

(No Model.)

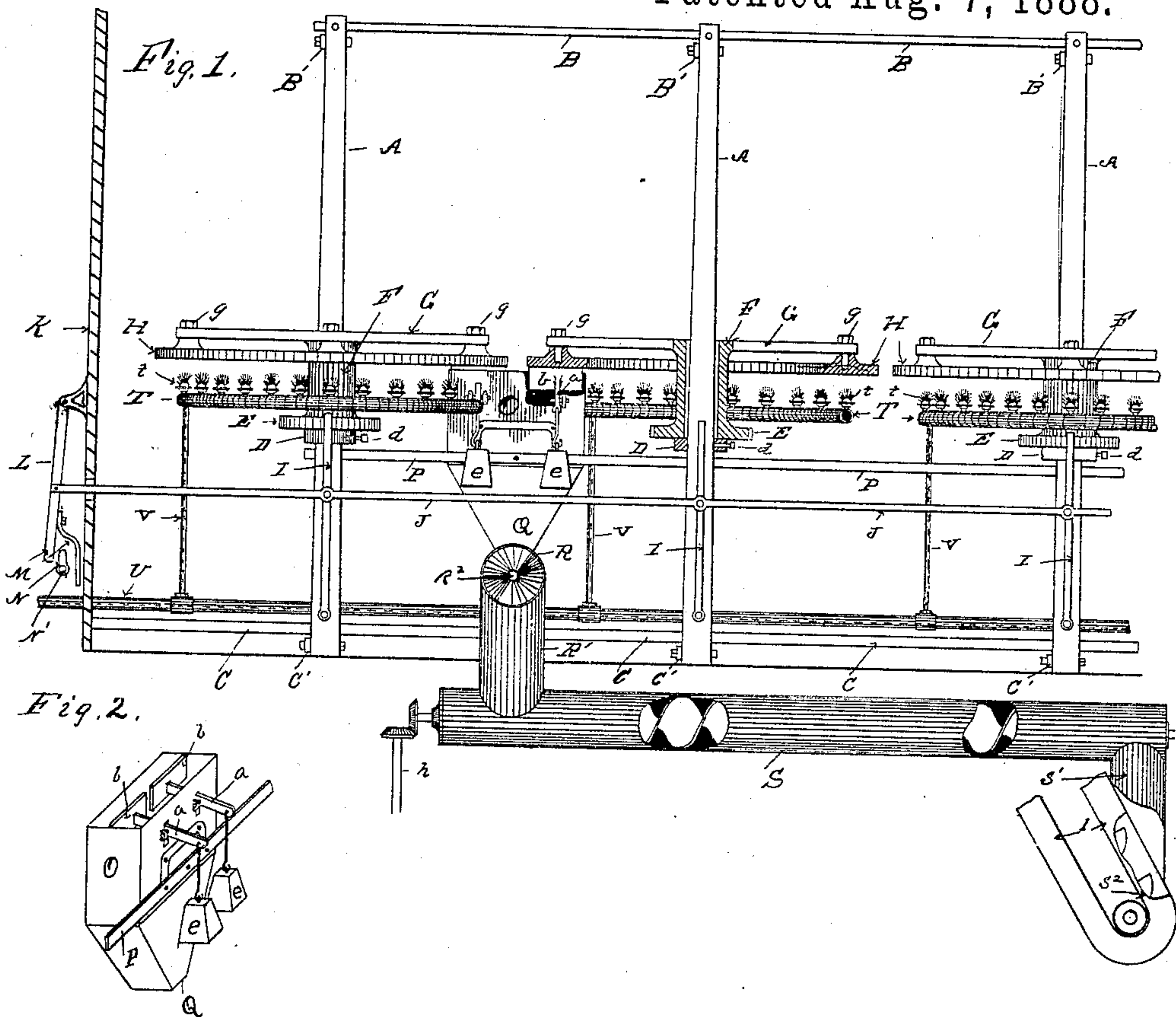
A. R., B. H. & H. E. BLOOD. 2 Sheets—Sheet 1.

E. R. BLOOD, Administrator of H. E. BLOOD, deceased.

APPARATUS FOR THE MANUFACTURE OF LAMP BLACK.

No. 387,487.

Patented Aug. 7, 1888.



Witnesses  
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C. Keady

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(No Model.)

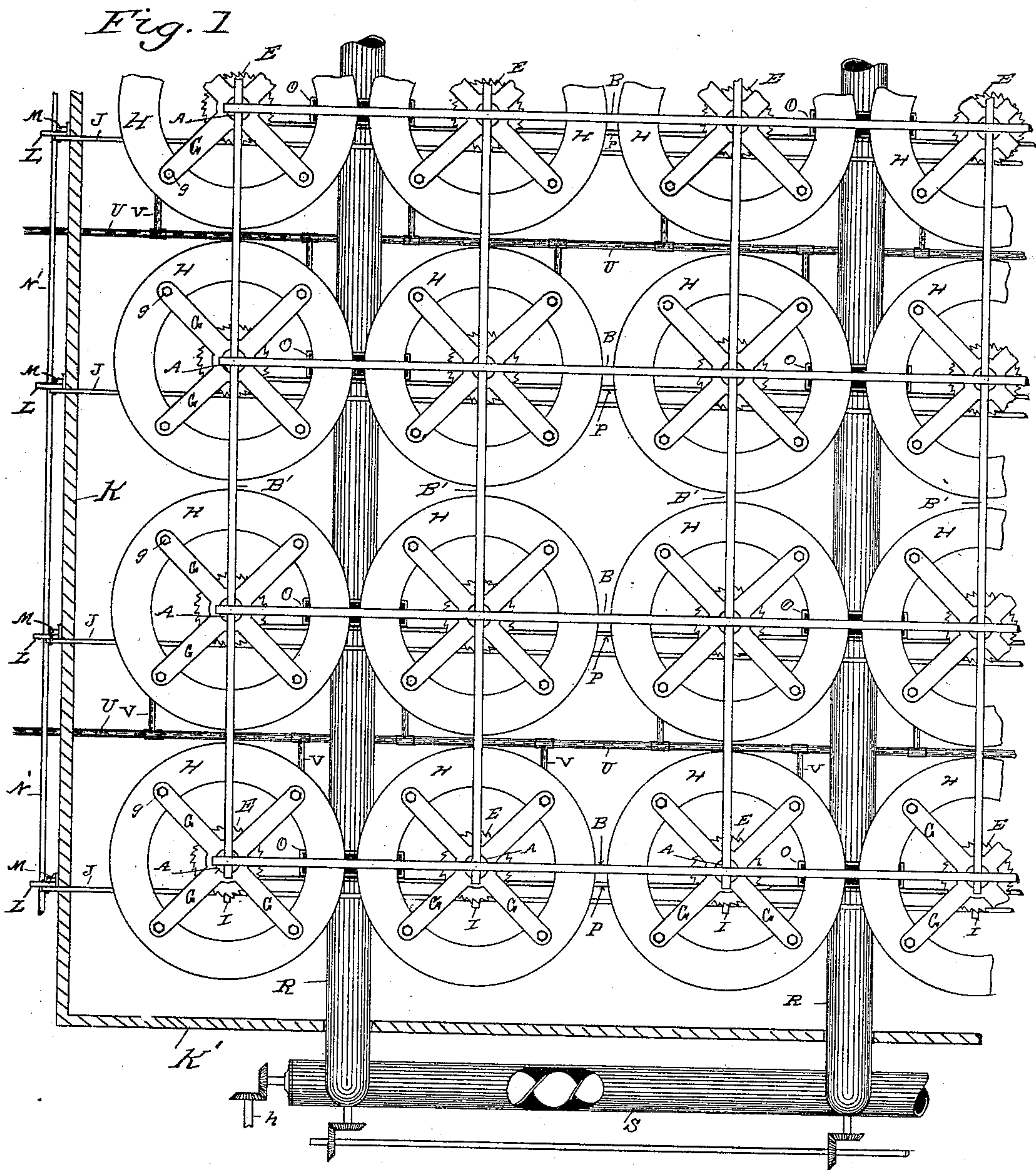
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# UNITED STATES PATENT OFFICE.

ARTHUR R. BLOOD, OF WARREN, BRYANT H. BLOOD, OF LUDLOW, AND  
ERASTUS R. BLOOD, OF LUDLOW, ADMINISTRATOR OF HOMER E. BLOOD,  
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ASSIGNOR TO SAID ARTHUR R. BLOOD.

## APPARATUS FOR MANUFACTURE OF LAMP-BLACK.

SPECIFICATION forming part of Letters Patent No. 387,487, dated August 7, 1888.

Application filed March 30, 1888. Serial No. 269,013. (No model.)

*To all whom it may concern:*

Be it known that we, ARTHUR R. BLOOD, of Warren, and BRYANT H. BLOOD, of Ludlow, have jointly with HOMER E. BLOOD, deceased, late of Ludlow, Pennsylvania, citizens of the United States, invented certain new and useful Improvements in Apparatus for Manufacturing and Handling Hydrocarbon Blocks; and we, ARTHUR R. BLOOD and BRYANT H. BLOOD, for ourselves, and ERASTUS R. BLOOD, for Homer E. Blood, deceased, do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

The invention consists in the improvements in apparatus for manufacturing and handling "hydrocarbon-gas black," hereinafter set forth and explained, and illustrated in the accompanying drawings, in which—

Figure 1 shows a section in elevation of a battery of generators and the operating and conveying mechanism of the improved apparatus. Fig. 2 shows a perspective view of the mechanism for removing the black from the depositing-rings detached therefrom. Fig. 3 is a top or plan view of a portion of a battery of hydrocarbon-black generators and the operating and conveying mechanism of the same.

Like letters refer to like parts in all the figures.

In the construction of the apparatus shown, A A A are a series of upright iron posts secured together by means of iron bars B and B' at the top and C and C' at the bottom, bolted thereto, the posts A being set up in two or more parallel rows, preferably at an equal distance apart, so that when secured in place by the bars B B' and C C' they are fully supported in place thereby. On each of these posts is an adjustable collar, D, secured to the post by a set-screw, d, so as to be raised or lowered as desired. Resting on each of the collars D are ratchet-wheels E, having sleeves F and arms G secured to the ratchet-wheels E, the

opening through the sleeves F being large enough so that the sleeves F will turn freely on the posts A. Secured to the under sides of the ends of the arms G, by means of screw-bolts g, are cast iron rings H, the under surfaces of said rings being smooth, as and for the purpose hereinafter set forth.

To the lower part of the posts A ratchet-arms I are pivoted, the upper ends of which engage with the ratchet-wheels E. To these ratchet-arms I are pivoted horizontal bars J, which extend through the wall K of the building inclosing the apparatus, where they connect with vertical levers L, which are operated by cams N on a rotating shaft, N', by means whereof all of the ratchet-arms I in each row operate upon the ratchet-wheels E to slowly rotate the rings H, as and for the purpose hereinafter set forth.

Under each pair of the rings H is secured a box, O, said boxes O being secured to horizontal bars P, which are bolted to upright posts A below the collars D thereon. Pivoted to the side of the boxes O are levers a a, which have scrapers b thereon, which operate on the under surfaces of the rings H as they are rotated by the ratchet mechanism, so as to scrape the black accumulating thereon into the boxes O, (the scrapers b being held in contact with the rings H by means of weights e on the outer ends of the levers a,) whence the black falls through the conical bottom Q of the box O into screw conveyers R, by means whereof the black from each row of boxes O is conducted out of the side of the building, where it is discharged through the pipe R' into the longitudinal conveyer S along the outside of the building. A short distance below the under surfaces of the rings H are placed circular gas pipes T, which connect with main supply-pipes U by means of vertical pipes V. The upper surfaces of the circular pipes T are supplied with small gas-burners t, the flames from which impinge against the under surfaces of the horizontal rings H and deposit the black thereon, from whence it is scraped into the boxes O as the rings revolve, as hereinbefore described.



In operation, the mechanism hereinbefore described is arranged in batteries of from twenty to one hundred and eighty of the revolving rings H, and their appurtenant mechanism inclosed in an iron or brick building, K, the ends of the horizontal levers J, the gas-supply pipes U, and the ends of the conveyers R projecting through the side and end of the building where the motive power is applied to operate the levers J and the mechanism driven thereby, and the motive power (not shown) connects with and operates the screw conveyers R and S, so that as the black is deposited on the horizontal rings H it is scraped off into the boxes O, from whence it falls into the conveyers R, by which it is conveyed to and deposited in the vertical pipes S', through which it falls into the longitudinal conveyer S, which collects and conveys the contents of all of the conveyers R to the foot S<sup>2</sup> of an elevator, L.

We are aware that horizontal revolving plates have heretofore been used as deposit-surfaces for generating hydrocarbon-gas black; but we have discovered by experiment that a large portion of the material deposited is not black, but of a lighter color. To overcome this difficulty, we have devised rotating rings, as shown and described, as deposit-surfaces, experiments having demonstrated that all the products of combustion which are really black are deposited upon a comparatively narrow deposit-surface, and that the residue of the products of combustion not suitable to produce perfectly black deposit will then freely pass off at the inner and outer edges of the deposit-ring, and only the pure black be deposited on the under surfaces of the deposit-ring.

Having thus fully described the invention, what is claimed as new, and desired to be secured by Letters Patent of the United States, is—

1. The combination, in a hydrocarbon-gas

black machine, of a horizontal rotating deposit ring, with an annular row of gas-burners arranged centrally under said deposit-ring, and scrapers operating to automatically remove the black from the rotating deposit-ring, substantially as and for the purpose set forth.

2. The combination, in a hydrocarbon-gas black manufacturing and handling apparatus, of horizontal rotating deposit-rings, gas-burners and scrapers arranged under said deposit-rings, with boxes for receiving the black removed from the deposit-rings, and conveyers for conveying the black from the boxes to a conveyer outside of the building, substantially as and for the purpose set forth.

3. The combination, in a hydrocarbon-gas black machine, of a series of upright posts, A, supporting rotating deposit-rings H, and ratchet-wheels E, secured thereto, with ratchet-arms I, horizontal reciprocating bars J, pivoted to the ratchet-arms I, levers L, and cam mechanism M N, substantially as and for the purpose set forth.

4. The combination, in a hydrocarbon-gas black machine, of a series of horizontal rotating deposit-rings, H, and gas-burners *t* under said deposit-rings, with black-receiving boxes O, scrapers *b*, and screw-conveyers R, for conveying the contents of the boxes O away, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of witnesses.

ARTHUR R. BLOOD.

BRYANT H. BLOOD.

ERASTUS R. BLOOD,

*Administrator of Homer E. Blood, deceased.*

Witnesses as to the signatures of Arthur R. Blood and Erastus R. Blood, administrator:

A. H. MCKELVY,

R. F. VAN DOORN.

Witnesses as to the signature of Bryant H. Blood:

HENRY P. BROUGHTON,

J. W. COWLES.