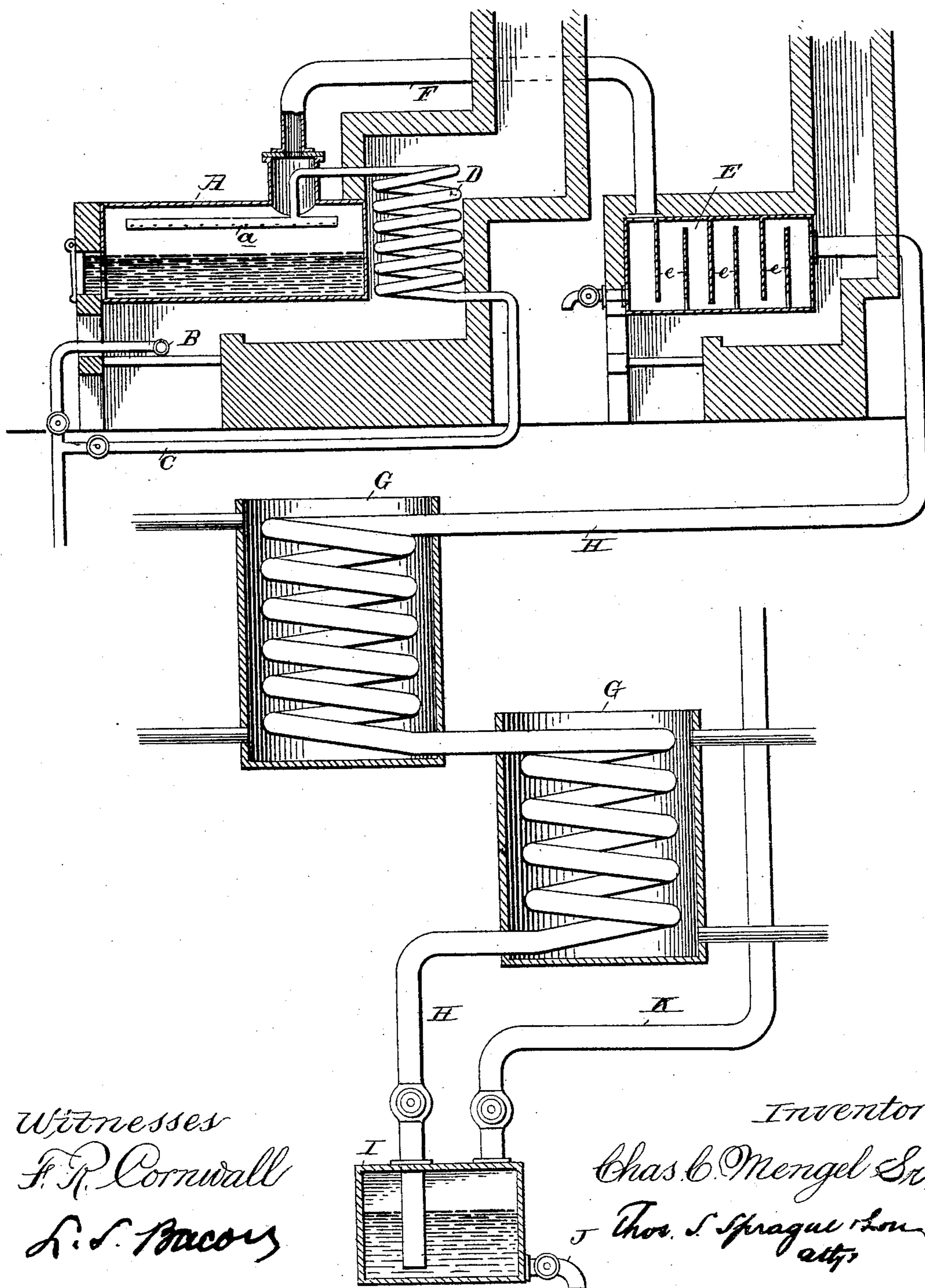


(No Model.)

C. C. MENGEL, Sr.  
PROCESS OF REFINING CRUDE PETROLEUM.

No. 452,578.

Patented May 19, 1891.



Witnesses  
F. R. Cornwall  
L. S. Bacon

Inventor  
Chas. C. Mengel Sr.  
Thos. S. Sprague & Son  
attys

# UNITED STATES PATENT OFFICE.

CHARLES C. MENGEL, SR., OF BAY CITY, MICHIGAN.

## PROCESS OF REFINING CRUDE PETROLEUM.

SPECIFICATION forming part of Letters Patent No. 452,578, dated May 19, 1891.

Application filed November 13, 1889. Serial No. 330,196. (No specimens.)

*To all whom it may concern:*

Be it known that I, CHARLES C. MENGEL, Sr., a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Processes of Refining Crude Petroleum, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to a new and useful improvement in the process of refining the so-called "Lima oil," which cannot be refined well by the ordinary methods in use for so-called "Pennsylvania oils."

15 My process is used in connection with the ordinary process of refining petroleum by distillation; and it consists in introducing into the still above the oil during the process of distillation natural gas as it comes from the earth.

Referring to the drawing, forming a part of this specification, wherein is represented a sectional view of the vaporizing-still, comingling-retort, and condensers, A represents a still over a heat-generator B, said generator consisting, preferably, of a hydrocarbon-burner fed by the natural-gas-supply pipe C. The natural-gas-supply pipe C, leading directly from the earth, is heated to a degree of temperature corresponding to the distilling and vaporizing point of the petroleum in the still by means of a coil D in said pipe at the back of the still and in the path of the products of combustion from the furnace or burner B. The heated gas is then introduced into the still A through a perforated pipe *a* and therein mixes with the vapors of the petroleum, the mixture of heated natural gas and vaporized petroleum then passing into a superheating-retort E by means of pipe F, said retort having retarding-plates *e* therein, the lower series of which have openings for the withdrawal of residuum at the end of the retort. After the entrance of the mixture into the retort it is subjected to the heat of about 800°, which superheats the same, prevents condensation in the retort, and allows the gas and vapor to thoroughly mix and

chemically react upon each other, which is necessary to produce the desired effect.

G represents condensers of any improved form and construction, through which the conducting-pipe H leads, said pipe being connected to the retort E.

I indicates a trap, having therein at its lower edge a valved exit J and an exit-pipe K at its top, said pipe permitting the escape of and conducting the sulphated gases to any suitable place.

My process of refining is based upon the chemical affinity which exists between the sulphurous compounds contained in the oil and the ingredients of the above-mentioned gases, which are intimately mixed at about the temperature described. The resulting compounds, being very volatile, even at a low temperature, escape into the atmosphere.

What I claim as my invention is—

1. The herein-described process of refining Lima petroleum, which consists in introducing into the vapors arising from the still during the process of distillation natural gas in a heated condition equal to the temperature of the oil-vapors, passing the mixture through pipes, boxes, or other suitable conduits of sufficient lengths, and superheated to prevent condensation, and allowing the necessary chemical action to take place, and finally conducting them into the condensers, substantially as described.

2. The process of refining Lima petroleum, which consists in introducing into the vapors arising from the still during the process of distillation natural gas and conducting the mixture into a retort, in which it is heated while retarding its flow, and then conducting the same into a condenser, and finally separating the gases from the products of condensation, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 5th day of November, 1889.

CHARLES C. MENGEL, SR.

Witnesses:

ARCHIBALD McDONELL,  
U. LERANGER.