

UNITED STATES PATENT OFFICE.

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OF SAME PLACE.

IMPROVEMENT IN PROCESSES OF MANUFACTURING GAS.

Specification forming part of Letters Patent No. **176,496**, dated April 25, 1876; application filed
March 7, 1876.

To all whom it may concern:

Be it known that I, WILLIAM H. TUPPER, of the city, county, and State of New York, have invented a new and useful Process for the Manufacture of a Heating and Illuminating Gas, which is herein set forth.

The process consists in applying to the production of such a gas, through the medium of an ordinary gas-retort and the usually accompanying appliances, the following materials, to wit: The cotton shreds known as "waste," or other like substances used for the purpose of cleansing machinery, and of packing parts of machines which, in the course of such use or otherwise, shall have become, to a greater or less extent, saturated with oil, grease, or other oily substances, combined with a small quantity of water.

The manufacture of waste-gas by means of the above process is put into operation as follows: The waste, in one or the other of the conditions above described, is placed in a retort, such as ordinarily used for the manufacture of gas, where it is heated, as coal or any other substance would be from which it is desired to manufacture gas, as with such substances the heat causes the disengagement of the gases contained in the waste, conditioned as above described; and these gases are then conducted from the retort, through, into, and over the various pipes, chambers, and materials which are ordinarily used for the cooling and purification of illuminating-gas, to a gas-receiver, from whence it may be drawn as any other illuminating-gas would be for heating and illuminating purposes.

In the passage of gases through the water contained in such cooling and purifying apparatus considerable quantities of oil are condensed. These should be, and may be, returned to the retort and reheated by means of a siphon inserted into the retort.

Water, when used in combination with the waste, is added, before placing the waste in

the retort, by sprinkling it over the surface of the mass to be placed in the retort. The addition of water has but little effect upon the illuminating quality of the gas produced when the waste which is used is of the best quality for the purpose—to wit, free from metallic constituents—but it has a decidedly beneficial effect upon the brilliancy of the light made by the gas when the waste contains (as it usually does after having been used about machinery) metallic substances, and especially when those substances are in part composed of copper or zinc. Water should, under the circumstances last referred to, be used in the manner above specified.

I am aware that attempts have been made to utilize cotton-waste in the manufacture of illuminating-gas; but they have been unsuccessful for this reason: the waste principally used is that which has been utilized in the journal-boxes of railway-cars, and is valuable only because it is thoroughly saturated with oil and other lubricating material; but with this is also a certain amount of metallic substance, often zinc or copper, produced by the attrition of the journals in the alloyed boxes in which they run. This metal, by the heat in distillation, becomes sublimated, and so seriously affects the quality of the gas as to render it almost worthless for illuminating purposes.

By various experiments I have found that the application of water to the waste before charging the retort corrects this impurity, and leaves a brilliant and pure illuminating-gas.

I claim as my invention—

The process of manufacturing illuminating-gas from oiled cotton-waste, in combination with water, by distilling it in a retort, in the manner substantially as described.

WM. H. TUPPER.

Witnesses:

JOHN W. WEED,
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