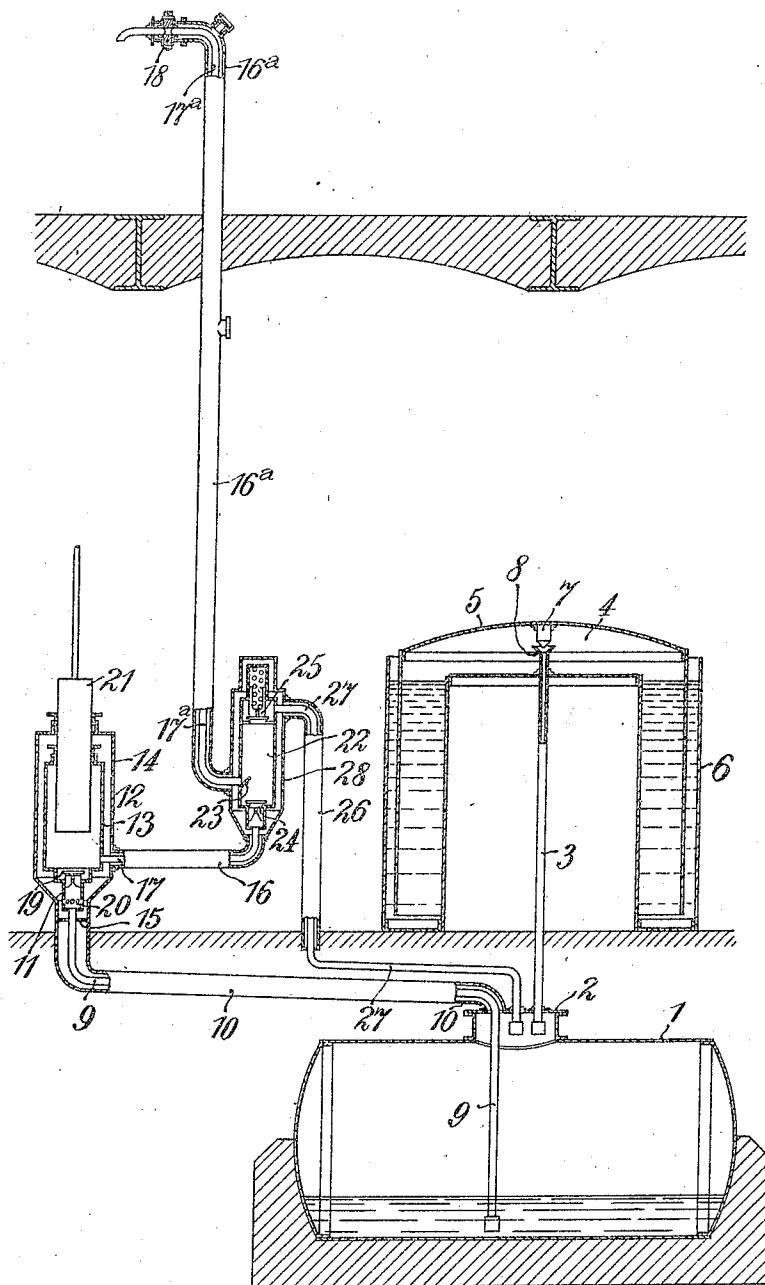


C. MARTINI.
 DEVICE FOR FEEDING LIQUIDS.
 APPLICATION FILED OCT. 7, 1909.

987,248.

Patented Mar. 21, 1911



Witnesses:
 Ernst Kiedendorf
 Julius Portler.

Inventor:
 Carl Martini
 by John Lottka
 Attorney.

UNITED STATES PATENT OFFICE.

CARL MARTINI, OF BERLIN, GERMANY.

DEVICE FOR FEEDING LIQUIDS.

987,248.

Specification of Letters Patent. Patented Mar. 21, 1911.

Application filed October 7, 1909. Serial No. 521,638.

To all whom it may concern:

Be it known that I, CARL MARTINI, a subject of the German Emperor, and resident of Berlin, Germany, have invented certain new and useful Improvements in Devices for Feeding Liquids, of which the following is a specification.

My invention relates to devices for feeding liquids, and particularly such as on account of their inflammability or other dangerous characteristics would be liable to cause damage in case of a leak.

I have devised my improvement with especial reference to apparatus comprising an underground receptacle for the liquid (say, gasoline) which is protected against explosion by filling the upper part of the receptacle with a non-oxidizing (inert) gas fed under slight pressure, as from a gasometer. The liquid is withdrawn from the receptacle and conveyed to the place of use by means of a feeding device, for instance a pump, and the conveying pipe is jacketed in the manner set forth hereinafter. According to my present invention, the suction port of the pump or other feeding device communicates with the jacket of the delivery portion of the conveying pipe, so that in case of a leak in the outer wall of the jacket at the delivery portion the pump will draw in air through the leak and automatically stop the feeding of liquid.

Another feature of my invention relates to an arrangement by which the liquid is returned to the receptacle in case the pump should be started while the discharge cock is closed.

A specific embodiment of my invention is shown in the accompanying drawing which is a diagrammatic vertical section.

The underground receptacle 1 is connected at its upper portion, by means of a pipe 3 passing through the cover 2, with the gas chamber 4 of the gasometer bell 5 dipping into the tank 6. A conical valve 7, carried by the bell 5, will become seated on the enlarged end 8 of the pipe 3 when the bell reaches its lowest position, thus cutting off the chamber 4 from connection with the receptacle 1. The liquid contained in the receptacle is withdrawn through a suction pipe 9 passing through the cover 2 and reaching close to the bottom of the receptacle. This pipe is jacketed by means of a surrounding pipe 10, the intervening space being open to the interior of the receptacle 1. The pipe 9

connects with the suction chamber 11 of the pump 12, the cylinder 13 of which is provided with a jacket 14, closed against the lower jacket 10 by means of a partition 15. The delivery port of the pump is connected with a pipe 17 surrounded by a jacket 16, open to the jacket 14. The suction pipe or chamber 11 of the pump is provided with apertures 20 on the suction side of the suction valve 19, said apertures establishing a permanent communication between the chamber 11 and the jackets 14 and 16. The pump piston or plunger 21 passes through stuffing boxes in the cylinder head and in the jacket 14.

In the construction shown, the delivery pipe 17 does not lead directly to the discharge cock 18, but to an interposed chamber or cylinder 22 provided with a jacket 28 open to the jacket 16. A discharge pipe 17^a leads from the chamber 22 to the cock 18, said pipe being surrounded by a jacket 16^a in communication with the jacket 28. A fixed deflector 23 is preferably located at the junction of the pipe 17^a with the chamber 22. A check valve 24 of suitable construction is located at the junction of the pipe 17 with the chamber 22. Finally, a relief valve 25 normally closed, as by the action of a spring, is located at the upper end of the chamber 22 (or at any other convenient point thereof) and when said valve is open, the chamber 22 communicates, through return pipe 27, with the upper portion of the receptacle 1. This pipe is surrounded by a jacket 26 open to the jacket 28, but closed otherwise.

The operation is as follows: When the pump 12 is started, it creates suction in the pipe 11 and, owing to the apertures 20, in the jackets 14, 16, 16^a, 28 and 26. First the air contained in this portion of the apparatus is partly removed, and as soon as a sufficient vacuum is attained, the liquid is withdrawn from the receptacle 1, passes through the valve 19 into the cylinder 13 and is forced by the piston 21 into the delivery pipe 17, past the check valve 24 and through the chamber 22 and pipe 17^a to the cock 18 which when open allows the liquid to be discharged. As soon as any liquid leaves the receptacle 1 a corresponding amount of protecting gas will pass from the gas chamber 4 to the upper portion of the receptacle 1. In the event of a leak or fracture developing in one or more of the

jackets 14, 16, 16^a, 28 and 26, the pump 12 will suck air through the openings 20 and the flow of liquid will thus be stopped automatically, preventing the escape of the dangerous liquid at the leak. Should the pump 12 be started while the cock 18 is closed, the pressure within the chamber 22 will open the relief valve 25, allowing the liquid to pass from said chamber through the return pipe 27 to the receptacle 1.

I claim as my invention—

1. The combination of a pump having a suction pipe and a delivery pipe, and a closed jacket surrounding the delivery pipe and communicating with the suction pipe, whereby in the event of the jacket leaking, air will be admitted to the suction pipe to stop the flow of the liquid.

2. The combination of a pump having a suction pipe and a delivery pipe, and a jacket surrounding the pump cylinder and the delivery pipe and communicating with the suction pipe.

3. The combination of a pump having a suction pipe and a delivery pipe, and a jacket surrounding the pump cylinder, the delivery pipe, and a portion of the suction pipe, said portion being apertured for communication with the jacket.

4. The combination of a receptacle, a

pump provided with a suction pipe connected with said receptacle, a delivery pipe, and means for closing the outlet thereof, a normally closed relief valve interposed in said delivery pipe between pump and outlet and arranged to open outward automatically when the pressure exceeds a predetermined point, and a return pipe for conveying to the receptacle, any liquid forced through the relief valve.

5. The combination of a receptacle, a pump provided with a suction pipe connected with said receptacle, a delivery pipe, and means for closing the outlet of the delivery pipe, a relief valve interposed in the delivery pipe between pump and outlet, a return pipe for conveying to the receptacle, any liquid forced through the relief valve, and a closed jacket surrounding the return pipe, the delivery pipe, the pump, and a portion of the suction pipe, said portion being apertured for communication with the jacket.

In testimony whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

CARL MARTINI.

Witnesses:

HENRY HASPER,
JOHN LOTKA.