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L. T. STROMMER

LOADING KILN CAR

Filed May 12, 1921

Fig. 1.

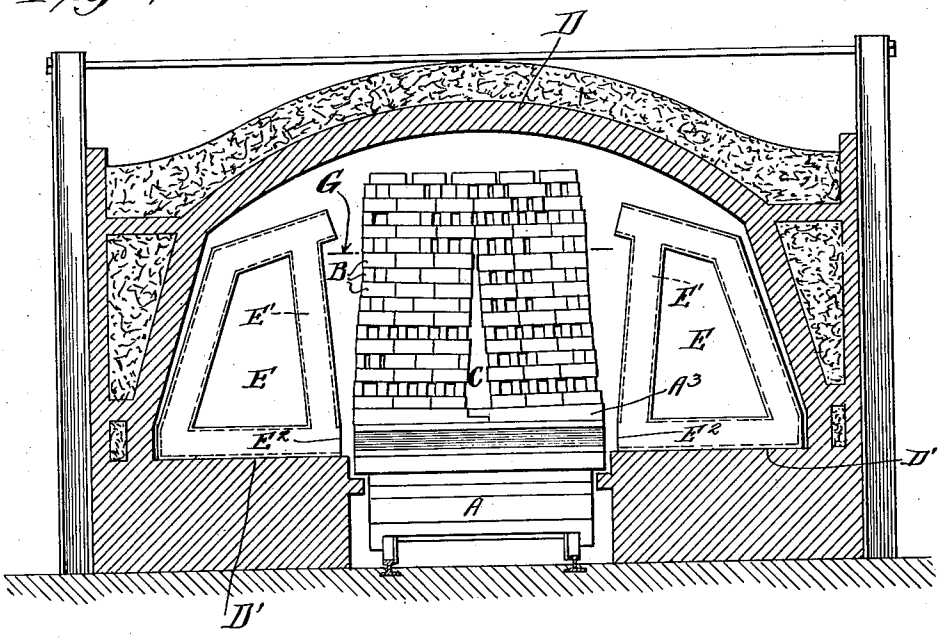
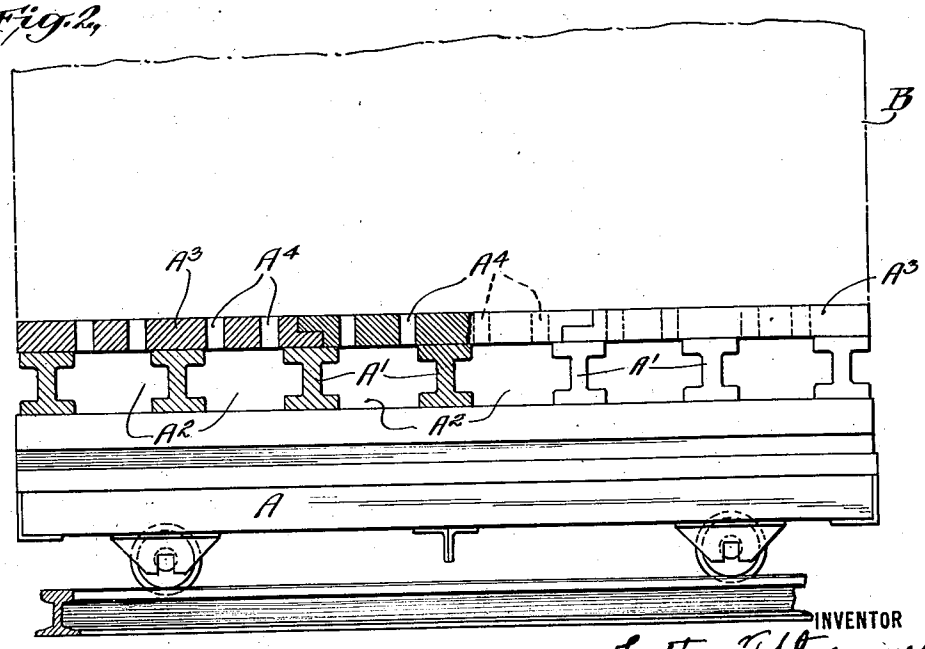


Fig. 2.



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UNITED STATES PATENT OFFICE.

LUTHER T. STROMMER, OF CLEVELAND, OHIO, ASSIGNOR TO AMERICAN DRESSLER TUNNEL KILNS, INC., OF CLEVELAND, OHIO, A CORPORATION OF NEW YORK.

LOADING KILN CAR.

Application filed May 12, 1921. Serial No. 468,829.

To all whom it may concern:

Be it known that I, LUTHER T. STROMMER, a citizen of the United States, and resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Loading Kiln Cars, of which the following is a specification.

My present invention consists in an improved method of arranging bricks or analogous ware on the cars employed to move the ware through a tunnel kiln, and the primary purpose of the invention is an arrangement of the ware on such cars in open masses of proper mechanical stability and having interstices and spaces so disposed as to facilitate a circulation of the kiln atmosphere through each mass necessary to subject all portions of the mass to approximately the same heat treatment.

The various features of novelty which characterize my invention are pointed out with particularity in the claim annexed to and forming a part of this specification. For a better understanding of the invention and the advantages possessed by it, reference should be had to the accompanying drawings and descriptive matter in which I have illustrated and described a preferred embodiment of my invention.

Of the drawings:

Fig. 1 is a transverse section through a tunnel kiln; and

Fig. 2 is an elevation taken at right angles to Fig. 1 and partly in section, of a portion of the loaded kiln car shown in Fig. 1.

In the drawings A represents the body of a car suitable for moving bricks and analogous ware through a tunnel kiln. The car A is formed with a ware supporting platform at its top with openings through the top surface of the platform which communicate with circulation channels formed in the car body. In the particular construction illustrated, the platform of the car is formed by slabs A^3 resting on transverse pier-like portions A′ of the car structure which are separated from one another by horizontal channels A^2, the latter being open at their outer ends. Apertures A^4 through the slabs A^3 communicate at their lower ends with the channels A^2. The ware mounted on the car shown in the drawings consists of bricks B which are preferably arranged as shown in tiers with the bricks in each tier extending transversely in length to the bricks in the immediately adjacent tiers. The bricks in each tier are spaced apart from one another to permit of a circulation of the kiln atmosphere through the mass of bricks. The arrangement of the bricks on a kiln car in open spaced tiers is in accordance with the usual practice, but the arrangement shown in the drawings departs from the usual practice in the division of the lower portions of the brick mass into columns which are separated by the space C, while the upper portion of the mass forms a cap, so to speak, for the columns. As shown the space C runs longitudinally of the car along its center line and decreases in thickness from the car platform to the cap portion of the load.

The provision of the space C in the mass of ware loaded on the kiln car facilitates the circulation of the kiln atmosphere through the mass which is necessary for approximate uniformity in heating the ware in different portions of the mass, and in particular, it tends to insure an adequate transfer of heat to the portion of the ware adjacent the center line of the car and immediately above the car platform, which, as those skilled in the art know, is the portion of the mass most difficult to heat in a tunnel kiln. The arrangement of the ware at the top of a car in a cap like portion resting and forming a bond tying together the tops of the columns of ware at the opposite sides of the space C gives a desirable mechanical stability to the load mass of ware as a whole, which is very important, especially when the ware treated is bricks or analogous coarse clay products. With such ware it is practically impossible to heat all portions of the mass of ware on a car with sufficient uniformity during all stages of the operation to prevent the outer portions of the mass of ware from shrinking more rapidly than the central portion of the mass at certain stages in the heating operation. This uneven shrinkage is a temporary incident for eventually all portions of the mass of ware experience the same shrinkage. When this temporary shrinkage occurs, however, there is a tendency for the mass to spread at the top, and the ware at the upper corners of the mass to fall off the car and thereby seriously interfere with the operation of the kiln. With the described arrangement the liability of the brick to fall

off the car as a result of unequal shrinkage is substantially minimized, while the advantages of the columnar arrangement of the bricks in the lower portion of load are obtained. The liability of a serious dislocation of the brick mass or spillage is minimized, moreover, by inclining the columnar portions of the mass at the opposite sides of the spaces C toward one another as shown, and advantageously also, the upper surfaces of the slabs A^3 may be downwardly inclined as shown from the outer side edges to the center of the car.

The kiln shown in the drawings is of the known Dressler type in which the heat transfer to the ware is wholly or largely due to a convection current circulation of the kiln atmosphere upward through the open ended channels E′ in the walls of the combustion chambers E of the kiln, and downward through the interstices or spaces in the loads of bricks or other ware moved through the kiln on the cars A. With this kiln construction, the connected channels E′ in the walls of the combustion chambers E open at E^2 opposite the ends of the circulation channels A^2 provided in the upper portion of the car. While my invention is of especial utility for use in connection with a kiln of the type illustrated, the invention may be used with advantage in a tunnel kiln of any ordinary construction, since in all such kilns a circulation of the kiln atmosphere through the ware must be had to properly heat the lower central portion of the mass of ware on each car.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

In firing bricks or analogous ware in tunnel kilns, the method of loading brick or analogous ware to be fired on a kiln car comprising a ware supporting platform which consists in arranging the lower portion of the ware on each car in columns resting on the car platform and separated by a longitudinally extending space at the center of the car, and in placing the remainder of the load on the tops of said columns to form a cap tying the upper ends of said columns together.

Signed at New Britain, in the county of Hartford and State of Connecticut, this tenth day of May, A. D. 1921.

LUTHER T. STROMMER.