

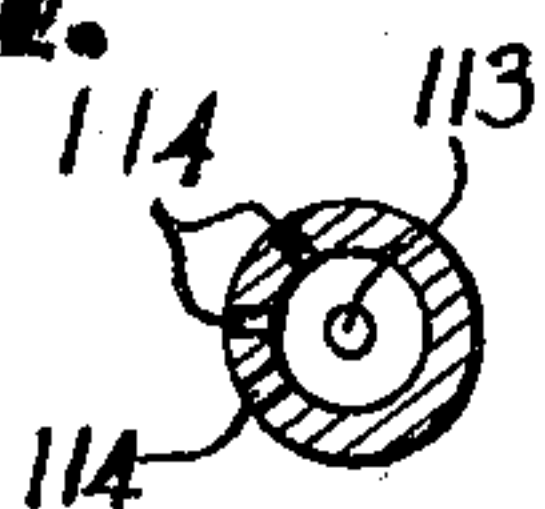
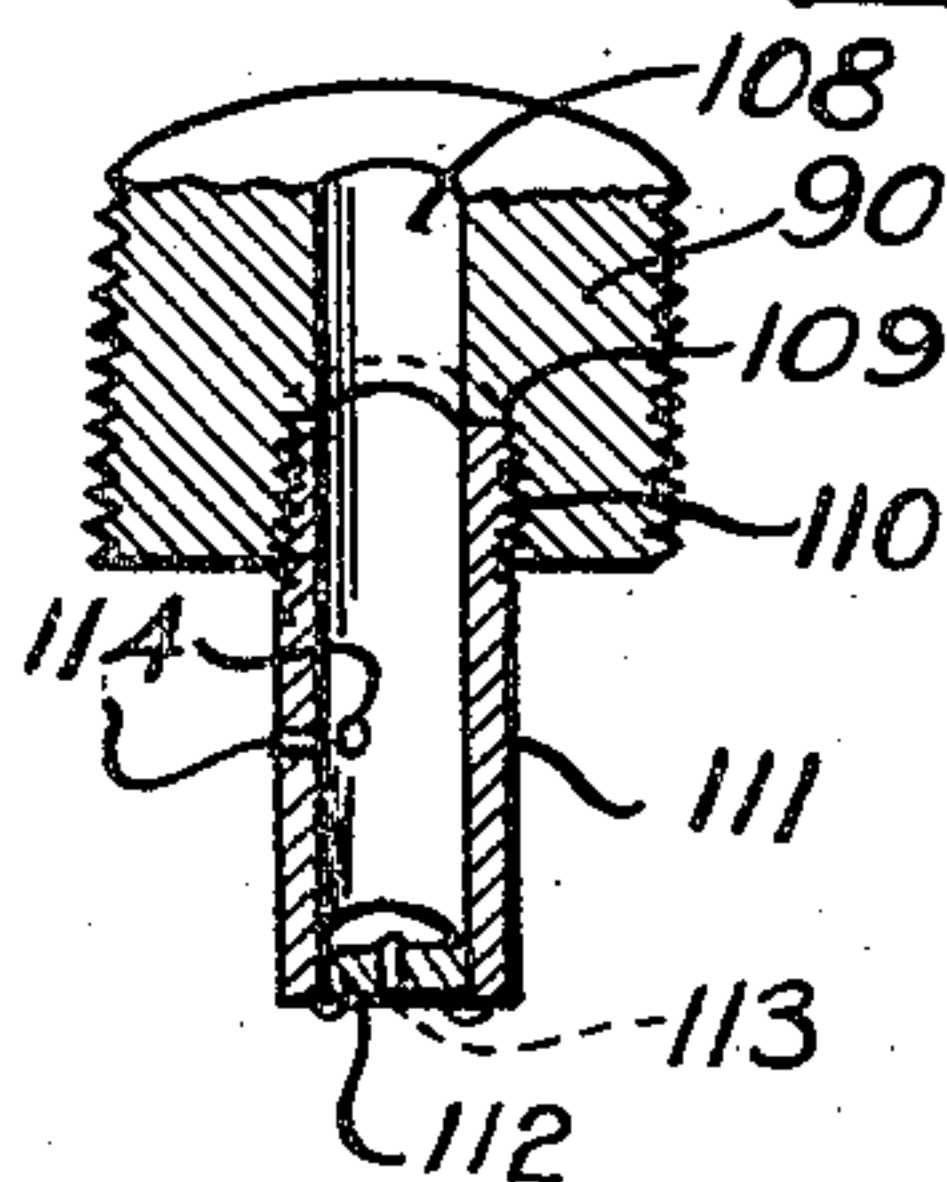
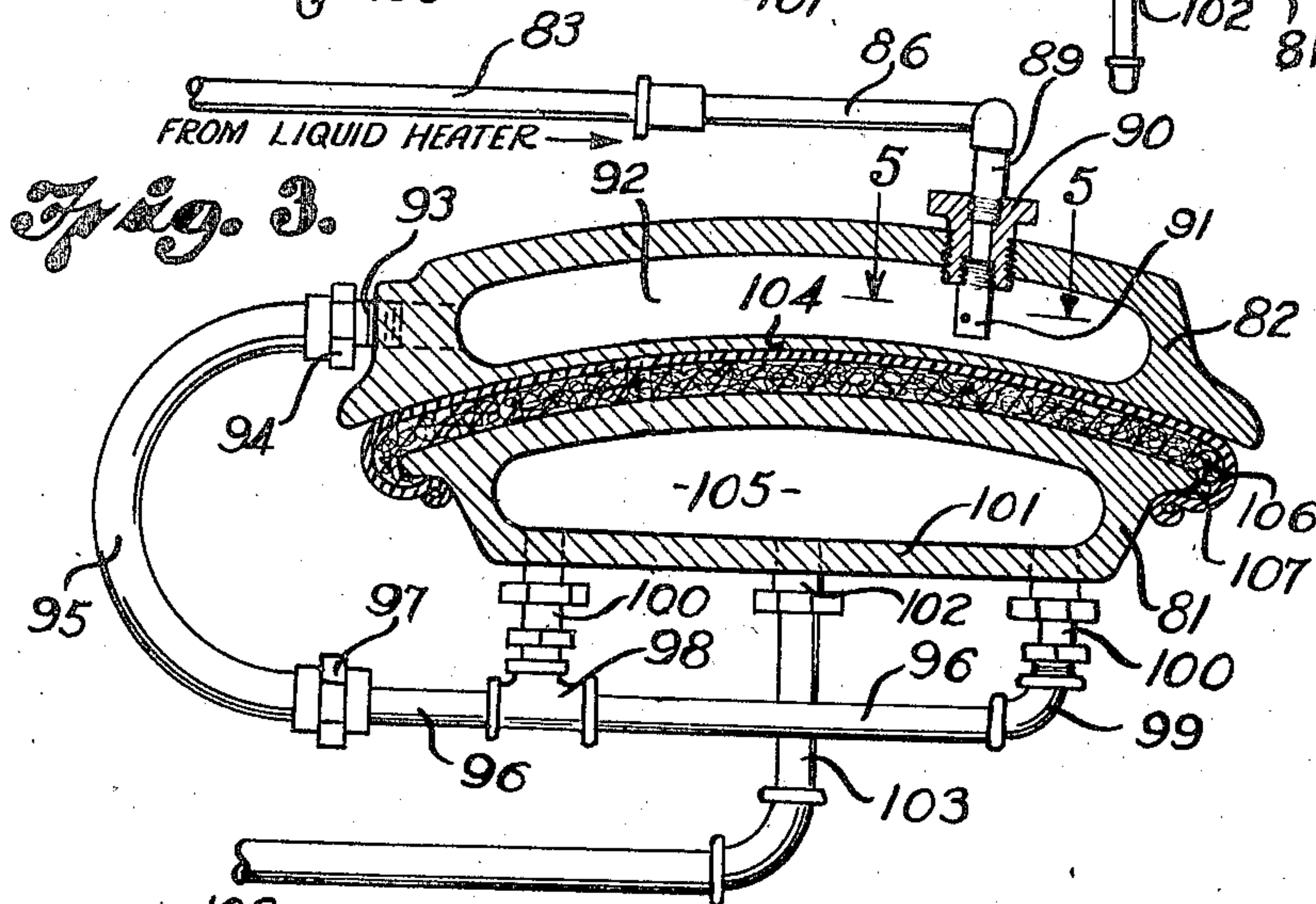
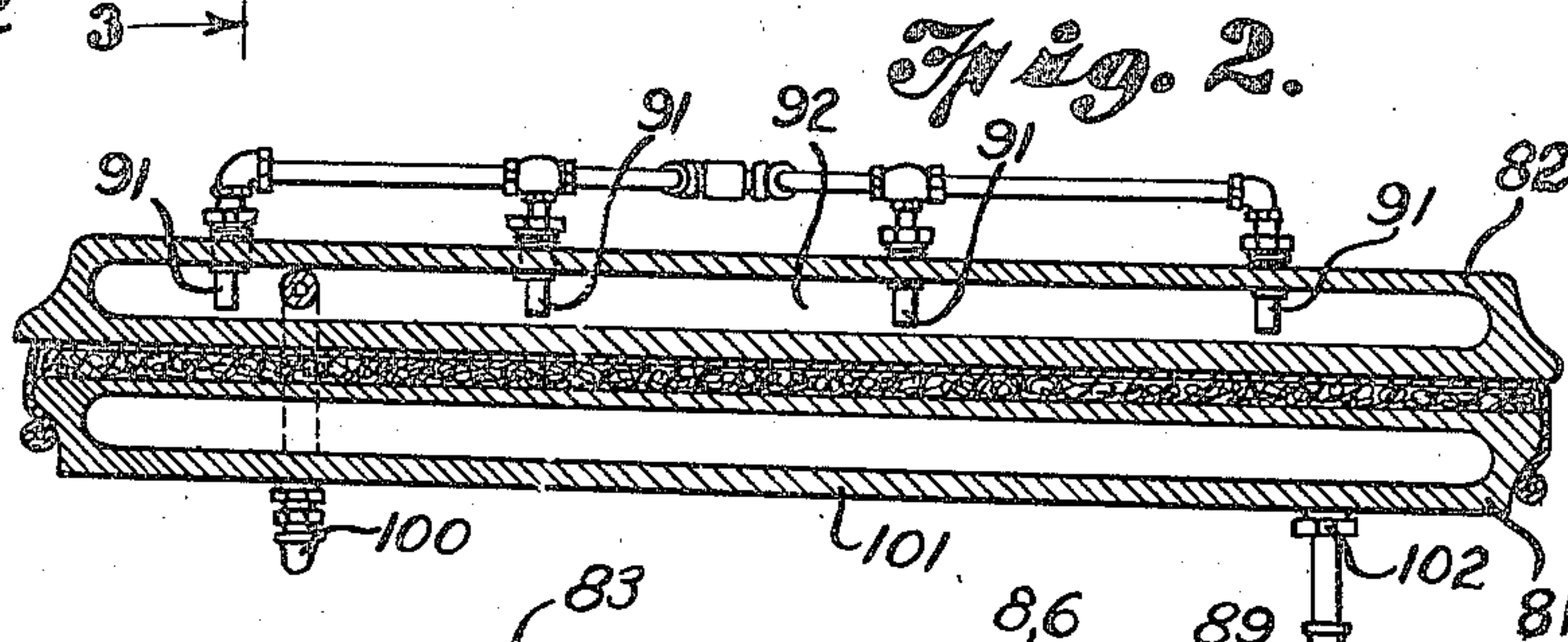
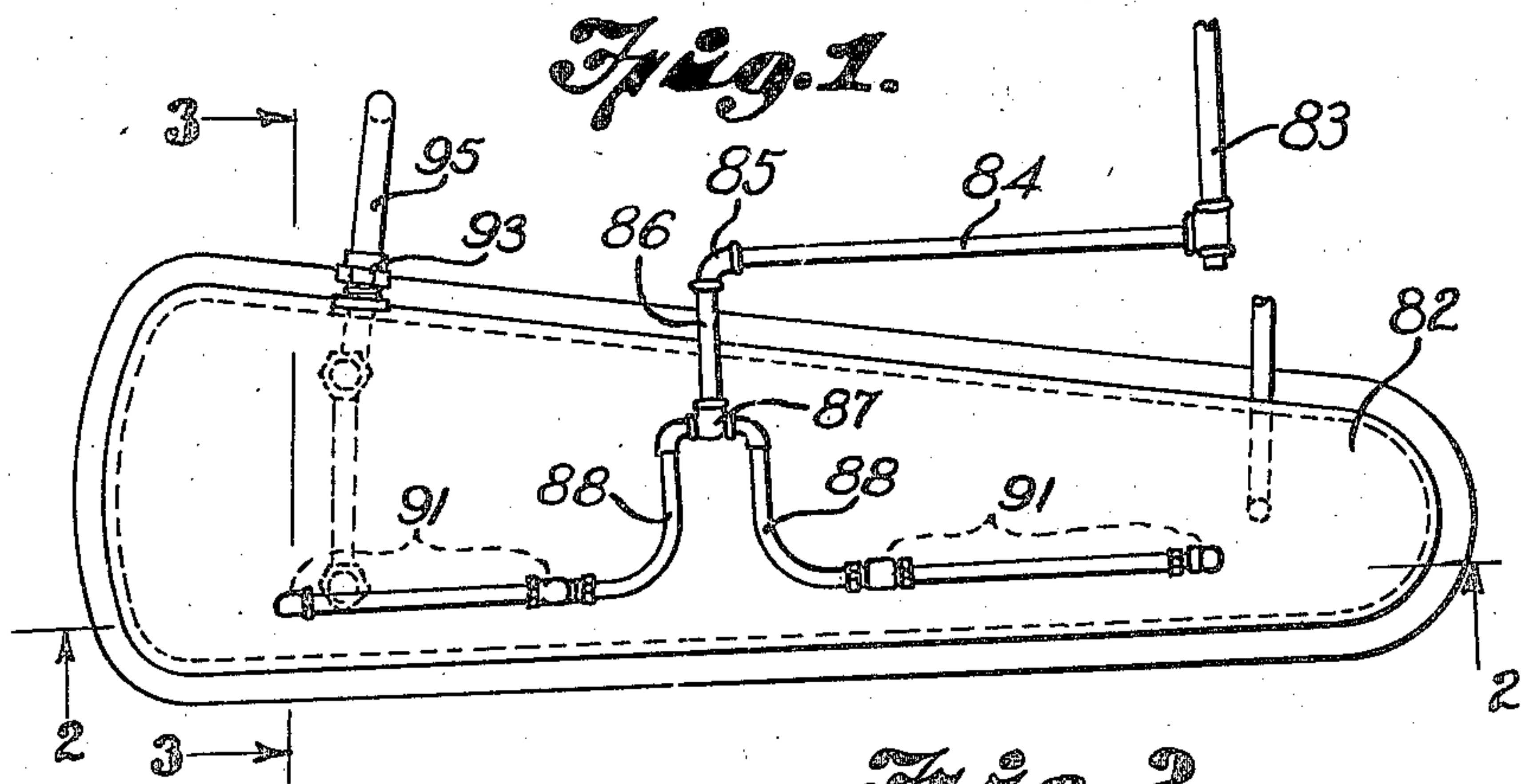
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J. B. SANDO

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HEATING MEANS FOR PRESSING MACHINES

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INVENTOR
JOSEPH B. SANDO
BY *Alfred R. Fuchs*
ATTORNEY

UNITED STATES PATENT OFFICE

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HEATING MEANS FOR PRESSING MACHINES

Joseph B. Sando, Kansas City, Mo., assignor to
Western Laundry Machinery Company, a corporation of Missouri

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1943, Serial No. 485,467

6 Claims. (Cl. 38—17)

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My invention relates to pressing machines, and more particularly to heating means for a pressing machine having a movable presser head cooperating with a stationary buck. This is a division of my co-pending application Serial No. 368,836, filed December 6, 1940, patented July 13, 1943, Patent No. 2,324,029, on Heating means for ironers.

In ironing devices such as pressing devices of the above mentioned character it is desirable to obtain a temperature of the ironing surface that is above 212° F. With the use of steam it would be necessary to increase the pressure to such a high point as to be dangerous, in order to obtain a temperature high enough above 212° F. to be highly effective. Temperatures near 500° F. are often desirable in apparatus of this character, and in order to obtain temperatures as high as 500° F. with safety, it is necessary to utilize a liquid that has a higher boiling point than the highest temperature that is desired, so that no high pressures are necessary in order to get the desired heating value out of the heating medium. Such temperatures can be easily obtained by the use of oils or other liquids, that do not deposit carbon, or other undesirable ingredients, at temperatures as high as that mentioned. It has been found that in order to get the desired heating effect from a liquid heating medium, it is necessary to have constant interchange of heat between the liquid medium and the wall of the ironing member, such as can only be obtained by movement of the liquid over the wall of the member that is to be heated.

In order to accomplish such heating, I have provided heating means wherein a liquid can be heated and supplied to the pressing apparatus by any suitable circulating means, in such a manner that sufficient pressure is provided that the liquid heating medium can be discharged onto the inner wall of the presser head on the opposite surface thereof from that which constitutes the ironing surface in a jet, or spray, but without putting any high pressure on the liquid that might be harmful in case of leakage. The pressure on the liquid in the supply conduits suitable for the apparatus illustrated is between five and ten pounds per square inch, in contradistinction to much higher pressures now used in steam heated presser heads.

Pressing machines of the character herein referred to comprise a movable presser head and a buck. While the heating of the presser head is of primary importance, in such devices, it is also desirable to heat the buck to a certain extent,

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and one of the objects of my invention is to utilize the liquid, that has been discharged against the wall of the presser head that has the ironing surface thereon, for heating the buck.

Other objects and advantages of my invention will appear as the description of the drawings proceeds. I desire to have it understood, however, that I do not intend to limit myself to the particular details shown or described, except as defined in the claims.

In the drawings:

Fig. 1 is a top plan view of the presser head of a pressing device utilizing my invention.

Fig. 2 is a section taken on the line 2—2 of Fig. 1.

Fig. 3 is a section taken on the line 3—3 of Fig. 1, on a slightly enlarged scale.

Fig. 4 is a longitudinal sectional view through one of the nozzles used, and

Fig. 5 is a transverse section through said nozzle, taken on the line 5—5 of Fig. 3, and being on a somewhat further enlarged scale.

Referring in detail to the drawings, the improved pressing machine comprises a buck 81 and a movable presser head 82, which is usually mounted to be swung into and out of super-imposed relation to the buck 81, the particular mounting means being immaterial and not being shown. A suitable flexible conduit 83 extends to a connection with a pipe 84, said pipe 84 being connected by means of an elbow 85 with a pipe 86 that has a T 87 connecting the same with branch conduits 88, which are provided with suitable T's and elbows for connecting the downwardly extending nipples 89 thereto, which are connected with the bushings 90, mounted in the wall of the presser head 82 in screw-threaded engagement therewith, and in which are screw-threadedly mounted the nozzles 91. Four of such nozzles 91 are shown in the drawings, and it will be noted that these are arranged, preferably, near one side edge of the presser head 82, within the chamber 92, provided inside said presser head. A suitable discharge connection is provided at 93 in the presser head at substantially the lowest point of the same, along the other side wall thereof from that adjacent which the nozzles 91 are located, the discharge connection 93 being connected through a union 94 with a flexible conduit member 95.

The flexible conduit member 95 is in turn connected with a pipe 96, by means of a union 97, which is provided with a T 98 and an elbow 99 leading to upwardly extending conduits 100, that are threaded into openings in the bottom wall

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101 of the buck 81 near one end thereof. A discharge connection 102 is located near the other end of the buck, extending through the bottom wall thereof, and connecting with a discharge pipe 103, which may lead away in any desired direction to return the liquid to the heating means. The liquid is discharged from the nozzles 91, passes along the inner face of the bottom wall 104 of the presser head to highly heat the same, and out through the discharge connection 93 to the chamber 105 provided in the buck, heating the buck to a certain extent, as is preferable. Said buck is, preferably, provided with a pad 106 that has a covering ply 107 thereon of any desired character.

The nozzles 91 are shown more in detail in Figs. 4 and 5. The bushing member 99 is provided with a passage 108 therein that has an enlarged portion providing a shoulder at 109, the larger diameter portion being internally threaded at 110 to receive the threaded end on the nozzle member 111, which has a closed end wall formed by the disk-like member 112 welded into the end of the member 111 lying opposite the threaded portion thereof. A restricted opening 113 is provided in the end wall 112, and a plurality of restricted openings 114 are provided in the side wall of the tubular member, as will be evident from Figs. 4 and 5, the side openings 114 being directed toward the side of the presser head having the discharge connection 93 thereon, and the opening 113 being directed downwardly immediately below the location of the nozzle.

It will be obvious from the arrangement of the nozzles that a thin layer of moving hot liquid will be passing over the inner convex surface of the wall 104 over the entire area thereof from one side to the other thereof and from one end to the other thereof, flowing generally from the nozzles toward the sides of the presser head, and more particularly toward the side having the discharge connection 93 thereon. Thus there will be a rapid flow of liquid over the inner face of the wall providing the ironing surface, and a discharge at high velocity of the hot liquid into engagement with said wall. At the same time the hot liquid will be utilized for heating the buck to the extent desired before being returned to the heating apparatus.

It will be obvious that the size of the openings 113 and 114 and the pressure utilized, as well as the character of the openings, will determine whether a spray of the liquid is discharged therefrom, or whether jet-like streams of the liquid are discharged therefrom. Under the low pressures usually utilized, the openings shown in the drawings would produce a jet-like discharge, although if higher pressures are used the tendency to spray would be present.

It is, of course, to be understood that any suitable means for circulating the liquid may be provided, so that sufficient pressure is provided that the liquid will be discharged through the openings in the nozzles with sufficient force as to engage the wall 104 at high velocity. The pressure is, however, relatively small and is not such that there would be any danger of any breakage of connections in the conduits provided for the carrying of the heating liquid to and from the ironing member.

In operation the presser head 82 is, of course, moved back and forth toward and away from the buck. In moving the presser head 82 away from the buck, it will move from the position shown in Fig. 3 to a substantially vertical posi-

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tion, whereupon the heating liquid will drain therefrom through the flexible conduit 95 into the buck. As this occurs at frequent intervals, this will prevent the building up of any pressure in the presser head and it will ordinarily not be entirely filled with liquid during any pressing operation. Ordinarily the presser head is in the vertical position for longer periods of time than in the position shown in Fig. 3 in the use of the machine.

What I claim is:

1. In an ironer, a buck, a hollow liquid tight presser head mounted to swing toward and away from said buck, said head having an imperforate bottom wall providing a concave ironing surface, and means for heating said wall comprising means extending into and fixed relative to said head for directing liquid toward and transversely of said wall to engage the inner convex side of said wall with a heated liquid at high velocity and pass a thin body of said liquid rapidly thereover and means for discharging said liquid from said head upon swinging said head away from said buck.

2. In an ironer, a buck, a hollow liquid tight presser head mounted to swing toward and away from said buck, said head having an imperforate bottom wall providing an ironing surface, and means for heating said wall by engaging heated liquid with said wall comprising spaced nozzles within said member fixed thereto and extending toward said wall and having means for directing liquid discharged therefrom across said wall, means for supplying heated liquid to said nozzles and means for periodically discharging said liquid from said head.

3. In an ironer, a buck, a hollow liquid tight presser head mounted to swing toward and away from said buck, said head having a bottom wall providing a concave ironing surface, means for heating said wall comprising means extending into and fixed relative to said head for engaging the inner convex side of said wall with a heated fluid and passing said fluid rapidly thereover, said buck being imperforate, and means for discharging said fluid from said presser head and passing the same by gravity into said buck upon swinging said head away from said buck.

4. In a pressing machine, a buck, an elongated hollow liquid tight presser head mounted to swing toward and away from said buck, said head having a transversely curved bottom wall providing a concave ironing surface on the under outer side thereof, a liquid conduit having distributing means extending into said presser head at a plurality of points lengthwise of the same, and means for supplying a heated liquid to said conduit, said distributing means being mounted near one side of said head and comprising nozzles directing said liquid transversely of said wall against the inner convex face thereof toward the other side of said head.

5. In a pressing machine, a buck, an elongated hollow liquid tight presser head mounted to swing toward and away from said buck, said head having a transversely curved bottom wall providing a concave ironing surface on the under outer side thereof, a liquid conduit having distributing means extending into said presser head at a plurality of points lengthwise of the same adjacent one side thereof, means for supplying a heated liquid to said conduit, and means for discharging heating liquid from said presser head at the other side thereof.

6. In a pressing machine, a buck, an elongated

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hollow liquid tight presser head mounted to swing toward and away from said buck, said head having a transversely curved bottom wall providing a concave ironing surface on the under outer side thereof, said buck being provided with a heating chamber, a liquid conduit having distributing means extending into said presser head at a plurality of points lengthwise of the same adjacent one side thereof, means for supplying a heated liquid to said conduit, and means for discharging said liquid from said presser head at the other side thereof and passing the same by gravity into said heating chamber upon swinging said presser head away from said buck.

JOSEPH B. SANDO.

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