May 25, 1926. 1,585,919

J. A. IRVING

PERCOLATOR

Filed June 13, 1919

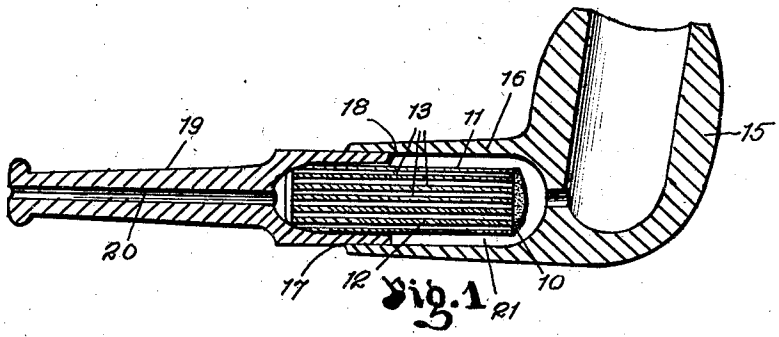



Fig. 1

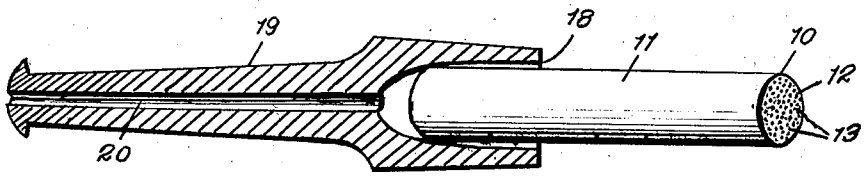



Fig. 2

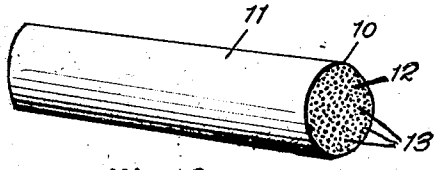



Fig. 3

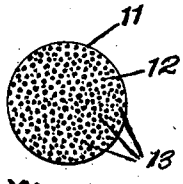



Fig. 4

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# UNITED STATES PATENT OFFICE.

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## PERCOLATOR.

Application filed June 13, 1919. Serial No. 303,968.

This invention relates to a class of percolating or filtering elements adapted to be used by tobacco smokers and elsewhere.

It is well known that the smoke of practically all species of tobacco contain a percentage of heated particles of carbon as well as being charged to an extent with volatilized nicotine, both of which properties tend to cause a parching of the mouth and biting of the tongue of the smoker. Moreover, when the smoke of tobacco is deprived of the excess of the nicotine and freed of the hot carbon particles the enjoyment of smoking is greatly enhanced, and the primary object of this invention is to overcome the objections by employing the natural porosity of a vegetable substance, such as the stalk of palm which is commonly known as rattan. I have found that the cellular structure of the stem of this plant consists of substantially parallel arranged ducts or perforations extending lengthwise of the stem and that the walls of the ducts are of absorbent texture. Owing to the stem of the plant containing certain salts and sap necessary to its growth renders it impracticable for the purpose of this invention, because of the tendency to impart to the smoke of tobacco a very objectionable taste and odor as well as to an extent obstructing the porosity of its inner structure. In accordance with the invention the ducts or perforations are accentuated or cleared by subjecting a suitable block or section of the rattan to air under pressure and then to steam which will free the cells or perforations of the stem of all of the extraneous materials, and the stem is afterward carbonized by being subjected to heat for stabilizing the walls of the perforations.

The invention also contemplates the use of the percolator for filtering water and various liquids as well as for filtering gaseous products and oils of certain classes as occasion may require.

With these and other objects in view the invention will be hereinafter more particularly described with reference to the accompanying drawing forming a part of this specification in which similar characters of reference indicate corresponding parts in all the views, and will then be pointed out in the claims at the end of the description.

In the drawing, Figure 1 is a longitudinal vertical section taken through a pipe showing the manner of using in conjunction therewith one form of percolator embody my invention, the latter also being shown in section.

Fig. 2 is a section taken through the stem of the pipe with the percolator being shown in perspective.

Fig. 3 is an enlarged perspective view of the percolator, and

Fig. 4 is an enlarged view of one end of the percolator.

While in the drawing the percolator, as 10, is illustrated as being especially adaptable for use in conjunction with pipes for smoking tobacco, I wish it to be understood that the percolator may be effectually used in other processes tobacco smoking as well as being susceptible of utilization as a filter for water, oils, gaseous products and other liquids when employed in conjunction with proper apparatus.

There is a common objection to the use of pipes by smokers of tobacco owing mainly to the tendency of the smoke to parch the mouth and bite the tongue of the smoker. This characteristic of the smoke is due to the heated carbonaceous materials with which the smoke of burning tobacco is charged, and the amount of volatile nicotine from the tobacco carried by the smoke is also a prevailing objection. The freeing of the smoke of at least the excess of these foreign substances results in "cooling" the smoke, besides maintaining the natural aroma of the tobacco, and the accomplishment of this is the purpose of employing the percolator which consists of providing a section or block of the stem or stalk of palm commonly known as rattan. To provide the percolator 10 I select portions of the rattan as are free from blemishes, the natural structural feature of each of such portions consisting of an outer covering, or wall, or cuticle, or shell, as 11, and an inner cellular structure, as 12. The shell 11 of the percolator is impervious to the extent of serving advantageously the purpose of this invention, and the cellular structure 12 includes a multiplicity of closely spaced ducts or perforations 13 disposed substantially in parallel arrangement lengthwise of the shell 11. The walls of the perforations are of an absorbent texture, and these walls together with the perforations 13 carry when the plant is in its natural state sufficient

salts and sap to render the percolator impracticable for the uses of my present invention owing to the tendency of these foreign substances to impart an objectionable flavor and odor to the smoke of tobacco. Moreover, the presence of these foreign substances impair the porosity of the perforations, and the perforations are accentuated or cleared by subjecting the block or section of the rattan to air under pressure by any well known means, and then subjecting the section to steam. When thus treated the perforations 13 and their walls will be freed of all or a greater portion of the extraneous materials so that the smoke will freely filter therethrough in fine streams, and the section or block of the rattan is afterward carbonized by being subjected to a baking process in an oven or other apparatus heated to a temperature whereby the walls of the perforations 13 as well as the shell 11 will be stabilized or hardened to serve for preventing the percolator from excessive swelling. The smoke of tobacco when caused to pass through the percolator after being treated by this process will be freed of the particles of heated carbonaceous matter as well as the excess of volatile nicotine by the absorption of the walls of the perforations and by the tendency of the carbonaceous substances to settle in the perforations.

When the percolator is used in conjunction with a tobacco pipe I preferably employ a form of the pipe illustrated which has a bowl 15 with a neck piece, as 16, having in its free end a tapered recess 17. In the recess 17 of the neck piece is held the recessed end 18 of the mouth piece or stem 19 having the usual passage 20 leading from the recess to the second end of the stem. The recessed end of the stem 19 is of a size, besides being slightly tapered to removably fit closely in the recess of the neck piece 16 so that the chamber 21 is provided to accommodate the percolator. Following the removal of the stem 19 from the neck piece 16 one end part of the percolator 10 is seated in the recess of the stem, as shown in Fig. 2, and the second end part of the percolator together with the tapered end of the stem are then inserted in the open end of the recess of the neck piece, as indicated in Fig. 1. When the pipe is smoked the tobacco smoke will flow from the bowl of the pipe through the passage of the neck piece 16 into the chamber 21. The smoke will then flow through the perforations of the percolator and through the passage of the stem 19. The smoke taken into the mouth of the consumer will, as above explained, be "cool" and impregnated with the natural aroma of the tobacco without the objectionable features hereinbefore named.

In the foregoing description, I have embodied the preferred form of my invention, but I do not wish to be understood as limiting myself thereto, as I am aware that modifications may be made therein without departing from the principle or sacrificing any of the advantages of this invention, therefore I reserve to myself the right to make such changes as fairly fall within the scope thereof.

As will be seen by referring to Fig. 2 of the drawings, only one end of the percolator 10 engages the stem 19 at its recess 18 which makes it possible readily to withdraw the percolator from the stem even should the percolator swell in the recess 18 under the influence of moisture when the pipe is being smoked.

In treating the percolators, care should be taken not to subject them to too great heat. A temperature of from 250° to 300° F. has been found to be the best, but the temperature varies according to the texture of the reed, as some reed is considerably harder than other kinds.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. As a new article of manufacture, a percolating element, comprising a vegetable substance having longitudinally extending perforations with absorbent walls, and the walls being carbonized.

2. The process of preparing a percolating element consisting in clearing out more or less completely the longitudinally extending perforations in a vegetable substance, and in then carbonizing the walls of the perforations.

3. The process of preparing a percolating element which consists in passing a fluid through the longitudinal perforations of a vegetable substance and in then carbonizing the walls of the perforations.

4. A percolator for pipes, comprising a carbonized reed having longitudinally extending perforations free from sap.

5. The process of preparing a reed for use as a percolating element which consists in passing air through the perforations in the reed, then passing steam through the perforations and subsequently carbonizing the reed.

This specification signed and witnessed this 12 day of June A. D. 1919.

JAMES A. IRVING.