

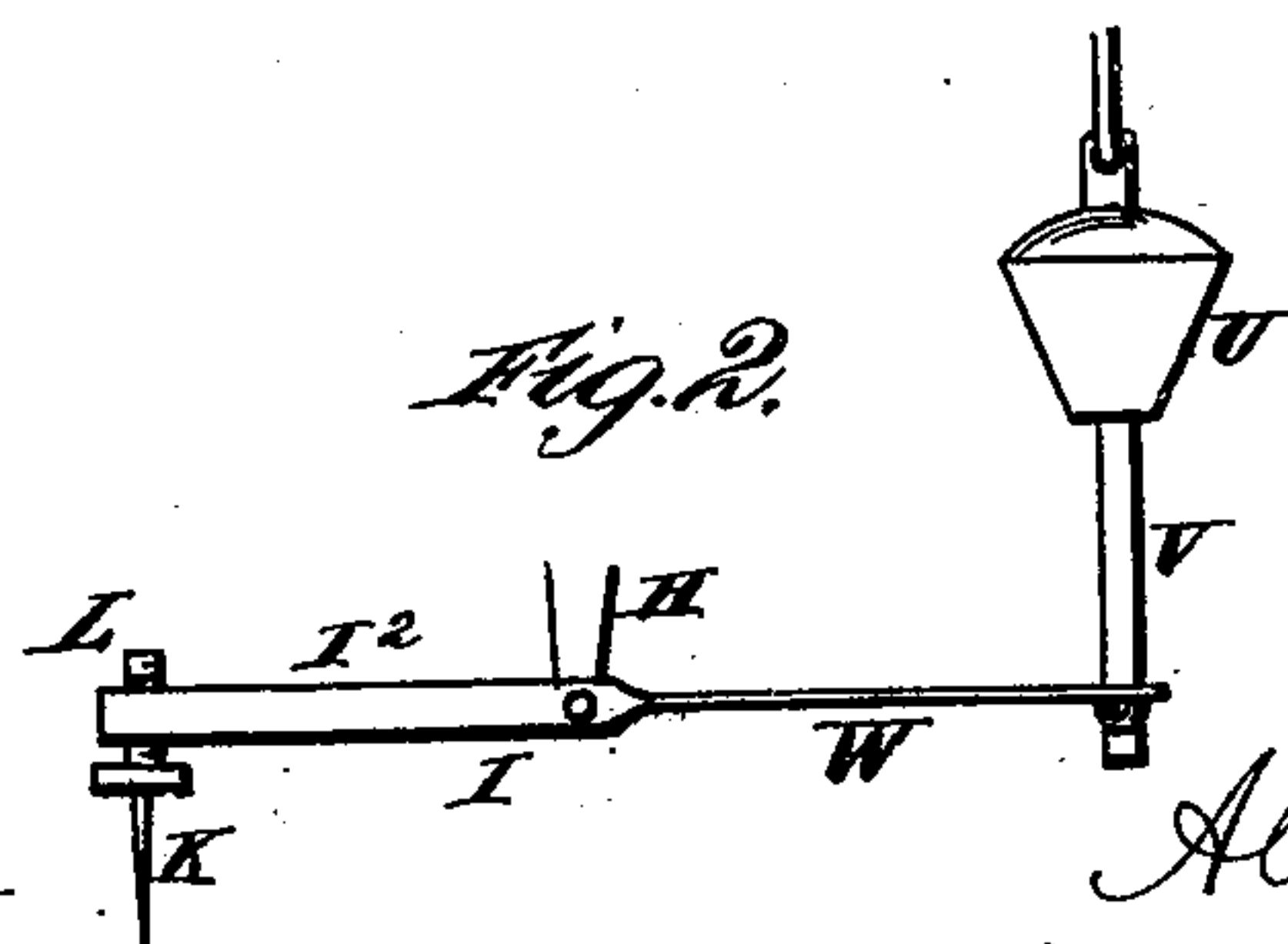
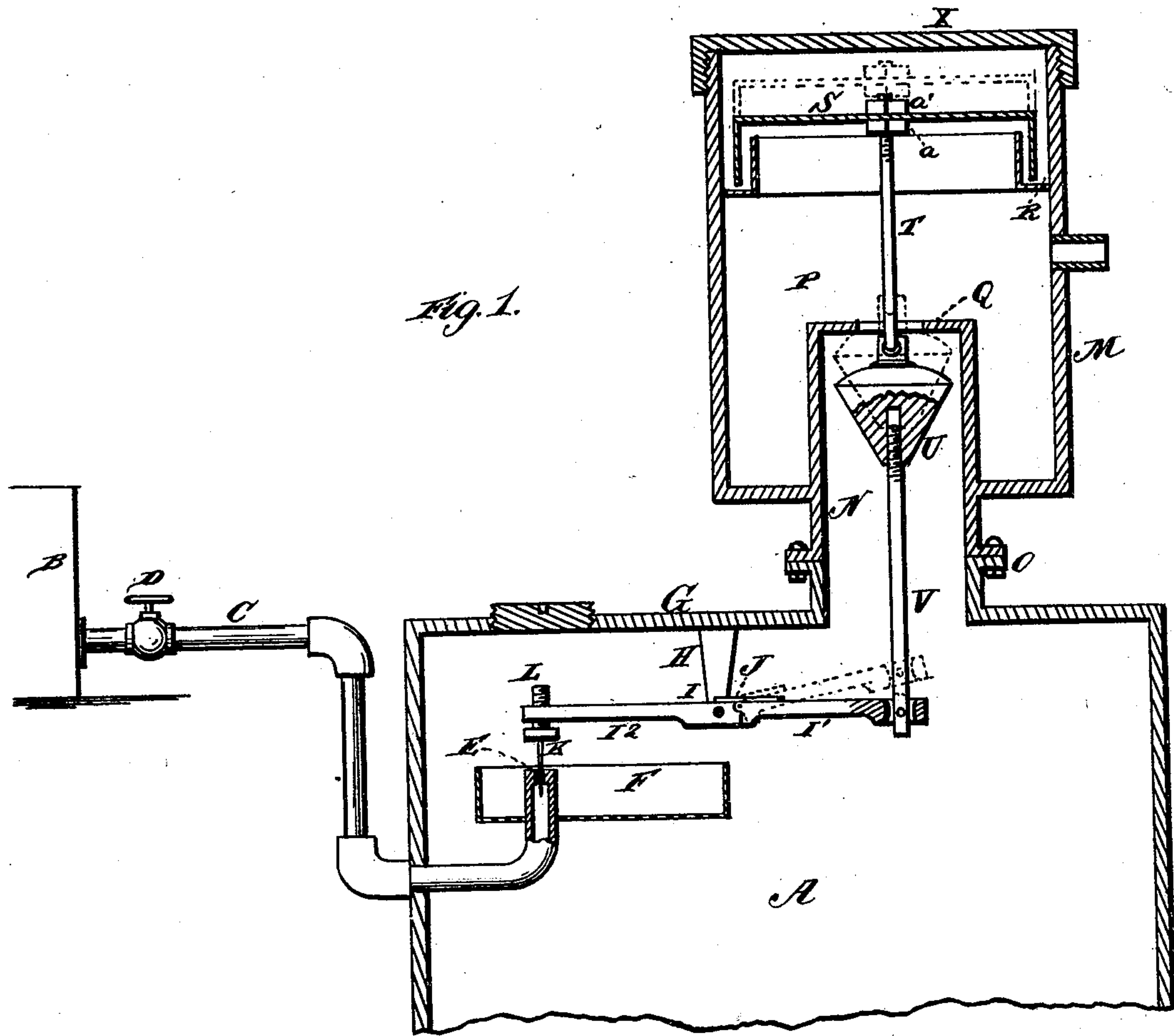
(No Model.)

A. F. CHACE.

Gas Governor and Regulator for Carbureters.

No. 230,744.

Patented Aug. 3, 1880.



WITNESSES

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# UNITED STATES PATENT OFFICE.

ALBERT F. CHACE, OF BOSTON, MASSACHUSETTS.

## GAS GOVERNOR AND REGULATOR FOR CARBURETERS.

SPECIFICATION forming part of Letters Patent No. 230,744, dated August 3, 1880.

Application filed April 17, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT F. CHACE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Gas Governors and Regulators for Carbureters; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a vertical section of my gas governor and regulator, and Fig. 2 is a view of a modification of the lever.

This invention has relation to gas governors and regulators for carbureters; and it consists in the improvements in the construction of the same, hereinafter fully described, and particularly pointed out in the claims.

Referring by letter to the accompanying drawings, A designates the carbureting-chamber, B the reservoir for the hydrocarbon liquid, and C the inlet-pipe from the reservoir B to the carbureting-chamber A. The pipe C is provided with a stop-cock, D, as shown, and in the mouth of the upturned elbow of this inlet-pipe C, and at its termination in the carbureting-chamber A, is placed a valve-seat, E; or the pipe may terminate in a valve-seat. Around the pipe C, at its termination within the carbureting-chamber A, is placed a perforated pan, F, through which the hydrocarbon liquid passes to the carbureter.

From the head G of the carbureting-chamber A depends an arm, H, to which is pivoted a hinged lever, I, the joint in the said lever being made at the right-hand side of the arm H. Upon the upper face of the portion I' of the hinged lever I is fixed a flat spring, J, which extends over upon and presses against the upper face of the arm I<sup>2</sup> of the lever I. The arm I<sup>2</sup> of the lever I is provided with a needle, K, secured to or formed with a screw-shank, L, which is screwed into a threaded hole in the end of the arm I<sup>2</sup> of said lever I.

Above the carbureting-chamber A is a gas-governor, M, the valve-chamber N of which is secured to a collar, O, upon the head of the chamber A by bolts or otherwise. The valve-

chamber N opens into the gas-chamber P through the valve-seat Q. Near the top of the gas-chamber is the mercury-cup R, and over this is placed an inverted cup, S. To the diaphragm is clamped, by screw-nuts *a' a*, the upper end of the rod T, from which a weighted conical-shaped valve, U, is suspended by a link-connection, so that the valve U may turn when the rod T is turned by a wrench or otherwise at the upper end. From the lower side of the weighted valve U a screw-threaded rod, V, enters and penetrates for a distance a little greater than the length of the needle K. The lower end of the rod V is pivoted to the end of the portion I' of the hinged lever I, as shown.

In Fig. 2 of the drawings a modification of the hinged lever I is shown, and it consists in making the hinged portion I' in the form of a flat spring, W, thereby dispensing with the hinge. In other respects it is intended to be entirely similar.

In operation this device can either be made automatic, or it may be controlled by the operator to suit the circumstances under which it may be necessary to use it. The main object is, however, to control the flow of the hydrocarbon liquid to the carbureter, so as to leave the valve-seat open for any length of time, or to cut off the supply of said liquid by keeping the valve closed for any desired length of time, without interfering with the flow of gas from the carbureter through the gas-governor to the burners.

If properly adjusted, the device will work automatically and feed the hydrocarbon liquid to the carbureter in just such quantities as may be needed to supply the gas to one or more burners. If, however, it should be desired to supply a large number of burners and a continuous flow of the hydrocarbon liquid should be necessary to carburet the air or gas, the rod T should be turned at the nut *a'* by first removing the cap X to the governor-casing, so as to cause the valve U to ascend the threads on the rod V and cause the portion I' of the lever I to be depressed, which would cause the needle K to be withdrawn from the valve-seat, and would permit a continuous flow of the hydrocarbon liquid to the carbureter, so that a larger quantity of gas would be carbureted and fed to the burners.



If, however, the supply should become sufficiently great, and it should be necessary to stop the flow of the hydrocarbon liquid to the carbureter, by turning the rod T to cause the conical valve U to descend upon the rod V the lever I would be operated to cause the needle K to be depressed and made to enter and tightly close the valve-seat E, and thereby effectually cut off the flow of the hydrocarbon liquid to the carbureter. At the same time, however, the gas already in the carbureter, if of sufficient power, which need not exceed fourteen pounds pressure in an ordinary apparatus, would operate the gas-governor, by reason of the fact that the hinged joint and the spring J of the lever I make so little resistance as to permit the valve to be carried up and operated to feed the gas to the burners for a considerable period of time after the supply of hydrocarbon liquid has been cut off from the carbureter.

It should be noticed that when the valve is turned to depress the rod V, or when the device is operated automatically, that the shoulders of the joint in the lever cause the lever to operate to elevate the needle, while, when this operation is reversed, the spring J, bearing upon the arm I<sup>2</sup>, causes the needle K to enter the opening in the valve-seat E.

I am aware that an automatic feed-regulator for carbureters consisting of an independent automatic gas-governor having its valve connected directly to and combined with the valve or cock of the hydrocarbon-pipe for a constant unison of action, whereby the respective flows of the gas and hydrocarbon are made always to maintain a constant and uniform relation to each other independently of the carbureting apparatus, is not new, as the same is shown in Patent No. 198,353, of December 18, 1877.

I am also aware that a vibrating lever carrying a needle-valve working in the oil-induct pipe and a conical valve working in the gas-induct pipe has been employed, as shown in Patent No. 212,502, of February 18, 1879, and that the air-injecting valve and the valve in the gasoline-feed pipe of a carbureter have been operated automatically by the rising and falling air-holder, and I make no broad claim to either of these constructions herein.

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

1. In a gas governor and regulator for carbureters, the combination of a reversely-adjustable valve in the gas-governor with a pivoted hinged spring-lever in the carbureter, said lever being provided with a needle for opening and closing a valve-seat, and a valve-seat located in the mouth of the inlet-pipe, through which the hydrocarbon liquid is supplied to the carbureter, as set forth.

2. In a gas governor and regulator for carbureters, the valve U, suspended from the cup S by the rod T, and provided with the screw-rod V, in combination with the hinged and pivoted lever I I' I<sup>2</sup>, carrying the needle K, and the valve-seat E in the mouth of the pipe C, substantially as and for the purposes set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

ALBERT F. CHACE.

Witnesses:

JAMES J. SHEEHY,  
ROBERT EVERETT.