No. 747,443. PATENTED DEC. 22, 1903.

R. LAUGHRAY.

BRICK MAKING PLANT.

APPLICATION FILED APR. 13, 1903.

NO MODEL.

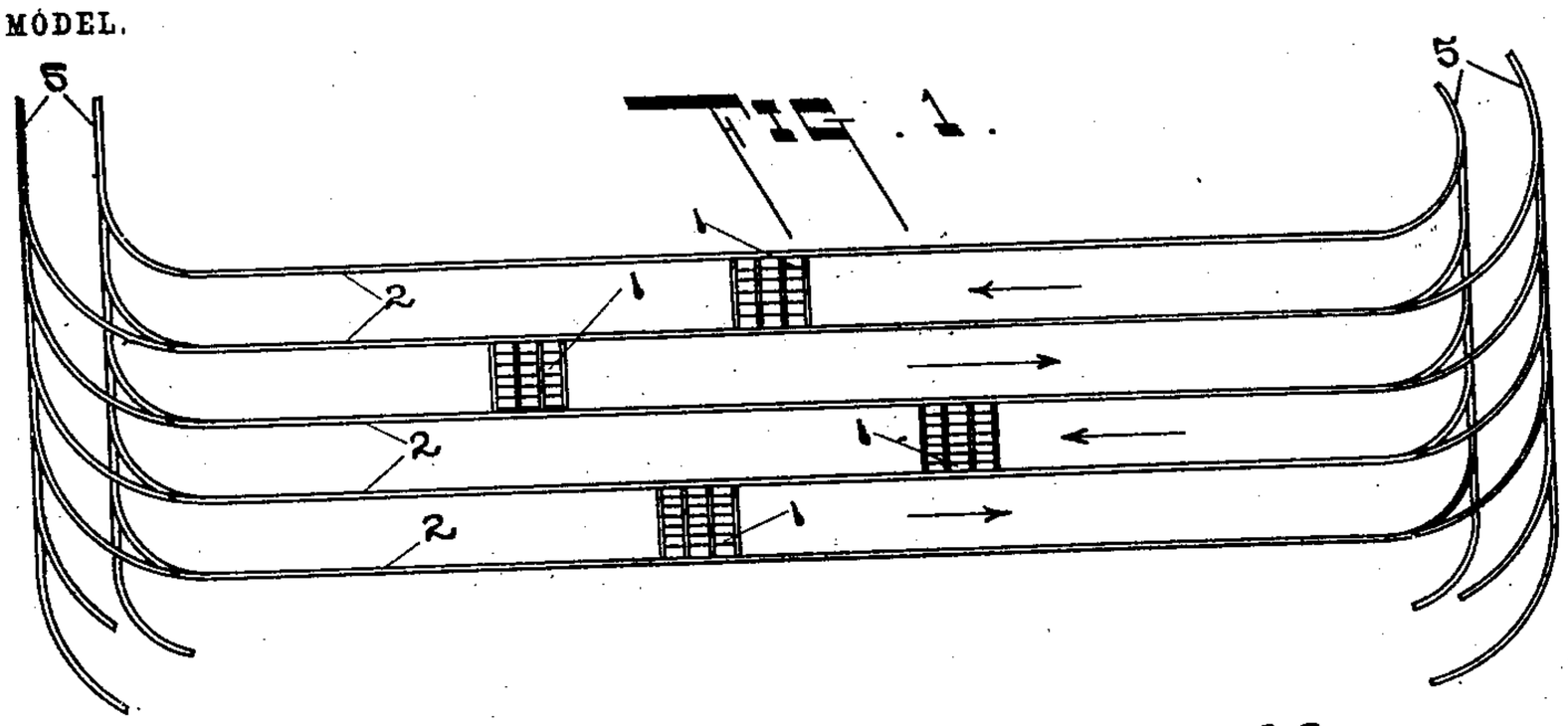

FIG. 1.

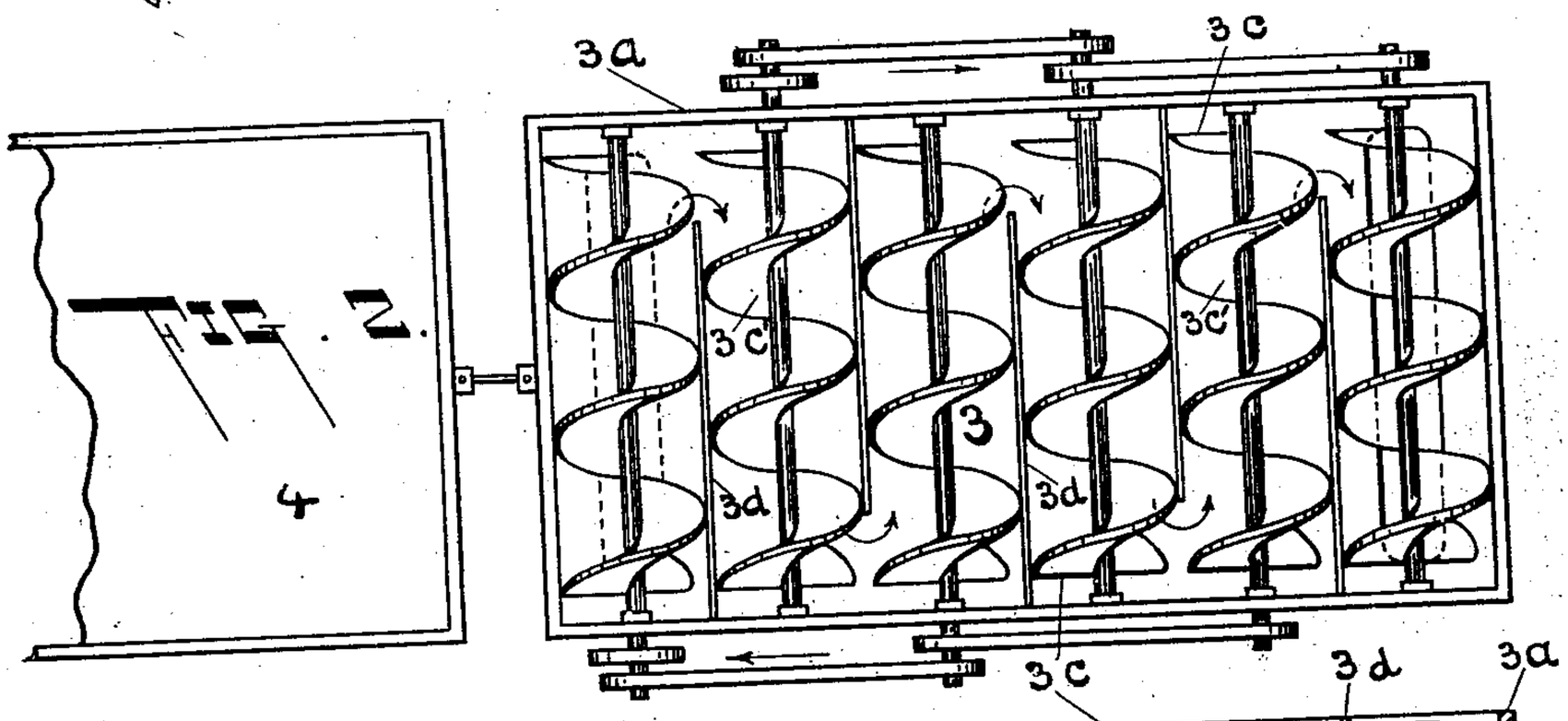

FIG. 2.

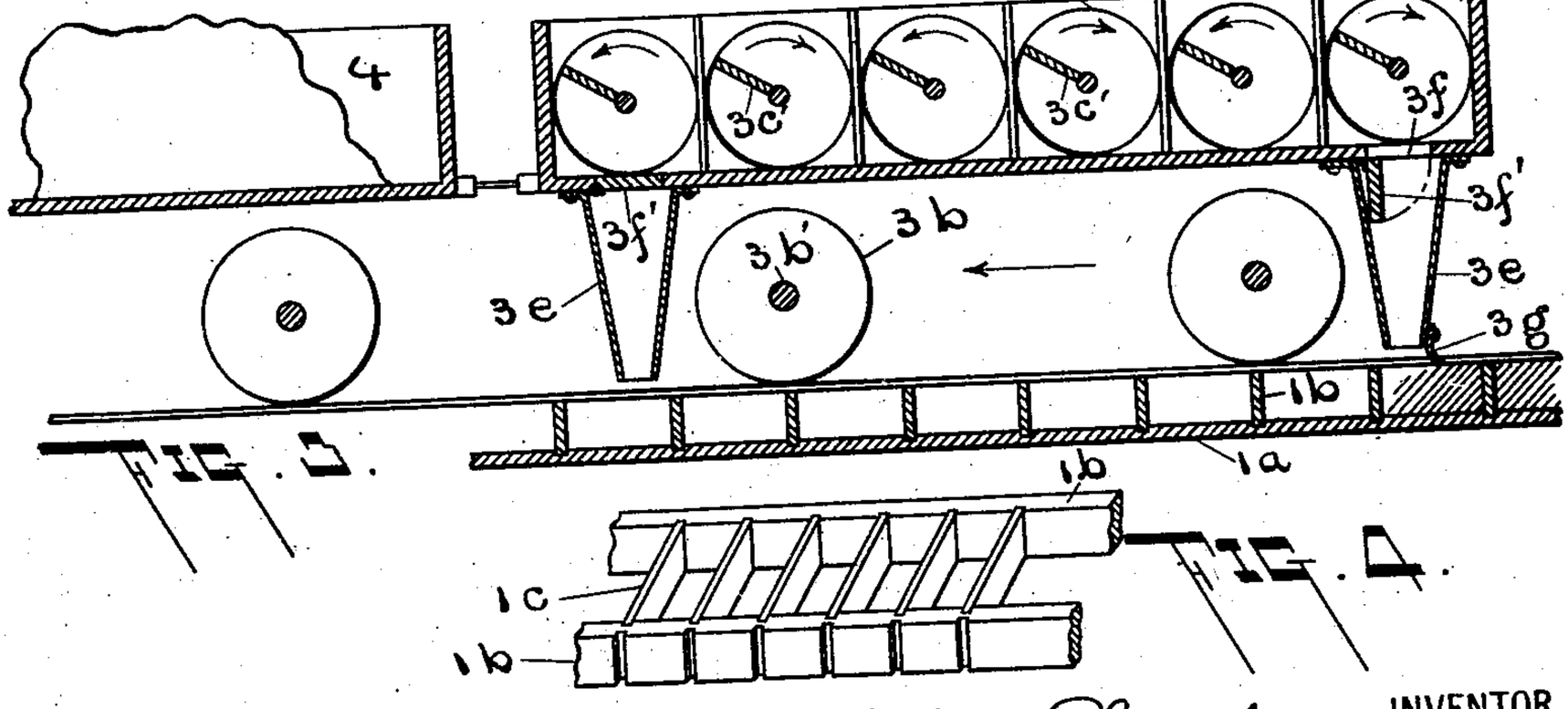

FIG. 3.

FIG. 4.

WITNESSES:

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BY

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No. 747,443. Patented December 22, 1903.

UNITED STATES PATENT OFFICE.

ROBERT LAUGHRAY, OF WEST BAY CITY, MICHIGAN.

BRICK-MAKING PLANT.

SPECIFICATION forming part of Letters Patent No. 747,443, dated December 22, 1903.

Application filed April 13, 1903. Serial No. 152,411. (No model.)

To all whom it may concern:

Be it known that I, ROBERT LAUGHRAY, a citizen of the United States, residing at West Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Brick-Making Plants; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is a brick-making plant particularly adapted for making bricks of concrete or similar plastic material, although it can be used for making molded bricks from any material.

The objects of the invention are to produce a brick-making plant having a large number of stationary molds which are filled by a moving machine and in which the bricks may be left to thoroughly harden, to produce a machine which mixes the raw material, feeds it into the molds, and strikes them off flush as it proceeds, to make this machine reversible in its operation, so that it will fill the molds when traveling in either direction, and to so arrange the tracks on which the mixing-machine travels that all the space between the rails can be filled with molds.

It is illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of the tracks and molds. Fig. 2 is a top plan view of the mixing-machine. Fig. 3 is a sectional elevation of the same in place upon the tracks, and Fig. 4 is a broken view of the removable bars and partitions of the molds.

In my brick-making plant the molds 1 are arranged on a level surface between the rails 2, adapted to carry a machine 3, which mixes the raw material and feeds it into the molds. As is shown in Fig. 1, I space the rails 2 of the tracks equal distances apart, so that the left rail of one track may be used as the right rail of the next track, and all the space between the rails may be filled with molds similar to those indicated in Fig. 1. A large area is covered with these molds, so that the molds first filled can be left till the bricks are thoroughly hardened before they are required for use again.

I prefer to make the mold, as is indicated in Figs. 3 and 4, with a solid bottom 1^a and having cross-bars 1^b and partitions 1^c between the cross-bars removable, so that the bricks may be easily collected when they have hardened.

The mixing-machine 3 which I prefer to use comprises the car-body 3^a on wheels 3^b, having a series of conveying-screws 3^c, by which the material shoveled into one end of the car is conveyed to the opposite end, passing alternately from one side of the car to the other and being mixed as it passes back and forth. The threads $3^{c'}$ may all be right-handed and the alternate screws made to revolve in opposite directions by belts, as shown in Fig. 2, or the screws may be made alternately right and left handed and made to revolve in the same direction. Partitions 3^d between the screws may be necessary in mixing some materials, but need not be used unless required, and the mixing-screws may have helically-disposed paddles instead of continuous threads.

The motion of the screws is made reversible, so that the material being mixed may be moved toward either end of the car 3^a, and below each end of the car-body 3^a is secured a hopper 3^e, through which the mixed concrete may be fed to the molds. The opening 3^f to either hopper may be closed by a door $3^{f'}$ while the molds are being filled through the other. A removable wiper 3^g is secured to the back of the hopper filling the molds by which the surplus material is removed from the tops of the molds 1 and the bricks are given a smooth surface and made of uniform size. In addition to the wiper rollers or other devices for packing the material may be carried by the machine behind the hopper, if needed. The mixing-machine is thus capable of operating when traveling either way and when the end of one row of molds has been reached may be switched over the next row and carried the opposite way, and going either way it will carry the material in mixing from front to back of the car and feed it through the hopper at the rear end.

The mixing-machine may be operated and propelled by an engine or electric motor, or the mixing machinery may be connected by belts or gears to the main axles $3^{b'}$ and a locomotive used to move the car.

The raw material is brought to the machine by separate cars 4, and tracks 5, leading to the base of supplies, are provided at each end of the series of molds.

It is not essential that the exact arrangement of mixing-screws described be used, as screws extending lengthwise the car would answer the purpose, or other forms of mixing machinery could be used. It is important, however, to arrange the machine so that it will fill the molds when traveling either way, as a great saving in time is thus effected.

In the brick-making plant which I have thus produced no space is wasted, and the arrangement is such that the work can be accomplished in the shortest possible length of time, as material can be brought to the machine from either direction, and when the machine has filled one row of molds it travels in the opposite direction over the next row, filling them as it goes. By the time the end of the last row is reached the bricks in the first row have been removed, the cross-bars and partitions of the molds replaced, and the machine starts at the beginning of the system.

What I claim as my invention, and desire to secure by Letters Patent, is as follows:

1. A brick-making plant comprising stationary molds in rows; rails between the rows of molds; a machine mounted to travel on the rails; said machine having means for mixing material; a hopper adapted to convey the material into molds and means for removing the surplus material from the tops of the molds.

2. In a brick-making plant of the class described having stationary molds, a machine mounted to travel over the molds and to mix material and feed it into the molds and means whereby the machine may be adapted to fill the molds when traveling in either direction.

3. In a brick-making plant of the class described, having stationary molds, a machine mounted to travel over the molds having revoluble mixing and conveying screws; a hopper arranged to feed material into the molds, and a removable wiper secured to the hopper.

4. In a brick-making plant of the class described having stationary molds, a machine mounted to travel over the molds, having revoluble screws adapted to mix material and move it from end to end of the machine, said screws being reversible; a hopper at each end of the machine; and a removable wiper adapted to be secured to either hopper.

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

ROBERT LAUGHRAY.

Witnesses:

DELOS KELLOGG,

A. D. MARSHALL.