon, a pair of brackets mounted on said tub member, a motor carried thereby, a vertical drive shaft depending from said motor, a perforated open-topped basket carried by said shaft, a circular cover for said basket, said cover formed of two sections hingedly mounted on said tub member, of a manifold mounted on one of said cover sections, a hose connected thereto and a plurality of nozzle members pivotally fastened to said manifold through said cover, said nozzles adjustable to direct a spray therefrom in an outward direction against and through bags of clothes placed in said basket.

2. The combination with a vertical centrifugal machine for rinsing clothes of the type having a base, a cylindrical tub member thereon, a pair of brackets mounted on said tub member, a motor carried thereby, a vertical drive shaft depending from said motor, a perforated open-topped basket carried by said shaft, said basket adapted to contain bundles of clothes, a circular cover for said basket hingedly mounted on said tub member, of a manifold mounted on said cover, said manifold comprising a hollow cylindrical body, a hose connected thereto at one end thereof and a plurality of nozzle members in communication with said hollow body and pivotally fastened to one side of said manifold through said cover, said nozzles capable of adjustment at their pivots to direct a spray therefrom outwardly against the bundles of clothes in said basket.

3. The combination with a vertical centrifugal machine for rinsing clothes of the type described having a base, a cylindrical tub member thereon, a pair of brackets mounted on said tub member,

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a motor carried thereby, a vertical shaft depending from said motor, a perforated open-topped circular basket carried by said shaft, said basket adapted to contain bundles of clothes, a cover for said basket hingedly mounted on said tub member, of a manifold mounted on said cover, said manifold comprising a hollow cylindrical body, a hose connected thereto at one end thereof and a plurality of aligned nozzle members pivotally fastened to one side of said manifold through said cover, said nozzles adjustable to direct a spray therefrom outwardly against the bundles of clothes in said basket, said manifold and cover capable of being swung out of the way to place bundles of clothes into said machine or to remove the same.

4. The combination with the container for a centrifugal machine, of a two part closure for the circular open top of the container, said two parts of the closure being semicircular in shape and having their line of juncture centrally of the container, a pair of hinges for each of the closure parts, one of each pair of said hinges being located on chords of the circular open top of said container, one of the hinges for each closure being positioned at one end of the same and the other along its circular side, a manifold positioned on one of said closure parts and nozzles secured thereto below said closure part and directed outwardly, said manifold having a source of fluid connected thereto.

5. The combination with a vertical centrifugal machine for rinsing clothes of the type having a base, a cylindrical tub member thereon, a motor carried thereby, a vertical drive shaft depending from the motor, a perforated open top basket positioned within said tub member and carried by said shaft and a cover for said basket hingedly mounted on said tub member, of a manifold mounted on said cover, said manifold comprising a hollow cylindrical member, a flexible hose hav-

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ing a coupling connected to one end of said cylindrical member, a plurality of downwardly depending bosses on said member, each of said bosses being screw-threaded, elbows screw-threadedly connected to said bosses and spray nozzles secured to the ends of said elbows.

6. The combination with a vertical centrifugal machine for rinsing clothes of the type having a base, a cylindrical tub member thereon, a motor carried thereby, a vertical drive shaft depending from the motor, a perforated open top basket positioned within said tub member and carried by said shaft and a cover for said basket hingedly mounted on said tub member, of a manifold mounted on said cover, said manifold comprising a hollow cylindrical member, a flexible hose having a coupling connected to one end of said cylindrical member, a plurality of downwardly directed bosses on said member, each of said bosses being screw-threaded, elbows screw-threadedly connected to said bosses and spray nozzles secured to the ends of said elbows, said elbows by reason of said screw-threaded attachment to said bosses being rotatably adjusted in said bosses whereby the direction of the spray nozzles can be regulated.

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