

(No Model.)

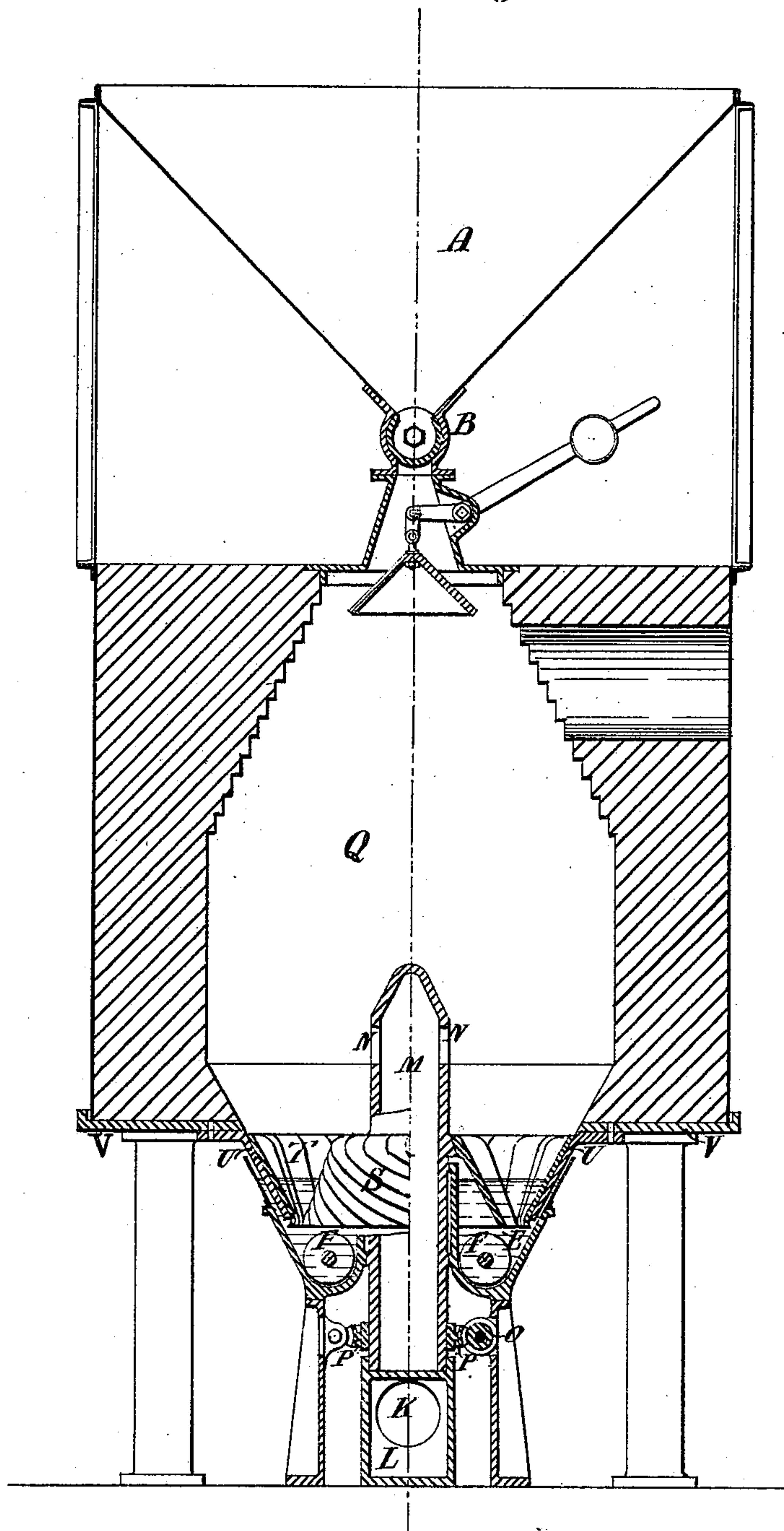
3 Sheets—Sheet 1.

A. WILSON.

APPARATUS FOR MAKING GAS.

No. 292,081.

Patented Jan. 15, 1884.
Fig 1



Witnesses:
J. B. Blackwood
L. A. Swartzell

Inventor:
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by W. M. Doolittle
Attorney

(No Model.)

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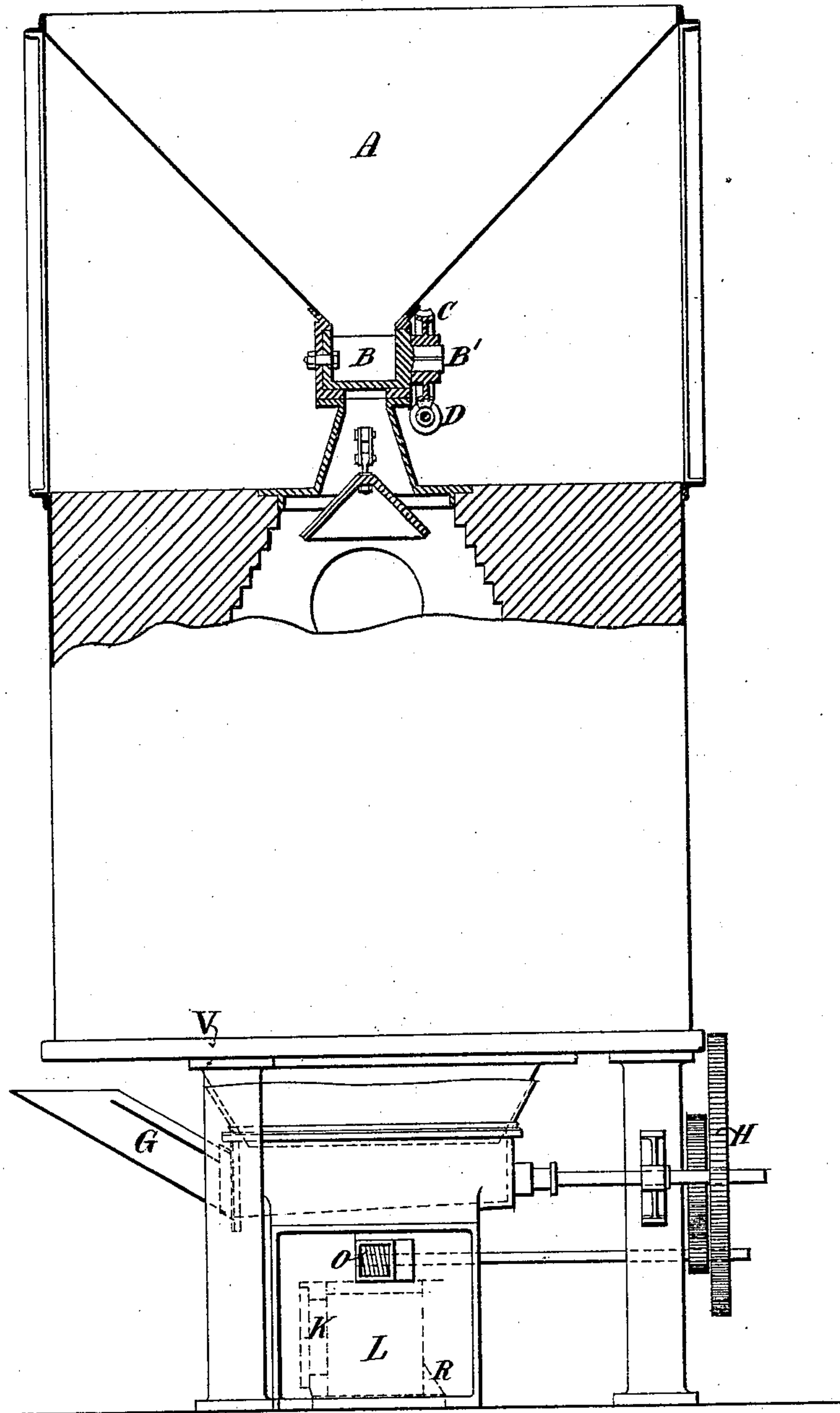
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Fig 2



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(No Model.)

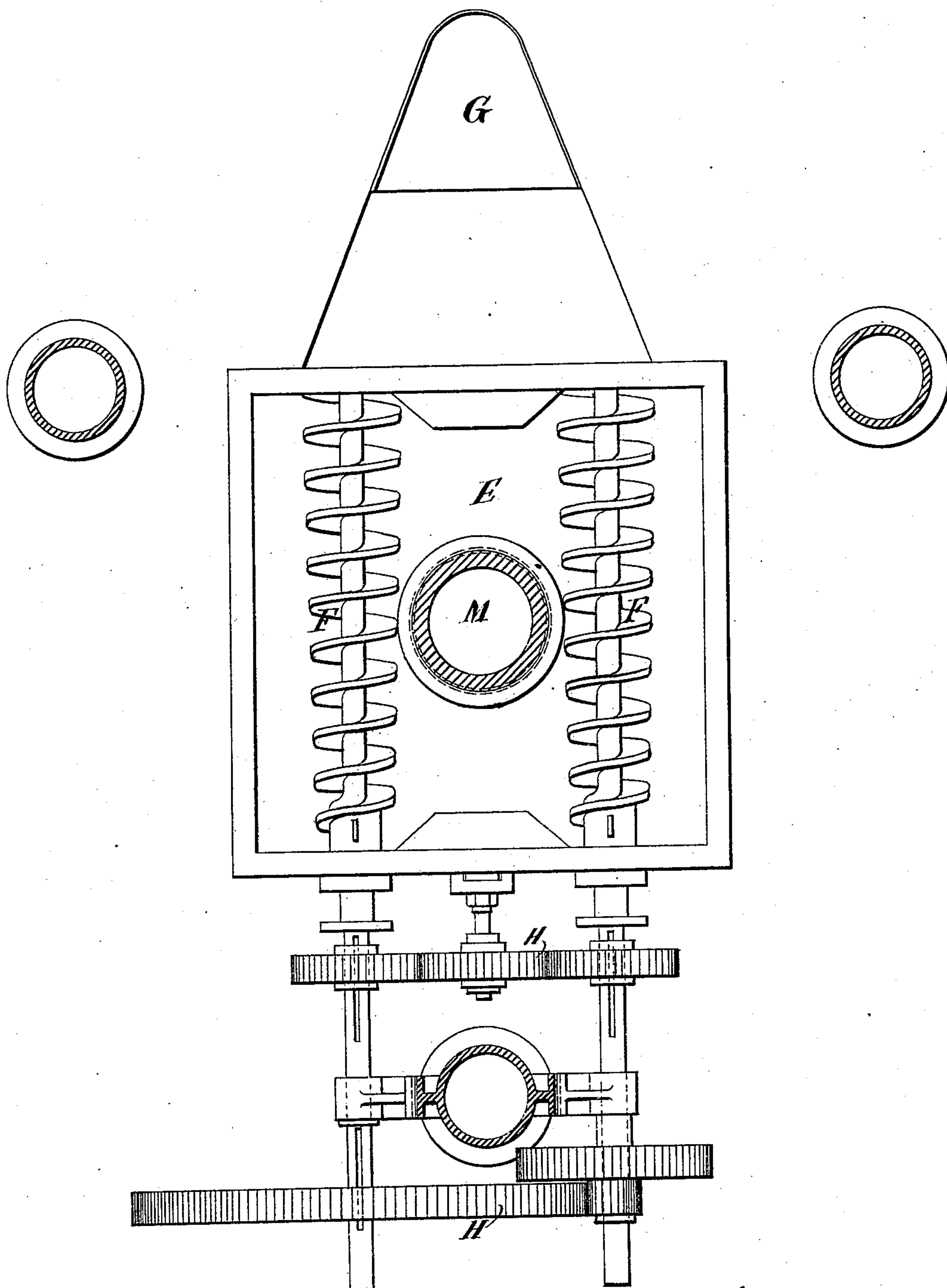
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Fig 3 Patented Jan. 15, 1884.



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UNITED STATES PATENT OFFICE.

ALFRED WILSON, OF HANDSWORTH, COUNTY OF STAFFORD, ENGLAND.

APPARATUS FOR MAKING GAS.

SPECIFICATION forming part of Letters Patent No. 292,081, dated January 15, 1884.

Application filed May 4, 1883. (No model.) Patented in England October 3, 1882, No. 4,697.

To all whom it may concern:

Be it known that I, ALFRED WILSON, a subject of the Queen of Great Britain and Ireland, residing at Handsworth, in the county of Stafford, Kingdom of Great Britain and Ireland, have invented new and useful Improvements in Apparatus for Making Gas, (for which I have obtained a patent in Great Britain, No. 4,697, bearing date October 3, 1882,) of which the following is a specification.

My invention relates to gas-producers or apparatus for making gas, comprising a central tuyere and a solid hearth; and my improvements have reference to the construction of such apparatus with a self-acting fuel-feeder, mechanism for automatically removing ashes and other incombustible residue from the apparatus, and means for breaking up residue on its way to the hearth, thus reducing it to a suitable condition for its removal from the apparatus.

The accompanying illustrative drawings show a self-cleaning gas-producer embodying my improvements and suitable for gasifying a coal whose ash is apt to cake into lumps too large to be carried away by the screws described below.

Figure 1 is a section showing the internal arrangement; Fig. 2, an elevation, partially in section; and Fig. 3, a sectional plan, showing the ash-box and cleaning-screws.

A is the hopper, by which the coal is fed into the producer in quantities regulated automatically by the hollow valve B, to which a slow motion in a rotary sense is imparted by a worm-wheel, C, fast on an axial projection, B', of the valve, said wheel being driven by a worm, D, that receives motion from any convenient source through suitable gear, as will be readily understood.

E is the solid hearth with sides, forming a box or chamber suitably shaped to receive screws F F, and also provided with an extension having an inclined side, constituting a spout, G. The box or chamber E is charged with water, so that the screws are submerged. Into this water a plate is caused to dip, or the box or chamber is (as shown) equivalently constructed, so as to form a trap. After the coal has been gasified, the ashes collect in the box E, in which the two screws F F are re-

volved at the requisite speed by means of gearing H, as shown, or equivalent means, and force the ashes up the inclined spout G, whence they fall into a barrow or other receptacle, the water in E forming a seal, which prevents the escape of gas. An ordinary steam-blast (not shown) is connected to the branch K of the blast-box L, and forces the steam and air required for combustion up the central tuyere, M, and through the ports N. The tuyere M, actuated by the worm O and worm-wheel P, revolves slowly, thereby causing an equal distribution of blast through the incandescent fuel in the chamber Q.

R is a door for clearing out any ashes that may fall through the ports N into the tuyere.

S is a male conical crusher fixed on the revolving tuyere M, and T is a female crushing-surface supported by the hollow conical casing U, secured to the annular base-plate V. The action of said male and female crushing devices is to reduce lumps to a convenient size before they reach the cleaning-screws F F. This arrangement is suited for gasifying ash-pit refuse collected in towns, as well as ordinary classes of fuel.

I do not herein claim the central tuyere formed with a curtain or cap adapted to overlap the inner wall of the solid hearth, since that feature forms part of the subject-matter of another application filed by me May 4, 1883, and numbered 93,923; but

What I do claim is—

1. In a gas-producer, the combination, with a solid hearth, of a central tuyere and means for imparting rotary motion to said tuyere, substantially as described.

2. In a gas-producer, a solid hearth with walls, forming a box or chamber adapted to receive incombustible refuse and to contain liquid, forming a trap or seal that will prevent escape of gas, in combination with rotating screws F F, adapted to automatically remove the refuse which collects in said hearth, substantially as described.

3. In a gas-producer, the combination of a central tuyere, a solid hearth, and means for automatically removing incombustible refuse from the apparatus, substantially as described.

4. In a gas-producer, the combination of a central tuyere, a solid hearth, means for auto-

atically removing incombustible refuse, and means for reducing residue to a suitable condition for removal from the apparatus, substantially as described.

5 5. A gas-producer comprising a self-acting fuel-feeder, a central tuyere, a solid hearth, and means for automatically removing incombustible refuse from the apparatus, substantially as described.

10 6. A gas-producer comprising a self-acting fuel-feeder, a central tuyere, a solid hearth,

means for automatically removing incombustible refuse, and means for reducing residue to a suitable condition for removal from the apparatus, substantially as described.

ALFRED WILSON.

Witnesses:

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