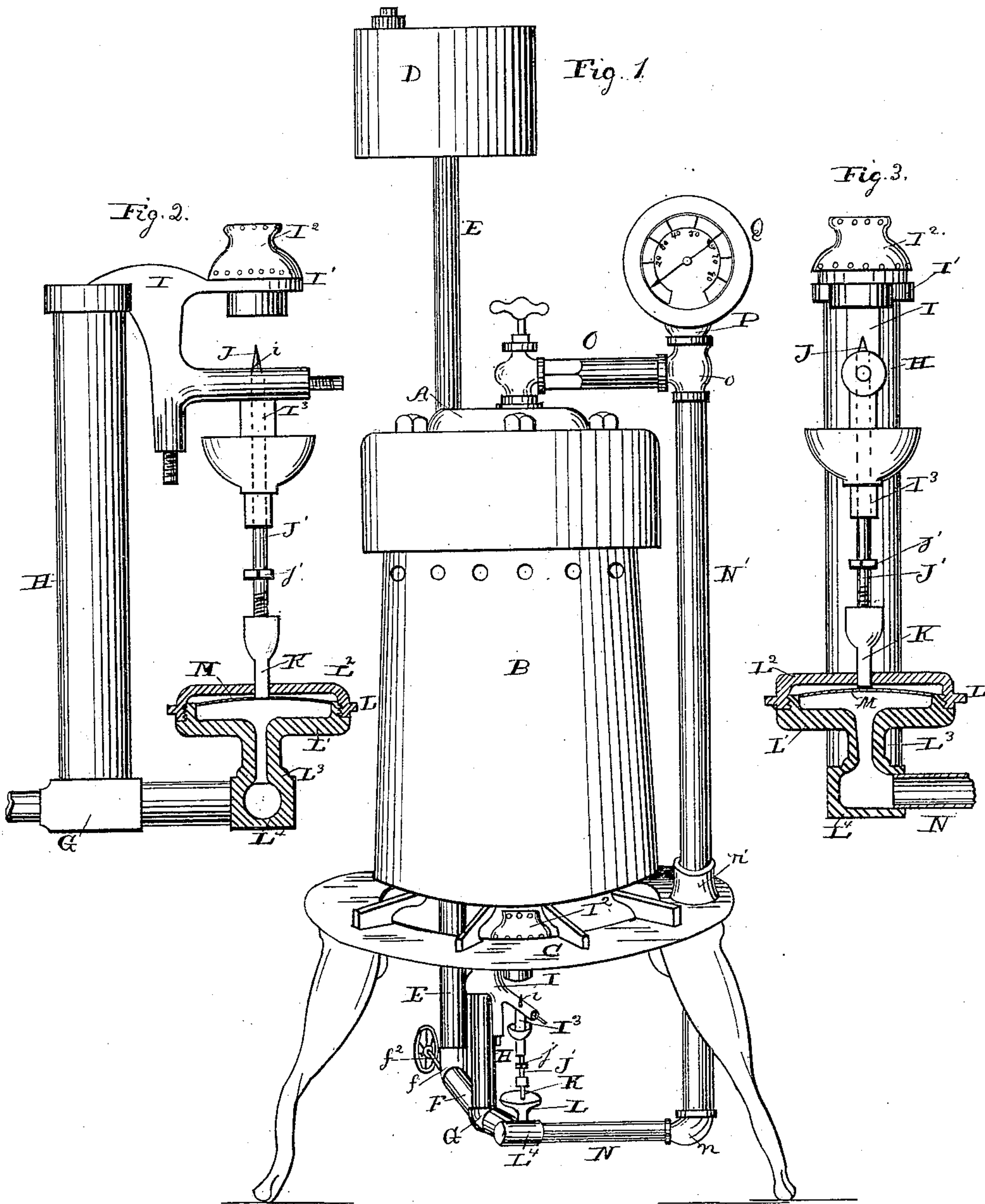


(No Model.)

F. H. CHIDESTER.
VULCANIZING HEAT REGULATOR.

No. 300,953.

Patented June 24, 1884.



Witnesses:
H. Bliss
J. S. Barker.

Inventor:
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attys

UNITED STATES PATENT OFFICE.

FRANK H. CHIDESTER, OF MASSILLON, OHIO.

VULCANIZING-HEAT REGULATOR.

SPECIFICATION forming part of Letters Patent No. 300,953, dated June 24, 1884.

Application filed March 11, 1884. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. CHIDESTER, a citizen of the United States, residing at Massillon, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Vulcanizer-Heat Regulators, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a perspective view of a vulcanizing apparatus having attached thereto my improved mechanism for regulating the passage of the hydrocarbon to the burner. Fig. 2 is a side view of a portion thereof, on a larger scale. Fig. 3 is a front view of the parts shown in Fig. 2.

In the drawings, A represents, generally, the vulcanizer, which may be of any approved style.

B represents the hood or surrounding jacket. C is the tripod-frame upon which it rests.

D represents a reservoir for gasoline or other suitable hydrocarbon liquid, which can be utilized in generating a vapor for heating the vulcanizer.

E is the conduit by which the oil is carried downwardly, there being preferably an aperture through the tripod-frame surrounded by a collar or thimble, through which passes the duct E, and which holds it and the reservoir steadily in place. The duct E at the bottom communicates with a second duct or pipe, F, they being joined by means of an interposed coupling at *f*, which is provided with a valve-seat, the opening at this point being controlled by means of a needle-valve, *f*². By this the flow of oil can be regulated and cut off. To the end of the pipe F a coupling, G, is attached, which also carries an upwardly-extending oil or vapor chamber, H. This terminates at the top in a metallic piece, I, which may be made more or less thick, in order that it may be charged with a high degree of heat and readily conduct the same backward for the purpose of vaporizing the oil which flows through the aforesaid conduit. This portion I has a duct of small diameter, through which the oil or vapor passes, first downwardly and then outwardly, through the jet-orifice at *i*.

At I' there is a ring, in which is supported a device, which is represented by I², for the purpose of properly shaping and guiding the flame and assisting in receiving and conducting back-

ward the heat. These portions, however, of the vapor-burner I do not claim as my invention.

The needle-orifice *i* is opened and closed by means of a needle-valve, J, this valve passing downward through an arm, I³, formed upon the part I. At the lower end the valve-rod J' is connected to an arm, K, provided with a threaded socket at its upper end, and at the lower end passing into a chamber, L. This chamber is formed inside of two concave metallic pieces, one shown at L' and the other at L², the latter being a cap-piece, which is screw-threaded, and is seated in a rabbet in the part L', the latter also being threaded to engage with the thread on the part L², whereby they can be tightly clamped together.

M is a metallic diaphragm secured tightly to the interior of the part L', and to this diaphragm the lower end of the part K is attached. This diaphragm M is adapted to rise and fall according as the pressure in the lower part of the chamber varies. The part L' has a downwardly-extending tubular portion, L³, formed therewith, and a socket or coupling-piece, L⁴. With this coupling-piece there engages a duct, N, that is coupled with a vertical duct or tube, N', by means of a coupling at *n*, the tube N' passing also through the tripod-frame, which is provided with an aperture and a strengthening and bracing collar, *n*'. At the upper end the duct or tube N' is connected with a horizontal tube, O, by means of a three-way coupling, *o*. The tube O receives steam from the top of the vulcanizer, and it will be seen that the pressure in the chamber or duct extending from the vulcanizer around through the parts O, N', N, L³, and L' to the diaphragm M is substantially uniform at any time. Therefore, if the pressure in the vulcanizer increases, it also increases against the lower side of the diaphragm M, and as a result the latter is at the center moved upward, which results in closing more or less of the needle-orifice *i*, and this orifice is, on the other hand, more or less opened as the pressure of steam decreases. To the three-way coupling *o* is also united a tube, P, which communicates with the interior of a gage, Q, which may be of any desired form—as, for instance, the Bourdon gage. The index indicates the pressure which is being exerted by the steam.

The valve-stem J' may be adjusted up or

down by turning it in the threaded socket, and it is preferably provided with a milled collar or enlargement at *j*, to permit it to be readily turned.

5 The device can have its parts readily adjusted, so that the flow of vapor and oil shall be cut off more or less at any required pressure of steam. The one who is adjusting it is required merely to watch the index, and when the pressure is by it indicated to be at the proper point
10 the needle-valve can be so adjusted as to shut off the flow of fuel. When the pressure has reached this point and the flow of fuel is more or less stopped, the flame of the burner decreases in intensity. Less steam is therefore
15 generated, and the pressure falls, whereby the needle-point retracts, and the needle-orifice is opened sufficiently to allow further flow of vapor or fuel.

20 I am aware of the fact that use has been made of devices of various styles for regulating the flow of gas to vulcanizing apparatus; but I believe myself to be the first to have devised an apparatus having the parts as simply and easily
25 constructed as are those in this mechanism for permitting and regulating the flow of gasoline or other hydrocarbon to the vulcanizing apparatus.

What I claim is—

1. The herein-described mechanism for supplying and regulating the flow of gasoline or other hydrocarbon to a vulcanizer, it consisting in the combination of a reservoir, a vapor-burner below the vulcanizer, a duct between the reservoir and burner, a cut-off or valve, *f*,
35 a supplemental valve, *J*, at the needle-orifice, a steam-chamber having a flexible wall, with which the needle-valve is adjustably connected, a steam-duct communicating both with said chamber and the interior of the vulcanizer, and
40 a gage for indicating the pressure of the steam, substantially as set forth.

2. The combination, with the vulcanizer, of the vapor-burner having a jet-orifice, a needle-valve for closing said orifice, the parts *L*/*L*², secured together by screw-thread, the diaphragm
45 *M*, adjustably connected with the needle-valve and secured to the aforesaid part *L*', the steam-duct, and the gage, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses. 50

FRANK H. CHIDESTER.

Witnesses:

E. D. CHIDESTER,
ISAAC ULMAN.