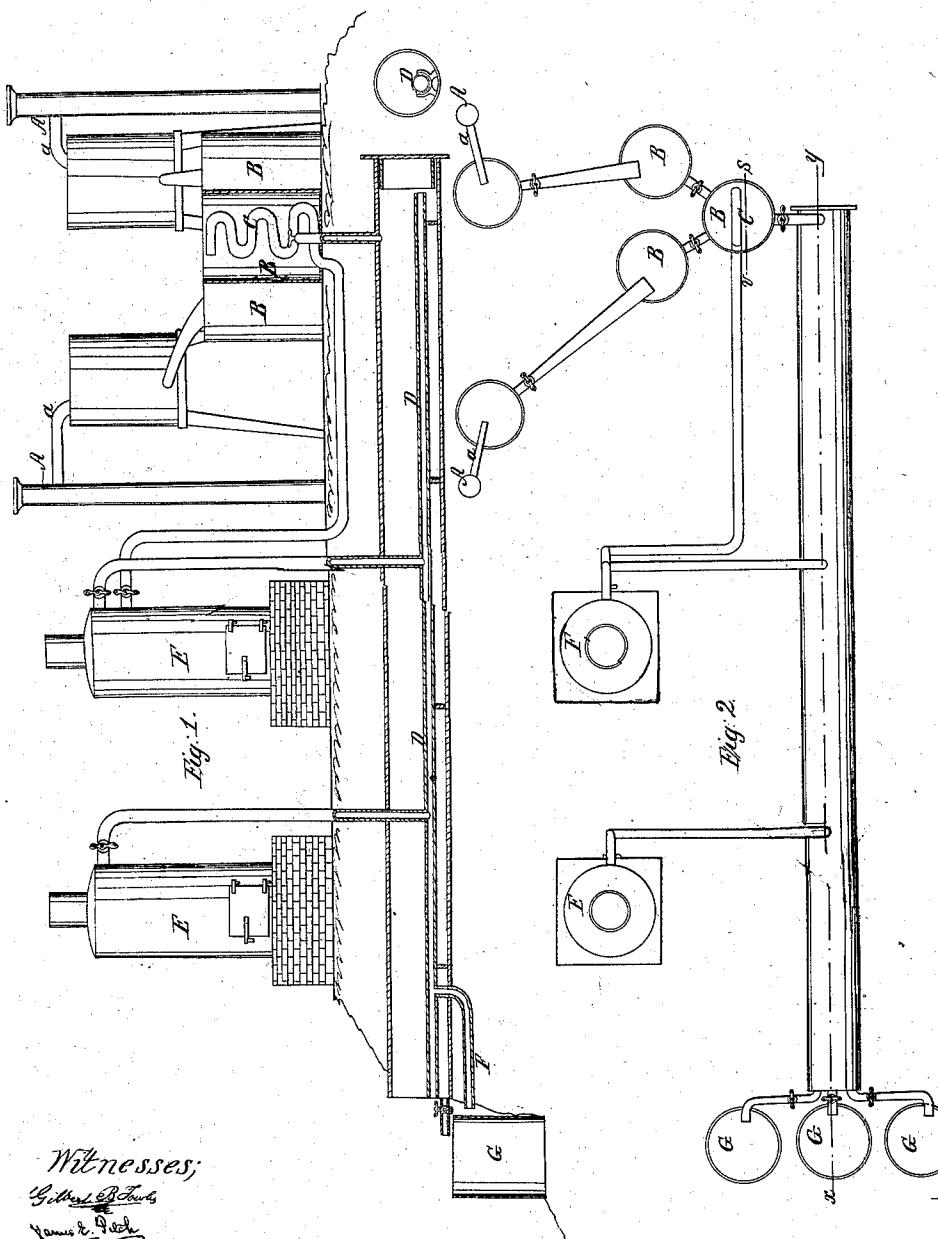


J. Casey,

Transporting Oil.

No 47,701

Patented May 10, 1865.



UNITED STATES PATENT OFFICE.

JOSEPH CASEY, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVED DEVICE FOR HEATING AND CONVEYING PETROLEUM

Specification forming part of Letters Patent No. 47,701, dated May 16, 1865.

To all whom it may concern:

Be it known that I, JOSEPH CASEY, of the city of Washington, in the District of Columbia, have invented a new and improved method of conveying and transporting in pipes or tubes, oil, petroleum, or other liquids liable to thicken or coagulate by a reduction of their temperature; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and the letters of reference thereon.

Figure 1 of the drawings is a sectional view of the conduit and steam pipes, and also section of tank showing the coil of steam-pipe within the same, as indicated by the line *x y* in this figure, and also by the line *r s* in same figure. Fig. 2 is a plan or top view.

The same letters in each figure indicate the same parts in each of the drawings.

The nature of my invention consists in maintaining and keeping the oil or substance to be conveyed in its passage through the pipes at such a temperature as will prevent it from thickening or coagulating, and will cause it to flow freely through the pipes, and by the same means preventing the petroleum from precipitating and depositing in the pipes the residuum or sedimentary matter contained in it, by which the flow of the oil through the pipes would be hindered and obstructed. These results are attained and accomplished by connecting by pipes the tank at the various wells where the oil is produced (see Figs. 1 and 2, letters *A a*) with receiving and gaging tanks at the various stations along the line of the conduit-pipe (see Figs. 1 and 2, letter *B*) in which it will be measured and gaged. While in these tanks, and before it is let into the conduit-pipe, it will be raised to the proper temperature by passing through a tank with a coil or "worm" of small pipe in it, which will be connected with the boiler or steam-generator, and by which the required heat will be communicated to the oil. (See Fig. 1, letter *C*.) Having been raised to the proper temperature, it is then introduced into the conduit pipe or tubes, which may be of any dimensions, from six inches upward—proportioned to the quantity of oil or other liquid proposed to be conveyed. Within this pipe or tube through and in which the oil or

other substance is to be conveyed I place, insulated, a small pipe or tube from one inch to two and one-half inches in diameter, in proportion to the size of the conduit-pipe. (See Fig. 1, letter *D*.) This small pipe or tube I place in such way as to be surrounded with the petroleum or other liquid in its flow through the conduit-pipe. This small pipe or tube will be connected at the necessary and convenient points along the line with ordinary steam generator or boilers (see Figs. 1 and 2, letter *E*), and the steam conveyed into such small pipes or tubes, and, being surrounded by the petroleum or other substance, the heat is communicated to it from this small pipe or tube, and the amount of steam and heat so regulated and applied as to maintain the petroleum or other substance conveyed at such temperature as will cause it to flow freely down-grade or enable it to be forced up-grade by mechanical means and contrivances like any other liquid. I also in this way prevent the obstruction of the conduit-pipes by the deposit and accumulation of sedimentary matter or the residuum of the oil in the conduit-pipes, it being held in solution and carried through with the oil. Waste-pipes to conduct off the condensed steam will be placed at proper and convenient points. (See Fig. 1, letter *F*.) At the point of destination to which the petroleum is to be conveyed or transported in such pipes, it will be discharged from the pipes into tanks, (see Figs. 1 and 2, letter *G*), and from which it may be drawn into barrels or other packages, or discharged into tanks upon railroad-cars or upon boats to be conveyed and transported to any other point or place.

I claim as my invention and desire to secure by Letters Patent—

1. The combination of the steam-generators, tanks, the conduit-pipes, and the steam-pipe, and the various connections for conveying the oil or petroleum from the wells to the receiving, gaging, and heating tanks for raising it there to the proper temperature, and from thence conveying it to any required distance in the conduit-pipes into other tanks, and maintaining its temperature while passing through the same by means of the small steam-pipe and its connection with the generators.

2. The arrangement of the small steam pipe or tube within the conduit-pipe, whereby the

introduction of steam into the small pipe will apply and communicate such an amount of heat directly to the oil, petroleum, or other substance in its flow and passage through the conduit-pipe as will keep it in a fluid and flowing state and prevent the deposit and accumulation of the sediment or residuum of the

oil or petroleum in the conduit-pipes, it being held in solution by and carried off with the petroleum.

JOS. CASEY.

Witnesses:

GILBERT B. TOWLES,
W. BURRIS.