M. W. ALLEN.

APPARATUS FOR FORMING PERFORATED CARBONS.

APPLICATION FILED AUG. 20, 1908.

916,088. Patented Mar. 23, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

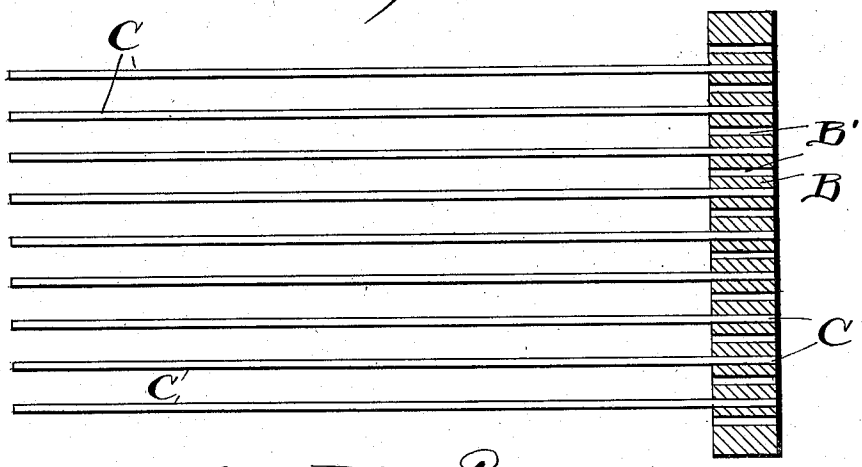
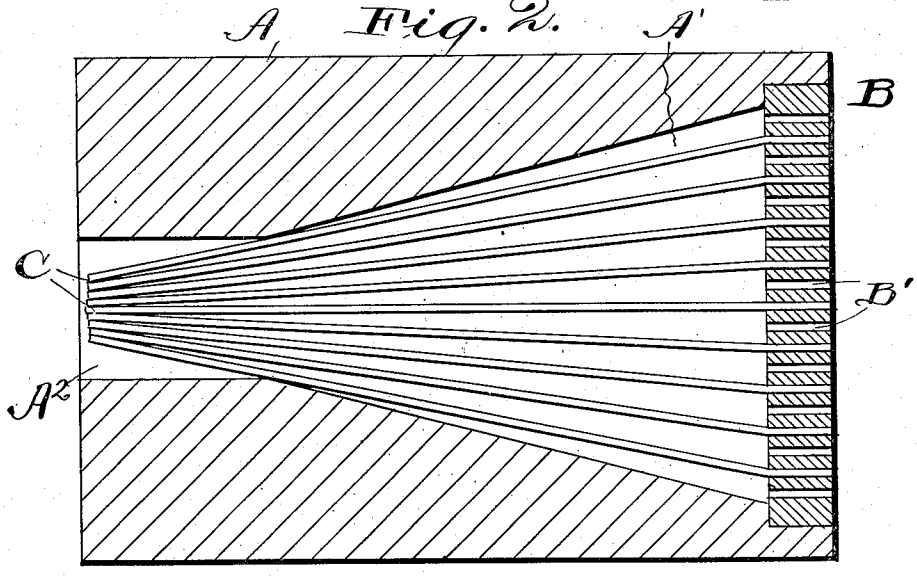


Fig. 2.



Witnesses.
E. B. Gilchrist
G. C. Phillips

Inventor
Miner W. Allen
By Thurston & Woodward
Attorneys

M. W. ALLEN.

APPARATUS FOR FORMING PERFORATED CARBONS.

APPLICATION FILED AUG. 20, 1908.

916,088. Patented Mar. 23, 1909.

2 SHEETS—SHEET 2.

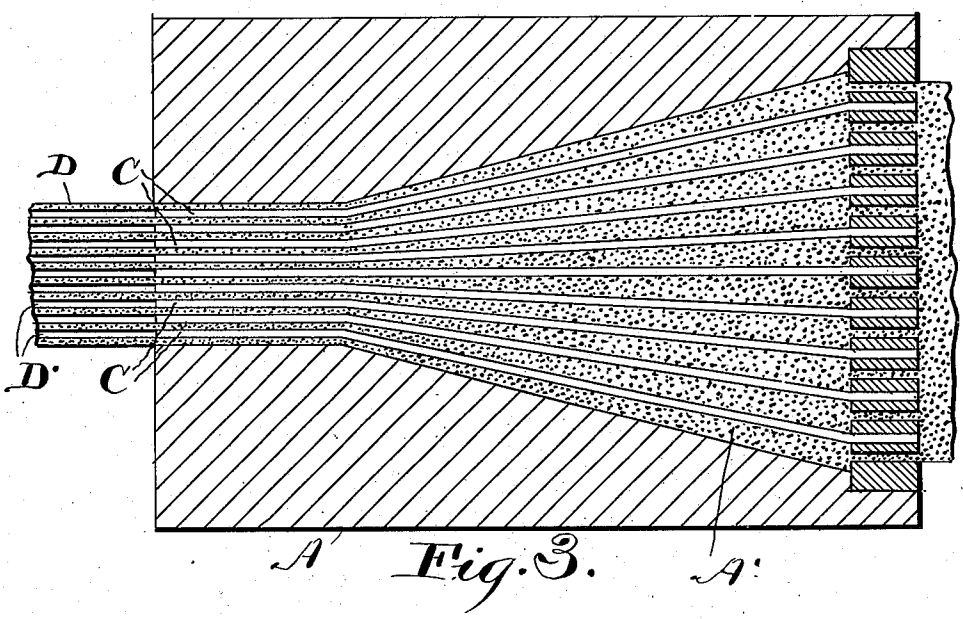


Fig. 3.

Fig. 4.

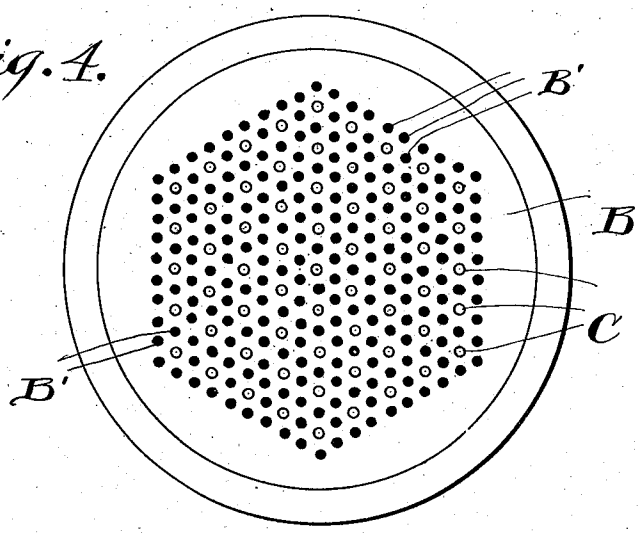
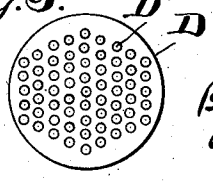


Fig. 5.



Witnesses.
E. B. Gilchrist
G. C. Phillips

Inventor
Miner W. Allen
By Thurston & Woodward
Attorneys

UNITED STATES PATENT OFFICE.

MINER W. ALLEN, OF CLEVELAND, OHIO, ASSIGNOR TO NATIONAL CARBON COMPANY, A CORPORATION OF NEW JERSEY.

APPARATUS FOR FORMING PERFORATED CARBONS.

No. 916,088. Specification of Letters Patent. Patented March 23, 1909.

Application filed August 20, 1908. Serial No. 449,416.

To all whom it may concern:

Be it known that I, MINER W. ALLEN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Apparatus for Forming Perforated Carbons, of which the following is a full, clear, and exact description.

The object of the present invention is to provide means for the formation of carbons having a large number of perforations therethrough.

The invention is particularly directed to the provision of means for insuring the formation of such perforations in the requisite number and with uniformity and the means which I have provided for this purpose embodies certain principles of action discovered by me, which must be inherent in any apparatus capable of successfully producing the desired result.

It being desirable to make as many perforations as possible in the particular carbons which I wish to manufacture, and these perforations being of exceedingly small diameter it has been my purpose to produce apparatus which can be relied upon to turn out the desired product irrespective of such fluctuations in the homogeneity of the mix as might be liable to occasionally occur. It is to this main object,—that is to say, of producing this large number of small perforations with absolute certainty that my invention has been directed.

The above objects, it will be seen, are attained by the particular embodiment of my inventive idea disclosed in the accompanying drawings, in which—

Figure 1 is a vertical section which shows a perforate plate studded with flexible wires projecting therefrom, to be used in the forming die. Fig. 2 is a vertical section which shows the plate with the wires in position in the die. Fig. 3 is a vertical section showing a carbon in the process of formation, and showing the position which the flexible wires occupy during the operation. Fig. 4 is an end view of the die with the perforate plate in position; and Fig. 5 is an end view of a carbon produced by my invention.

In carrying my invention into practice, I make use of a suitably shaped die A having a conical receiving end A′ tapering toward a cylindrical passage A^2 of the diameter which it is desired to give the finished carbon. In the receiving end of the die, I insert a perforate plate or disk B having secured therein a large number of light flexible wires C of uniform diameter and flexibility, serving as cores for forming the perforations as will appear below. In the drawings these various parts are shown on a greatly exaggerated scale for convenience of illustration. The perforate plate and the flexible wires fixed therein are shown in Fig. 1 as they appear when out of the die. It will be noted, by referring to this figure and to Fig. 4, that each of these wire cores is so located that it is surrounded at its base by a number of perforations B′—in the present instance six,—which are evenly distributed about the base of the wire and in proximity thereto, and it is through these perforations that the carbon mix is forced into the die when said perforate disk is in position.

When the disk is placed in the die, the wires will, obviously, be bent out of their normal parallelism into a conical cluster somewhat as shown in Fig. 2. When, however, the mix is forced through the plate, perforated as described, and fills the conical receiving end of the die and is passed out of the cylindrical shaping portion thereof, it is found that these flexible wire cores assume substantially the position shown in Fig. 3, so that at the outlet end of the die the carbon D will, as it is receiving its proper shape, be formed with a number of minute longitudinal perforations D′ corresponding in number and space to the wire ends projecting into the shaping portion of the die.

It has been possible to obtain the action here described by reason of the fact that the carbon mix, passing into the die through a number of perforations substantially evenly spaced about the base of each wire, will maintain its distribution about each wire; and, instead of permitting the wires to lie in their bunched position, which they occupied at first, as shown in Fig. 2, will force them apart an even distance so that they will lie in substantially the position shown in Fig. 3, giving an equal distribution of perforations running parallel with the axis of the die.

I find that it may be advantageous in some cases to increase the diameter of the outer perforations slightly so as to increase the volume of mix fed to the outside of the cluster of flexible cores. The reason for this is to insure that the cores shall not be

crowded about the periphery of the shaping die, as occasionally happens otherwise.

Having described my invention, I claim:

1. Means for forming carbons with a number of fine perforations therethrough, comprising a die, and an end plate for said die carrying a large number of flexible cores, and means for distributing the carbon mix uniformly about said flexible cores as it passes through the die.

2. Means for forming carbons with fine perforations therethrough, comprising a die, and an end plate therefor, with a large number of flexible cores projecting into the die and having a number of perforations distributed evenly about the base of each flexible core to distribute the mix thereabout as it is fed through the die.

3. Means for forming perforate carbons comprising a die with a conical receiving end and a cylindrical shaping end, a large number of flexible cores held in the receiving end and projecting into the shaping end, and means for distributing carbon mix evenly about said cores as it is fed into the receiving end.

4. Means for forming perforate carbons comprising a die having a conical receiving end and a cylindrical shaping end, a disk at said receiving end having a large number of flexible cores projecting therefrom into the shaping end of the die, and a number of substantially evenly distributed perforations positioned to feed the mix evenly about the base of each core.

5. Means for forming perforate carbons comprising a die having a conical receiving end and a cylindrical shaping end, a large number of flexible cores distributed substantially evenly across the receiving end directed in a cone-like cluster into the cylindrical shaping end, and means for distributing carbon mix about the flexible cores to hold the portions thereof in the shaping end at substantially even spacing and parallel with the axis of such shaping end.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

MINER W. ALLEN.

Witnesses:
H. R. SULLIVAN,
J. M. WOODWARD.