

(No Model.)

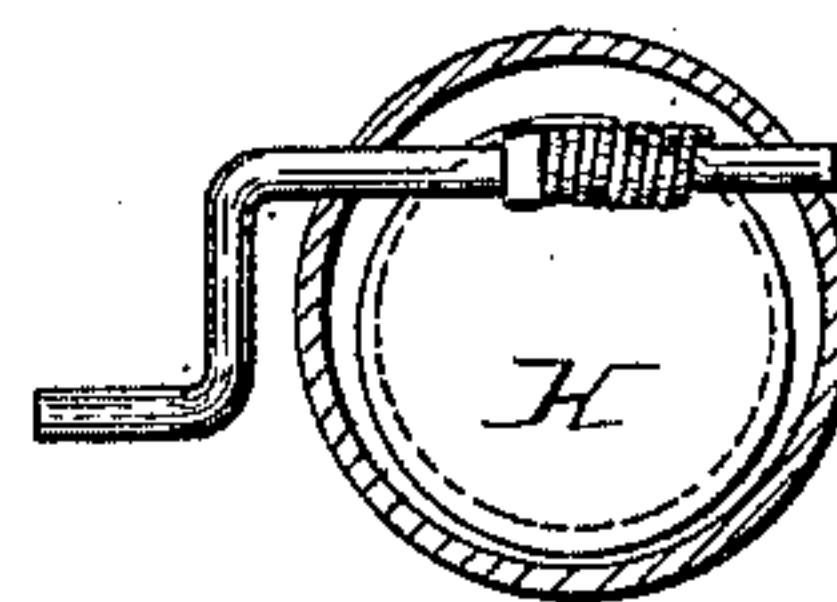
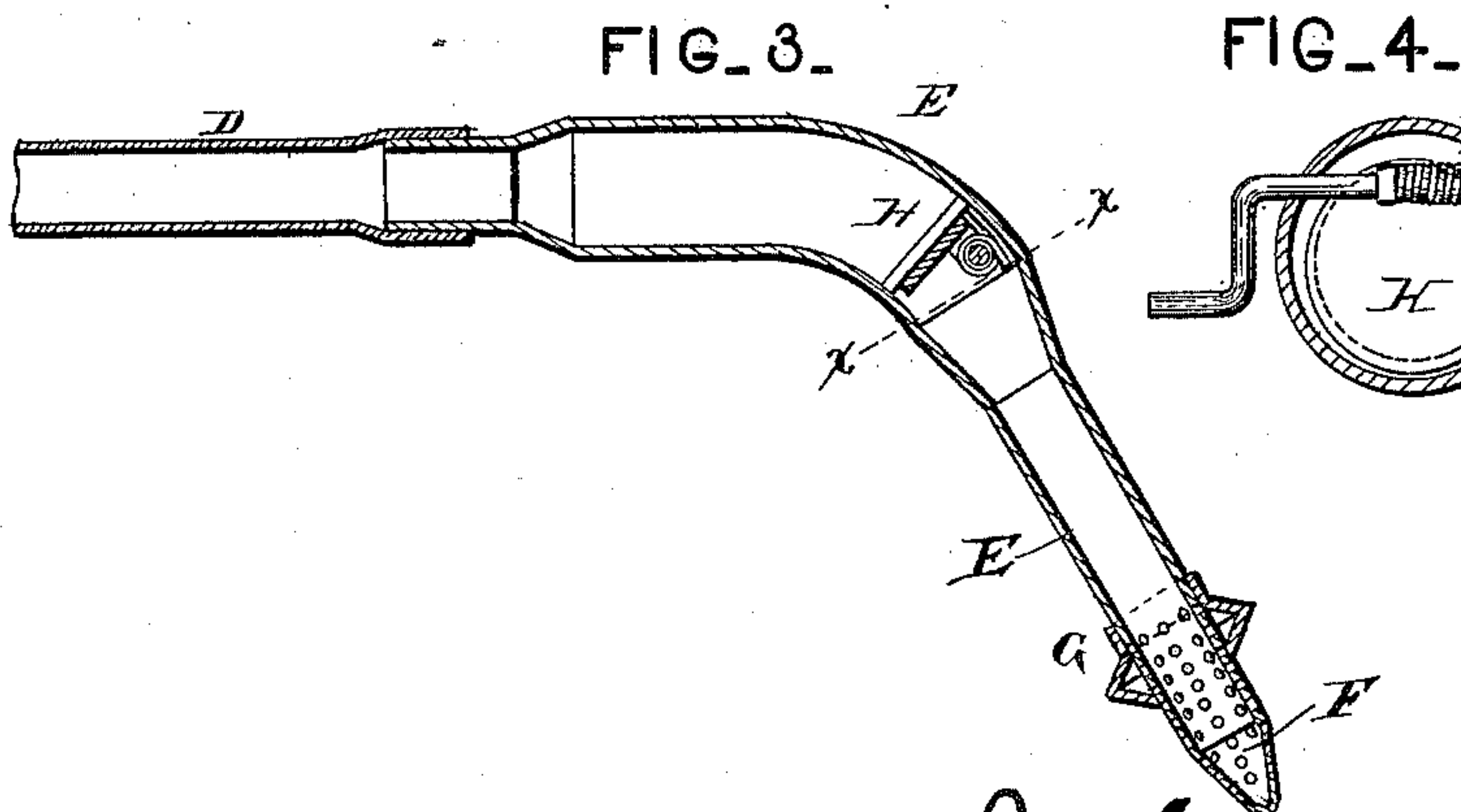
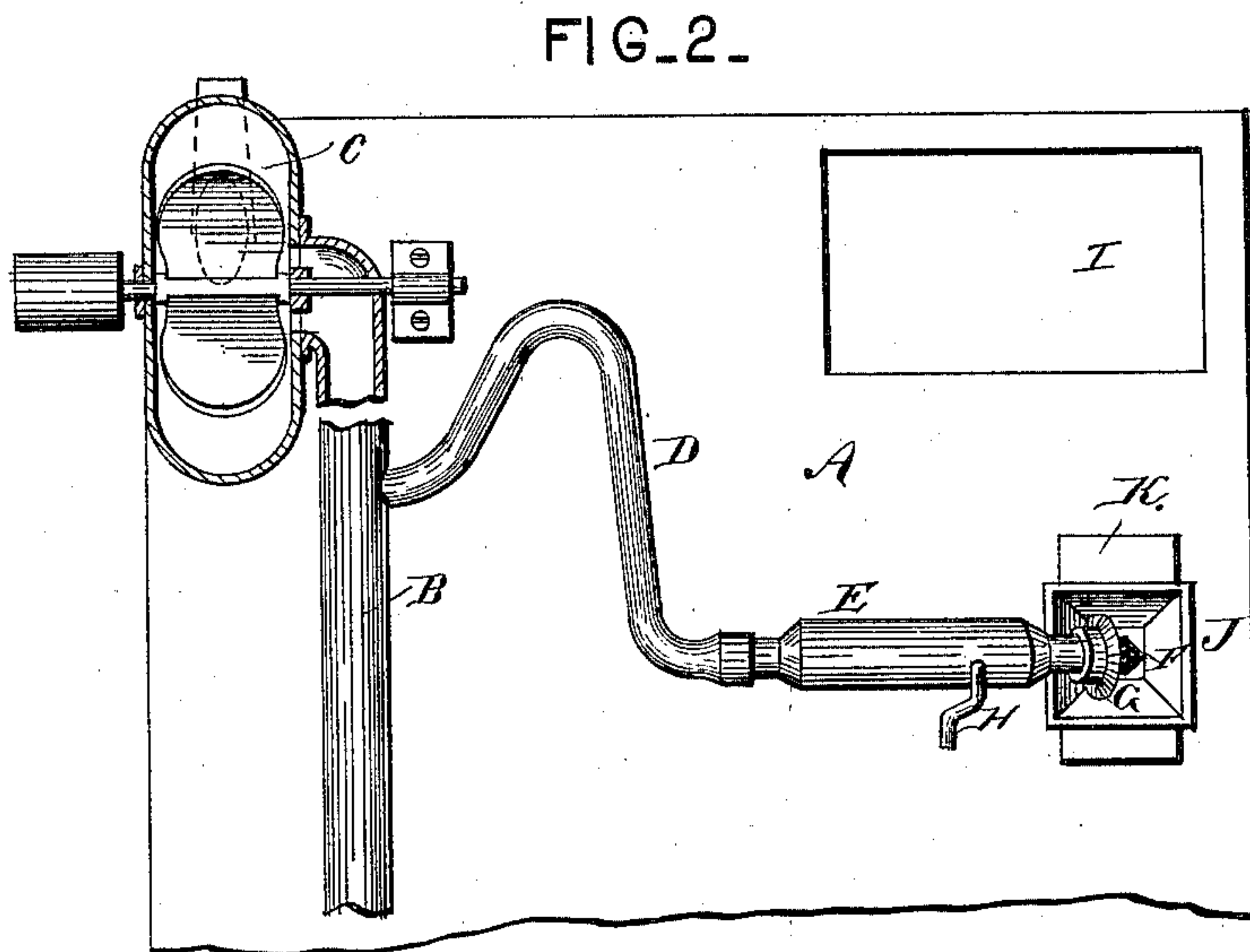
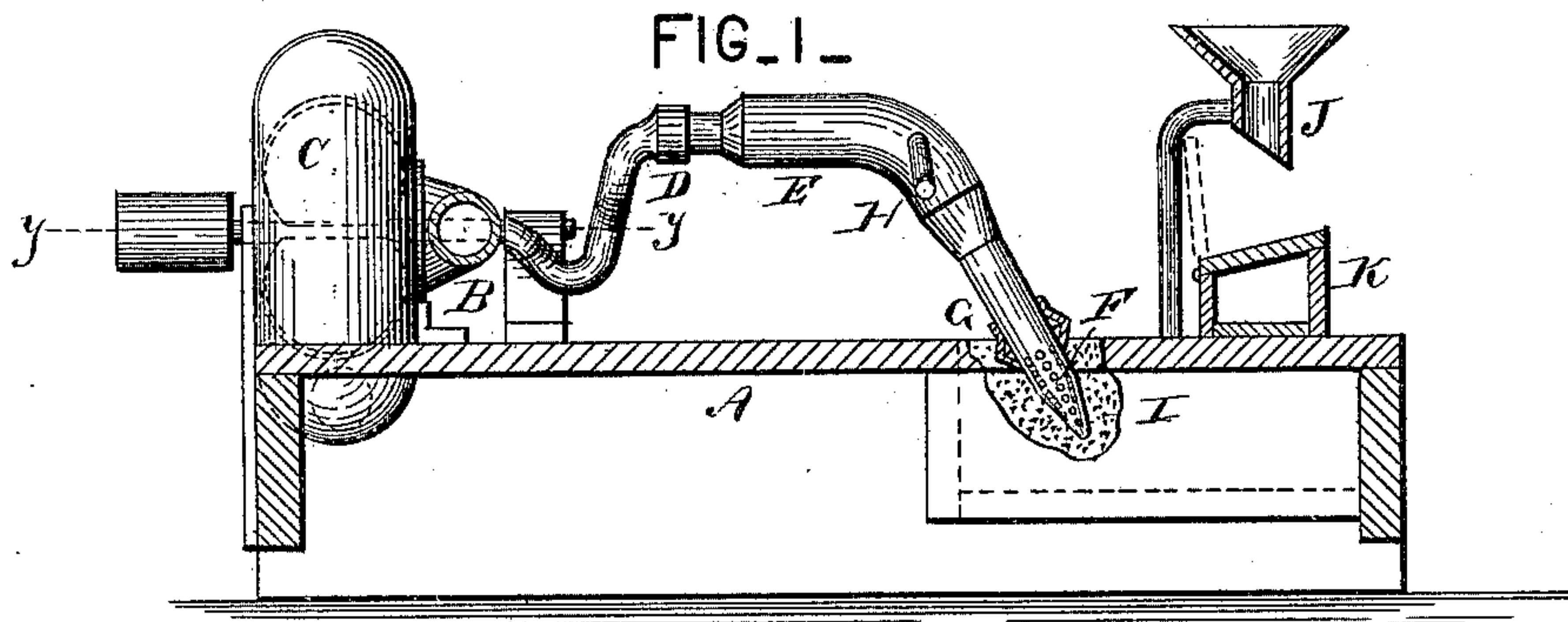
2 Sheets—Sheet 1.

J. R. WILLIAMS.

APPARATUS FOR SUBDIVIDING MATERIAL IN COMMINUTED FORM.

No. 330,076.

Patented Nov. 10, 1885.



WITNESSES:

Wm. T. Gill.
George Cook.

INVENTOR

John R. Williams

(No Model.)

2 Sheets—Sheet 2.

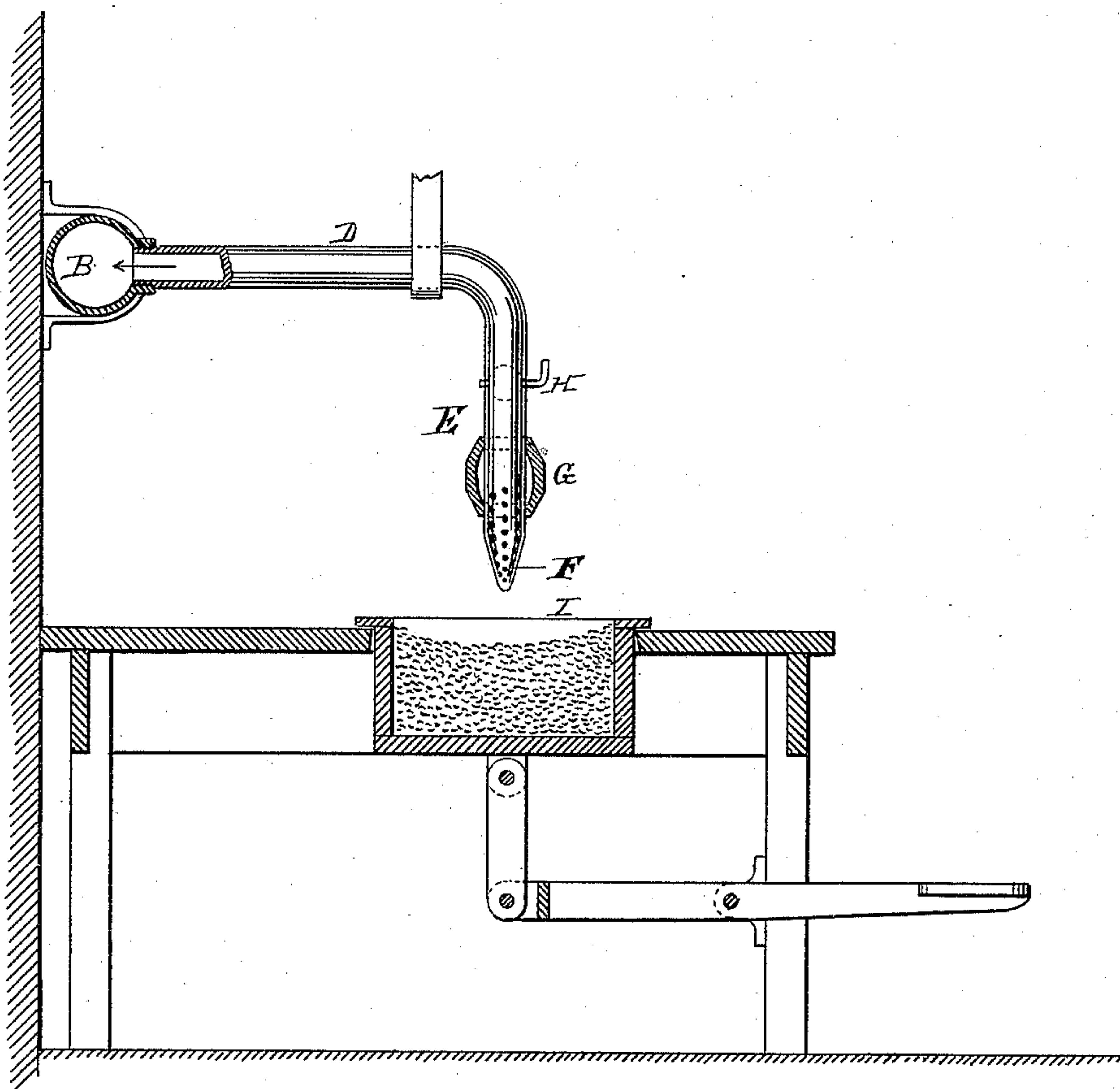
J. R. WILLIAMS.

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No. 330,076.

Patented Nov. 10, 1885.

FIG. 5.



WITNESSES

Edward Wolff
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR SUBDIVIDING MATERIAL IN COMMINUTED FORM.

SPECIFICATION forming part of Letters Patent No. 330,076, dated November 10, 1885.

Application filed July 31, 1885. Serial No. 173,131. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. WILLIAMS, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Subdividing Material in Comminuted Form, of which the following is a specification.

The invention relates to an improved apparatus for subdividing masses of comminuted or granular material into parts of given and uniform weight and quantity.

Various arts in which the invention may be utilized will suggest themselves from the description hereinafter presented, in which I have described particularly the manner of employing it in the manufacture of cigars and cigarettes.

In making cigars and cigarettes composed of a filler of tobacco in granular or comminuted form, inclosed in a binder or wrapper of leaf-tobacco or paper it is of great importance to rapidly and accurately subdivide the mass of tobacco into uniform and definite quantities, in order that the cigars and cigarettes, when wrapped, will each contain its proper quantity of tobacco and be of uniform size, weight, and appearance. The usual method heretofore practiced has been to take up into the hand and judge by feeling the proper weight or quantity for the filler of each cigar; but this is uncertain, unsatisfactory, and obviously objectionable.

My improved apparatus sought to be protected hereby obviates these objections and renders the apportioning of the tobacco for the filler rapid and certain.

In the accompanying drawings I have shown an apparatus embodying the invention as adapted to the manufacture of cigars.

Figure 1 is a side elevation of same, partly in section. Fig. 2 is a top view of same, partly in section, on the dotted lines *y y* of Fig. 1. Fig. 3 is an enlarged central vertical longitudinal section of the nozzle, hereinafter described. Fig. 4 is a section of same on the line *x x* of Fig. 3, and Fig. 5 is a view of a modified form of the invention.

Referring to the drawings, A designates a

frame or table of any usual construction; B, 50 a main air-pipe arranged in suitable relation thereto and leading to an exhaust, C, and D a flexible hand tube or pipe connected at one end with the pipe B, its other end carrying a nozzle, E, which serves as a handle for the use 55 of the operator, and has its outer end perforated, as shown at F. Upon the nozzle E is arranged a sleeve or collar, G, which is held in place by a set-screw or by friction, and may be moved over or away from a portion of the 60 apertures F, the purpose being to permit a definite length of the perforated end of the nozzle to be exposed, according to the circumstances attending its use, as hereinafter explained. In the nozzle E, adjacent to its inner 65 end, is provided a valve, H, by means of which the passage of air through the tube D may be permitted or prevented at will. The valve H will preferably be the well-known lever-valve, normally closed by a spring, and capable of being opened by the pressure of the 70 thumb on its lever; but its construction is a matter which may be regulated at the will of the manufacturer. At one corner of the table A is a receptacle, lettered I, for containing the 75 tobacco in quantity, and adjacent to this and nearer the center of the table is a hopper or funnel, J, superposed above a removable box, K, having a hinged lid or cover, which may be opened or closed at will. 80

The purpose of the apparatus is to divide or apportion the tobacco in the receptacle I into definite and uniform charges or quantities for the cigars or cigarettes, and to deposit each charge or quantity into the funnel J, 85 through which it passes into the box K and is removed, another box K being immediately placed beneath the funnel to receive the next quantity of tobacco taken from the receptacle I. The separate quantities or charges of the tobacco are apportioned in and taken from the 90 receptacle I on the perforated end of the nozzle E, being there held by a vacuum or partial vacuum in the tube D, caused by the exhaustion of the air therefrom through the instrumentality of the suction-blower C or other suitable air-propelling apparatus, and the preferred method of operation after the device C

has been set in motion is to insert the perforated end F of the nozzle into the receptacle I, open the valve H, move the nozzle through the tobacco, as in the act of stirring it, and then withdraw it, when quantity of tobacco will be found attached upon the perforations F, after which the nozzle will be moved over the funnel or hopper J, and the valve H allowed to close, when the tobacco will naturally fall from the nozzle, through the hopper, and into the box K, whence it may be removed.

The size or quantity of the charge held on the end of the nozzle will vary according to the character of the tobacco and the amount of the exhaustion. Under a given condition of the tobacco the amount of the tobacco taken up on the nozzle will depend principally upon the speed with which the suction apparatus is operated and the number of perforations F exposed, and hence, when the size of the charge for the cigar or cigarette is known, it will only be necessary to experiment with the blower C and the adjustable collar G until the proper conditions have been attained, which will insure the removal on the end of the nozzle of the right quantity of tobacco for the filler, and when these conditions have been reached the operation of subdividing the tobacco or other material may be proceeded with, with as much speed as may be desired and with an assurance of accuracy.

Of course, the quantity of tobacco for the filler will vary according to the size of the cigar, but no difficulty will be experienced in adjusting the suction device C, or the collars G, or both, to accomplish the removal from the receptacle I of the exact amount desired.

In the construction of the apparatus care must, of course, be observed that the perforations F are not sufficiently large to permit the material to be drawn into the tube D by the air.

I have found my improved device for weighing or measuring material in comminuted or granulated form in the condition of flakes to be entirely practicable and reliable, and while I have described a form of apparatus that may be used with success, I do not limit myself to the exact construction shown, as it may be varied according to the material to be treated and the circumstances of its employment.

It is obvious that the removable box K need not be used unless desired, as the binders, boxes, papers, &c., to receive the subdivided material may be supported below the hopper J and the material allowed to flow into them and be at once inclosed. In this event the box K would be entirely dispensed with. Any suitable receiver may be used below the hopper J, according to the nature of the material to be treated and the preferred method of manipulating it.

It is not to be understood that the tube connecting with the perforated nozzle must nec-

essarily be of flexible material, since if the mass of granulated or comminuted material be moved to the nozzle, instead of the nozzle to the material, the tube may be rigid.

In Fig. 5 I illustrate an apparatus in which the nozzle and tube are rigid, and the mass of comminuted material is elevated to the nozzle. In this apparatus the exhaust and nozzle are the same as the similarly-named devices described in the first part of this specification. The rigid tube involves a slight change in the method of handling the mass of material, as above mentioned, but does not affect the operation of the perforated nozzle in subdividing the mass into certain definite proportionate quantities.

Various other modifications will suggest themselves. I do not, therefore, limit my claim to the exact instrumentalities I have described; but

What I claim is—

1. An apparatus for subdividing or apportioning a mass of comminuted or granular material into parts of uniform weight or quantity, which consists of an air-exhaust of predetermined force, a tube in communication with said exhaust, a perforated nozzle connected with said tube, the perforations of the nozzle covering a surface of predetermined area and being too small to permit the passage of the material through them, and a receptacle to contain the mass of material, substantially as set forth.

2. An apparatus for subdividing or apportioning a mass of comminuted or granular material into parts of uniform weight or quantity, which consists of an air-exhaust of predetermined force, a flexible tube in communication with said exhaust, a perforated nozzle on the end of said tube, the perforations thereof covering a surface of predetermined area and being too small to permit the passage of the material through them, and a receptacle to contain the mass of material, substantially as set forth.

3. An apparatus for subdividing or apportioning a mass of comminuted or granular material into parts or charges of uniform weight or quantity, which consists of an air-exhaust, a flexible tube in communication therewith, a perforated nozzle in connection with said tube, the perforations thereof covering a surface of predetermined area and being too small to admit the material, a valve for cutting off the exhaust from the perforated surface, a receptacle to contain the mass of material, and a receptacle to receive the separate charges from the end of the nozzle, substantially as set forth.

4. In an apparatus for subdividing material in comminuted form, a pipe attached to an air-exhaust and provided on its ends with a perforated nozzle, and a movable slide adapted to cover and uncover the perforations in the nozzle, substantially as set forth.

5. The apparatus, hereinbefore described, for subdividing comminuted or granular material into uniform charges or quantities, which consists of an air-exhaust, a tube provided with a perforated nozzle, an adjustable slide on the nozzle, and a valve for cutting the air off from the nozzle, substantially as set forth.

Signed at Newark, in the county of Essex and State of New Jersey, this 29th day of 10 July, A. D. 1885.

JOHN R. WILLIAMS.

Witnesses:

HENRY F. GOKEN,
GEORGE COOK.