No. 672,372. Patented Apr. 16, 1901.

W. L. JACKSON.

KILN FOR BURNING SEWER PIPE, BRICK, &c.

(Application filed Apr. 25, 1900. Renewed Mar. 15, 1901.)

(No Model.) 2 Sheets—Sheet 1.

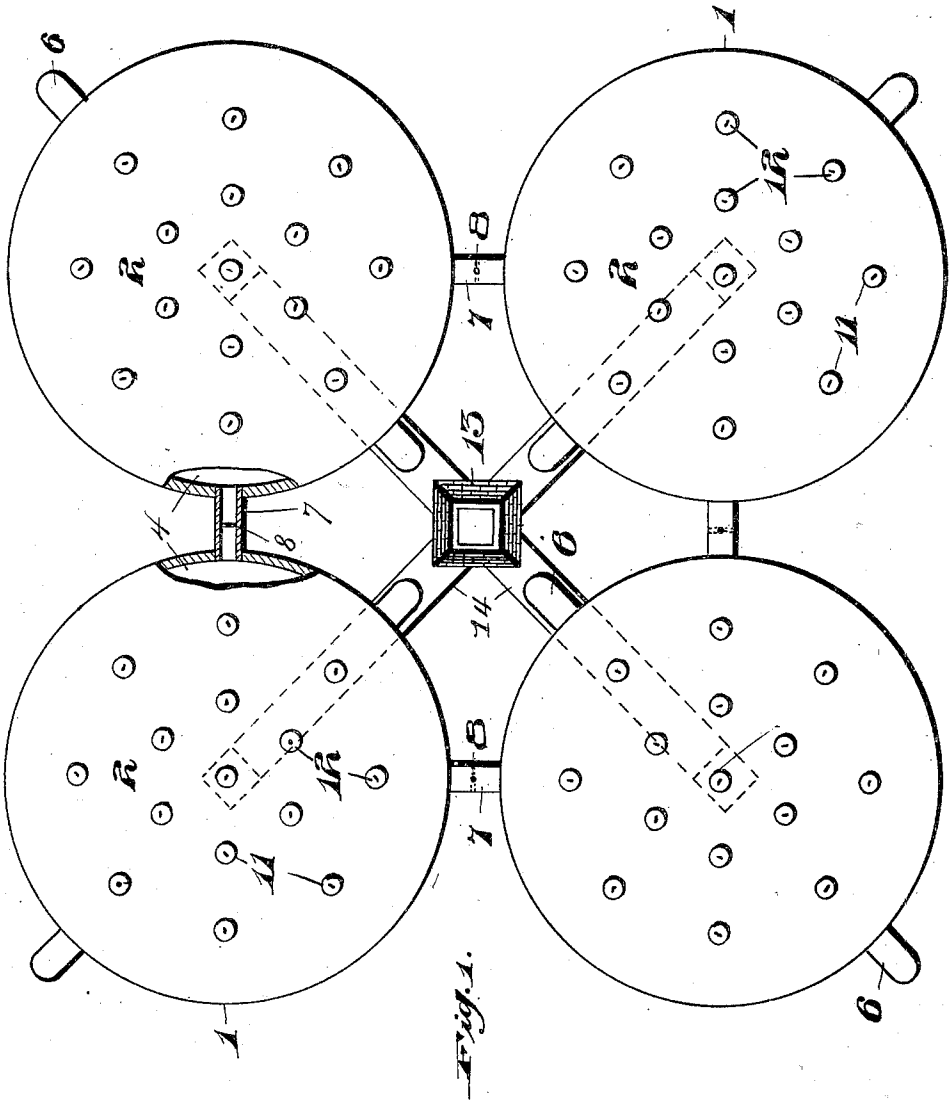


Fig. 1.

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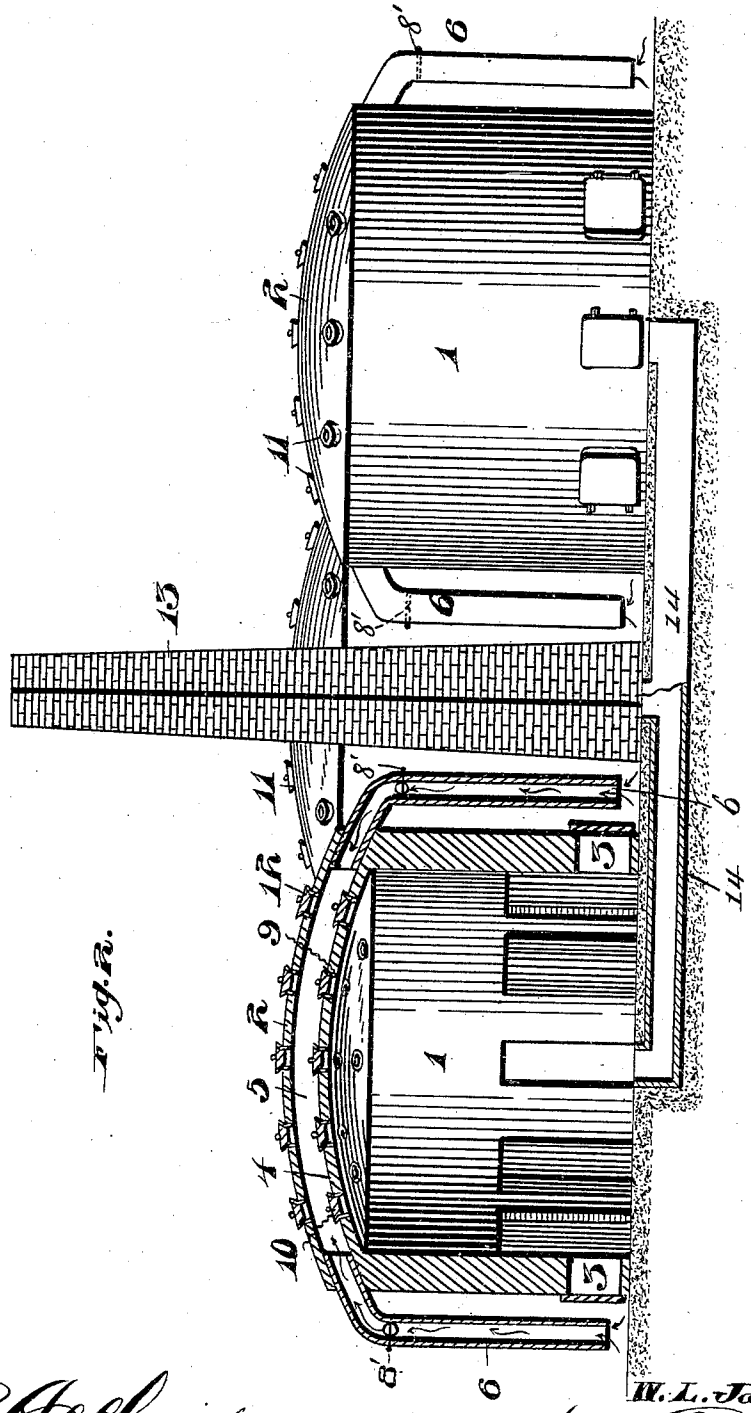


Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM L. JACKSON, OF NEW BRIGHTON, PENNSYLVANIA.

KILN FOR BURNING SEWER-PIPE, BRICK, &c.

SPECIFICATION forming part of Letters Patent No. 672,372, dated April 16, 1901.

Application filed April 25, 1900. Renewed March 15, 1901. Serial No. 51,388. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. JACKSON, a citizen of the United States of America, residing at New Brighton, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Kilns for Burning Sewer-Pipe, Brick, and the Like, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in kilns for burning sewer-pipes or other objects, and it relates more particularly to the arrangement of a series of kilns suitably connected together, and the manner in which the products of combustion can be conducted from one kiln to another, and the passage of the products of combustion controlled from one kiln to the other. Within the upper part of the kiln is a supplemental chamber formed by the ordinary top of the kiln and an arc-shaped dome slightly below the top, the edges of which are built into or connected to the sides of the kiln in any ordinary manner. Formed through the arc-shaped dome are a series of independent damper-controlled passages forming a means of communication between the supplemental chamber and the body or burning-chamber of the kiln. Connecting the supplemental chambers of adjacent kilns is a pipe fitted with a suitable damper to control the passage of products of combustion from the supplemental chamber of one kiln to the supplemental chamber of another. In the top of each kiln are a series of openings opposed to the passage-ways through the arc-shaped dome closed by removable covers, the purpose of which is to permit of access to the dampers or passage-ways and also to allow of the escape of heated gases from within the kiln when it is desired to rapidly cool the same. One of the series of kilns or all of the kilns are provided with one or more air-inlets for admitting air to the supplemental chamber which is heated during the burning of the contents of the kiln and passes from the supplemental chamber through one of the damper-controlled passages to the adjacent kiln for drying out the contents thereof before the products of combustion are carried from the burning kiln to the adjacent kiln.

In burning sewer-pipes or other objects by means of the products of combustion discharged from one kiln to the other I have found that unless the unburned pipes or other objects are dried before the products of combustion are passed into the kiln they possess several objectionable features and are unfit for use, and I have also found that in burning sewer-pipe or other objects by the products of combustion discharged from one kiln to the adjacent kilns it requires a series of kilns to perform this operation, for the reason that if only two kilns were used the pipe in the adjacent kiln to be burned by the products of combustion would be finished before the burned pipe in the adjacent kiln would be cooled, therefore necessitating the throw-off or waste of the gases or products of combustion from the kiln, or, in other words, it would be impossible to carry the gases or products of combustion back and forth between two kilns, for the reason that it requires a greater time to cool the burned pipe and rearrange the kiln for a new charge than it requires the products of combustion to burn the pipe. These various objections I overcome by arranging a series of suitably-connected kilns, providing one or all of the kilns of the series with one or more air-inlets.

The invention consists of the novel construction, combination, and arrangement of parts to be hereinafter more fully described, and specifically pointed out in the claim.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate corresponding parts throughout both views, in which—

Figure 1 is a top plan view of a series of kilns arranged in accordance with my invention, two of the kilns being partly broken away and in section, with the connecting-flue also in section. Fig. 2 is a side view thereof with one of the kilns removed and also showing one of the kilns in vertical section.

Referring to the drawings by reference-numerals, 1 indicates the body of a kiln, which may be of any size and shape, 2 denotes the top thereof, and 3 the fire-holes, the invention thus far being similar to the ordinary kilns now in use.

Within the upper part of the kiln is an arc-shaped dome 4, arranged in such a manner below the top 2 of the kiln as to form a supplemental chamber 5. The edges of the dome 4, as shown in Fig. 2 of the drawings, are built into the sides of the body and are constructed of the same material. The dome 4 may, however, be made independent from the body 1 and held in position in any suitable manner. The purpose of the supplemental chamber 5 is for receiving air by means of one or more inlet-pipes 6 and, further, to receive heated gases from the body of the kiln and equalize their distribution in the manner hereinafter specified. The air admitted to the supplemental chamber 5 is heated by means of the products of combustion within the kiln, and when the same expands it passes through the connecting-pipe 7 into the supplemental chamber of the adjacent kiln. These connecting-pipes are arranged in the manner shown and are provided with the damper 8, the heated air passing into the adjacent kiln and drying out the pipe or other object therein before the products of combustion are passed into the kilns for burning the former.

Formed through the dome 4 is a series of outlet-openings 9, which are closed by suitable covers or dampers 10, and formed through the top 2 of the kiln is a like series of openings 11, closed by means of suitable covers or dampers 12. The openings 10 are arranged in a vertical alinement with the openings 9. 13 indicates the chimney or stack, which is connected by a flue 14 to each kiln. Each of the kilns is constructed as above described, though if desired only the first kiln of the series may be provided with the air-inlet pipe 6. Each of the air-inlet pipes 6 is provided with a damper 8′ for cutting off the supply of air to the supplemental chamber when desired. Of course it will be evident that the draft is greater through the flues to the stack, causing a circulation of the hot air from the supplemental chamber to the adjacent chamber.

The operation of the invention is as follows: The pipe or other objects to be burned are placed in the body of the kiln 1, the openings 9 and 11 being closed by means of covers or dampers, and the air is admitted through the pipe 6 to the supplemental chamber 5. Of course it will be evident that the kiln is provided with the usual damper to open the passage through the flues through the body of the kiln to the chimney. The fire is then lighted in the kiln, and the products of combustion pass from the body of the same through the flues to the chimney or stack 13. In the meantime the air becomes heated in the said supplemental chamber. The damper 8 is opened to permit the hot air to pass into the adjacent kiln, drying the pipe or goods therein, which have been previously placed in position. As soon as the contents of the kiln are properly burned the covers or dampers 10 are removed from the opening 9, (of course it will be evident that the covers or dampers 10 have been removed from the openings 9 of the adjacent kiln to permit the hot air to pass therein and dry out the pipe or other goods,) and the products of combustion then pass through the top of one kiln through the opening 9, supplemental chamber 5, and pipe connections 7 into the body of the adjacent kiln. By means of this arrangement the hot gases of one kiln after its contents are properly burned can be utilized to assist in the burning of the contents of the adjacent kiln and by this means effect a saving of considerable fuel in the burning of the goods and avoid the delay in heating the kilns to the required temperature after lighting the fire. This operation is continuous throughout the entire series of kilns.

It is customary to burn sewer-pipe five and sometimes six days, three days of the time being usually devoted to slow burning and the remaining time to full fires. The gases from the first kiln when burning with the full fires can be drawn from the same into the second kiln and used instead of the slow fires. This can be done throughout the entire series. When the gases from the first kiln have burned the contents of the second kiln to the same degree of hardness as the slow fires would, the full fires are started in the second kiln, and the means of communication between the bodies of the two kilns is cut off, with the exception of permitting the hot air from the supplemental chamber, which will pass into the adjacent kiln and dry out the pipe or other objects before the products of combustion pass from one kiln to another.

By the arrangement of the series of kilns it is not necessary to waste the gases after the pipes or other objects have been burned, as the same can pass into the adjacent kiln, and before the pipes or other objects are burned in the last kiln of the series the objects in the first kiln are sufficiently cool to permit of their removal.

It is thought the many advantages of my improved device can be readily understood from the foregoing description, taken in connection with the accompanying drawings, and it will be noted that various changes may be made in the details of construction without departing from the general spirit of my invention.

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

The combination of a series of kilns for burning sewer-pipe and the like, each consisting of a burning-chamber, a top for said chamber, an arc-shaped dome within the chamber beneath the top, a supplemental chamber between said dome and top, said dome and top each having a series of openings, the openings in the top being in alinement with the openings in the dome, dam-

pers for closing said openings, flues 7 connecting the supplemental chamber of one kiln with the supplemental chamber of the adjacent kiln, dampers 8 arranged in said flues, a draft-flue connecting each of the kilns with a stack, and a pair of air-inlet pipes arranged at opposite sides of each kiln for supplying air to the supplemental chambers, each of said pipes having a damper for closing the air-supply when desired, substantially as shown and described.

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM L. JACKSON.

Witnesses:
JOHN NOLAND,
N. L. BOGAN.