

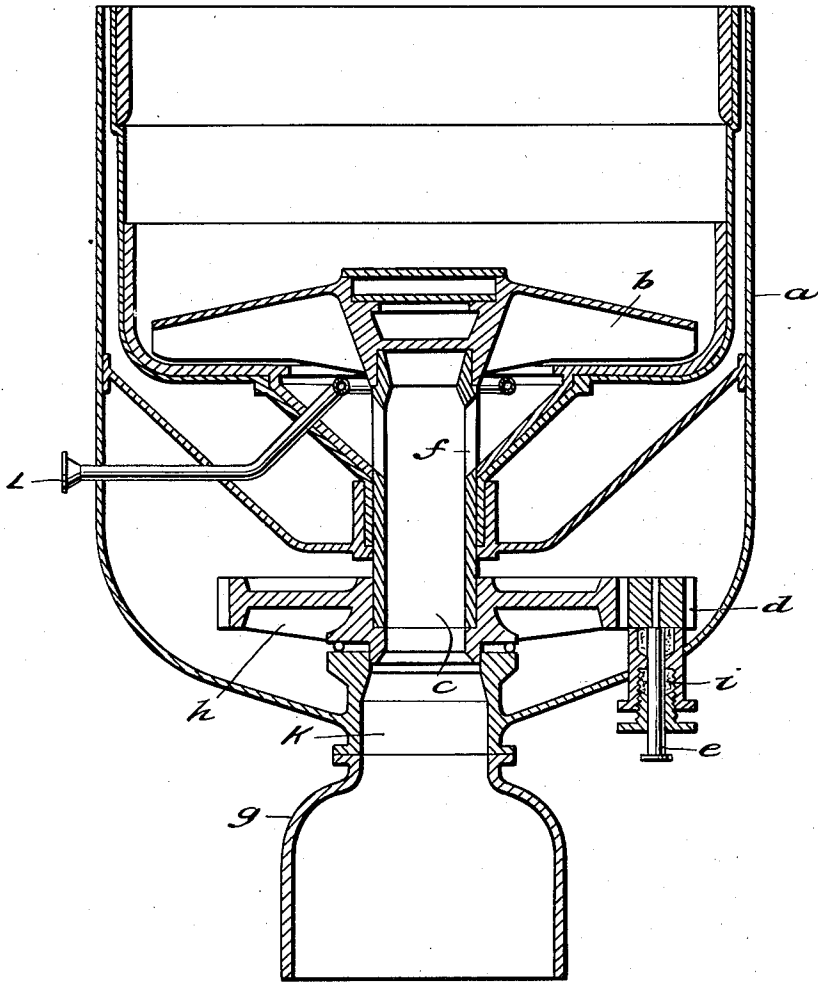
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APPARATUS FOR DISCHARGING ASH FROM GAS PRODUCERS

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APPARATUS FOR DISCHARGING ASH FROM
GAS PRODUCERS

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The invention relates to a process and an apparatus for discharging the residues of gasification from gas producers operating under a pressure of several atmospheres.

Gas producers operating under pressure of e. g. 2-20 atmospheres or more are generally fitted with special devices for the purpose of discharging the residues of gasification. A known device of this kind comprises a vertical shaft passing through the bottom of the gas producer and carrying a rotary grate inside of the gas producer. Below the rotary grate a scraper arm is attached to the shaft by means of which the residues falling off the rotary grate are moved toward a periodically operated ash pouch device. With another type of discharging device the rotary grate is provided with a central extension downward which serves as a guide and bearing for the grate and to which the scraper arm is attached. The rotary grate carries a gear wheel actuated by a shaft passing eccentrically through the bottom of the gas producer. The gasification means is fed to the gas producer through a pipe socket centrally located in the bottom of the gas producer. In other known cases the gasification means is fed to the gas producer from the side of a tube for the removal of the residues of gasification is provided centrally in the bottom of the gas producer.

It is an object of the present invention to provide an apparatus for the discharging of residues that is simple in construction and reliable in operation and suitable for gas producers operating under higher pressure, as, for instance, 2 to 30 atmospheres. This aim has been achieved by providing the apparatus for discharging the residues with a centrally located hollow shaft through which the residues pass on to the ash pouch. The device is actuated in the usual manner by means of a shaft passing eccentrically through the bottom of the gas producer. Inside the gas producer the shaft is fitted with a pinion meshing with a gear wheel fastened to the hollow shaft.

The central hollow shaft carries at its upper end two or more scraper arms. These arms scrape the residues of gasification to be discharged toward the middle of the gas producer where they drop through the holes provided in the wall of the hollow tube into the latter from where they are conveyed to the ash pouch.

The particular advantages offered by the apparatus according to the invention consists in the use of a simple driving system and the avoidance of extensive stuffing-box passages. In addition the means for conveying the residues of gasi-

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fication to the ash pouch are considerably less complicated than those known so far so that it becomes possible to reduce the height of the gas producer to quite an extent.

The accompanying drawing shows, by way of example, a vertical diagrammatic section of the apparatus according to the invention: *a* is the shell of the gas producer carrying the pressure stresses. The device for removing the residues comprises two or more scraper arms *b* fastened to the hollow shaft *c* that carries a gear wheel *h*. The hollow shaft *c* is driven by means of the gear wheel *h* meshing with the pinion *d* fastened to shaft *e* passing through the shell *a* of the gas producer by way of the stuffing box *i*. The socket *k* provides a supporting bearing for the rotating hollow shaft *c*.

By means of scraper arms *b* the residues of the gasification are moved through holes *f* into the hollow shaft from where they pass via the socket *k* to the ash pouch *g* through which they leave the gas producer. The gasification means is fed via *l* to the gas producer, which in other respects may be constructed in the usual way.

What is claimed is:

1. In a gas producer operating under super-atmospheric pressure having a shell and a fuel support provided with a centrally located opening mounted above the bottom of said shell, means for discharging residues of gasification from such gas producer comprising a centrally located upright hollow shaft mounted for rotation on a bearing within the lower portion of the gas producer shell, said hollow shaft being provided with lateral openings, means for rotating said hollow shaft, at least two scraper arms mounted above said support on the upper portion of said rotatable shaft for rotation with said shaft and for urging residues of gasification toward the opening in the support and the openings in said shaft for discharge through said openings and said hollow shaft upon rotation of such shaft and an ash pit communicating with the interior of said hollow shaft for receiving the gasification residues discharged therethrough.

2. In a gas producer in accordance with claim 1, in which said means for rotating said hollow shaft comprise a gear wheel mounted on said shaft within said gas producer shell, a pinion meshing with said gear wheel within said shell and a driving shaft for said pinion passing through a stuffing box in said shell.

3. In a gas producer operating under super-atmospheric pressure having a shell and a substantially horizontal fuel support provided with a

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centrally located opening mounted above the bottom of said shell, means for discharging residues of gasification from such gas producer comprising a centrally located upright hollow shaft of a smaller diameter than the opening in said support mounted for rotation on a bearing within the lower portion of the gas producer shell, said hollow shaft being provided with lateral openings located below the horizontal plane of said support, inclined means arranged below the opening in said support for guiding gasification residues discharged through said support opening to said openings in said hollow shaft, means for rotating said hollow shaft, at least two scraper arms mounted above said support on the upper portion of said rotatable shaft for urging residues of gasification toward the opening in

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the support and the openings in said shaft for discharge through said openings and said hollow shaft upon rotation of such shaft and an ash pit communicating with the interior of said hollow shaft for receiving the gasification residues discharged therethrough.

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