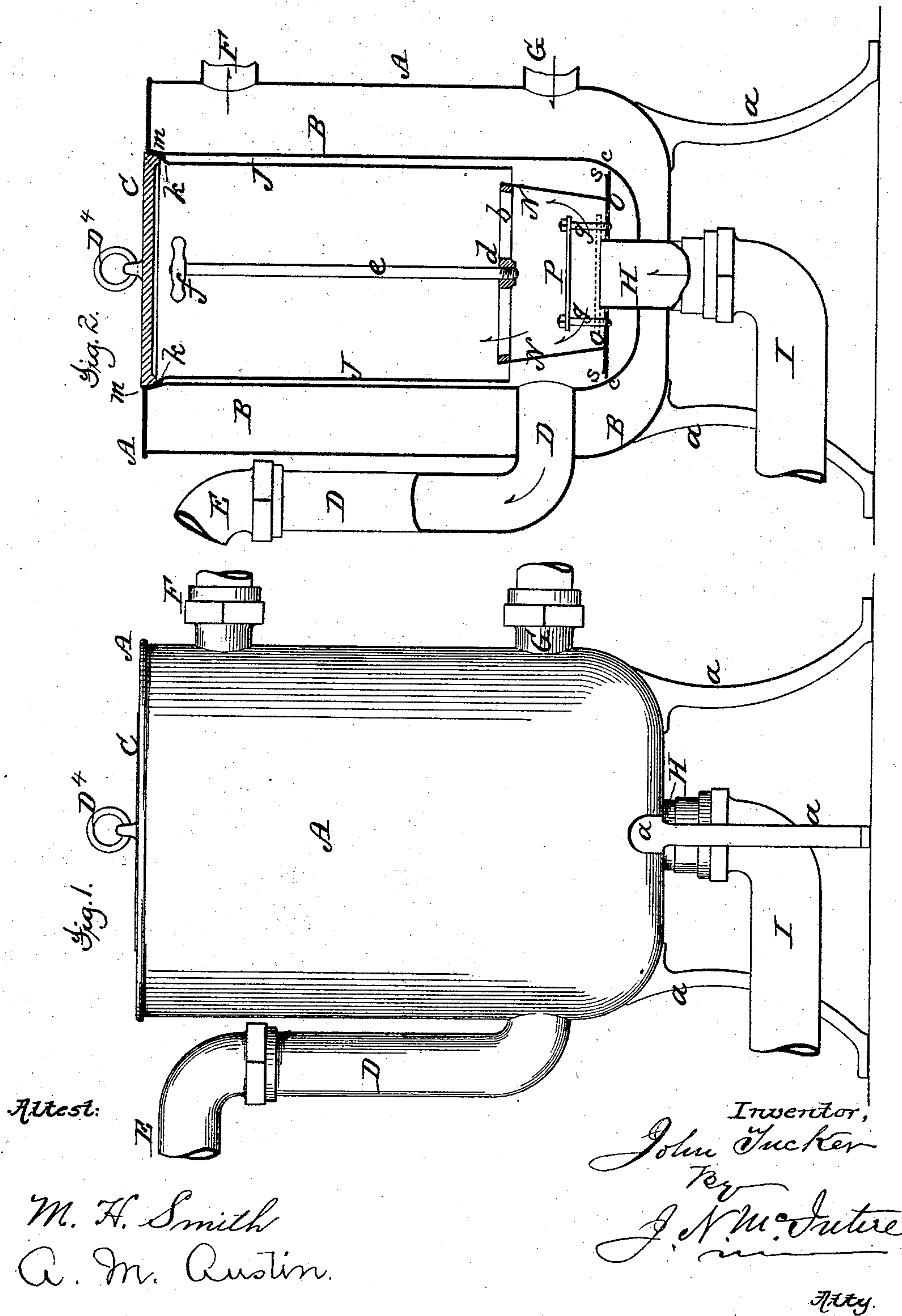


(No Model.)

J. TUCKER.  
GREASE TRAP.

No. 286,975.

Patented Oct. 16, 1883.





# UNITED STATES PATENT OFFICE.

JOHN TUCKER, OF NEW YORK, N. Y.

## GREASE-TRAP.

SPECIFICATION forming part of Letters Patent No. 286,975, dated October 16, 1883.

Application filed March 13, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN TUCKER, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Grease-Traps; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this application.

My invention relates to certain new and useful improvements in grease-traps, of a form and type analogous to that shown and described in another application for Letters Patent by me filed in the United States Patent Office a short time prior to the execution of this application, and now pending before the Commissioner of Patents.

The improvement or invention made the subject of this application consists in a novel adaptation of a grease-trap of the type mentioned, for use in places where or under circumstances in which such grease-traps cannot well be directly applied to or combined with the sink or other receptacle into which the greasy liquids are to be emptied, and from which they are to pass to the usual discharge and waste pipes of dwellings.

The changes and invention forming the subject-matter of my present case will be more fully explained hereinafter, and will be found particularly pointed out and specified in the claims of this application.

To enable those skilled in the art to which my present invention relates to fully understand and practice the same, I will now proceed to more fully explain my improvements, referring by letters of reference to the accompanying drawings, which form part of this specification, and in which I have illustrated my invention carried out in the best form now known to me.

In the drawings, Figure 1 represents, in elevation or side view, my improved grease-trap contrivance; and Fig. 2 represents the same in vertical central section.

In both views the same parts of the apparatus will be found designated by the same letter of reference.

A represents a vessel or receptacle of any suitable shape, preferably about cylindrical in

form, and of a proper size, mounted or supported, as represented, upon suitable legs, *a*, adapted to rest upon the floor or other foundation of the apartment or room in which it may be found desirable to place the apparatus. 55 The said receptacle A is formed with double walls, so as to have a space, B, extending all around and beneath it, as clearly shown, which space B communicates, near its upper portion, by connections F, and near its lower portion 60 by connections G, with ingress and egress water-pipes for respectively permitting the inflow and outflow of cold water in the direction indicated by the arrows at F and G, for the purpose of keeping the interior of the vessel or receptacle A cool, in order to effect the congelation 65 of any greasy matters contained in the liquid which may be discharged into and retained within said receptacle.

H is an induction-pipe, which enters the receptacle A about centrally at its bottom, and which is connected, as shown, with the pipe I, running off in any desired direction, and which is supposed to communicate with the sink, or other source from which greasy liquids 75 are to be carried off, while D is an ascending pipe or discharge-tube, which communicates at its lower end with the lower portion of the receptacle or vessel A, and at its upper end with a connection, E, supposed to be coupled to the 80 waste-pipe leading to the sewer-connections of the dwelling. The open upper end of the receptacle A is provided with a cover or lid, C, having a handle, D', for the convenient removal and replacement of said lid, and formed 85 with a tapering edge, which properly and closely fits onto the tapering seat *m* formed at the top opening of the receptacle A, for the reception and accommodation of the bearing edge of said lid. 90

J is a simple tube or barrel-like device of an external diameter slightly less than the internal diameter of the receptacle A, and of a length such that, when in its normal position within said receptacle, as seen at Fig. 2, its 95 lower end shall not depend below the upper part of the opening in said receptacle that communicates with the lower end of the pipe D, said tubular device J being open at both ends, as represented, and being formed or pro- 100



vided at its upper end with an upwardly-projecting flange or flare, by means of which the upper end of said tubular device is adapted to rest upon the tapering seat-like portion *m* at the upper open end of the receptacle A, in the manner shown, and for the purpose of supporting the gravity of said tube-like device J.

O is a circular plate or disk-like device, the extreme diameter of which is equal to or slightly greater than the external diameter of the lower end of the tubular device J, and the periphery of which is formed with a slight recess, as shown at *s*, so as to adapt the said disk O to serve the purposes of a head to the tube or barrel-like device J, in a manner and for a purpose to be presently explained. Said disk O is formed, as shown, with a central circular opening large enough to permit the passage through it easily of the upper end of the induction-pipe H, and is also provided with several upwardly-projecting rods or posts, *g*, which serve as guides for a valve-plate, P, (which is adapted to move up and down,) and which are provided at their upper ends with ordinary nuts, which act as stops to the ascent of the valvular device or plate P. The lowermost and uppermost positions which are occupied at different times by said valve-plate P are clearly illustrated in Fig. 2, where said valve-plate is shown in full lines in its highest position and in dotted lines at its lowermost position. The circular plate or disk O rests, when in its normal position, on the bottom part of the interior surface of the receptacle A, said bottom portion of said receptacle being made, preferably, of the shape shown in the drawings, so that said plate O will come to a bearing at its periphery at about the point *c* of the dish-shaped lower portion of the receptacle A, and the induction-pipe H projects upwardly within the receptacle A sufficiently, as shown, to bring its upper edge or mouth slightly above the level of the upper surface of the disk O, so that, as shown at Fig. 2, the valve-plate P will, in its lowermost position, seat itself upon the open edge or mouth of said pipe H, for the purpose of closing up the latter, for a purpose to be presently explained.

Projecting upwardly from the plate or disk O, and either cast integrally therewith or closely secured thereto at its lowermost edge, is a tubular or frustumally-shaped device, N, the upper and larger diameter of which is somewhat less than the internal diameter of the device J, and the height of which is such that its open upper end projects upwardly for a short distance within the lower open end of said tubular device J. Said device N is formed or provided with radially-arranged arms *b* at its upper end, which support a central hub-like device, *d*, in which is secured, by screw-thread or otherwise, the lower end of an ascending rod, *e*, the upper extremity of which is provided with any sort of suitable handle or knob-like device, *f*.

The arrows at Fig. 2 in the pipe H, and

within the dish-like receptacle formed by the bottom plate, O, and tapering device N, illustrate the directions in which the greasy liquids supplied through the pipe I from the sink or other receptacle enter the apparatus shown, while the arrow in the ascending discharge-pipe D indicates the direction of the inflow of said greasy liquid at the same time into said pipe D, and thence off to the connections E, leading off to the waste-pipe; and with what has already been said with reference to the several parts of the apparatus, the following explanation, taken in connection with the drawings, will suffice to make perfectly clear the operation of my improved contrivance.

The greasy liquids discharged from a sink or other receptacle or source are carried through the pipe I to the induction-pipe H, and through the latter are discharged into the grease-trap, the force or pressure of the incoming liquid operating to force up and hold open, in the position shown in full lines at Fig. 2, the valve-plate P, so that the inflowing liquids can run upwardly in the directions indicated by the arrows and fill up the interiors of the receptacle A and ascending pipe D to a level, at which the liquids will be free to pass off in the connections E into the waste-pipe, the arrangement and construction of the parts being such, of course, as shown, that the receptacle A can never be filled to an extent sufficient for any of the contained liquid to escape, by pressure, against the lid C of the grease-trap. When the greasy liquids thus flow into and fill up the contrivance to the level mentioned, they have to first enter into the interior of the receptacle formed by the device N, and, passing thence upwardly, have to overflow the upper edge of said device N within the lower portion of the tubular device J, and then fill up the spaces within the ascending pipe D, and also those which exist within the tubular device J, and between its exterior and the internal surface of the receptacle A, so that the particles of grease contained in the incoming liquids, and which are of less specific gravity than the water, will naturally ascend within the tubular device J and float upon the upper surface of the body of the liquid which fills it within and remains in the tube J, in a manner which will be readily understood. Of course whenever the supply or head of the incoming liquid ceases the valve-plate P immediately settles down by gravity under the upper edge of the induction-pipe H, seating itself upon said pipe, and thus practically closing the communication between the interior of the grease-trap contrivance and the sink or other receptacle in the house from which the pipe I is supplied with the liquids, to be carried off into the waste-pipe E.

By reason of the surrounding space or jacket B of the receptacle A being supplied with induction and eduction cold-water pipes G and F, the interior of the receptacle A is kept



comparatively cool, for the purpose of expediting the congelation of the greasy particles which are contained in the hot or warm liquids supplied to the apparatus, in a manner already explained in my other application for Letters Patent, and which need not be further described herein.

As in the case of an apparatus such as shown in my other application, the particles of grease which float up to the top of the mass of contained liquids in the receptacle A (and within the tube J) will there congeal, forming a stratum of comparatively solid grease, which floats on the top of the mass of water, and this stratum of grease is constantly augmented from beneath and greatly increased in depth and bulk, so as to eventually extend down and within and fill up the interior of the tubular device J. Whenever a quantity of congealed grease shall have thus collected within the tube J sufficient to necessitate its removal, the lid C may be taken off, and then, by grasping the handle *f* of the rod *e*, the plate O, supporting these devices, and also the device N, the valve-plate P, &c., may be lifted bodily upward until the recessed periphery *s* of said disk or plate O shall have been brought into contact with the lower open end of the tube J, whereby said lower end of said tube will be bottomed or closed up by said disk O, and then, by a further lifting of the handle *f*, said tubular device J, together with its entire contents, may be entirely lifted out of and removed from the receptacle A, for the purpose of cleaning it of its greasy contents, after which the said removable parts may be all replaced, and the use of the grease-trap contrivance be continued in the manner explained.

It will be seen that, as in the case of a contrivance such as shown and described in my previous application, there will be no liability of the greasy particles contained in the liquids passing off into the pipe D, and thence into the waste-pipe of the dwelling, because of the incoming flow of greasy liquid ascending within the device N and entering the tubular device J at a level somewhat above the plane of its lower open end or edge, the liquid having to descend from the upper edge of the device N in order to pass below the lower open end of the tube J and enter the discharge-orifice of the receptacle A, that communicates with the ascending discharge-pipe D; and it will be seen that, in a contrivance such as herein shown and described, the novel principle of construction and mode of operation which is common to the apparatus herein shown, and that shown in my previous application—viz., the construction and operation—by which the particles of grease are forced to float up or ascend toward the top of the liquid contained in the grease-receptacle, and are prevented from flowing directly into the dis-

charge-pipe leading to the waste-pipe, may be employed conveniently and successfully in localities and under circumstances in which it would not be practicable to carry out and derive the benefit of said principle of construction and mode of operation by means of an apparatus of the form and structure set forth in my previous application.

Having now so fully explained the construction and operation of the contrivance made the subject of my present application that those skilled in the art can make and use the same, and wishing to be understood that I do not herein limit my claims of invention to any particular sizes or proportions of the parts shown and described, nor to any details of construction, so long as the apparatus may be constructed to operate in substantially the manner shown and described, for the purpose set forth, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the receptacle or vessel which is provided with suitable means for connecting the lower portion of its interior with both the pipe leading from the sink to it and the pipe for discharging from it the waste liquids, of means, substantially such as described, for forcing the entering greasy liquid to ascend within said vessel to a point above the level of the discharge-pipe D before escaping thereinto, whereby the particles of grease are prevented from passing into pipe D, all as set forth.

2. In combination with the receptacle A, the open-ended tube J, the disk-like plate O, and means for lifting said plate, and also said tube, for the purpose of removal from the said receptacle, all substantially in the manner and for the purpose set forth.

3. In combination with the receptacle A, provided with an induction-pipe, H, the disk-like device O, and dish-shaped or frustumal tubular device N, projecting upwardly beyond the discharge-orifice of the receptacle A, all substantially in the manner and for the purposes described.

4. In combination with the receptacle A, an induction-pipe, H, projecting upwardly within said receptacle, and the disk-like device O, formed or provided with the device N, and adapted to surround the upper portion of the tube H at a level slightly below that of the upper end of said tube, a valvular device, P, and suitable means for guiding the latter in its ascent from and descent onto the upper end of said tube H, all substantially as described.

In testimony whereof I have hereunto set my hand and seal this 9th day of March, 1883.

JOHN TUCKER. [L. S.]

In presence of—

AMASA T. DAY,  
F. F. McRAE.