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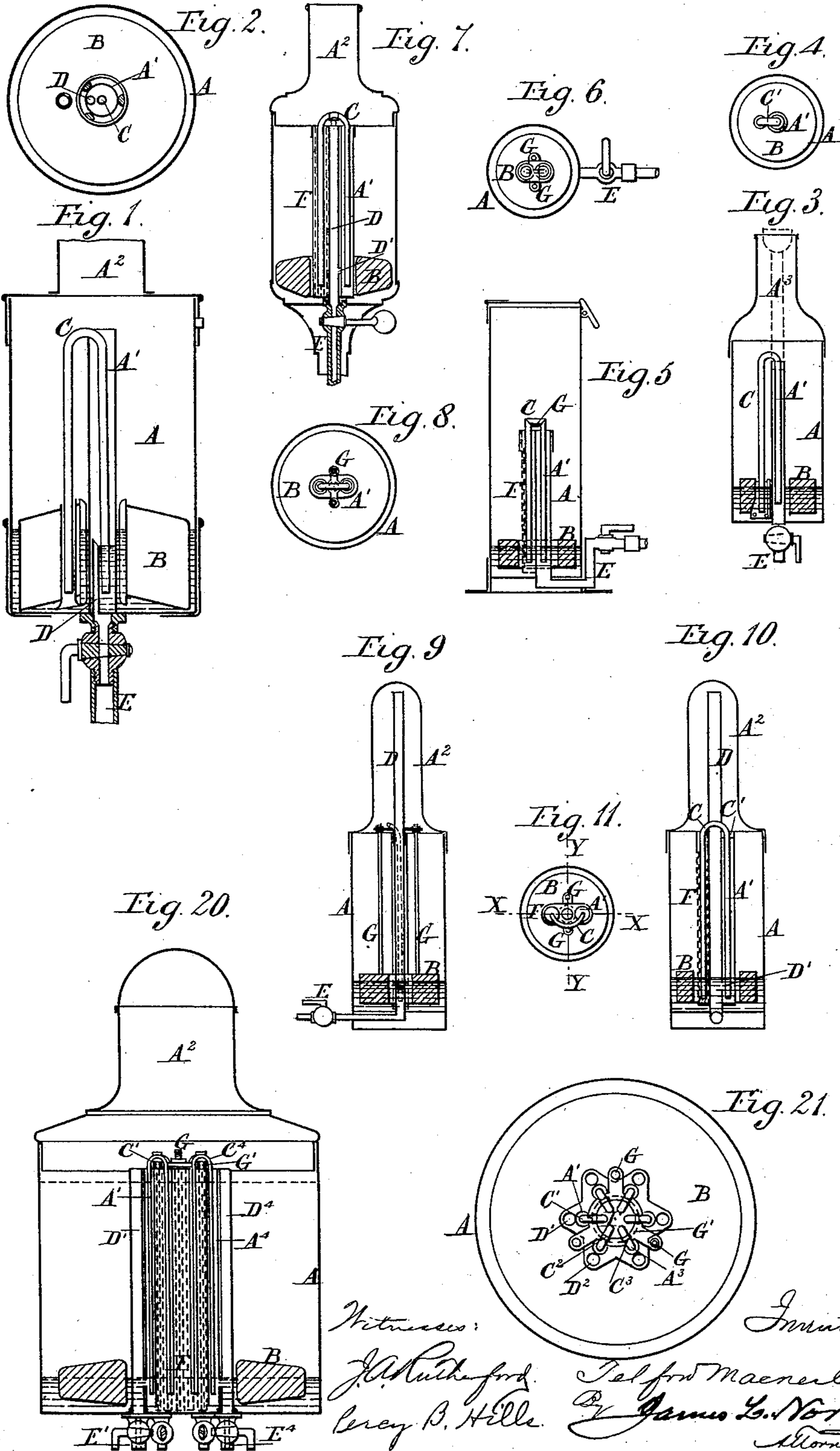
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T. MACNEILL.

MEANS FOR EFFECTING A UNIFORM SUPPLY OF OIL &c.

No. 429,042.

Patented May 27, 1890.



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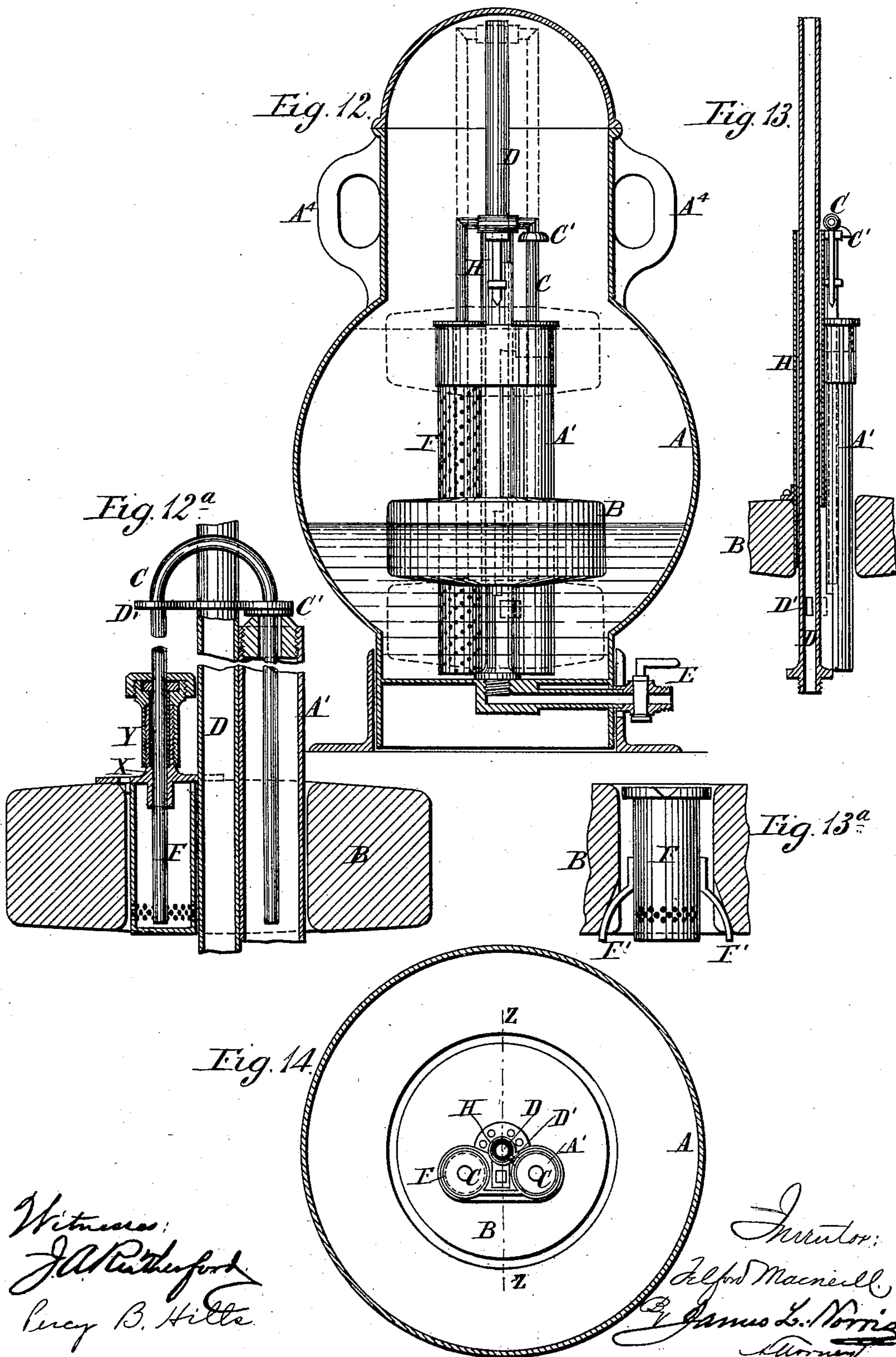
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Witnesses:  
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Lucy B. Hille

Inventor:  
Telford Macneill  
James L. Norris  
Attorney

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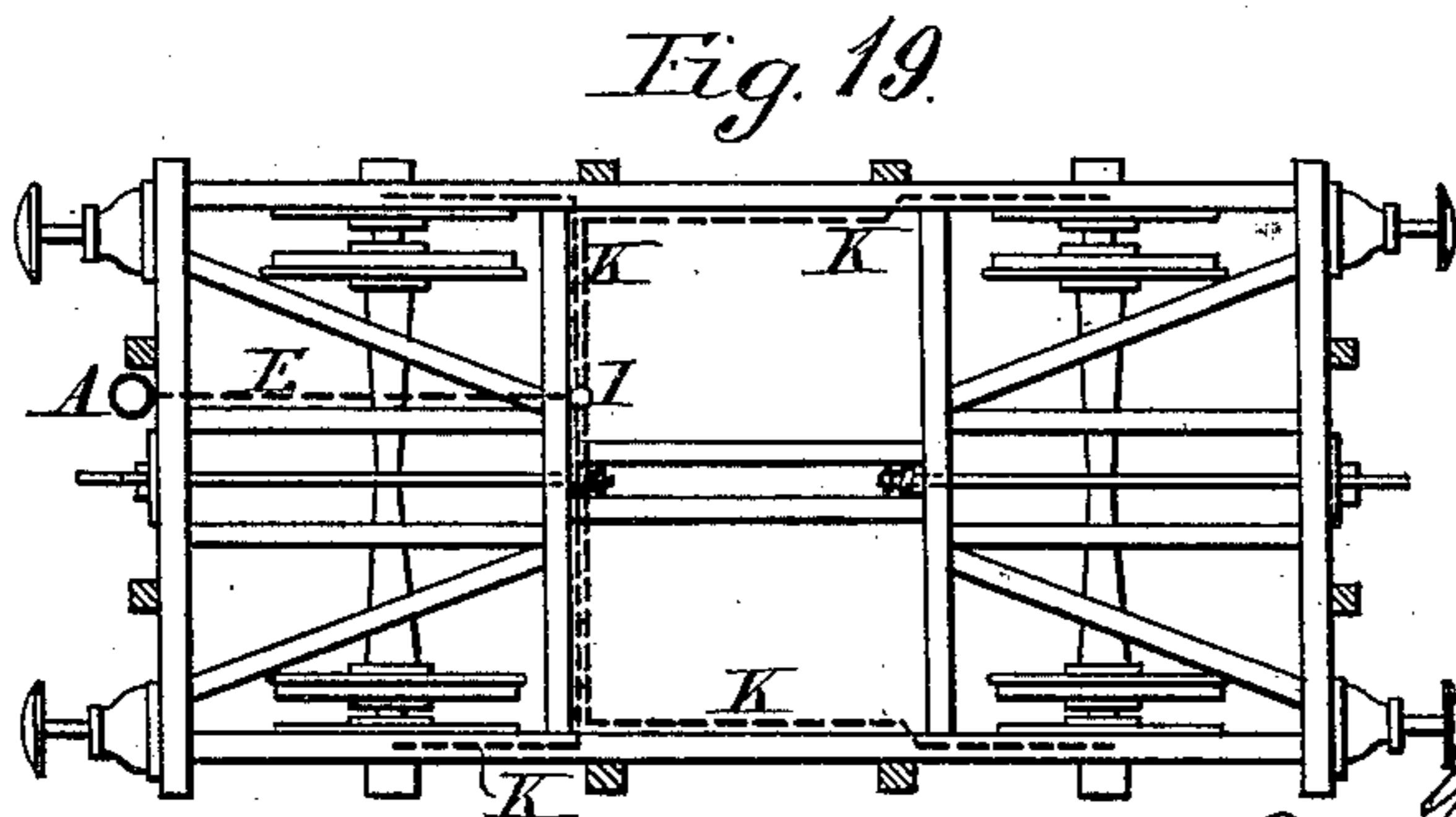
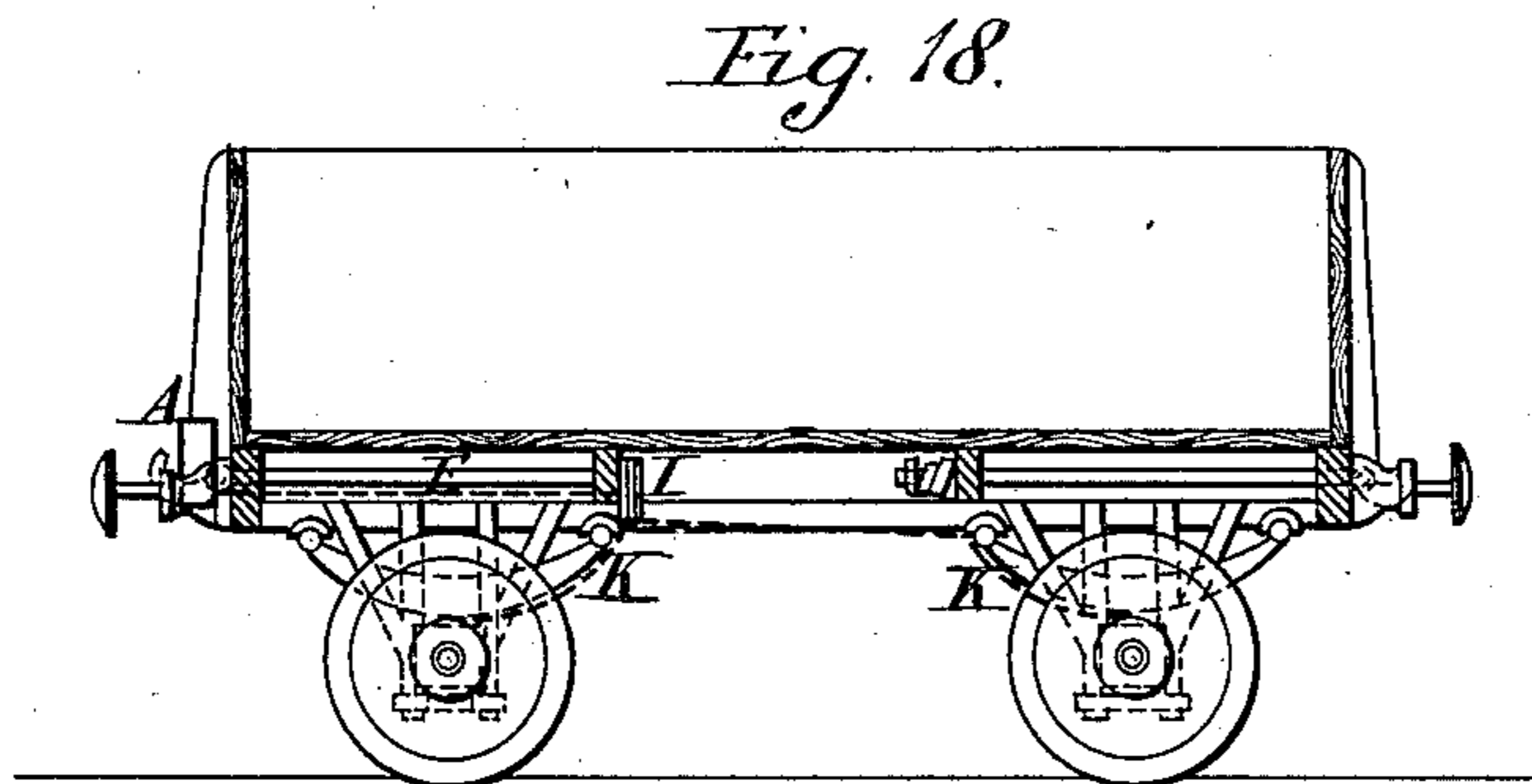
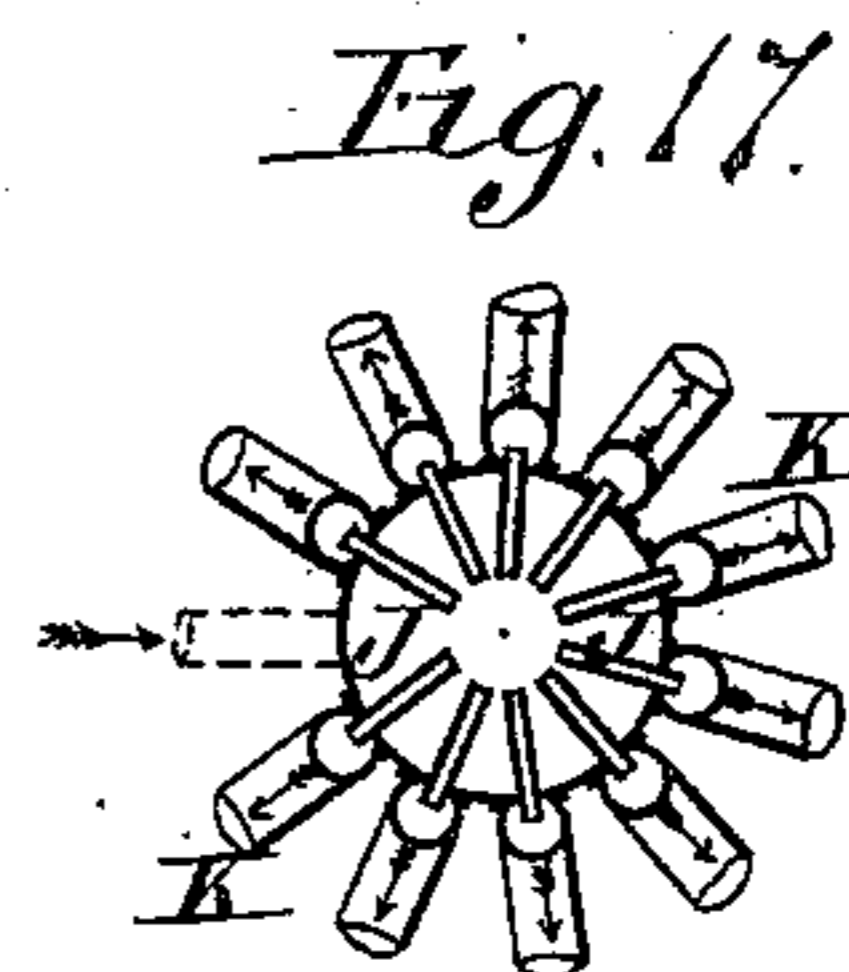
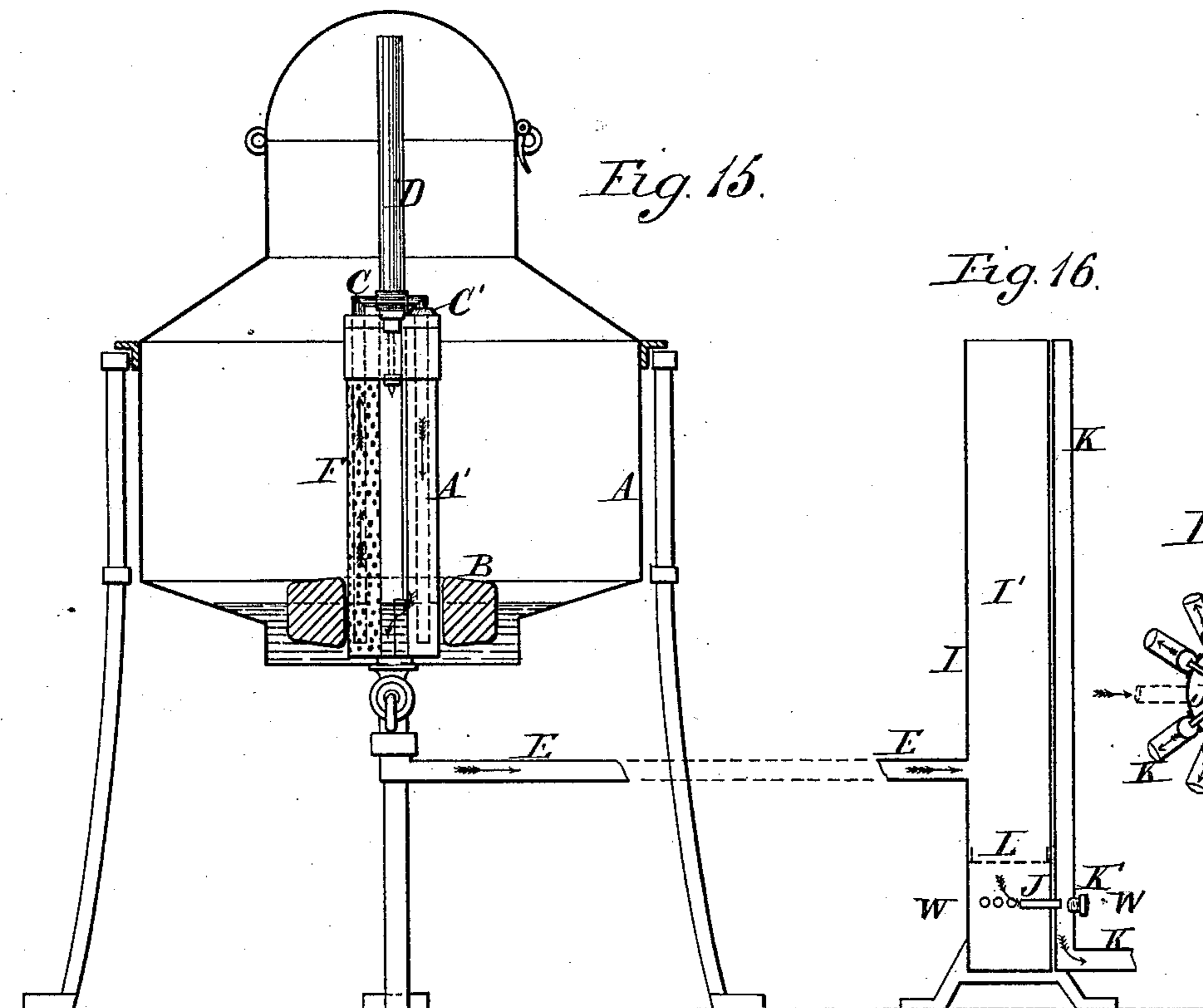
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Witnesses:  
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# UNITED STATES PATENT OFFICE.

TELFORD MACNEILL, OF LONDON, ENGLAND.

## MEANS FOR EFFECTING A UNIFORM SUPPLY OF OIL, &c.

SPECIFICATION forming part of Letters Patent No. 429,042, dated May 27, 1890.

Application filed February 10, 1890. Serial No. 339,879. (No model.) Patented in England May 8, 1888, No. 6,881; in France July 25, 1889, No. 199,805, and in Belgium July 31, 1889, No. 87,219.

*To all whom it may concern:*

Be it known that I, TELFORD MACNEILL, a citizen of England, residing at No. 3 Spring Gardens, in the city of London, England, have  
5 invented new and useful Improved Means for Effecting a Uniform Supply of Oil and other Liquids Applicable to Lamps, Lubricators, and other Purposes, (for which I have obtained patents in Great Britain, No. 6,881, dated May 8,  
10 1888; in France, No. 199,805, dated July 25, 1889, and in Belgium, No. 87,219, dated July 31, 1889,) of which the following is a specification.

My invention has for its object to effect a  
15 very uniform supply of oil both in oil-lamps and in lubricators; and it consists in employing for this purpose an oil vessel or reservoir containing a float carrying a siphon tube, one limb of which dips into the oil in the vessel,  
20 while the other limb passes down a tube fixed in or at the side of the vessel, which conducts the oil to the burner of the lamp or to the surface to be lubricated, means being provided whereby the siphon is prevented from  
25 becoming discharged when the oil has sunk to the lowest level in the reservoir. According to one arrangement for this purpose the tube into which the siphon discharges is provided with means for always maintaining a  
30 body of oil at such a level therein that when the oil in the reservoir has sunk to the lowest level the discharge-orifice of the siphon-tube is made to dip into the said body of oil, and in thus having its discharge stopped prevents the emptying of the siphon, so that  
35 when the reservoir is filled with oil again the siphon resumes its action without requiring to be recharged. The retention of the said body of oil in the discharge-tube may be  
40 effected in various ways. Thus according to one arrangement I form in the discharge-tube a pocket or recess, into which the oil descends from the upper part of the tube, and from which it flows into the lower part through an  
45 opening at the top of the recess, so that this always remains full of oil, into which the siphon-tube dips when in its lowest position. According to another arrangement the part  
50 of the discharge-tube connected to the oil-vessel is closed at its lower end and has a

smaller tube passing through it, the lower end of which communicates with the lower part of the discharge-tube, while the upper end projects up some distance above the closed  
end of the upper part, so that there will al- 55 ways be a certain quantity of oil retained in the latter; or according to another arrangement the reservoir is placed at such a level relatively to the burner of the lamp or the discharge-orifice of the lubricator that the oil 60 in the discharge-tube can never sink below a certain level, this level being at such a height that the siphon-tube will dip into it when in its lowest position. According to another arrangement for stopping the discharge of oil 65 from the siphon when the oil has sunk to a certain level the discharge-limb of the siphon is made shorter than the suction-limb, and means are provided either on the float or in the reservoir for stopping the descent of the 70 float at a certain level. The discharge of oil will, however, continue beyond this point until the oil-level has sunk to the level of the orifice of the siphon's discharge-limb, at which level the suction-limb will still be immersed. 75 As the columns of liquid will now be equal in both limbs of the siphon, they will balance each other and no further discharge will take place. As when the oil-vessel is filled with oil the float, with its siphon, will necessarily 80 extend some height above the oil-level, the vessel must either be made of a corresponding increased height, in order that it may be inclosed at top, or it may have a cover provided with a tubular extension, in which the 85 siphon works up and down. For charging the siphon in the first instance, it is only requisite to depress the float with the siphon so that the top of the siphon-bend is below the oil-level in the reservoir, which may be 90 effected by forming a notch in the mouth of the discharge-tube, so as to allow the siphon-bend to be depressed to the level of such mouth, and then by temporarily closing such mouth the oil-level may be raised sufficiently 95 above it to effect the filling of the siphon-bend; or, instead of closing the mouth of the discharge-tube, it may have a short extension fitted upon it, and either the discharge-tube be filled with oil, for which purpose it is pro- 100

vided with a stop-cock below the siphon, or the oil-level in the reservoir be raised, as described. As the siphon-tube is in most cases necessarily of a small diameter in order to effect a slow discharge, it is essential to prevent any solid matter from passing into it, for which purpose the suction end is enlarged in diameter and is covered with wire-gauze or other material that will prevent the entrance of solid matter.

Although my above-described improved siphon discharge apparatus is more particularly intended for use in oil-lamps and lubricators, it will be evident that it may be used for effecting the uniform discharge of liquid generally.

In the drawings illustrating my invention, Figure 1 is a vertical sectional view; Fig. 2, a transverse sectional plan view of the siphon apparatus; Figs. 3 and 4, similar views showing a modified construction; Figs. 5 and 6, similar views of another modification; Figs. 7 and 8, similar views of another arrangement; Figs. 9, 10, and 11 are respectively a section on the line X X, a section on the line Y Y, and a transverse sectional plan view of another modification. Fig. 12 is a vertical sectional view, on a larger scale, of another arrangement. Fig. 13 is a detail sectional view on the line Z Z, Fig. 14; Fig. 14, a transverse sectional plan view of the construction shown in Fig. 12. Figs. 12<sup>a</sup> and 13<sup>a</sup> are detail sectional views on a larger scale, showing means for adjustably securing the siphon. Figs. 15 and 16 are vertical sectional views showing the siphon apparatus connected with a distributor. Fig. 17 is a detail sectional view on the line W W, Fig. 16. Figs. 18 and 19 are respectively a vertical sectional view and a sectional plan view showing the invention applied to a railway-truck. Figs. 20 and 21 are respectively vertical sectional view and a sectional plan view of another modification.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, where the letter A indicates a receptacle or vessel charged with oil, containing a metal float B, to which is attached a siphon C, one limb of which passes through the float to the under side thereof, where its mouth is closed by wire-gauze or perforated screen for preventing the entrance of dirt. The other limb of the siphon passes into a central tube A' of the receptacle, the lower end of which is closed, but has a small tube D passing up through it from a discharge-pipe E below, this tube being placed to one side, so as to leave room for the siphon-limb in the tube A', as shown, and it is carried up to such a height that there will always be sufficient oil retained in the tube A' to seal the siphon when this is in the lowest position, as shown. The tube A' also serves as guide to the float B, through a central hole in which it passes.

Assuming the receptacle A to be filled with oil to the level of the mouth of the tube A', then the float and siphon would be in a correspondingly raised position, the siphon being situated in the tubular extension A<sup>2</sup> of the cover of the receptacle. In order now to put the siphon in action, it is depressed in the oil into the position shown, with its bend situated in a notch in the tube A'. The oil will then flow from the outer limb over the bend and down the discharge-limb into the tube A'. When this has been effected, the siphon is allowed to rise again, and a continuous uniform discharge of oil into the tube A' then takes place, the oil flowing from the tube A' through tube D into the discharge-pipe E, which leads it to wherever required. When by the discharge of oil the float and siphon have sunk to the position shown, the discharge-limb dips into the oil retained in the bottom of tube A', and as soon as the oil in the vessel A has sunk to the same level the discharge will cease, while retaining the siphon fully charged, so that on again filling the receptacle A the discharge will recommence. The pipe E is provided with a cock for stopping the discharge at any time.

Figs. 3 and 4 show a vertical and horizontal section of a modification in which, instead of forming the central tube A' so as to retain a quantity of oil at bottom for stopping the discharge, this is effected by making the discharge-limb of the siphon shorter than the suction-limb, so that when the oil in A has sunk to the level of the discharge-limb's orifice the discharge will cease, while the siphon will remain charged, as the column of liquid in the suction-limb will balance that in the discharge-limb. The siphon can be charged in the first instance by closing the cock of the pipe E and temporarily fitting an extension A<sup>3</sup> onto the tube A', through which oil is introduced until it is above the level of the siphon-bend, after which A<sup>3</sup> is removed.

In the modification shown at Figs. 5 and 6 the siphon-limbs are made equal, as before, the discharge-limb being sealed when in the lowest position by dipping into the liquid retained in the bend of the discharge-pipe E. In this arrangement the suction-limb of the siphon moves up and down in a perforated or wire-gauze filtering-tube F, the siphon being carried by two uprights G, fixed to the float B.

Figs. 7 and 8 show an arrangement similar to the foregoing one, but with the tube A', in which the discharge siphon-limb is situated, placed to one side of a central discharge-tube D, with which it communicates through a hole D', so as to retain some oil in the tube A'.

Figs. 9, 10, and 11 show, respectively, a section on line X X, a section on line Y Y, and a sectional plan of a modification of the arrangement just described, in which the tube D is extended up some height, and the discharge-limb of the siphon is provided with a valve in the form of a cap C', which, when

the siphon is in the position shown, closes the upper end of the tube A', so that exhausting the air from the tube D (cock E being closed) by suction at the upper end thereof the air will also be exhausted from tube A', and the discharge-limb of the siphon thus drawing the liquid over the bend and starting the siphon.

Figs. 12, 13, and 14 show to an enlarged scale a modified construction of the last-described arrangement, in which the tube D is placed out of line with the tubes A' and F, so that the siphon C is situated to one side of the tube D, which is thus made to act as a guide, on which slides a sleeve H, fixed to the float B, and serving as support to the siphon, as shown more clearly at Fig. 13, which is a section at Z Z, Fig. 14. The tube D communicates with the tube A' by a passage D'. The action is otherwise just the same as above described. The receptacle A can either be carried on a stand, as shown, or be hung from loops A<sup>4</sup>.

Figs. 12<sup>a</sup> and 13<sup>a</sup> show a modified construction in which the siphon-tube C is secured to the float B by means of a screwed socket X, fixed on the float, through which the discharge-limb of the siphon passes, and over which screws a sleeve Y, carried by the siphon, so as to be rotatable, but not to shift longitudinally, thereon, so that by screwing the sleeve more or less onto the socket the height of the ends of the siphon relatively to the float can be varied, so as to vary the rate of discharge. The perforated filtering-tube F is in this case not fixed in the oil-vessel, but is carried by the float, being secured in the same by means of two arms F' F', fixed thereto, that fit with sufficient tightness into grooves in the float, as shown at Fig. 13<sup>a</sup>, to hold the tube F in position, while allowing it to be readily removed when required. The siphon-tube has a ring or eye D' attached to its bend, which slides over the air-tube D, Figs. 12 and 13, so as to be guided thereby in rising and falling. This arrangement also enables the siphon-tube to be readily removed and replaced by another one. The other parts are the same as previously described.

Figs. 15, 16, and 17 show the last-described construction, adapted for supplying oil or other liquid to a number of burners, lubricators, &c., by means of a distributor I. Fig. 15 shows a vertical section of the siphon apparatus. Fig. 16 is a vertical section of the distributor, and Fig. 17 is a cross-section of the distributor at W W. The distributor I consists of a tubular vessel I', into which the discharge from the siphon apparatus flows through pipe E, and which is provided with a number of small branch tubes J J, that lead the oil-supply into a corresponding number of pipes K K, that convey it to the required localities. Stoppered openings K' are provided in the pipes K for clearing out the tubes J when required. The tubes I and K are extended up to a height corresponding to that

of the highest oil-level in the reservoir A, so that when the discharge from the pipes K is stopped by closing cocks thereon while the discharge from the reservoir continues the liquid will rise in the pipes I K until it stands at the same level as that of the liquid in A, whereupon the discharge from A will cease. A screen may be provided at L in the tube I for retaining any solid matter that may pass in from A.

Figs. 18 and 19 show, respectively, a vertical section and a sectional plan of a railway-truck with the above-described siphon discharge apparatus and distributor applied thereto for supplying the axle-boxes with lubricating-oil. A is the siphon apparatus, fixed at one end of the truck and communicating by a pipe E with the distributor I, from which pipes K K lead to the several axle-boxes.

Figs. 20 and 21 show a vertical section and sectional plan of a modification, in which the siphon apparatus is so constructed as itself to distribute the liquid to a number of lamps, lubricators, &c., the apparatus being provided with a corresponding number of siphons C' C<sup>2</sup> C<sup>3</sup>, &c., and discharge tubes and pipes A' A<sup>2</sup> A<sup>3</sup>, &c., D' D<sup>2</sup> D<sup>3</sup>, &c., E' E<sup>2</sup> E<sup>3</sup>, &c. The suction-limbs of the siphons are all contained in a central straining-tube F, common to all. The siphons are carried by a ring G' on the upper end of the supports G, fixed to the float B.

Having thus described the nature of my invention and the best means I know for carrying the same into practical effect, I claim—

1. In siphon discharge apparatus, a siphon carried by a float, a chamber on the discharge-pipe, into which the siphon discharges and which retains a portion of the liquid, into which the discharge-limb of the siphon dips when in its lowest position, substantially as and for the purpose described.

2. In siphon discharge apparatus, a siphon carried by a float, a chamber on the discharge-pipe, into which the siphon discharges and which retains a portion of the liquid, into which the discharge-limb of the siphon dips when in its lowest position, a pipe communicating with said chamber, through which the air can be exhausted therefrom and from the siphon by suction, and a valve on the discharge-limb of the siphon, adapted to close the opening of the said chamber when the siphon is in its lowest position, substantially as and for the purposes set forth.

3. In siphon discharge apparatus, a siphon connected to a float by a screw device consisting of an externally-threaded socket on the float, through which the suction-limb of the siphon passes, and an internally-threaded sleeve rotatable, but not longitudinally shiftable, upon the suction siphon-limb, which sleeve in screwing up and down on the socket thereby raises or lowers the outlet of the siphon relatively to the liquid-level, substantially as herein described.

4. In siphon discharge apparatus, a siphon

carried by a float, a chamber on the discharge-  
pipe, into which the siphon discharges and  
which retains a portion of the liquid, into  
which the discharge-limb of the siphon dips  
5 when in its lowest position, and a vessel con-  
nected to the discharge-pipe, having a num-  
ber of branch pipes for conveying the liquid  
to a corresponding number of places of con-  
sumption, substantially as herein described.  
10 In testimony whereof I have signed my  
name to this specification, in the presence of

two subscribing witnesses, this 27th day of  
January, A. D. 1889.

TELFORD MACNEILL.

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