(No Model.)

C. M. SNYDER.

METHOD OF BURNING CLAY FOR BALLAST.

No. 411,069. Patented Sept. 17, 1889.

Fig. 1

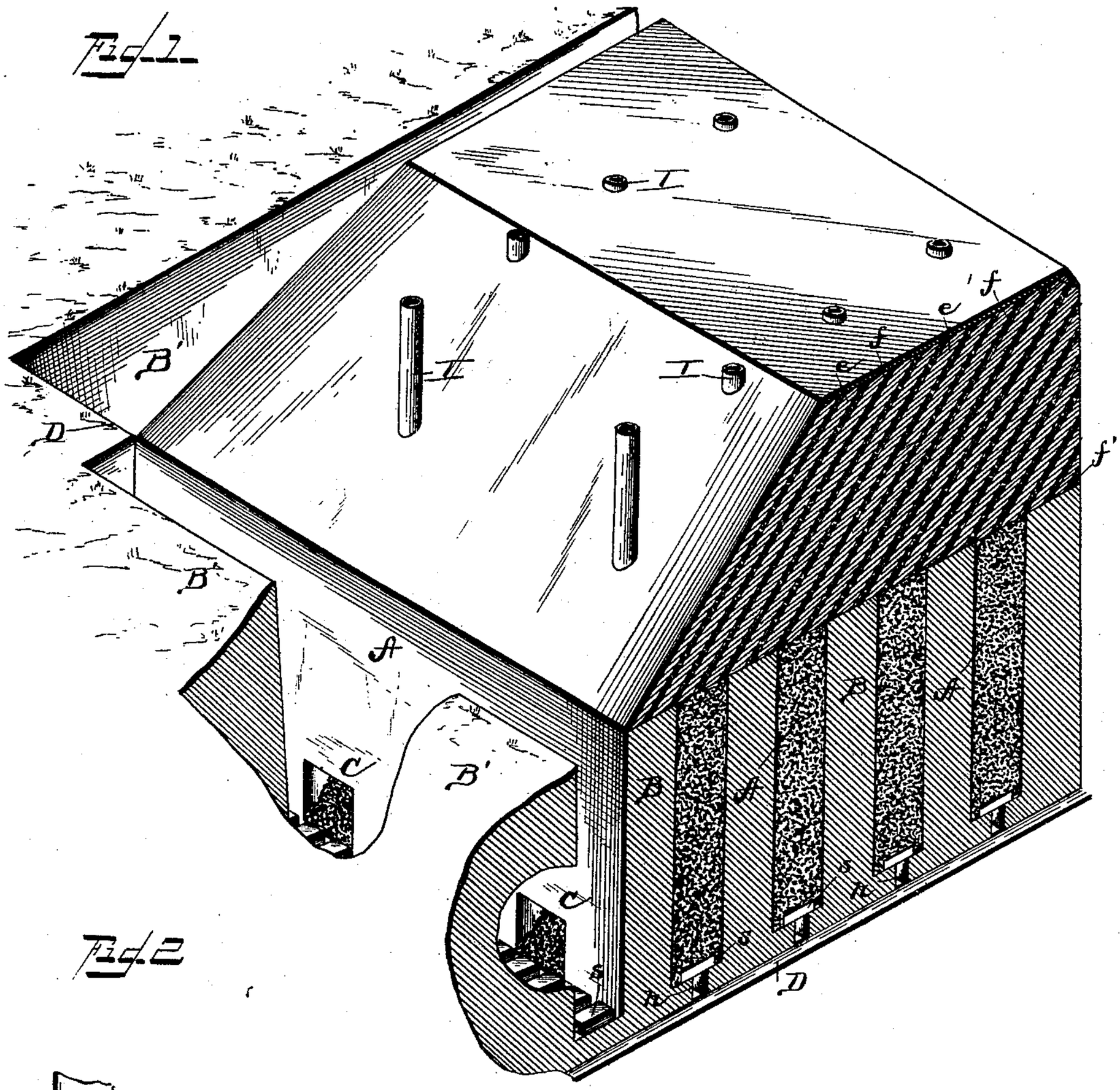
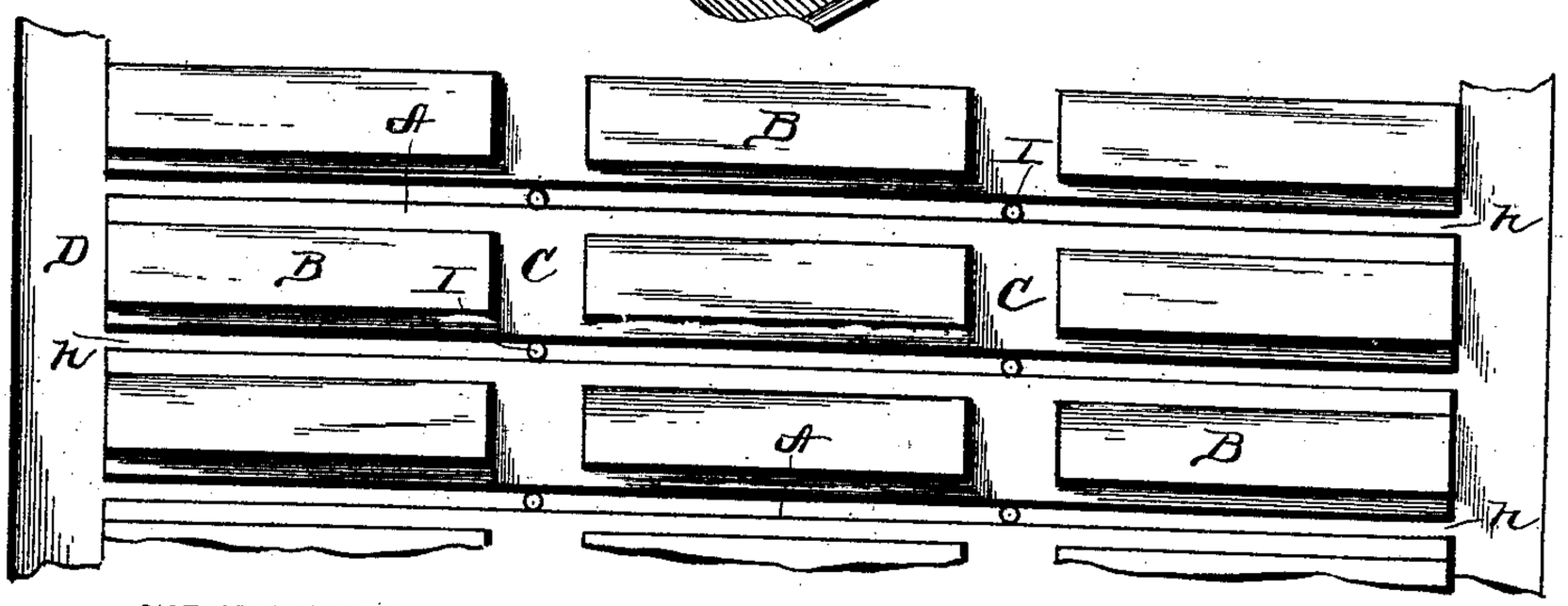


Fig. 2



WITNESSES

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METHOD OF BURNING CLAY FOR BALLAST.

SPECIFICATION forming part of Letters Patent No. 411,069, dated September 17, 1889.

Application filed March 5, 1889. Serial No. 301,992. (No model.)

To all whom it may concern:

Be it known that I, CHASTAIN M. SNYDER, a citizen of the United States, residing at Mount Pleasant, in the county of Henry and State of Iowa, have invented a new and useful Method of Burning Clay or other Earths into a Suitable Material for Railroad-Ballast, for Making Road-Beds, Sidewalks, or Walkways, Stable-Floors, and such Like Purposes, of which the following is a specification.

I am aware that shallow trenches have been formed in the ground so as to underlie a heap of clay and fuel arranged over them for the purpose of burning such material; but said trenches only serve as ventilators to aid combustion in the burning process of the pile over them.

A material object of my invention is to secure the burning of a large quantity of earth suitable for said purposes without handling or removing the same, together with such portions as are necessarily removed in the formation and construction of the kiln in adopting my improved method.

My invention consists in excavating a series of deep trenches close together and parallel with each other in a suitable plat of ground, leaving intermediate walls of earth standing between them of proper thickness for effectual burning by the heat generated therein, so that said walls will be burned to the consistency required for the purposes named, which trenches successively as made have fires started in them and are filled with fuel—preferably such as coal-slack or fine coal—and the earth as it is removed in thus making said trenches is successively placed in layers alternating with layers of fine coal over the filled and fired trenches formerly made, so that in burning the fuel in the trenches the fire communicates with the prepared pile above, so as to burn to the proper consistency both the standing walls of earth between the trenches and the clay deposited, as above described, over them.

In the accompanying drawings, which constitute part of this specification, Figure 1 is a perspective of a series of trenches formed, as above stated, in a clay-bank or earth-bed, with all except one filled with coal, with the loose earth excavated in making said trenches placed in layers alternating with layers of coal over the formerly-made trenches. Said figure, however, shows a transverse section of such prepared heap, in combination with said filled trenches and other parts of the bank cut away, forming ditches or sunken alley-ways transversely at the ends of said trenches or furnaces. It also shows transverse tunnels or openings made through said standing walls at or near their base for connecting the fire trenches or furnaces at proper intervals as a means of fire and ventilating communication from one to the other, and also ventilating-tubes or vertical flues extending upward from said fire trenches or furnaces through the top of said heap. Fig. 2 is a plan of a small portion of the bottom of a kiln thus formed.

In the further description by illustration similar letters will indicate like parts throughout and dotted lines parts hidden from view, of which—

A refers to the fire trenches or furnaces above mentioned.

B are standing walls of earth left between the trenches.

B′ are parts of the bank or bed of earth contiguous to the excavations made in constructing the kiln.

C are transverse tunnels or openings through the standing walls B, made at or near their base, which are arranged at suitable intervals along them, and serve to connect fire and ventilating communication between adjacent trenches or furnaces A and thereby throughout the kiln.

The trenches A are provided with smaller sub-trenches *h*, leaving shoulders or benches on each side, serving as rests or supports for a temporary grating consisting of sods, stiff chunks of clay, bits of burned clay or bricks or other suitable material that may be most convenient, as indicated by S, which are laid across said trenches *h* with suitable intervals between them to secure ventilation for supporting combustion of the burning coal resting on them.

In starting a kiln a fire *f′* may be started on the top of the ground close by the side of and parallel with the first trench to be made and at the opposite side from which the kiln is to be extended, and in digging the first trench deposit the clay excavated therefrom

over said fire with sufficient fuel interspersed to properly burn the same, or otherwise the excavated clay from the first trench may be deposited without said fire having been made. Said first trench having been thus made and provided with proper grating or coal-supports over the ventilating sub-trench *h*, a fire is started in it, and it is then filled with coal or coal-slack, when another like trench is made by the side of it, leaving a standing wall of earth between them, as above described, placing the clay excavated therefrom in proper layers alternately with layers of coal over the fired trench or trenches before made and the standing walls B, as shown at Fig. 1, and in like manner successively continue to extend the kiln as far as may be desired.

It will be understood that the tunnels C or openings through the walls B will be made at the time of making the trenches A, and will be filled with coal in connection with the filling of said trenches; also, as the work progresses pipes I are erected at proper intervals in a vertical position over the trenches A, and the clay and fuel as deposited are built around them, thereby forming chimneys or ventilating-flues. Said pipes may be drawn out after the burning shall have begun, so as to slightly harden the material around them, and successively used over trenches of later formation and so continue as the work of burning progresses. Thereby but few pipes will be needed to supply the requirements in burning a large kiln.

e represents the layers of clay, as above described, and *f* the layers of coal-slack or fine coal alternating therewith.

I will further add that the excavated earth handled in forming the end trenches or sunken alley-ways D at the ends of the trenches A and walls B is deposited also with fuel in like manner as above described on the top of the kiln and is burned, thereby utilizing all to advantage.

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

The method herein shown of burning clay and other earths into suitable material for railroad-ballast and other like purposes, consisting in forming a series of deep trenches A in the earth parallel with each other, with standing walls of earth left in its natural state to be burned between said trenches, with said trenches filled with coal or other suitable fuel and fired, and the loose clay or earth excavated in forming said trenches placed in suitable layers interspersed with coal over said filled and fired trenches and intermediate standing walls, so as to ignite and burn it to proper consistency in harmony with said standing walls B by the fire in said furnaces or trenches A, substantially as shown, for the purposes specified.

CHASTAIN M. SNYDER.

Witnesses:
WASH WASHINGTON,
SMITH LYON.