

1,376,567.

Fig.1.

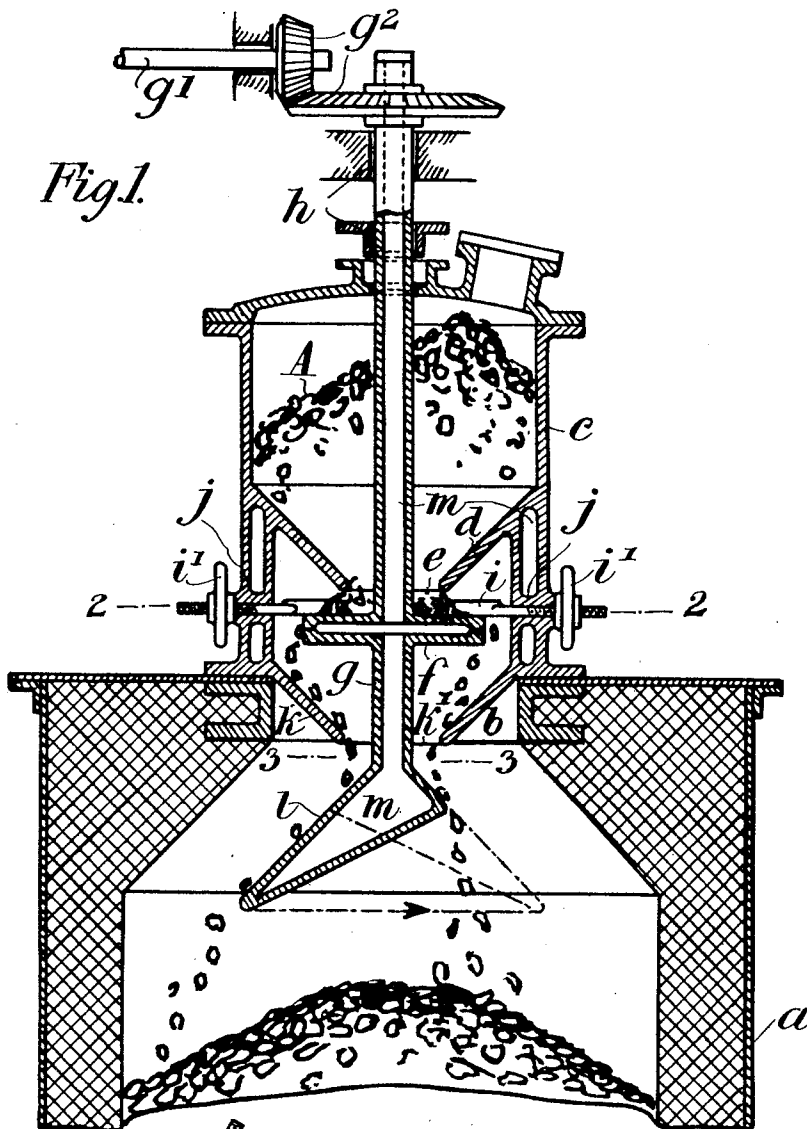


Fig. 2.

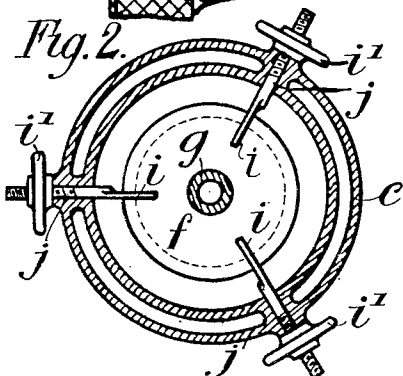
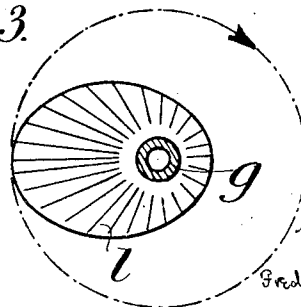


Fig.3.



Inventors:
Harald Nielsen
and
Edmund D. Reynolds

By Their Attorney
Louis Ernest Whitaker

UNITED STATES PATENT OFFICE.

HARALD NIELSEN, OF MIDDLESEX, AND FREDERICK DEACON MARSHALL, OF WESTMINSTER, LONDON, ENGLAND.

FUEL FEEDING AND DISTRIBUTING DEVICE FOR GAS-PRODUCERS.

1,376,567.

Specification of Letters Patent.

Patented May 3, 1921.

Application filed September 11, 1920. Serial No. 409,666.

To all whom it may concern:

Be it known that we, HARALD NIELSEN, a subject of the Danish King, and FREDERICK DEACON MARSHALL, subject of the King of Great Britain, residing at, respectively, 13 Firs avenue, Muswell Hill, Middlesex, England, and 19 Queen Anne's Chambers, Westminster, London, England, have invented new and useful Improvements in Fuel Feeding and Distributing Devices for Gas-Prod-
ucers, of which the following is a specifica-
tion.

Our invention relates to fuel feeding and distributing devices for gas producers of the kind comprising a fuel container having a conical bottom with an orifice at the apex, a lower inverted feeding cone also provided with an orifice at the apex, and a revoluble vertical shaft extending therethrough and carrying a rotary distributing cone segment presenting an elliptical eccentrically mounted distributing surface which spreads the fuel evenly across the fuel bed, the portions of the device exposed to the hot gases from the fuel bed being protected by water-jackets.

According to our invention the revoluble vertical shaft carries, beneath the cone orifice of the container, a circular table on to which the fuel falls and from which it is discharged on to the cone segment by means of stationary scrapers.

To enable the invention to be fully understood we will describe it by reference to the accompanying drawing, in which:—

Figure 1 is a sectional elevation of the upper part of a gas producer fitted with a fuel feeding appliance embodying our improvements.

Fig. 2 is a horizontal section on the line 2—2, Fig. 1, and

Fig. 3 is a section on the line 3—3 Fig. 1.

a indicates the body of the producer which is provided at its upper end with the fuel inlet b into which is fitted the feeding-device. This device comprises the closed wrought or cast iron cylindrical vessel c serving as the container for the fuel A and having the bottom d in the form of an inverted cone furnished with a wide central orifice e which opens above a circular feeding table f rigid upon the vertical shaft g which extends up through the container c and is mounted in bearings h in which it is adapted to be rotated from the shaft g^1

through the gearing g^2 . The diameter of the circular feeding table f is somewhat greater than that of the base of the cone of fuel resting thereon and discharge from the orifice e , or, in other words, is governed by the angle of repose of the fuel. From this revolving table the fuel is swept by means of a series (in the drawing three are shown) of stationary scrapers i which are radially arranged above the table and are supported in bearings j in the wall of the container c in which they can be adjusted by means of hand-wheels i^1 engaging their screw threaded ends. From the table f the fuel falls into the stationary inverted cone k through the orifice k^1 at the apex of which it falls on to the revolving cone l .

The revolving cone l is rigid upon the lower end of the shaft g , and, as shown in the drawing, it is suspended from the said shaft at its apex and has its lower portion cut away in a plane which is inclined to the vertical and the horizontal, thereby providing a cone segment the surface of which is elliptical in plan view and the rotation of which distributes the fuel falling on to it evenly across the transverse plane of the producer or forms a fuel cone of any desired angle, for the purpose of obviating short-circuiting of the blast through the fuel bed.

In order to protect the shaft g , feeding table f , revolving cone l and the lower portion of the fuel container c from injury by the hot gases issuing from the fuel bed, these parts are made hollow or jacketed as shown at m for the circulation of cooling water. The water heated thereby may be utilized in the steam recovering portion of the gas plant.

Claims:

1. In a fuel feed for a gas producer, the combination with a fuel container, having an inverted conical bottom provided with a wide central orifice, a rotatable vertical shaft extending through said orifice, a circular feeding table secured to said shaft, below said orifice, a distributing cone segment on said shaft below said table, and stationarily mounted scrapers extending above said feeding table.

2. In a fuel feed for a gas producer, the combination with a fuel container, having an inverted conical bottom provided with a wide central orifice, a rotatable vertical

shaft extending through said orifice, a circular feeding table secured to said shaft, below said orifice, a distributing cone segment on said shaft below said table, and
5 stationarily mounted scrapers extending above said feeding table, said scrapers being arranged substantially radially with respect to said shaft, and means for adjusting the position of said scrapers radially toward
10 and from the axis of said shaft.

3. In a fuel feed for a gas producer, the combination with a fuel container, having an inverted conical bottom provided with a wide central orifice, a rotatable vertical
15 shaft extending through said orifice, a circular feeding table secured to said shaft, below said orifice, a distributing cone segment on said shaft below said table, and stationarily mounted scrapers extending above
20 said feeding table, said scrapers having stem portions engaging guiding recesses in the wall of the container and provided with

threaded portions, and adjusting hand nuts engaging said threaded portions and located on the exterior of the container, for adjust- 25
ing the said scrapers.

4. In a fuel feed for a gas producer, the combination with a fuel container, having an inverted conical bottom provided with a wide central orifice, a rotatable vertical
30 shaft extending through said orifice, a circular feeding table secured to said shaft, below said orifice, a distributing cone segment on said shaft below said table, and stationarily mounted scrapers extending above
35 said feeding table, said container being provided with an auxiliary inverted conical bottom, located below said feeding table and above said cone segment for receiving the
40 fuel from the outer edge portions of the feed table, and delivering it upon the cone segment adjacent to the shaft.

HARALD NIELSEN.

FREDERICK DEACON MARSHALL.