

(No Model.)

2 Sheets—Sheet 1.

J. A. MARSH.

AUTOMATIC HEATING AND LIGHTING DEVICE FOR VAPOR STOVES.

No. 413,809.

Patented Oct. 29, 1889.

Fig 1.

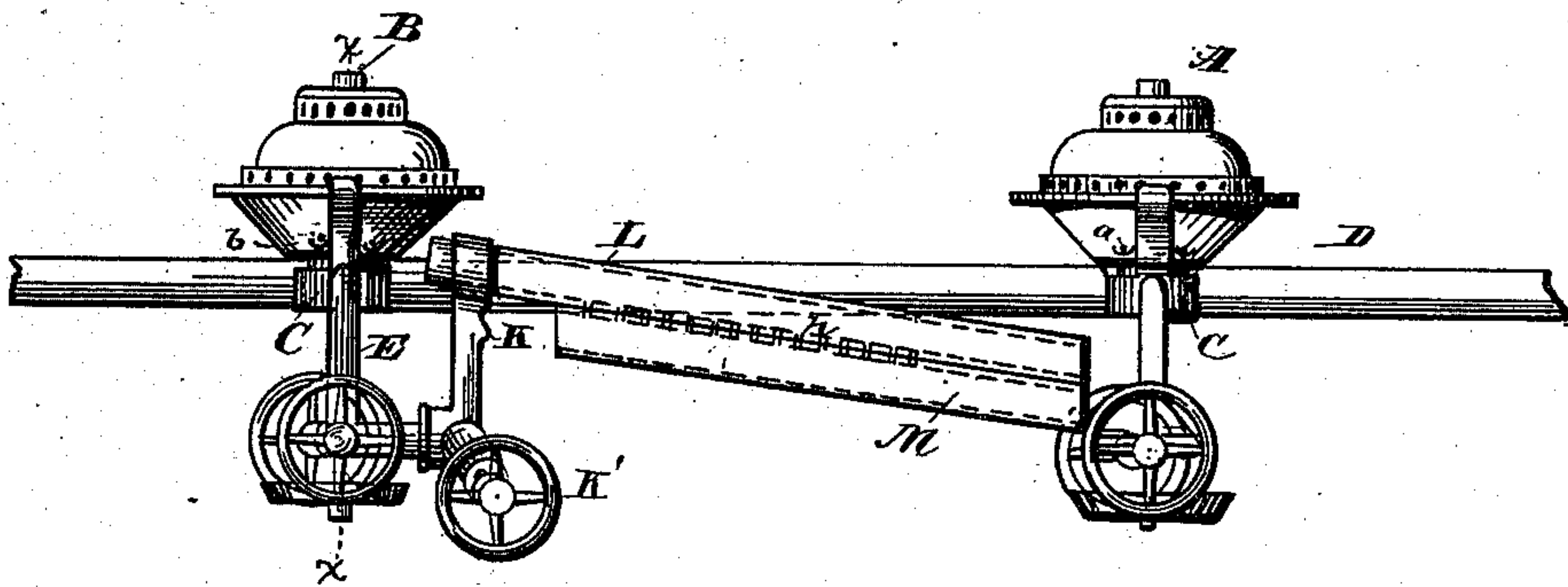
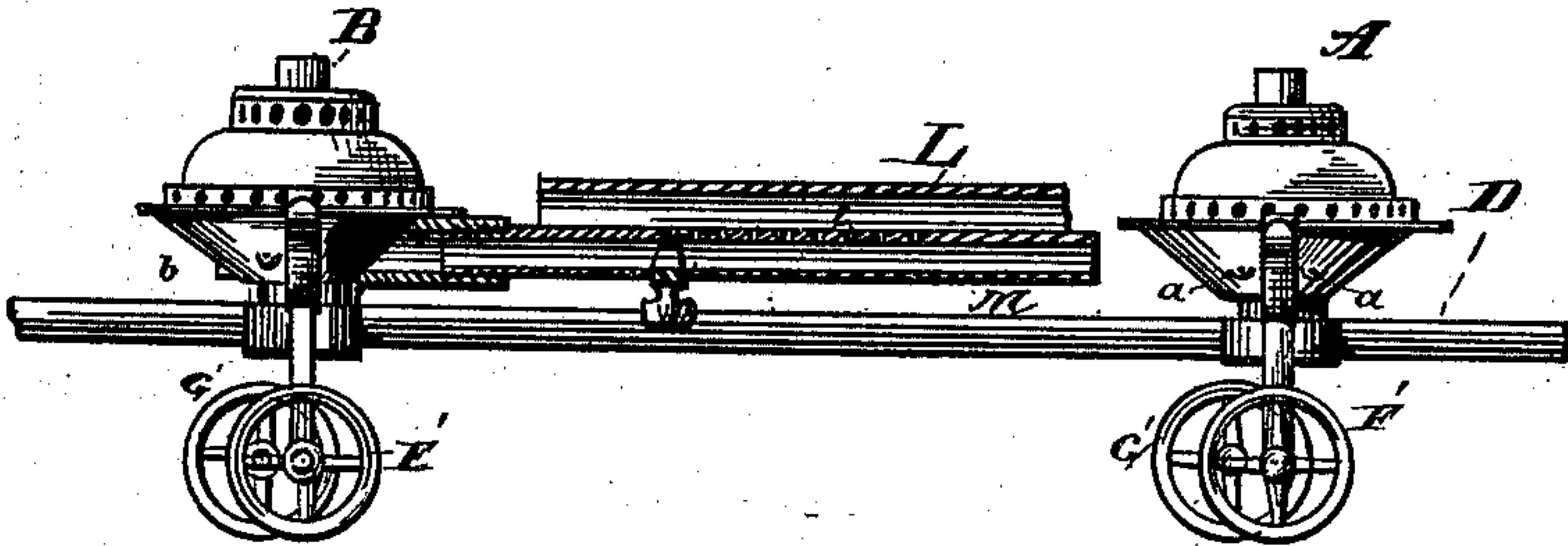


Fig. 2.



Witnesses.

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(No Model.)

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Fig. 3.

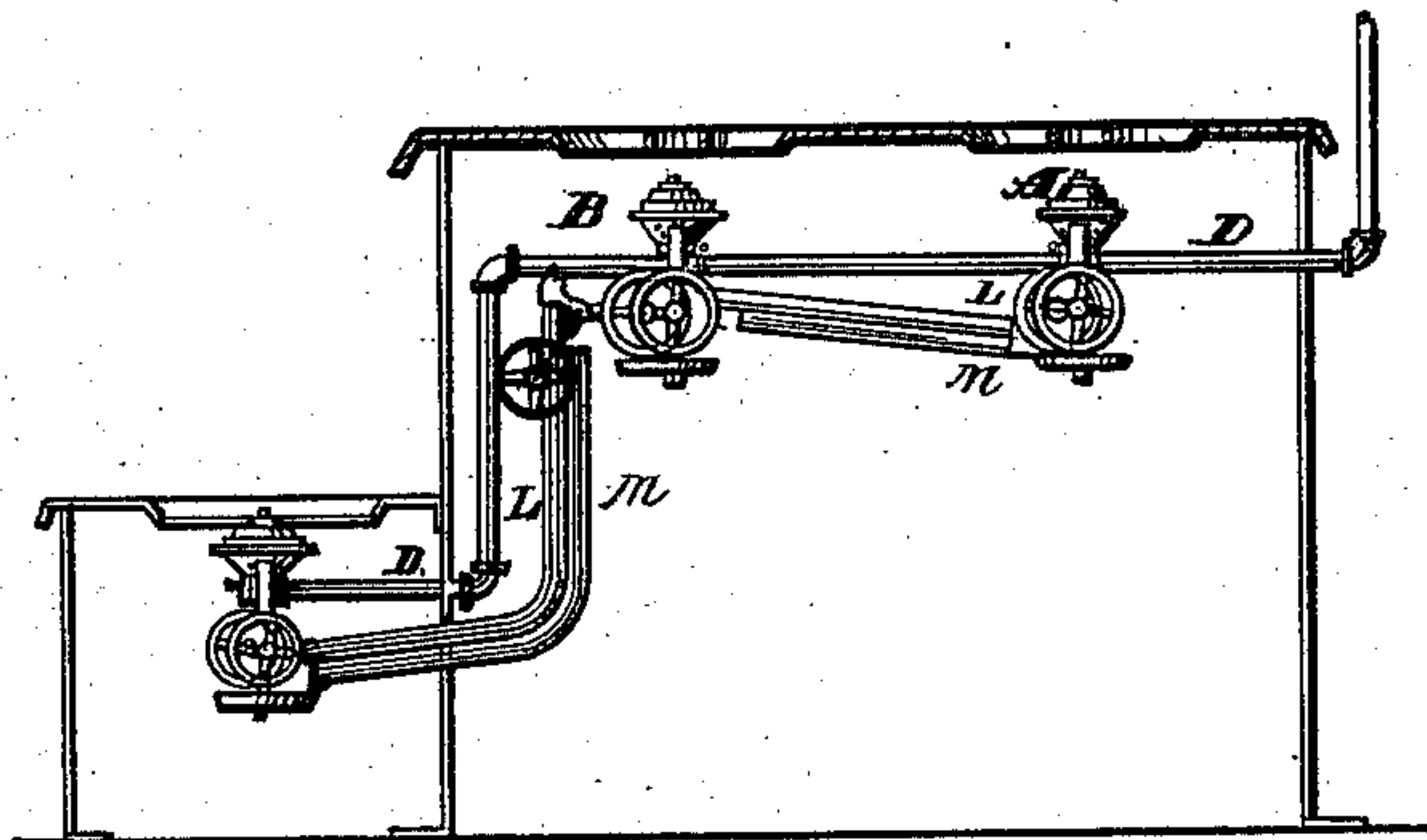


Fig. 4.

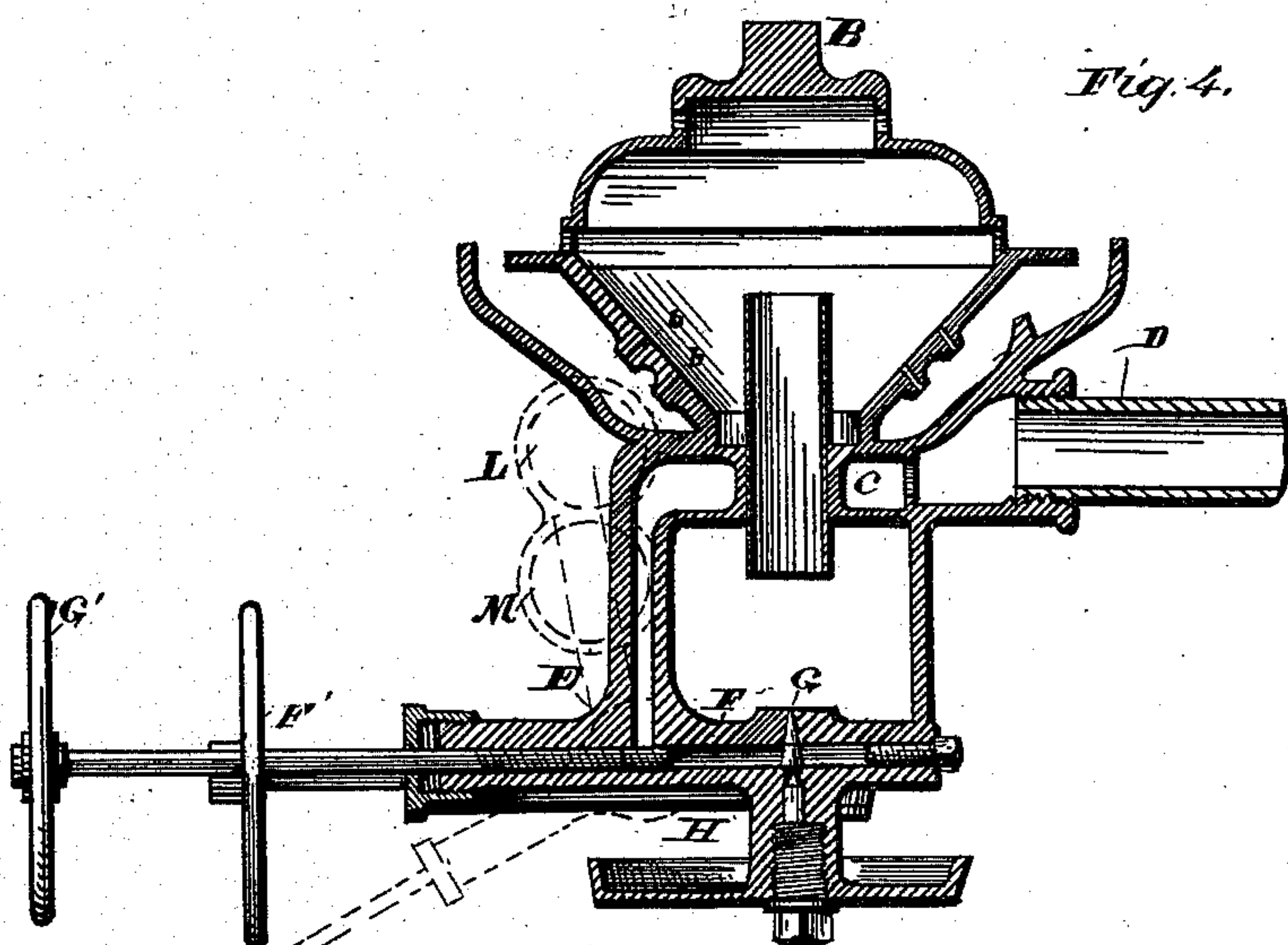
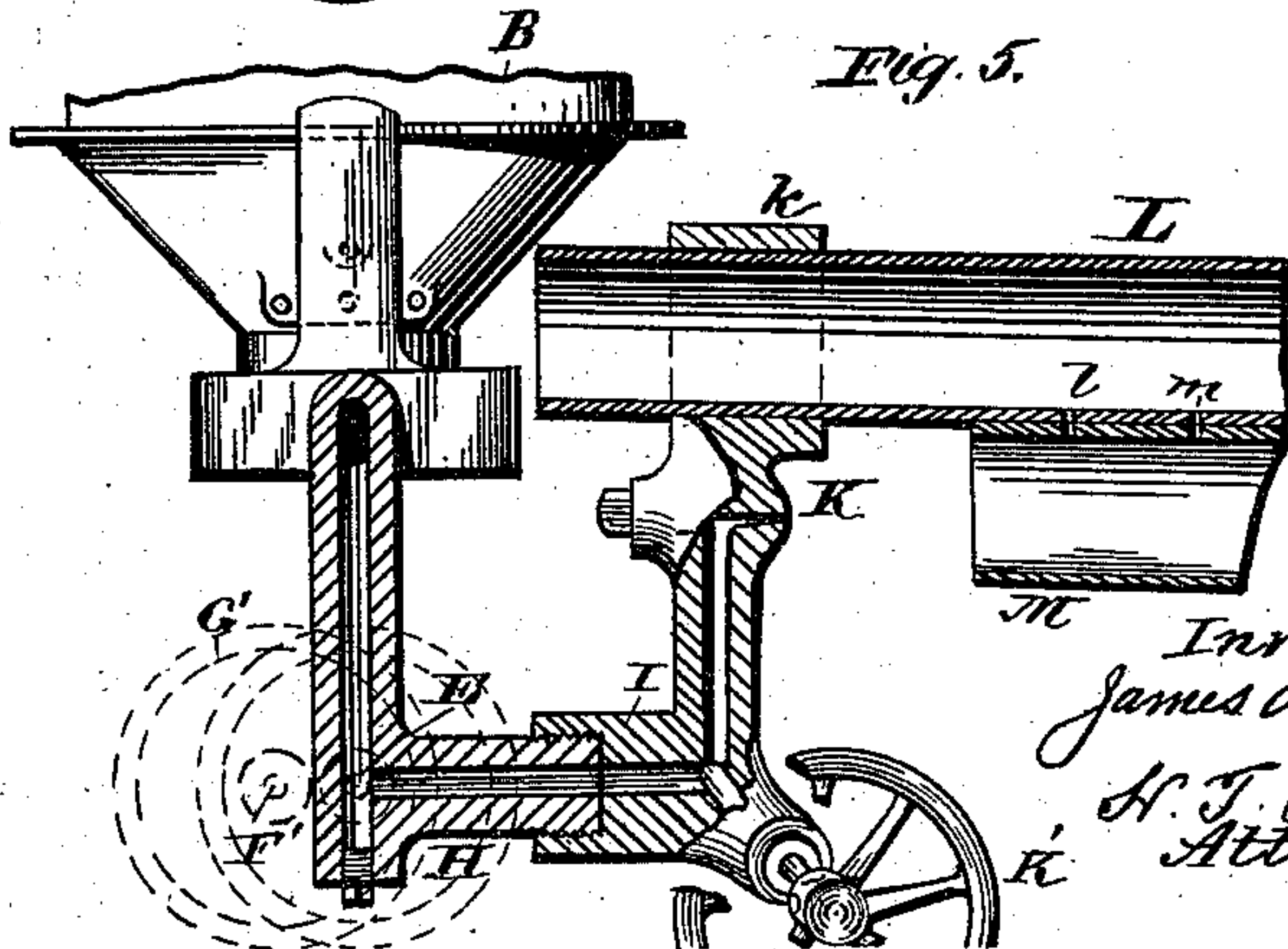


Fig. 5.



Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES A. MARSH, OF CLEVELAND, OHIO.

AUTOMATIC HEATING AND LIGHTING DEVICE FOR VAPOR-STOVES.

SPECIFICATION forming part of Letters Patent No. 413,809, dated October 29, 1889.

Application filed January 18, 1888. Serial No. 261,081. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. MARSH, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Automatic Heating and Lighting Devices for Vapor-Stoves; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to automatic heating and lighting devices for vapor-stoves, and is an improvement on my patent, No. 358,284, dated February 22, 1887.

The invention consists in the arrangement of two pipes between two individual generating gasoline-burners, substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of one form of a stove in which my invention is employed. Fig. 2 is a similar elevation of another form, the pipes in this being partly in section. Fig. 3 is a side elevation of a stove and oven in combination, the latter being placed on a lower plane than the stove-top and pipes leading thereto from one of the stove-burners. Fig. 4 is an enlarged sectional elevation on line *xx*, Fig. 1. Fig. 5 is an enlarged side elevation of the burner B.

The invention is applicable particularly to gasoline-stoves in which are employed what are known as "individual burners," or burners which generate their own gas, in contradistinction to single-generator stoves, or stoves in which a central burner generates the gas for all the burners, whether two or more, the gas in this case being conveyed through pipes from the central or generating burner to what are termed the "side burners."

In the patent on which this invention is an improvement a single pipe is employed between two burners, by which the heating and lighting of one burner from another are effected. The present invention contemplates two pipes to perform the same functions—viz., to heat and light one burner from another which is in gas and lighted.

Referring first to the construction shown in Fig. 1, we find two burners A and B. These burners have generators or retorts C, supplied by pipe D from the usual oil-tank. Any style of individual burner may be employed, the form not being material. From the generator C the vapor is conveyed through its elbow E, forming a part thereof, to the horizontal portion F, Fig. 4, which has a jet-orifice G, through which vapor escapes to the burner. A horizontal arm H on the elbow E connects the elbow E with a coupling-piece or elbow I, preferably screwed thereon; and which is provided with vapor-passage leading to the lateral jet-orifice K. A valve F' controls the flow of vapor to both jets G and K, while a valve G' controls the jet G alone and a valve K' controls jet K, so that vapor may flow to either at the will of the operator or be shut off at both. Above the jet-orifice K is a loop *k* for supporting the end of the upper connecting-pipe L, as shown; but obviously this is a mere mechanical expedient, and any other means of support may be provided.

Now, in order that the object of my invention may be carried out, I provide two pipes (each open at both ends) or tubes L and M, Fig. 1, the lower one of which aligns with the jet-orifice K and extends to the retort or generating-chamber of the opposite burner. Above the pipe or tube M is another pipe or tube L, resting thereon and secured by solder, clamp, or other sufficient means. This pipe is open at both ends and extends to near the downwardly-arranged jets *b* in the bottom of burner B, while at the other end it stops short of the elbow, as seen in Fig. 1, and beneath the downward jets *a* in burner A. Both pipes have a series of openings or holes *l m*, respectively, along their meeting edges and opposite each other, whereby vapor issuing into one may enter the other, and thus the two pipes together perform their allotted function. A continuous slot in each pipe extending the same distance, instead of the openings, would answer the same purpose.

This being the construction, the operation is as follows: Suppose, for illustration, that the burner B has been started and is in gas. Then, opening the valve K', gas will issue from jet K into pipe M and flow through said pipe

to its opposite end, while a portion will also escape through openings *l m* to the upper pipe. Such portion of the gas as escapes from the pipe L or the burner B will be ignited by the jet-orifices *b* in said burner, and the result will be an explosion of ignited gas to the opposite end of pipe L and in such manner as to light the gas issuing at that end from pipe M. Inasmuch as a steady supply of gas is passing through pipe M from the jet K, a constant flame will be maintained at its opposite end, and this flame furnishes the heat for placing burner A in a vaporizing condition. Meantime, and as long as these conditions are undisturbed, the explosions through pipe L are going on at frequent intervals, which provides the necessary relighting medium in case by any accident the flame at end of pipe M becomes extinguished. This being the operation for initially starting burner A and for maintaining the flame near it, the method and act of relighting said burner, if it should be put out, are obvious, the constant flame or the rapidly-repeating explosions both being available to do the work. On the other hand, if burner B should be extinguished by accident or otherwise without turning off the supply of oil, the gas will continue to escape into pipes L and M, as before, and that portion or stream of gas escaping from the pipes at burner A will be ignited by the downwardly-directed jets *a*, when explosions will travel in the opposite direction and ignite the burner B through its jets *b*. Of course the intervening pipes and mechanism for carrying out this operation may be reversed as to the burners, and the same may be repeated between any number of burners in a stove.

In the form of attachments illustrated in Fig. 2 the lower pipe communicates with the cumingling-chamber of the burner B and has its opposite end resting near the burner A and somewhat below the horizontal jets therein. The upper pipe rests on the lower one, the same as in the construction above described, and about equidistant from the respective burners. It should approach near the end of the lower pipe at the free end of said pipe, so that it will not fail to light the gas at that point should the jet usually present there when the gas is on become extinguished. The operation in this form of stove is as follows: Assuming that the burner B is in gas and the cock *m'* open, a quantity of gas will flow through pipe M and escape at its end and a portion will escape through the openings *l m* to the pipe L, which will issue therefrom at both ends. The gas escaping at burner B will be ignited by the jet-flames at the side of said burner and convey a flame by regular and rapid explosions through pipe L to its opposite end. The gas flowing from the corresponding end of pipe M will thus become ignited and establish a permanent flame for

heating the burner A. The burner A, being heated, will soon generate its own gas and be in readiness for use. Then, if said burner should be extinguished, the means here described would relight it; or, if the burner B should be extinguished and still being in gas, more or less, it will be automatically lighted from burner A, the explosions in that case traversing the pipe in the opposite direction.

In Fig. 3 I show how the same principle may be extended to an oven O, the pipes L and M in this instance being either bent or provided with suitable elbow-joints to adapt them to the change. The arrangement of the pipes may be side by side instead of one above the other, in which case one or both ends of the lower pipe may be bent or curved to make the connection.

It will be understood, as before stated, that the use of the tubes is limited to individual or self-generating burners, and that said tubes are not adapted to work on what is known as a "single generating stove," where only one generator is used to supply vapor to itself and to all the other burners in the stove, whether two or more. Two self-generators are necessary factors in the construction, and the invention comprises such burners with the tubes, as hereinbefore described.

I claim—

1. In a vapor-stove, a pair of individual or independent generating-burners and pipes or tubes leading to each burner to supply oil thereto, in combination with two pipes arranged between said burners, one of said pipes serving to heat one burner from another and the other to light one burner from another, said pipes situated one above the other, and the heating pipe or tube perforated to supply vapor to the lighting pipe or tube, substantially as set forth.

2. In a vapor-stove, two individual self-generating burners and pipes to supply oil to each burner separately, in combination with two other pipes situated between the said burners and apart from the burner-cones at both ends, said pipes located one above the other, and the lower pipe serving to heat and the upper pipe serving to light one burner from another, substantially as set forth.

3. In a vapor-burner stove, two burners having independent oil-supply, in combination with a heating-tube having both ends open to the outer air, one end in proximity to a burner and the other burner provided with a coupling at its side having a jet-orifice for the escape of vapor into the end of the tube, and suitable mechanism for holding said tube in a rigid position, substantially as and for the purpose specified.

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Witnesses:

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