(No Model.)

M. J. SEYMOUR.

METHOD OF HEATING PETROLEUM OIL.

No. 306,965. Patented Oct. 21, 1884.

Fig. 1.

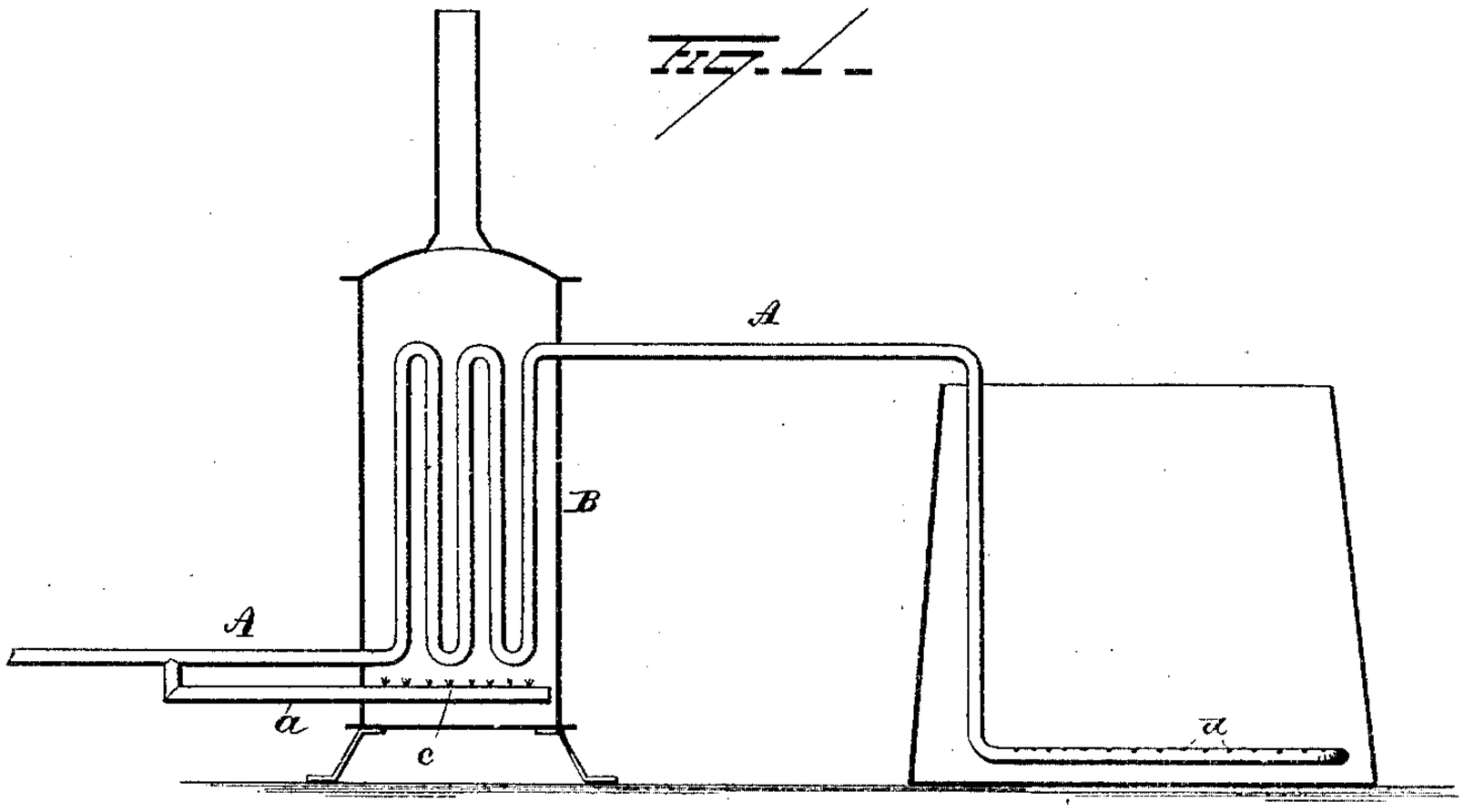
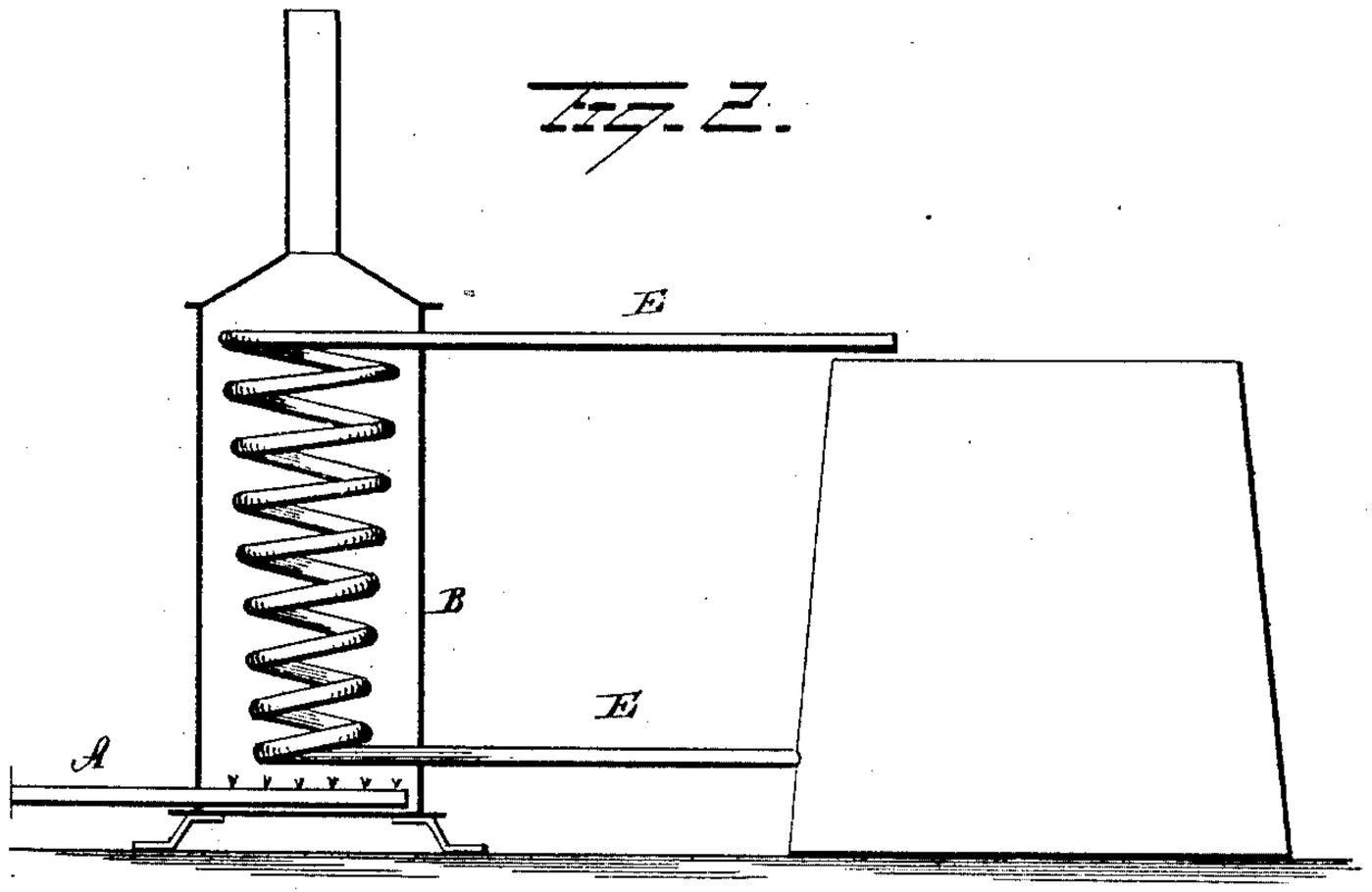


Fig. 2.



WITNESSES

E. D. Nottingham

Geo. F. Downing.

INVENTOR

M. J. Seymour,

By Geo. F. Downing ATTORNEY

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

MARVIN J. SEYMOUR, OF OLEAN, NEW YORK.

METHOD OF HEATING PETROLEUM-OIL.

SPECIFICATION forming part of Letters Patent No. 306,965, dated October 21, 1884.

Application filed May 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, MARVIN J. SEYMOUR, of Olean, in the county of Cattaraugus and State of New York, have invented certain new and useful Improvements in Methods of Heating Petroleum-Oil; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in the method of heating petroleum-oil. In the winter or during cold weather nearly all the oil produced must be warmed or heated in order to allow the ice, water, or snow which gets into the oil-tanks during storms, and the water, either fresh or salt, which some of the wells produce, to settle to the bottom of the tanks before the pipe-lines will receive it. Hitherto the heating or "steaming" the oil, as it is commonly called, has been accomplished by carrying the steam through a coil of pipes in the bottom of the tank, or, more commonly, the steam is blown into the oil or water in the bottom of the tank. In either case this method of heating the oil is quite expensive, as the boiler must be located conveniently near the oil to be steamed, and it is not uncommon to see boilers being hauled about the country for this purpose. The object of my present invention is to provide a simple, effective, and economical method of heating petroleum-oil, and free from the objectionable features of the methods heretofore employed.

With these ends in view my invention consists, essentially, in utilizing the natural gas as it escapes from the well as a heating or superheating agent for precipitating water and other impurities from petroleum-oil.

My invention further consists in utilizing the natural gas both as a fuel and also as a medium for transmitting heat to tanks of petroleum-oil.

My invention further consists in utilizing the natural gas as a fuel, and also as a medium for transmitting the heat to the oil and discharging the heated gas freely into the oil.

My improved method will be more fully understood by reference to the accompanying drawings, in which Figure 1 represents an apparatus for discharging heated natural gas into the cold oil, and Fig. 2 an apparatus for passing the oil through a heater.

A represents a suitable pipe for conducting the natural gas from an oil-well to a heater.

B represents a heater of any convenient construction adapted to consume the natural gas freely. The pipe A, Fig. 1, is provided with a branch, *a*, which conducts a portion of the natural gas to the base of the heater, and discharges it in jets *c*, suitable to be ignited, while a portion of the pipe A is coiled within the heater exposed to the heat from the ignited jets *c*, and passes from thence into the tank of cold oil D. The gas in the pipe A becomes heated during its passage through the heater B, and is discharged freely into the oil through suitable perforations, *d*, in the pipe A, extending along or around the lower portion of the oil in the tank; or, instead of the branch *a*, leading from the pipe A, a supply of oil may be fed as fuel.

In Fig. 2 the pipe A leads the natural gas directly to the igniting-jets in the heater, and an oil-conducting pipe, E, leads from the base of the oil-tank into the heater, where it is coiled in such a manner as to be thoroughly exposed to the heat from the burning gas, and from thence back into the top of the tank. A circulation of the oil through the pipe E will be kept up, as in the boiler and range in common use. Again, steam led from a distance, and consequently too cold for heating the oil, may be passed through the heater and exposed to the heat of the natural gas, and being superheated thereby may be introduced freely into the oil, or may be passed through the oil in pipes.

The apparatus above referred to forms no part of my present invention, the gist of my improvement being the utilization of the natural gas as a heating agent in rendering petroleum limpid, thereby precipitating the water and other impurities therefrom and making the oil merchantable and fit to be received by the pipe-lines.

The use of the natural gas, which is commonly allowed to waste, is a matter of great economy, and the gas is eminently adapted to the purpose.

One of the great advantages of the natural gas over ordinary fuel for heating purposes consists in the natural pressure with which it escapes from the earth, thereby furnishing a constant supply of fuel to the ignited jets, while ordinary fuel must be replenished from time to time by artificial means, and the natural pressure is also of great advantage in forcing the gas used as a heat-conveying medium into the tank of oil.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The method of precipitating water and other impurities in petroleum-oil, consisting, essentially, in heating natural gas and passing the heated gas through the oil.

2. The method of precipitating water and other impurities in petroleum-oil, consisting, essentially, in heating natural gas by connecting one or more gas jets or burners with the gas-supply pipe and arranging said burners in close proximity to said supply-pipe, whereby the gas is heated, and then discharging the heated gas into the cold oil.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

MARVIN J. SEYMOUR.

Witnesses:
DORA A. SMITH,
HORACE A. L. BEARDSLEY.