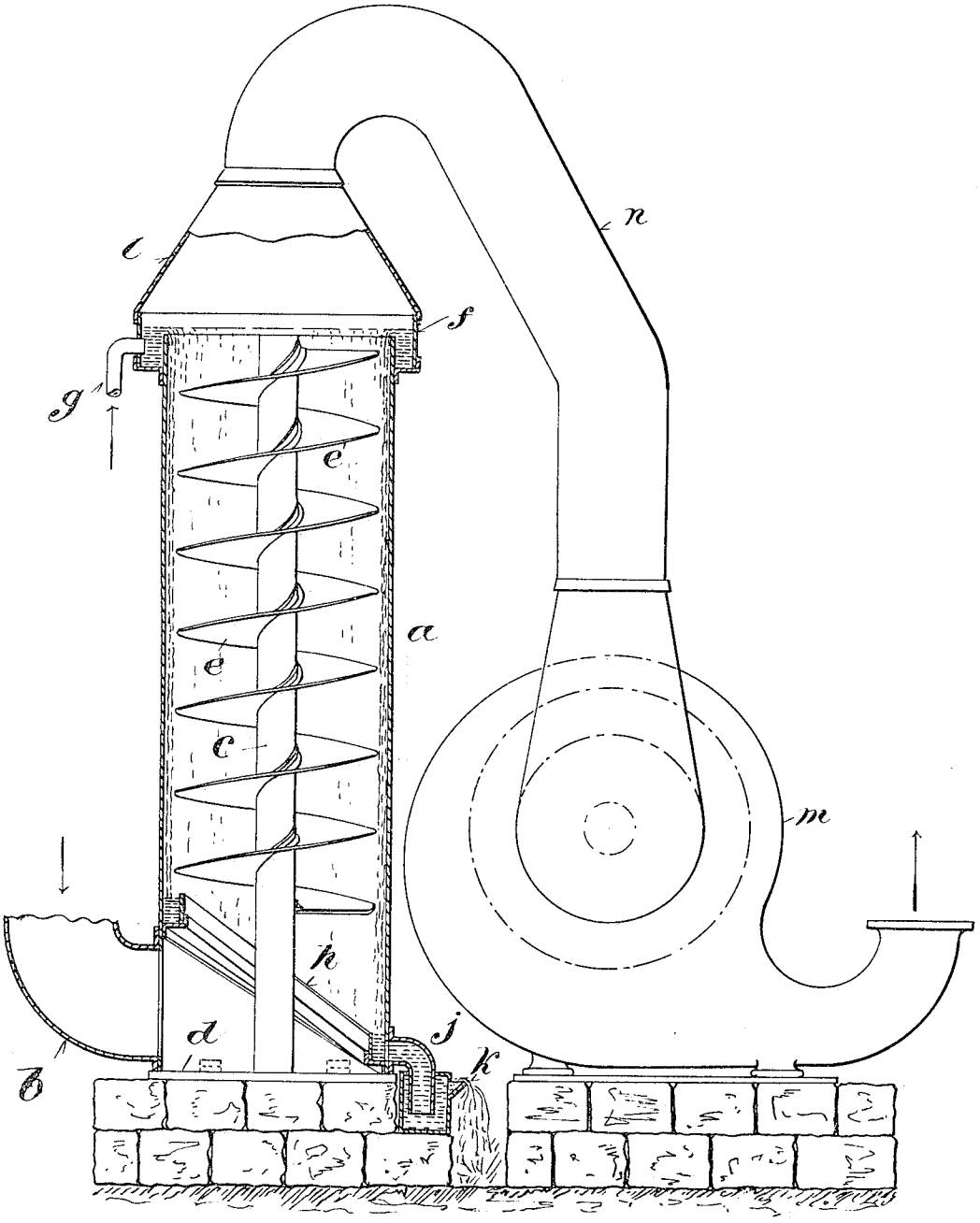
No. 793,110. PATENTED JUNE 27, 1905.

E. A. UEHLING.

GAS PURIFIER.

APPLICATION FILED MAY 14, 1903.



Witnesses
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No. 793,110. Patented June 27, 1905.

UNITED STATES PATENT OFFICE.

EDWARD A. UEHLING, OF PASSAIC, NEW JERSEY.

GAS-PURIFIER.

SPECIFICATION forming part of Letters Patent No. 793,110, dated June 27, 1905.

Application filed May 14, 1903. Serial No. 157,186.

To all whom it may concern:

Be it known that I, EDWARD A. UEHLING, mechanical engineer, a citizen of the United States of America, residing at Passaic, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Gas-Purifiers, of which the following is a specification, illustrated by the accompanying drawing.

Attempts have been made from time to time to abstract as completely as possible the impurities contained in the gases given off by blast-furnaces, gas-producers, coke-ovens, &c., to enable the gas when purified to be burned with maximum efficiency in furnaces or internal-combustion engines. Owing to the difficulty of completely freeing the gases from the impurities suspended within them, these attempts have met with only a certain degree of success, while they have at the same time involved the use of complicated and expensive machinery.

The object of this invention is to overcome these difficulties by a comparatively simple means by separating the impurities, which are of a greater specific gravity than the gas, by centrifugal action, thereby throwing the particles of impurities outward by reason of their greater specific gravity, causing them to impinge with considerable force upon a thin film of flowing water, which will carry them away and allow the purified gas to pass off to be used as desired.

The drawing shows a view of the purifying apparatus, partly in section.

The shell or cylinder *a* is mounted upon a foundation, as is shown, and is connected by the elbow *b* or by other suitable means with the source of gas to be purified. Extending through the center of the shell *a* is the shaft *c*, which is rigidly fastened to the base *d* and is held centrally in position at the upper extremity by means of an open frame. (Not shown.) Surrounding the shaft *c* for most of its length is the spiral flange *e*, the blade of which projects outwardly from the shaft and nearly approaches the inner wall of the shell *a*.

Surrounding the upper end of the shell *a* is a shallow annular tank *f*, the inner side of which is formed of the shell *a*. This tank is supplied with water through the pipe *g* from any convenient source and in such quantity that the tank is continually overflowing over the upper edge of the shell *a*, and thus allowing the inner surface of the shell to be covered with a thin film of water. At the lower end of the shell and inclined at such an angle that it lies above the elbow *b* where the elbow enters the shell is a circular trough *h*, which may be formed of strips of metal and angle-irons or in any manner most convenient. The trough *h* has one of its sides made of the shell *a* and is preferably made as narrow as may be, so as not to interfere with the gas entering through the elbow *b*. The lower end of the trough is connected with the outflow-elbow *j*, which extends within the water seal *k*.

Extending over the top of the shell *a* and connected with the tank *f* by means of a gas-tight joint is the hood *l*, which in turn is connected with an exhaust-fan *m* by means of the goosenecked pipe *n*.

The operation of this device is as follows: The gases to be purified entering the lower end of the shell *a* and the exhaust-fan being started, a partial vacuum is created in the shell and the gases are drawn up the length of the shell. As the gas strikes the flange *e* a rotary action is started, which throws the heavier particles of the impurities out toward the periphery of the flange, thereby creating a centrifugal action within the column of gas, until they strike the film of water which is constantly and evenly flowing over the inner side of the shell. The particles are carried down the side of the shell and are emptied out through the water seal *k*, the purified gases passing out at the top of the shell into the hood *l* and finally through the exhaust-fan *m*, from which they may be led to any desired place. It is to be noted that the speed of the exhaust-fan *m* will bear, of course, a direct relation to the amount of centrifugal action obtained in the cylinder *a*.

In the preferred form the shell and the connections are shown as made of steel plates; but this invention is by no means limited to such a construction.

Obviously some features of this invention

may be used without others, and this invention may be embodied in widely-varying forms.

Therefore, without limiting myself to the construction shown and described nor enumerating equivalents, I claim, and desire to obtain by Letters Patent, the following:

1. In a gas-purifying apparatus the combination of means for connecting said purifying apparatus with a gas-producer, a shaft extending longitudinally within said purifying apparatus and provided with a helical flange, a tank situate at the upper end of said purifier and adapted to have its contents overflow over the inner surface of said purifier, and means for imparting a high velocity, in a direction opposite to the said overflow, to the gas passing through said purifier from the said producer, substantially as set forth and described.

2. In a gas-purifying apparatus and in combination with means for connecting said purifying apparatus with a gas-producer, a shell or cylinder adapted to receive the gaseous products of combustion of said producer and connected with said purifier at the lower end of said shell, an exhaust-fan connected with the upper end of said shell, and adapted to force the gas upward within said shell, means for imparting a rotary motion to said gas within said shell, a tank surrounding the upper end of the said shell and directly connected therewith throughout its entire periphery, means for producing a continuous overflow downward of the liquid within said tank over the inner surface of the said shell, and a water-sealed overflow located near the lower end of said shell and adapted to discharge the overflow from the said tank, substantially as described.

Signed this 12th day of May, 1903, at New York, N. Y.

EDWARD A. UEHLING.

Witnesses:
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