

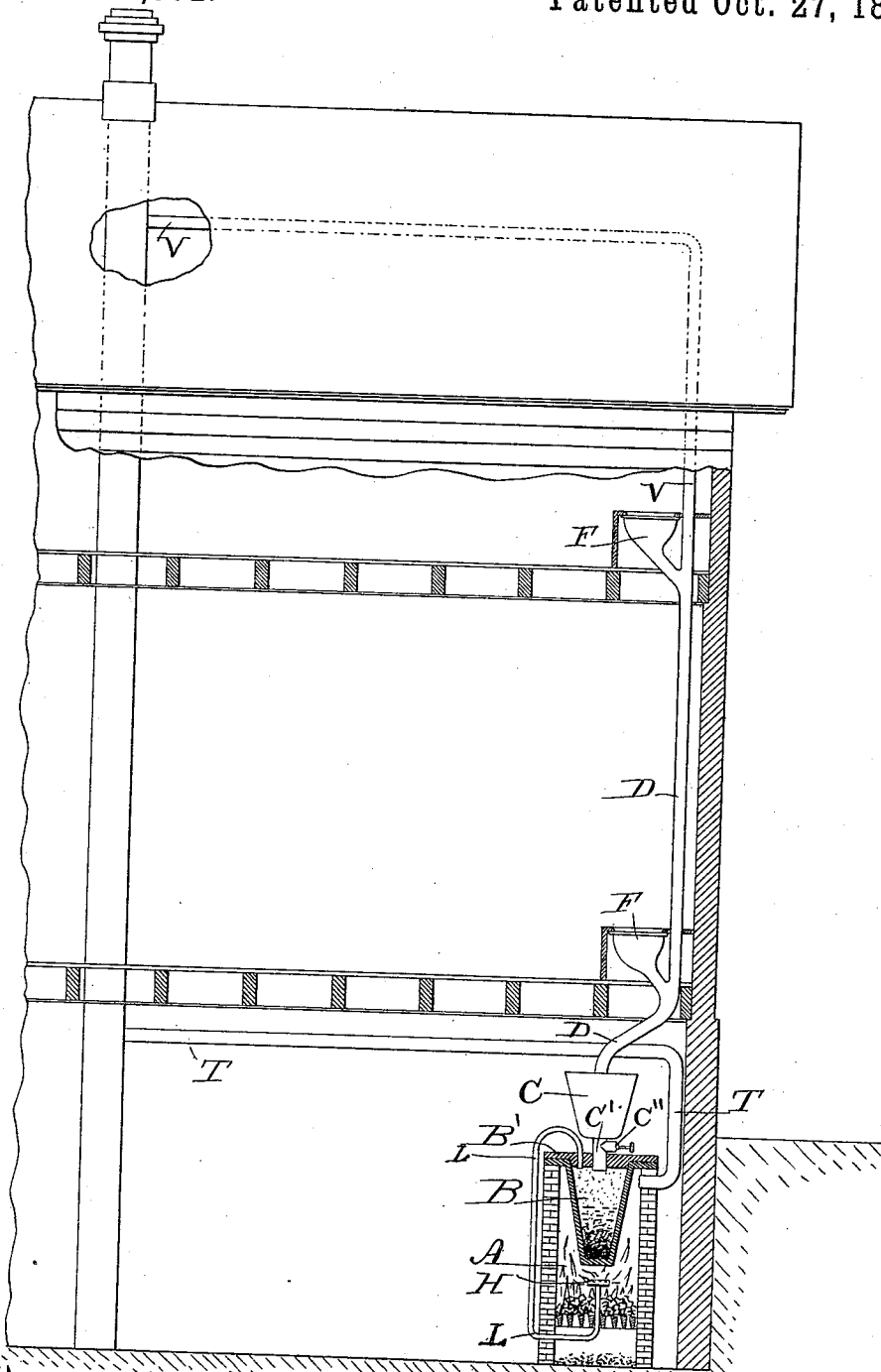
(No Model.)

A. ENGLE.

METHOD OF CONSUMING NIGHT SOIL, OFFAL, &c.

No. 329,302.

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Witnesses:

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UNITED STATES PATENT OFFICE.

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METHOD OF CONSUMING NIGHT-SOIL, OFFAL, &c.

SPECIFICATION forming part of Letters Patent No. 329,302, dated October 27, 1885.

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To all whom it may concern:

Be it known that I, ANDREW ENGLE, a citizen of the United States of America, and a resident of the town of Metz, in the county of Jasper and State of Iowa, have invented a new and useful Method of Disposing of Night-Soil in Buildings, Towns, and Cities, of which the following is a specification.

One of the common methods of disposing of human excrements heretofore practiced is to deposit the matter direct or convey it through sewers into cesspools formed in the ground and to let it remain there concealed, where it will generate poisonous gases and acids that cannot easily be confined, but will escape to pollute the air above the surface and the water under the surface that is subsequently gathered into wells at various distances from such accumulations of putrid matter. Another method in general use is to convey such offensive and dangerous matter from closets, dwellings, towns, and cities into lakes and rivers through sewers. The gas generated thereby while in the sewers cannot easily be confined, and escapes into the buildings, towns, and cities, to vitiate the atmosphere and to endanger the health and life of each occupant, while at the same time the sewage transmitted through such conduits into lakes and streams pollutes their waters.

Earth-closets and various means for deodorizing night-soil and facilitating its removal have been invented and used. Sewage has also been utilized for fertilizing the soil, and in some instances it has been collected from cesspools and conveyed to gas-factories and used in making illuminating-gas. Night-soil and urine have also been confined in ovens and retorts and subjected to heat and the volatile matter conveyed into condensers, and both the solids and fluids thus separated carried away from the buildings where originated, and exposed and utilized for manurial purposes. Noxious gases in privies and buildings have been exhausted therefrom by means of fans and forced into furnaces to be destroyed.

Furnaces and devices for separating fecal matter and urine have been combined with privies and water-closets for the purpose of drying the fecal matter and evaporating the urine by the direct contact therewith of the

furnace-heat, so that the dried solid matter could be subsequently burned in the furnace or removed therefrom and utilized as manure; but in thus drying and evaporating human excrements by the direct contact of the products of combustion as they escape from the fire-chamber and pass over the exposed excrements toward and through the escape and draft flue of the furnace, the offensive odors and poisonous gases generated from the heated fetid matter will be carried along and discharged outside of the privy or building, to pollute the atmosphere and endanger the health of persons breathing such a vitiated air.

My invention contemplates disposing of night-soil and urine simultaneously and destroying the solids and liquids in toto by means of fire in yards, stables, dwellings, factories, and public buildings where it is originated, without handling or exposing any of the offensive matter, and without incurring the cost, annoyances, and dangers incident to the use of the methods above referred to; and I accomplish this desideratum by first conveying the night-soil direct from privy bowls and basins through air-tight tubes into a reservoir or retort in a furnace, to be gathered and concealed therein; second, in closing the retort steam-tight when it is nearly full and subjecting the matter therein to furnace-heat, to thereby convert all the liquid matter into hydrocarbon vapor and the solids into carbonic acid and charcoal without allowing any offensive odor or poisonous gases to escape from the fetid heated matter while it is being destroyed and utilized within a retort and furnace. The hydrogen and carbon and oxygen thus liberated and mingled in the retort produce a valuable volatile fuel, which I convey from the retort as it is generated through a tube to a superheater in the furnace and under the retort, and convert it into a fixed hydrocarbon gas, that may be consumed in the furnace by means of suitable burners combined with the superheater to aid in generating heat; or it may be conveyed through tubes and stored in a gasometer, and from thence distributed through service-pipes to chandeliers and burners and consumed for illuminating purposes in a common way.

The accompanying drawing illustrates the

construction and operation of an apparatus for the practical application of my method in a building.

A represents a furnace, that may vary in form and size as desired.

B is a retort suspended within the furnace-walls.

C is a reservoir connected with the retort by means of a tube.

F represents a privy-seat in which are basins connected with the reservoir C by means of a tube, D. A ventilating-tube from under the basin in the seat F leads to a chimney or tube that extends above the roof of the building.

H is a superheater and burner combined, fixed to the wall in the furnace-chamber under the retort in such a manner that the vapor generated in the retort will be conveyed through a tube, L, from the retort into the superheater and discharged into the furnace-fire through perforations formed in the lower portion of the coil which serves as a burner. The end of the tube L that enters the retort is perforated, and its extremity covered with a cap to prevent paper and other substances from entering.

In the practice of my invention and method night-soil deposited in the privy bowls and basins at intervals will by force of gravity descend into the reservoir and retort, and the odors arising therefrom will ascend through the ventilating-flues and not foul the air in the building.

Once a day, week, or month, or as often as necessary, I close the retort by means of a cut-off valve, and then subject the retort and its contents to furnace-heat to have the matter therein cremated and the niter in the urine and all the other valuable gases or gas-producing substances in the mixture liberated by means of a fire maintained in the furnace, while at the same time the non-volatile matter and residuum will be converted into charcoal. As the vapor and gas is generated in the retort it will pass through the conveying-tube from the retort into the superheater and burner in the furnace, and as it escapes from the burner it will be consumed to aid in the production of heat for generating gas in the retort, warming a building, or for any other purpose for which artificial heat can be utilized. The charcoal produced in the retort I remove through the hand-hole and add

it to the fuel on the furnace-grate, or use it for any of the common purposes for which charcoal is adapted.

I am aware that night-soil has been used in the manufacture of charcoal, and therefore do not claim that it is new to convert sewage into gas and charcoal, but that my method of disposing of night-soil in dwellings, towns, and cities to prevent the annoyances and dangers incident to sewer-gas is new and useful.

I am aware that various devices and apparatuses heretofore known and used for various purposes may be employed in the practice of my method of destroying or disposing of night-soil; but such method and practice are novel and greatly advantageous as a sanitary measure, and

I therefore broadly claim as my invention—

1. The herein-described method of disposing of sewage, (night-soil and urine,) which mode or method consists in conveying such solid and fluid matter direct from the places of original deposit through tubes into a reservoir or retort in a furnace, then closing the retort and subjecting the solids and fluids in the retort jointly to furnace-heat, then conveying the volatile matter as it rises in the retort from the retort into a superheater, then converting the volatile matter in the superheater into inflammable gas, and at the same time converting the solids remaining in the retort to charcoal.

2. The herein-described method of simultaneously disposing of sewage—solids and liquids—and making such matter partially self-destroying, which mode or method consists in placing such solid and liquid matter in a reservoir or retort in a furnace, then closing the retort, then subjecting the solids and fluids therein jointly to furnace-heat, then conveying the vapor and volatile matter as it rises in the retort through tubes into a superheater in the same furnace to produce inflammable gas and to discharge the gas into the combustion-chamber of the furnace to augment and maintain the furnace-heat under the retort, simultaneously with the production of charcoal from the solids retained in the retort.

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Witnesses:

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