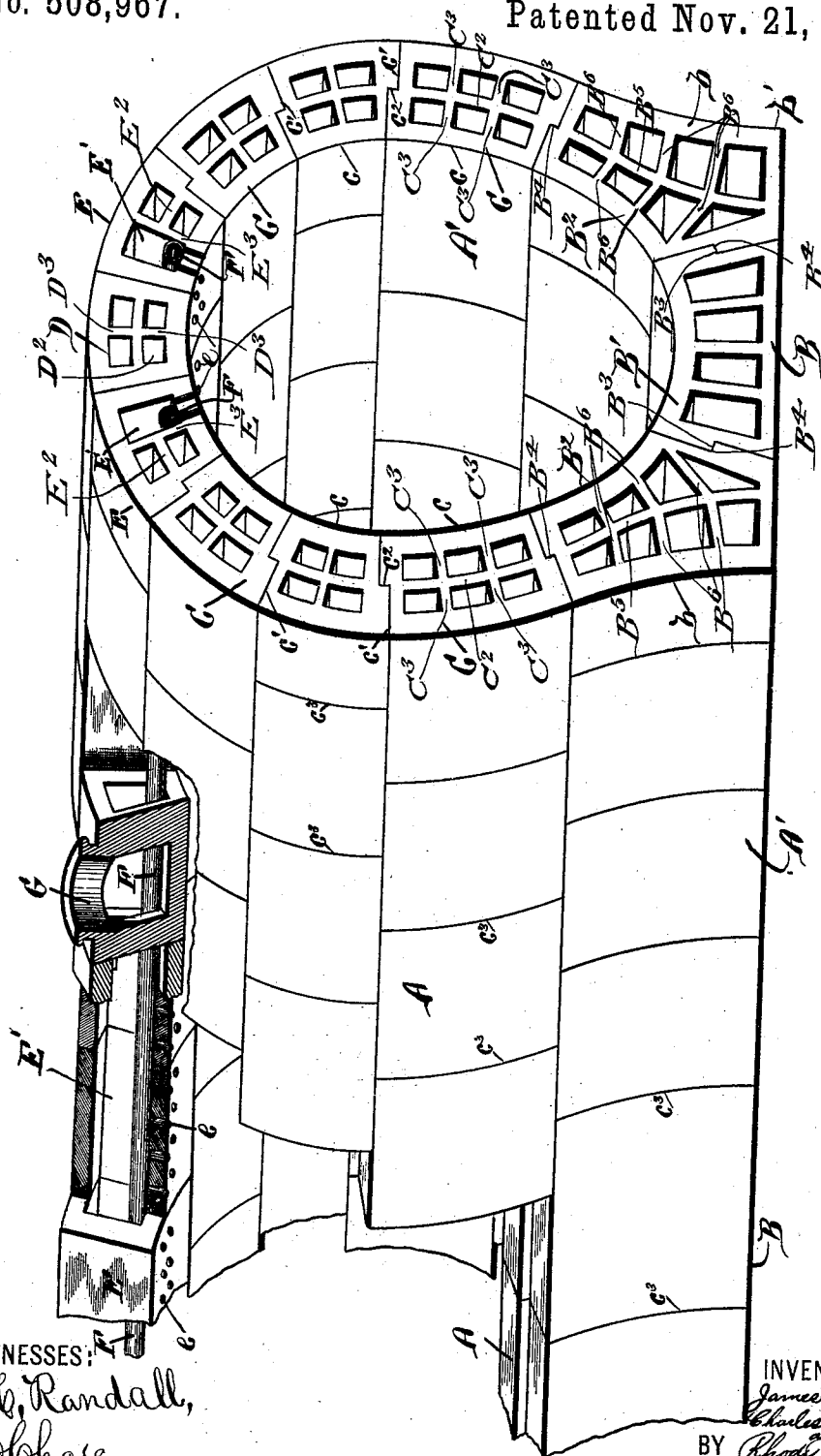


(No Model.)

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SEWER.

No. 508,967.

Patented Nov. 21, 1893.



WITNESSES:

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SEWER.

SPECIFICATION forming part of Letters Patent No. 508,967, dated November 21, 1893.

Application filed November 14, 1890. Serial No. 371,403. (No model.)

To all whom it may concern:

Be it known that we, JAMES P. NESDALL, CHARLES E. COLTON, and RHODY MARA, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Sewers, of which the following, taken in connection with the accompanying drawing, is a full, clear, and exact description.

Our invention relates to improvements in sewers, and has for its object the production of a simple, practical and effective sewer which is economically constructed and is capable of positively removing the gases, obnoxious odors, &c., ordinarily retained; and to this end it consists, essentially, in a sewer having its wall composed of separable sections of tile, a sewage passage inclosed by the wall, a gas passage within the upper part of the wall formed of less cross sectional area than the lower passage and positively connected thereto for permitting the entrance of the gas to the latter passage, and outlets arranged at intervals opening from the upper passage for the discharge of the gases, obnoxious odors, &c.

This invention furthermore consists in the detail construction and arrangement of the parts, all as hereinafter more particularly described and pointed out in the claims.

In describing this invention, reference is had to the accompanying drawing which is an isometric perspective of a portion of a sewer shown with a part thereof in section.

It is well known that at present great difficulty exists in constructing sewers, which, while possessing the essential quality of cheapness, provide for the positive, efficient and practical removal of any gases or obnoxious odors generated or discharged within the same, thus obviating a great amount of unhealthfulness. Our present invention is intended to possess these desirable qualities and is of simple and practical construction.

—A—represents our improved sewer which is shown as egg shaped with the larger end upward, since this shape is particularly conducive to rigidity and strength and is composed of sections or tile —B'—B²—B²—, —C—C—, —E—E—, and —D—. The base —B— is flat and of considerable width, its outer

face extending slightly outward at —b'— instead of conforming strictly to the egg shape of the inner face of the sewer wall, as we deem this a particularly practical and efficient construction of base tending to render the sewer self-sustaining. The base —B— is formed by the central tile —B'— and the lower extremities of tile —B²—B²— arranged on opposite sides thereof. The bases of the central sections or tile —B'— is substantially flat, its upper extremity is of less width than its base, and its upright walls incline toward each other from their lower edges upwardly, and are formed with lengthwise shoulders —B³—, which are arranged substantially midway between the upper and lower edges thereof, and project from said side walls in planes substantially perpendicular thereto. The bases of the sections or tile —B²—B²— are substantially flat, and are disposed normally in substantially the same plane as the bases of the central tile —B'—, and said tile —B²—B²— are formed with their central portions of greater width than their ends and are provided with inner upright walls extending upwardly from their bases and having lengthwisely extending shoulders —B⁴— which are arranged midway between their upper and lower edges, are substantially perpendicular to said inner upright walls, and interlock with the shoulders —B³— upon the adjacent walls of the interposed tile —B'—. The tile —B²—B²— are formed with upper walls or faces which incline slightly upward from their outer edges inwardly, and are provided midway between their inner and outer edges with lengthwise shoulders —B⁴— similar to the shoulders —B⁴— previously described. Said tile —B²—B²— are each formed with a central upwardly extending web —B⁵— and with cross webs —B⁶—. Above the tile —B²—B²— are tile —C—C— having their upper and lower faces —c'— formed with locking shoulders —c²— which are similar to the shoulders —B³—B⁴—, previously described, and are produced by offsetting the inner extremity of said walls from the outer extremity. The shoulders —c²—c²— provided on the lower faces of the lowermost tile —C—C— interlock with the shoulders —B⁴— upon the upper faces of the tile —B²—B²—.

Above the tile —C—C—are hollow tile —E—E— arranged with their ends open and contiguous for forming gas passages —E'—E'— running continuously from one tile to the other throughout the sewer. Extending through the inner faces of the tile —E—E—are perforations —e— for permitting the entrance of gas, odors, &c., from the sewage passage —A'— to the passages —E'—E'— and provided at intervals along the sewer wall are man-holes or outlets —G— opening from the passages —E'—E'— for permitting the upward escape of the gas. The tile composing the sewer wall are firmly locked together by key-tile —D— arranged between the hollow tile —E—E— with their ends contiguous. The tile —C—E—D— are formed with the respective central lengthwise webs —C²—E²—D²— and with the respective cross webs —C³—E³—D³— extending in planes substantially perpendicular to the webs —C²—E²—D²—. Within each of the passages —E'—E'— is a pipe —F— through which a heated current is either continually or intermittently passed for effecting a positive circulation of the gases within the sewer and the escape thereof through the passages —E'—E'— and the outlets —G—.

Instead of the perforations —e—, the lower face of the tile —E—E— may be provided with a transverse slot and instead of using a pipe —F—, the current may be forced directly through the passages —E'—E'—, although, in that case, as perfect an operation is not effected.

The tile —C—C,—B'— and —B²—B²— are also formed hollow, their inner faces and adjacent faces are salt-glazed or vitrified for preventing absorption of the sewage or gases and rendering the sewer perfectly tight, and the ends of said tiles are offset one from the other for producing a firm binding of the whole wall. We do not, however, restrict our invention to a wall composed of hollow tile formed and arranged as described, providing the same is formed with hollow upper tile —E—E— at its upper portion forming the gas passages —E'—E'—.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The herein described sewer, the same being composed of a wall consisting of a series of separable sections or tile inclosing a lengthwise sewage passage and formed with a lengthwise gas passage connected to the former passage and inclosed by the outer walls of hollow tile at the upper part of the sewer wall arranged with their ends contiguous, and formed also with perforations extending through the lower walls of said hollow tile, and with outlets for the gas passage arranged at intervals along the passage for the escape of the gas, substantially as and for the purpose set forth.

2. The herein described sewer, the same being composed of a wall consisting of a series of separable sections or tile inclosing a length-

wise sewage passage and provided with central key tiles and hollow tiles arranged on opposite sides of the key tiles with their ends contiguous and open for forming an inclosed gas passage said wall having perforations extending through the lower wall of the hollow tile for permitting the entrance of gas and with outlets arranged at intervals along said passage for the escape of the gas, substantially as and for the purpose specified.

3. The herein described sewer, the same comprising an inclosing wall, a sewage passage inclosed by the wall, hollow tile at the upper part of the sewer having open ends contiguously arranged for forming a gas passage in the upper part of the sewer, perforations connecting one passage with the other for the entrance of gas to the latter passage, and a pipe for conveying a heated current within said upper passage and producing a circulation of the gases, substantially as and for the purpose specified.

4. The herein described sewer, the same being composed of an inclosing wall, a sewage passage inclosed by the wall, a gas passage in the upper part of the sewer wall for the gas, perforations connecting one passage with the other for the entrance of gas to the latter passage, a series of outlets arranged at intervals along said wall and opening from the upper passage for the outlet of the gas, and a pipe for conveying a heated current within said upper passage and producing a circulation of the gases, substantially as and for the purpose set forth.

5. The herein described sewer, the same comprising an inclosing wall formed of separable sections of tile, key tile arranged at the central upper part of the sewer wall with their ends contiguous, hollow tile arranged on opposite sides of the key tile with their ends open and contiguous for forming a gas passage, perforations in the lower wall of the tile for the entrance of gas from the lower passage, and an outlet from one or more of the hollow tile for permitting the escape of the gas, substantially as and for the purpose specified.

6. The herein described sewer, the same being composed of an inclosing wall comprising hollow sections or tile —B'— at the base of said wall, each having its upper extremity of less width than its lower extremity and having its upright sides formed with lengthwise shoulders —B³—B³— arranged midway between the upper and lower edges of said sides, hollow sections or tile —B²—B²— arranged on opposite sides of the tile —B'—, each being provided with inner upwardly extending sides inclining toward each other from their lower extremities and formed midway between their upper and lower edges with shoulders —B⁴— interlocking with the shoulders —B³—, said sections or tile —B²—B²— being each provided with upper walls arranged in planes inclining slightly upward from their outer edges inwardly, and hollow sections or tile, substantially as described,

arranged in the form of an arch above the tile —B²—B²— and having the lower walls of the lowermost tile resting upon said upper walls of the tile —B²—B²—, substantially as and for the purpose set forth.

7. The herein described sewer, the same being composed of an inclosing wall comprising hollow sections or tile —B'— at the base of said wall, each having its upper extremity of less width than its lower extremity and having its upright sides formed with lengthwise shoulders —B³—B³— arranged midway between the upper and lower edges of said sides, hollow sections or tile —B²—B²— arranged on opposite sides of the tile —B'—, each being provided with inner upwardly extending sides inclining toward each other from their lower extremities and formed midway between their upper and lower edges with shoulders —B⁴— interlocking with the shoulders —B³—, said sections or tile —B²—B²— being each provided with upper walls arranged in planes inclining slightly upward from their outer edges inwardly, hollow sections or tile —C—C— arranged above the tile —B²—B²— and having their lower walls formed with lengthwisely extending shoulders —c²— interlocking with the shoulders —B⁴—, and hollow sections or tile, substantially as described, arranged in the form of an arch above the tile —C—C— and having the lower walls of the lowermost tile resting upon the upper walls of the tile —C—C—, substantially as and for the purpose described.

8. The herein described sewer, the same being composed of an inclosing wall comprising hollow sections or tile —B'— at the base of said wall, each having its upper extremity of less width than its lower extremity and having its upright sides formed with lengthwise shoulders —B³—B³— arranged midway between the upper and lower edges of said sides, hollow sections or tile —B²—B²— arranged on opposite sides of the tile —B'— and being each provided with inner upwardly extending sides inclining toward each other from their lower extremities and formed midway between their upper and lower edges with shoulders —B⁴— interlocking with the shoulders —B³—, said sections or tile —B²—B²— being each provided with upper walls arranged in planes inclining slightly upward from their outer edges inwardly, hollow sections or tile —C—C— arranged above the tile —B²—B²— and having their lower walls

formed with lengthwisely extending shoulders —c²— interlocking with the shoulders —B⁴—, hollow sections or tile —E— arranged above the uppermost hollow tile —C— and formed with lengthwise passages —E'— and with perforations —e— extending from the inner face of said tile to said passages, and sections or tile interposed between said tile —E—E—, substantially as and for the purpose specified.

9. The herein described sewer, the same being composed of an inclosing wall comprising hollow sections or tile —B'— at the base of said wall, each having its upper extremity of less width than its lower extremity and having its upright sides formed with lengthwise shoulders —B³—B³— arranged midway between their edges, hollow sections or tile —B²—B²— arranged on opposite sides of the tile —B'— and being each provided with inner upwardly extending sides inclining toward each other from their lower extremities and formed midway between their upper and lower edges with shoulders —B⁴— interlocking with the shoulders —B³—, said sections or tile —B²—B²— being each provided with upper walls arranged in planes inclining slightly upward from their outer edges inwardly, and being formed with a central web —B⁵— and with cross webs —B⁶— extending in planes substantially perpendicular to the web —B⁵—, hollow sections or tile —C—C— arranged above the tile —B²—B²— and having their lower walls formed with lengthwisely extending shoulders —c²— interlocking with the shoulders —B⁴—, said tile —C—C— being each provided with a central web —C²— and with crosswise webs —C³— extending in planes substantially perpendicular to the web —C²—, and sections or tile arranged above the tile —C—C— in the form of an arch and having the lower walls of the lowermost tile resting upon the upper walls of the tile —C—C—, substantially as and for the purpose specified.

In testimony whereof we have hereunto signed our names, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 12th day of November, 1890.

JAMES P. NESDALL.
CHARLES E. COLTON.
RHODY MARA.

Witnesses:

CLARK H. NORTON,
L. M. BAXTER.