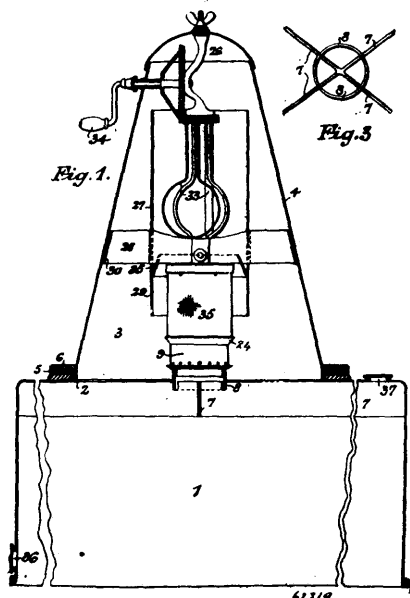


of the class specified, a series of wall rings bolted or otherwise secured together, each ring being composed of ribs *a*, formed in segments to facilitate removal, laggings *b*, struts *c*, flanges *j*, wedges *h*, segments *d*, and a strengthening set *e*, *e*<sup>1</sup>, *e*<sup>2</sup>, all secured together and arranged substantially as described. 6th. In combination in a wooden wall or lining for tunnelling and for shaft sinking, the ribs *a*, and the laggings *b*, carried thereby, substantially as described.

#### No. 62,819. Birch Bark Product.

(Produit d'écorce de bouleau.)



James Wheeler, Ilfracombe, Devon, England, 8th March, 1899; 6 years. (Filed 14th September, 1898.)

**Claim.**—1st. Obtaining pyroretulin or pyroretulin anhydride by burning material containing betulin in a closed chamber and without flame, substantially as set forth. 2nd. Obtaining pyroretulin or pyroretulin anhydride by compressing together into blocks or tablets a mixture comprising or containing finely ground epidermis or outer rind of birch bark and an oxygen carrier such as nitrate of potassium, and burning in a closed chamber without flame, a quantity of the said blocks or tablets bearing a suitable proportion to the air capacity of the said chamber, substantially as hereinbefore described. 3rd. Obtaining pyroretulin or pyroretulin anhydride by compressing together into blocks or tablets, a mixture comprising or containing finely ground epidermis or outer rind of birch bark and an oxygen carrier such as nitrate of potassium, arranging in a closed chamber a quantity of the said blocks or tablets bearing a suitable proportion to the air capacity of the said chamber in such a manner that when ignited they will all have either an abundant or a limited supply of air, and burning the said blocks or tablets in the said chamber without flame, substantially as hereinbefore described. 4th. Producing films consisting of or containing pyroretulin or pyroretulin anhydride on articles by compressing together into small blocks or tablets a mixture consisting of or containing finely ground epidermis or outer rind of birch bark and an oxygen carrier, such as nitrate of potassium, and exposing the said articles in a closed chamber to fumes produced by burning, without flame, a quantity of the said blocks or tablets bearing a suitable proportion to the area of the said chamber, substantially as hereinbefore described. 5th. Producing films consisting of or containing pyroretulin or pyroretulin anhydride on articles by compressing together into small blocks or tablets a mixture consisting of or containing finely ground epidermis or outer rind of birch bark and an oxygen carrier such as nitrate of potassium, exposing the said articles in a closed chamber to fumes produced by burning, without flame, a quantity of the said blocks or tablets bearing a suitable proportion to the area of the said chamber, and agitating the said fumes so as to mix them together and with the air of the said chamber, substantially as hereinbefore described. 6th. Producing films consisting of or containing pyroretulin or pyroretulin anhydride on articles by compressing together into small blocks or tablets a mixture consisting of or containing finely ground epidermis or outer rind of birch bark and an oxygen carrier such as nitrate of potassium, exposing the said articles in a closed chamber to fumes produced by burning, without flame, a quantity of the said blocks or tablets bearing a suitable proportion to the area of the said chamber, and filtering the said fumes before allowing them to form films on the articles treated, substantially as described. 7th. Producing on articles, films of or containing containing pyroretulin pervious to the action of an etching agent so

that articles so filmed will, under the action of such an agent, be given a finely pitted surface, the said films being produced by compressing together a mixture consisting of or containing finely ground epidermis or outer rind of birch bark and an oxygen carrier such as nitrate of potassium, exposing the articles in a closed chamber to fumes produced by burning, without flame, a quantity of the said compressed mixture in the form of small blocks or tablets bearing a suitable proportion to the area of the said chamber and so arranged as to have an abundant supply of air, and agitating the said fumes so as to mix them together and with the air of the said chamber, substantially as hereinbefore described. 8th. Producing on articles or materials opaque films or non-porous or reticulated transparent films of or containing pyroretulin or pyroretulin anhydride respectively, substantially as hereinbefore described. 9th. Apparatus comprising a lower compartment for containing the articles to be filmed, an upper compartment communicating through an opening with the said lower compartment, a lamp supported within the said upper compartment, and a hollow cylinder extending upwards from the said lamp to within a short distance from the top of the said chamber, substantially as and for the purposes set forth. 10th. Apparatus comprising a closed chamber, a lamp therein adapted to burn combustible material without flame, and means for filtering the fumes produced by the partial combustion of the material as they are given off, substantially as and for the purposes set forth. 11th. Apparatus comprising a closed chamber having a conical cover, a lamp situated centrally as regards the said cover, and a hollow cylinder extending upwards from the said lamp to within a short distance from the said cover, substantially as and for the purposes set forth. 12th. Apparatus comprising a closed chamber having a conical cover, a lamp situated centrally as regards the said cover, a hollow cylinder extending upwards from the said lamp to within a short distance from the said cover, an agitating apparatus above the said lamp, means for operating the said agitating apparatus from outside the said chamber, and a guide or deflector for directing into the said agitating apparatus fumes rising up from the said lamp, substantially as and for the purposes set forth. 13th. Apparatus comprising a closed chamber lamp adapted to burn, without flame, combustible filming material, and means for filtering the fumes produced by the partial combustion of the said material as they are given off, substantially as and for the purposes set forth. 14th. Apparatus comprising a closed chamber, a lamp adapted to burn combustible filming material without flame, means for filtering the fumes produced by the partial combustion of the said material as they are given off, and means for effecting the uniform deposition of a film upon the articles to be filmed, substantially as and for the purposes set forth. 15th. Apparatus comprising a closed chamber, a lamp adapted to burn combustible filming material without flame, means for filtering the fumes produced by the partial combustion of the said material as they are given off, means for agitating the fumes after filtering, and means for effecting the uniform distribution of a film upon the articles to be filmed, substantially as and for the purposes set forth. 16th. For producing films on articles, a lamp comprising a receptacle to receive combustible filming material and a chimney having walls and a cover of material adapted to filter fumes produced by the partial combustion of the said filming material, substantially as hereinbefore described. 17th. For producing films on articles, a lamp comprising a cup perforated in its lower part and provided in its upper part with means for supporting combustible filming material, and a chimney having walls and a cover of material adapted to filter fumes produced by the partial combustion of the said filming material, substantially as hereinbefore described. 18th. For producing films on articles, a lamp comprising a cup perforated in its lower part and provided in its upper part with means for supporting combustible filming material in such a manner to allow it an abundant supply of air, and a chimney having walls and a cover of material adapted to filter fumes produced by the partial combustion of the said filming material, substantially as hereinbefore described. 19th. For producing films on articles, a lamp comprising a cup having its lower part perforated, means in the upper part of said cup adapted to support tablets of combustible filming material with an air space around each tablet, and a chimney having walls and a cover of material adapted to filter the fumes produced by the partial combustion of the said filming material, as hereinbefore described. 20th. For producing films on articles, a lamp comprising a receptacle to receive combustible filming material and comprising an open work floor plate adapted to support the lower edges of the tablets, a charge plate having radial openings each adapted to receive a tablet, and a distance piece between the said floor plate and the said charge plate, and a chimney having walls and a cover of material adapted to filter fumes produced by the partial combustion of the said filming material, substantially as hereinbefore described.

#### No. 62,820. Dental Cuspidor. (*Crachoir pour dentistes*.)

George P. Davis, Thomas D. Wilson and Edward J. Cousins, 8th March, 1899; 6 years. (Filed 13th February, 1899.)

**Claim.**—1st. A flushing device for a dental cuspidor, consisting of a water-standard having an outlet port or ports, and a revolvable cap fitted to the water-standard to cover the ports, having an annular perforated flange encircling the standard below the ports to atomize and centrifugally distribute the water to the bowl, substantially as specified. 2nd. A flushing device for a dental cuspidor, consisting of a water-standard fitted at its upper end with a water-