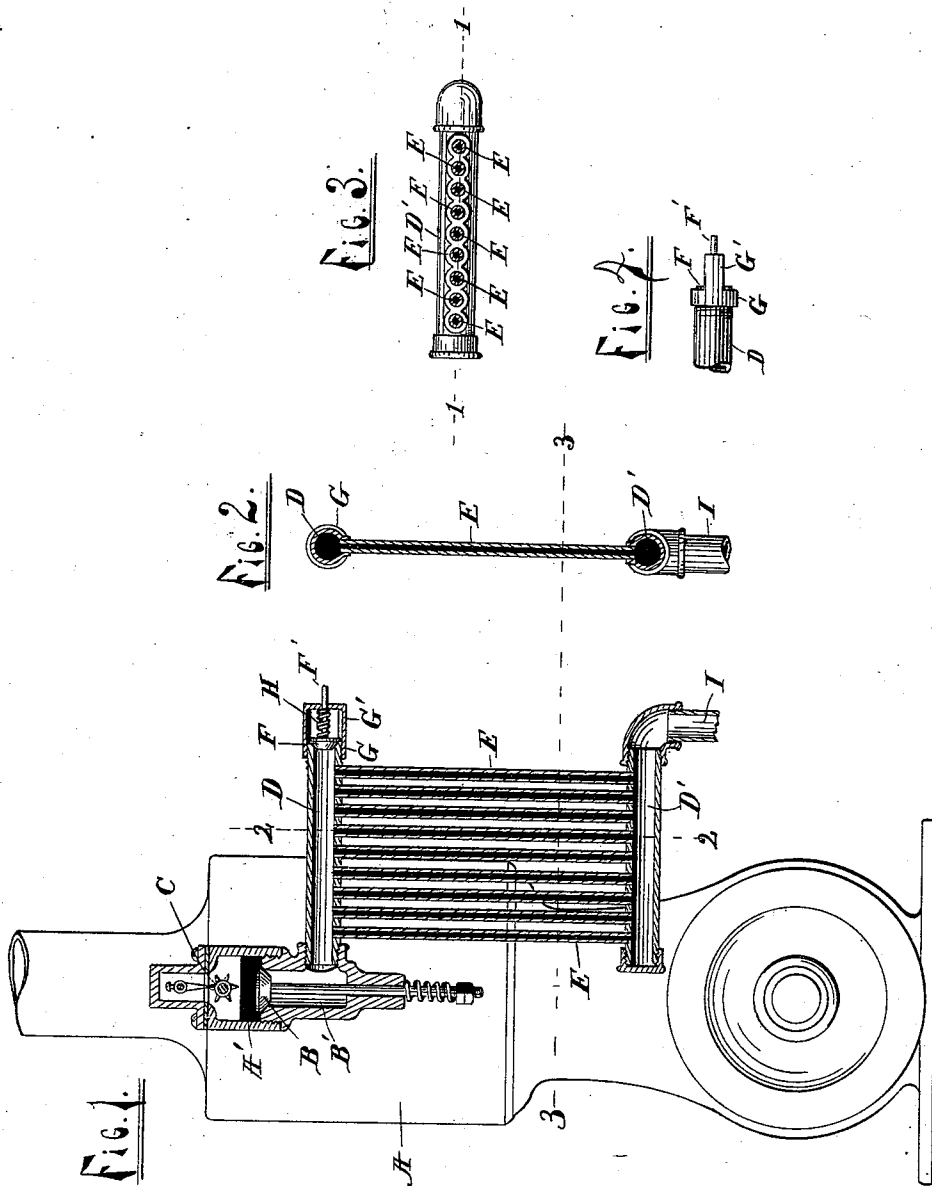


(No Model.)

L. G. WOOLLEY.
FIRE STOP FOR COMBUSTIBLE VAPOR ENGINES.

No. 538,855.

Patented May 7, 1895.



WITNESSES:

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MONITOR VAPOR ENGINE AND POWER COMPANY, OF SAME PLACE.

FIRE-STOP FOR COMBUSTIBLE-VAPOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 538,855, dated May 7, 1895.

Application filed May 31, 1894. Serial No. 513,107. (No model.)

To all whom it may concern:

Be it known that I, LEONIDAS G. WOOLLEY, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Fire-Stops for Combustible-Vapor Engines; 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 improved fire stop for combustible vapor engines and its object is to provide the same with certain new and useful features, hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section, on the line 1 1 of Fig. 3, of a device embodying my invention. Fig. 2 is a transverse vertical section of the same on the line 2 2 of Fig. 1; Fig. 3, a horizontal section of the same on the line 3 3 of Fig. 1, and Fig. 4 a detail of the relief-valve.

Like letters refer to like parts in all of the figures.

A represents any convenient form of combustible vapor engine, having an intake port or combustion chamber A' to receive the combustible charge, an intake check B, to admit the said charge, and an igniter C, of any convenient construction to ignite the same. Opening into the chamber B' beneath the valve B is a lateral chamber D consisting of a pipe having at its outer end an outwardly opening relief valve F, having a stem F' passing through a yoke G' attached to a band G longitudinally adjustable on the pipe D by means of screw threads for the purpose of adjusting the tension of a spring H, which spring seats said valve against the end of the pipe D to close the same. Arranged parallel with the pipe D and at a considerable distance therefrom is another similar chamber D', and the interiors of said pipes D and D' are connected by a series of elongated and attenuated passages formed of a series of

small pipes E, and said lower chamber D' is connected by a pipe I with any carburetor or other source of supply of combustible vapor to operate the engine.

Occasionally from imperfect seating or fouling of the valve B the explosion of the charge in the engine will blow flame through, into and fire the vapor in the chamber B' and unless some fire stop is interposed the flame will pass back through the various passages to the carburetor resulting in a disastrous explosion. An ordinary gauze or perforated plate fire stop is not effective the sudden back pressure forcing the fire through the same.

In my device described and shown herewith the attenuated and elongated passages effectively cool the flame and gases should any such pass back into them, and as a further preventive the relief valve F is easily opened against the pressure of the spring H, and permits the escape of the gases and back pressure from the chambers B and D, without passing into the attenuated lateral passages E. The current formed in the chamber D as the valve F opens also tends to avoid any lateral movement into said passages as it rushes directly toward the opening in the end of the chamber D. The device is thus rendered very effective in preventing any fire from following the various passages extending from the carburetor to the engine.

What I claim is—

1. In combination with a combustible vapor engine, and a carburetor, or other means of supplying combustible vapor, a series of attenuated and elongated passages, and a relief valve, between said engine and carburetor, substantially as described.

2. In combination with a combustible vapor engine and a carburetor, or other means of supplying combustible vapor, a tubular chamber connected to said engine at one end by an intake valve, a relief valve connected to the other end of said chamber, and a series of laterally extended and attenuated passages connecting said chamber and the carburetor, substantially as described.

3. In combination with a combustible vapor engine having an intake valve, a tubular chamber connected to said valve at one end and having a relief valve at the other end, a
5 second tubular chamber arranged parallel thereto; and at a distance therefrom and connected to a carburetor, or other source of supply of combustible vapor, and a series of small parallel tubes connecting said tubular chambers, substantially as described. 10

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

LEONIDAS G. WOOLLEY.

Witnesses:

LUTHER V. MOULTON,
WILLIAM S. MCCAY.