(No Model.) 3 Sheets—Sheet 1.

W. DAWSON.

CARBURETOR.

No. 420,591. Patented Feb. 4, 1890.

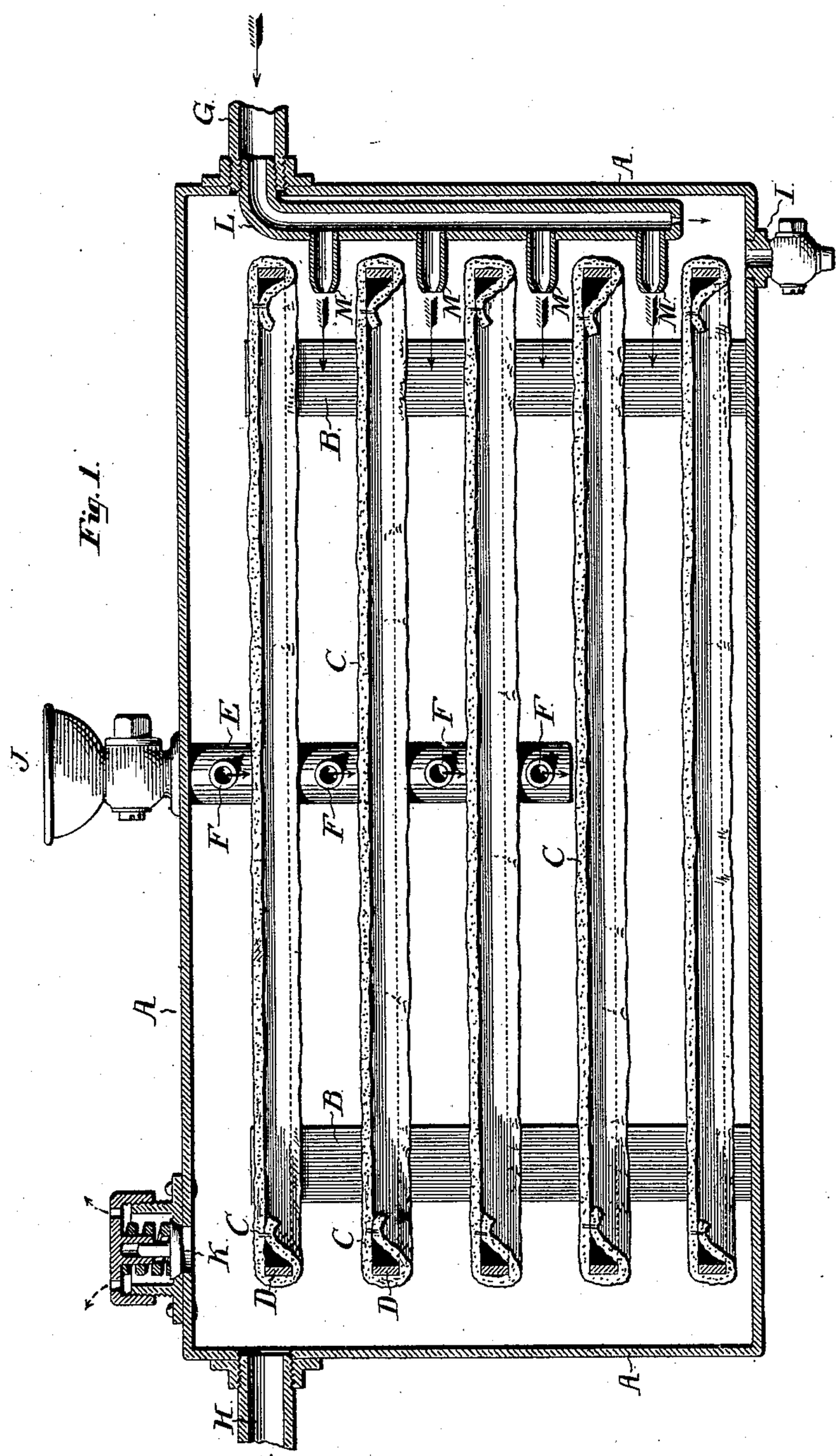

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

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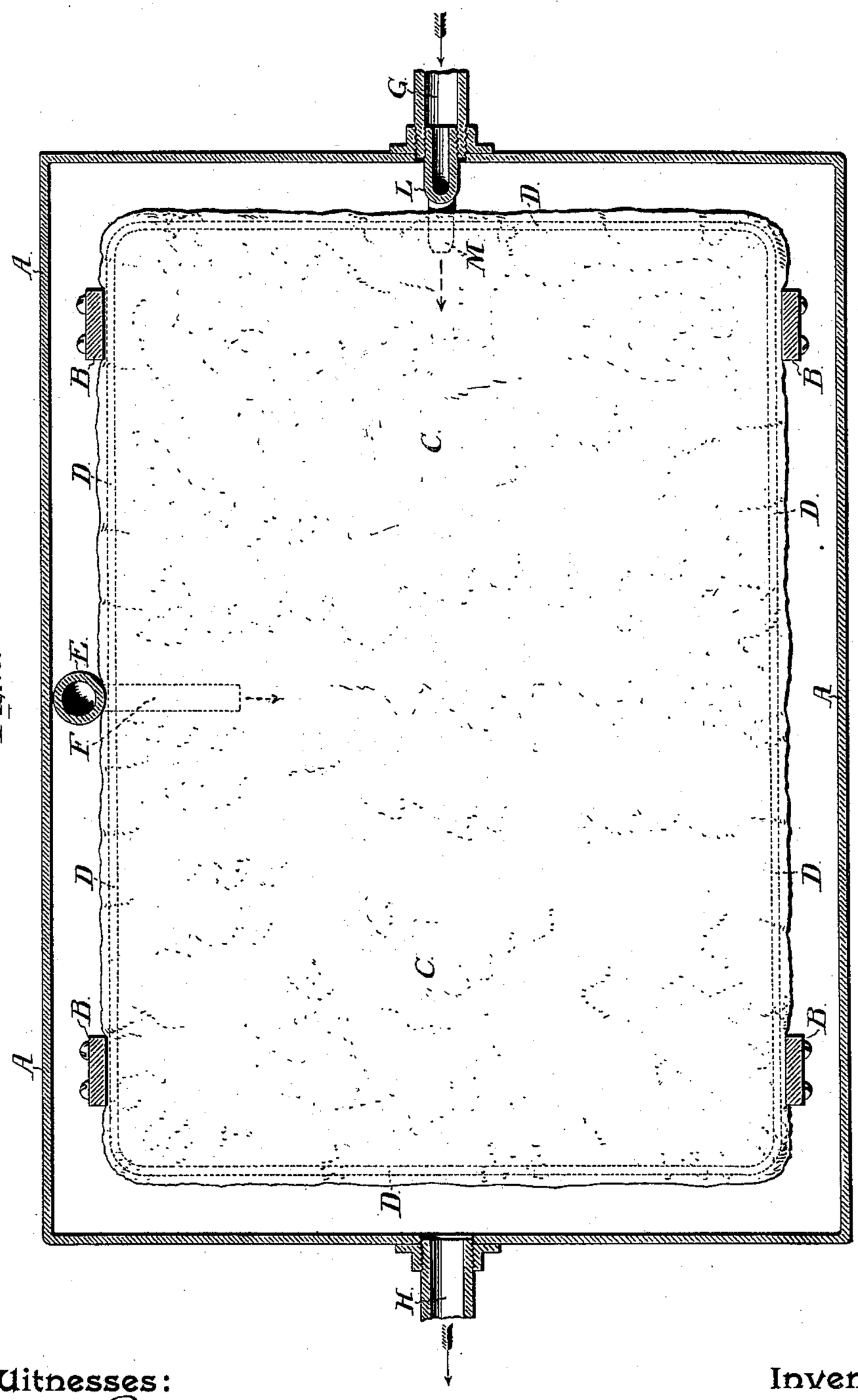
Fig. 2.



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(No Model.)

3 Sheets—Sheet 3.

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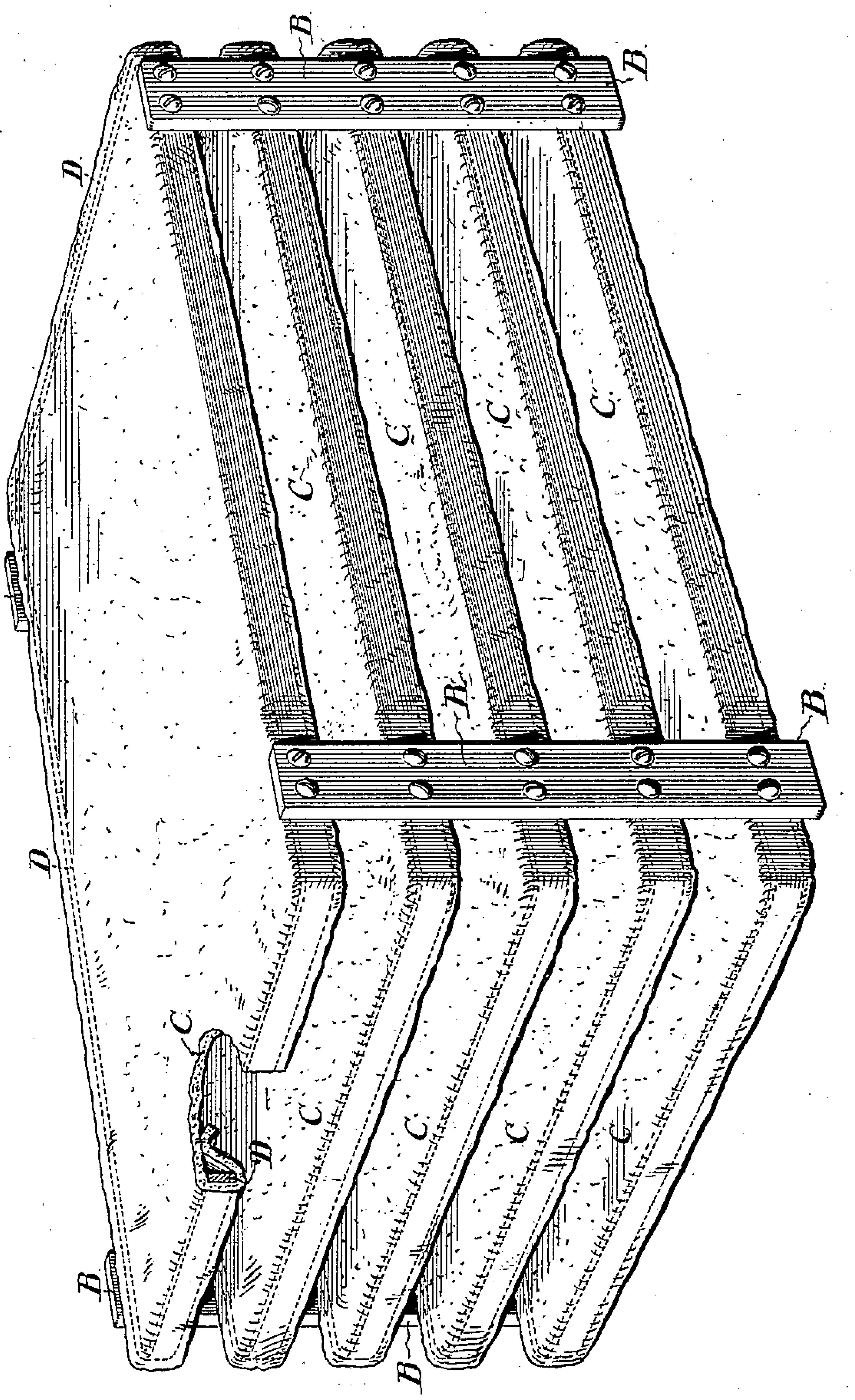
Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM DAWSON, OF PHILADELPHIA, PENNSYLVANIA.

CARBURETOR.

SPECIFICATION forming part of Letters Patent No. 420,591, dated February 4, 1890.

Application filed February 18, 1889. Serial No. 300,332. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM DAWSON, of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Carburetors, whereof the following is a specification, reference being had to the accompanying drawings.

My invention belongs to that class of carburetors in which a series of sheets of porous textile material is exposed, when saturated with volatile hydrocarbon, to a current of air forced through a closed receptacle containing said sheets; and the object of my invention is to simplify and cheapen the construction and to obviate the accumulation of any free liquid or hydrocarbon within the apparatus. This latter feature is of great importance in this class of devices, since when the liquid is allowed to accumulate, instead of being all held by the absorbent material, it will inevitably prevent perfect operation of the apparatus or find its way into the exit-pipes and interfere greatly with the use of the product.

In the accompanying drawings, Figure 1 represents a vertical central section through the carburetor. Fig. 2 is a horizontal section through the center of the inlet and exit pipes, and Fig. 3 is a view in perspective of the series of sheets of absorbent material and their supporting devices.

The exterior casing A of the carburetor is a rectangular box of metal, provided near its top with openings at each end for the attachment of the inlet-pipe G and the exit-pipe H, respectively. In the bottom is a suitable drip-cock I, to drain off any surplus liquid that may remain after the charging, and at the top is a small safety-valve K, which may be weighted at any desirable pressure.

Within the casing A, I arrange four uprights B, suitably secured in position, and at proper vertical intervals I suspend from these uprights a series of rectangular frames D, of wood or thin metal, upon which the sheets of porous material are stretched. These sheets C are of flannel of any suitable thickness, and they may be secured by stretching the edges of the flannel around the frames D and sewing them to the main body of the fabric, as shown, or they may be fastened directly to the frames themselves.

Within the casing A and at about the middle of one side thereof I introduce a vertical charging-pipe E, having an exterior funnel-shaped inlet J, and provided with a series of horizontal branches F, each of which is arranged a short distance above the top of a sheet C, and which all project inwardly to a sufficient distance to discharge well onto the centers of the sheets. The pipe E is of course closed at the bottom.

The inlet G for air is provided with a somewhat similar attachment, consisting of a downwardly-depending pipe L, having horizontal nozzles M, each of which projects in over the edge of a sheet, as shown.

The combined area of the discharge-orifices should not exceed the area of the pipe L, in order that a proper distribution of the air-current shall be effected.

The operation of the device is as follows: A suitable blast apparatus being connected with the inlet-pipe G, and the desired system of distributing-pipes being connected with the exit-pipe H, I pour in the liquid hydrocarbon, preferably gasoline, by means of the charging-pipes, and the jets from the several branches F saturate the several sheets. I have found that the use of flannel is highly advantageous for this purpose, since the liquid not only diffuses itself uniformly throughout the sheet, but is kept in suspension with great tenacity thereby, and since the sheets are horizontal there is no tendency, as is the case with many devices of this kind, for the liquid to flow down to any one part and drip therefrom.

In the drawings I have not shown any branch of the charging-pipe immediately above the lowest sheet, as I prefer to construct the apparatus in this manner, depending upon the surplus of the original charge to percolate down upon said lowest sheet. It is very easy to determine the proper charge for a given area of absorbent material, and when once this is done the liquid can be poured in and the diffusion will take care of itself. It is advisable, however, to test the

possible accumulation of free liquid in the bottom of the apparatus, and this can easily be done by means of the drip-cock I.

As soon as the apparatus is thoroughly charged the air-blast may be turned on, and in passing over the sheets the current becomes saturated with the volatile hydrocarbon in the usual manner.

It will be seen that by making the frames D of skeleton form and of less dimensions than the interior of the casing provision is made for marginal communication between the spaces separating the respective sheets, and I am enabled to locate the branched charging-pipe and depending air-pipe within the casing, all as plainly shown by the drawings.

I use the safety-valve wherever there is danger of excessive pressure in the air-blast—as, for instance, the application of this device to the lighting of railway-cars by means of surplus air from the air-brake system—where by the failure of adjustment of the controlling-valves there is sometimes an access of pressure which otherwise would burst the casing of the carburetor.

I am of course aware that the general principle of this apparatus is not, broadly speaking, new, and I therefore limit my claim to the particular construction and arrangement of parts hereinafter set forth.

I claim—

1. The combination of the casing, the sheets supported at their edges horizontally therein, one above another, with the spaces between them communicating at their margins, the branched charging-pipe, by the respective horizontally-extending branches of which the liquid is delivered independently and simultaneously directly to different sheets, the inlet-pipe delivering air within the casing, and the exit-pipe, substantially as set forth.

2. The combination of the casing, the sheets supported at their edges horizontally therein, one above another, with the spaces between them communicating at their margins, the charging-pipe delivering liquid to the sheets, the inlet-pipe provided with the air-delivering orifices for independently and simultaneously directly supplying air for the different sheets, and the exit-pipe, substantially as set forth.

3. The combination of the casing, the series of frames within and of less dimensions than the interior of the casing, the horizontal sheets carried one above another by said frames, with the spaces between them having marginal communication, the charging-pipe having horizontally-extending branches delivering liquid independently and simultaneously to different sheets, the inlet-pipe provided with orifices within the casing, by which air is delivered in independent jets simultaneously over the different sheets, and the exit-pipe, substantially as set forth.

WM. DAWSON.

Witnesses:
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