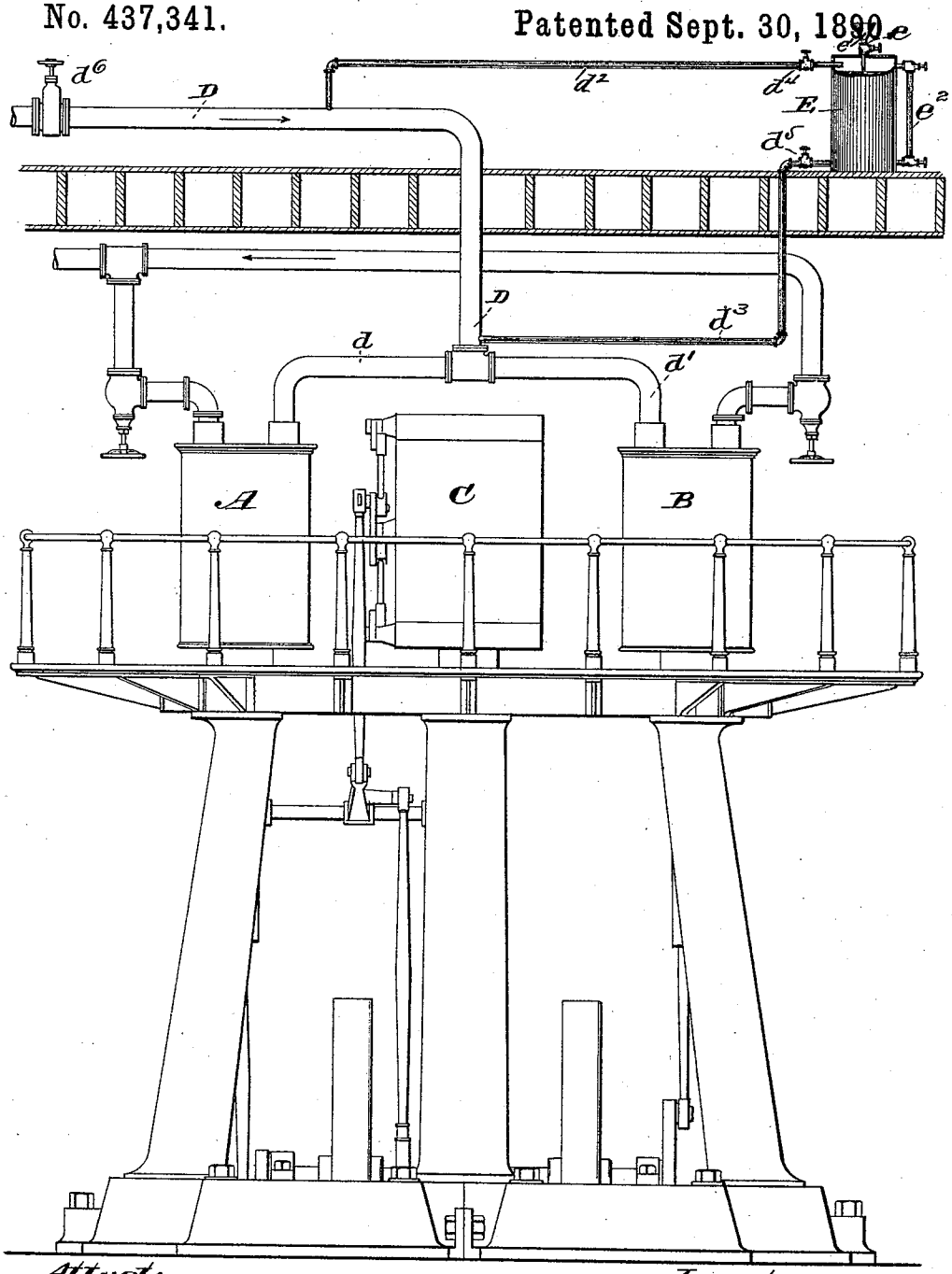
(No Model.)

J. RYAN, Dec'd.

E. RYAN, Executrix.

MEANS FOR LUBRICATING GAS PUMPS.

No. 437,341. Patented Sept. 30, 1890.



Attest:
G. St. Hinchman Jr.
F. E. Crawford

Inventor:
Joseph Ryan
by C. D. Moody
atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH RYAN, OF ST. LOUIS, MISSOURI; ELIZABETH RYAN EXECUTRIX OF SAID JOSEPH RYAN, DECEASED.

MEANS FOR LUBRICATING GAS-PUMPS.

SPECIFICATION forming part of Letters Patent No. 437,341, dated September 30, 1890.

Application filed March 25, 1889. Serial No. 304,708. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH RYAN, of St. Louis, Missouri, have made a new and useful Improvement in the Means for Lubricating Gas-Pumps, of which the following is a specification.

The object of the improvement is to secure evenness and regularity in the automatic feeding of the lubricating-oil to the pump and its parts; and it consists of an oil-supply reservoir placed at a point higher than the parts to be lubricated, said reservoir being closed against the atmosphere and its pressure and having the interior of said reservoir in communication with the inlet-pipe of the pump, substantially as hereinafter described and claimed, aided by the annexed drawing, which shows in elevation the application of the improvement to ammonia-pumps of a familiar type.

Referring to said drawing, A B represent the cylinders of two single-acting gas-compression pumps driven by a central engine, of which C represents the cylinder, all of which may be of any of the usual forms of construction.

D represents the inlet-pipe of the pumps, which by the aid of the branch pipes $d\,d'$ conducts a supply of gas to the pumps A and B.

E represents the reservoir from which the lubricant is fed. Said reservoir is placed at a level above the parts to be lubricated, and it may be of any suitable form. It may be filled through the pipe and cock e by means of the funnel e' or by any other suitable means.

e^2 represents a glass gage for indicating the quantity of the lubricant in the reservoir; d^2, a pipe forming communication between the inlet-pipe D and the upper end of the reservoir E; d^3, a pipe forming communication between the inlet-pipe D and the lower end of the reservoir E; d^4 d^5, cocks in the pipes d^2 and d^3, respectively.

I explain the operation of the improvement as follows: Suppose the reservoir E to be supplied with oil and closed from the atmosphere, the pipe d^2 removed or closed, and the outlet-pipe d^3 open. Owing to the want of vent to the reservoir no regular quantity of oil, if any, would be discharged through the pipe d^3. If now the reservoir should be opened at its top to the atmosphere and its pressure, (the pumps being supposed to be in operation,) the effect would be as follows: First, if the pressure in the inlet-pipe D was less than atmospheric pressure, the partial vacuum in the inlet-pipe D would cause a suction, as it were, of the oil in the reservoir through the outlet-pipe d^3 into the inlet-pipe D, and thereby increase the speed of said flow of the oil in excess of what it would be without said difference in pressure and consequent suction; second, if the pressure in the inlet-pipe D were greater than that of the atmosphere, the gas from the inlet-pipe D would blow through the pipe d^3 and thence into and through the reservoir and the oil therein, and thereby prevent any oil from descending through the pipe d^3 during the continuance of the described conditions.

When the pumps are in operation, the pressure of the gas in the inlet-pipe D is liable to vary, and thereby produce conditions similar to or approaching those above described, causing corresponding variations in the rate of discharge of oil from the reservoir into and through the outlet-pipe d^3, and in some cases to cause a total suspension of said discharge, as illustrated in the foregoing supposed cases. To prevent this irregular rate of discharge of oil and to secure an automatic regular discharge (saving the occasional adjustment of the cock d^5) is the object and effect of this improvement. Said effect is secured by closing the reservoir from the atmosphere and its pressure, introducing the pipe d^2, and opening the cock therein d^4, thereby allowing the gas in the inlet-pipe D to pass into the oil-reservoir, whereby the pressure applied to the top of the oil is the same as that applied upwardly against the oil at the outlet. The pressures downward and upward are equalized—that is, the pressure against the oil in both directions is always the same as the pressure existing in the inlet-pipe D whether that pressure be high or low, excepting only the gravity of the oil, which is then the only pressure operating to cause a discharge of the oil. This pressure of gravity may be made uniform by maintaining a uniform height of oil

in the reservoir, which can be easily observed by means of the glass gage e^2.

The reservoir can be replenished with oil most easily when the pressure in the inlet-pipe D, and hence in the reservoir, is lower than atmospheric pressure by then merely turning oil in the funnel e' and opening the cock e, when by reason of the partial vacuum existing in the reservoir the oil will be drawn therein.

When the pressure in the inlet-pipe D is not as low as desired for the above or any other purpose, it can easily be lowered when the pumps are in operation by partially or wholly closing the valve d^6 in the inlet-pipe D, and thereby reducing or stopping the supply of gas to the pumps.

I claim—

The combination of the pumps A B, the engine C, operating said pumps, the ammonia-inlet pipe D, having the stop-cock d^6 and provided with the arms $d\ d'$, communicating, respectively, with the pumps A B, the lubricator-reservoir E, closed against air-pressure, situated above the pumps, with its upper end above the pipe D, the pipe d^2, connecting the upper portions of the pipe D and the reservoir E and provided with the cock d^4, and the pipe d^3, connecting the lower part of the reservoir with the pipe D above the pipes $d\ d'$ and provided with the cock d^5, substantially as specified.

Witness my hand this 21st day of March, 1889.

JOSEPH RYAN.

Witnesses:
C. D. MOODY,
D. W. A. SANFORD.