

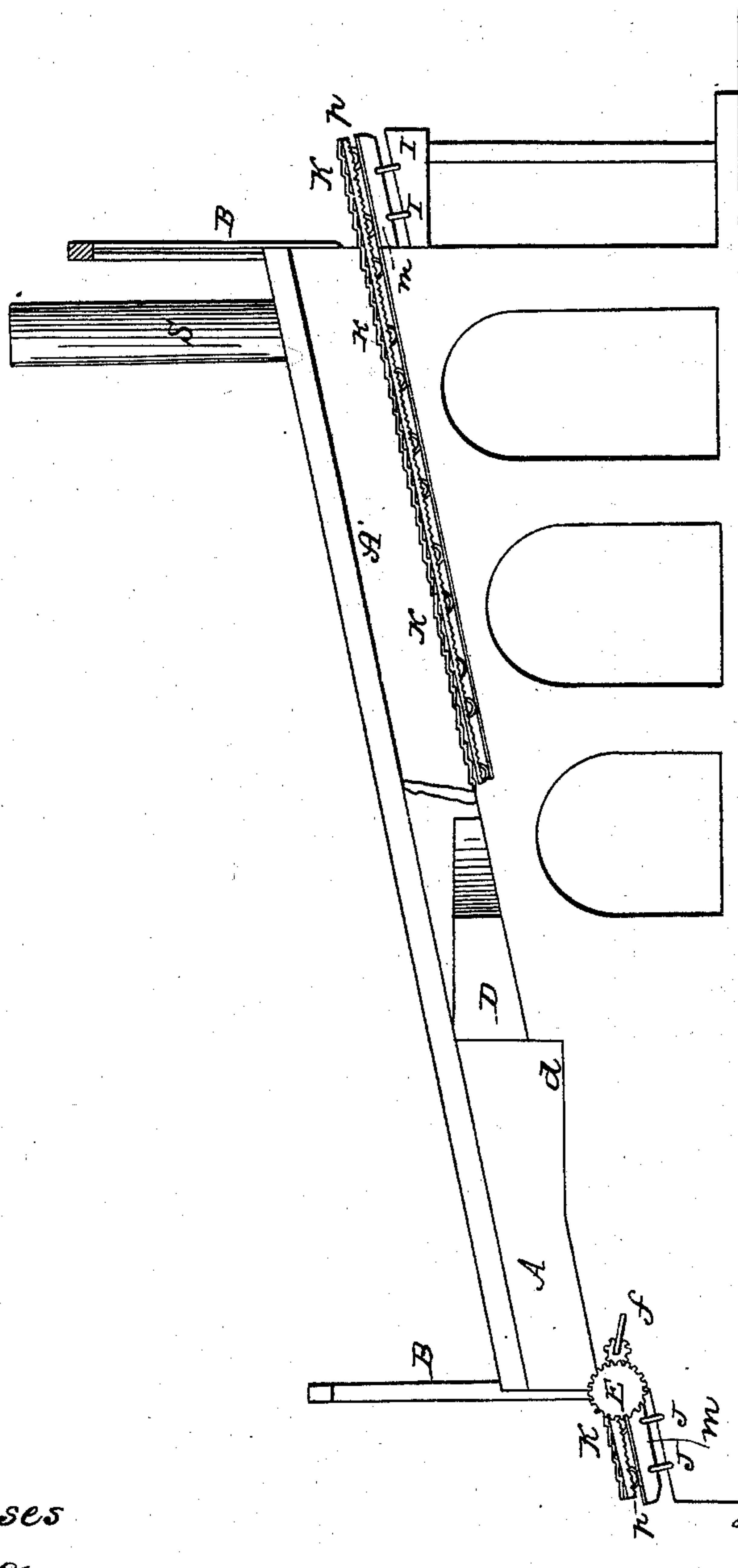
J. McDONALD.

2 Sheets—Sheet 1.

Brick Kiln.

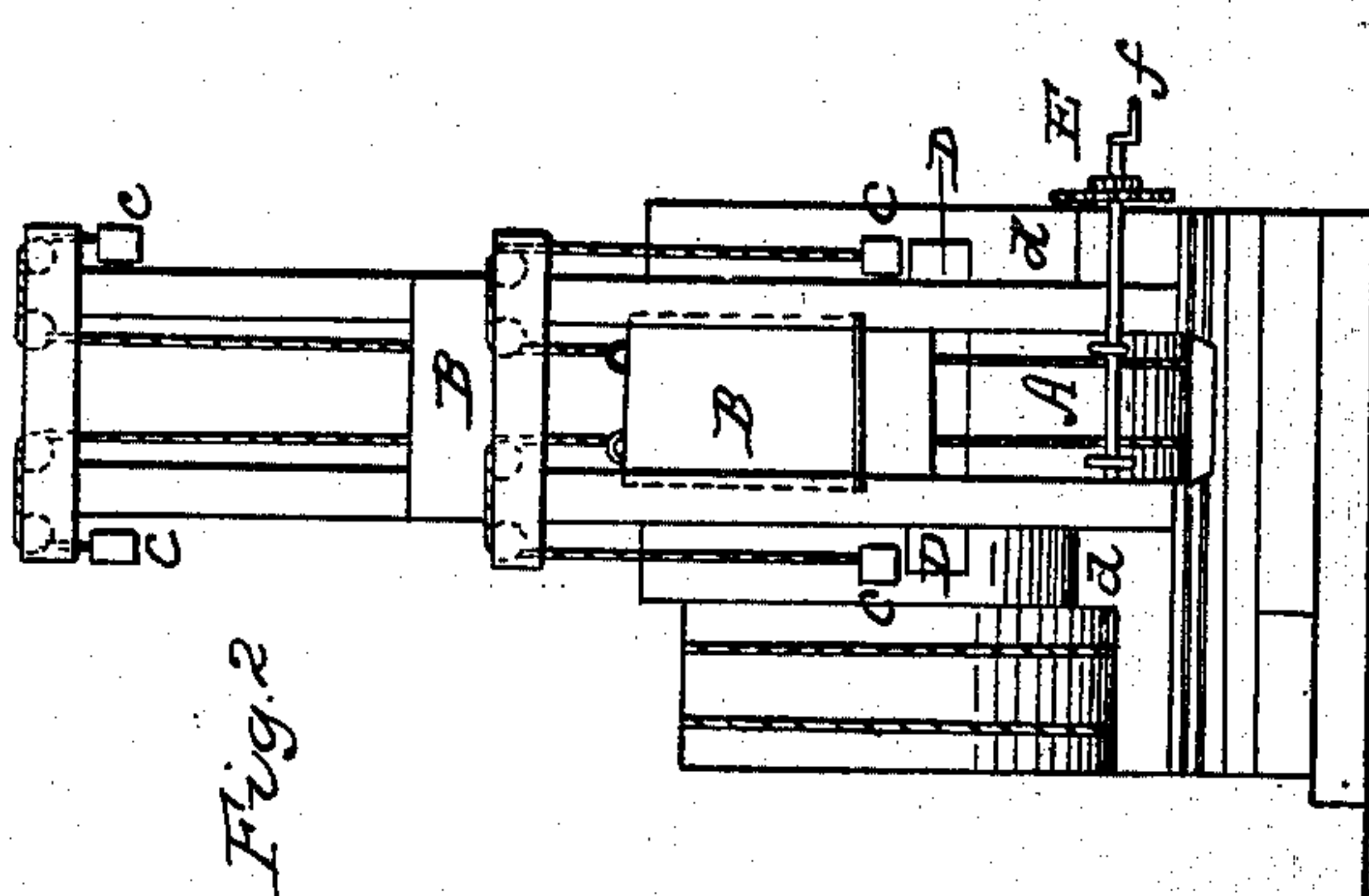
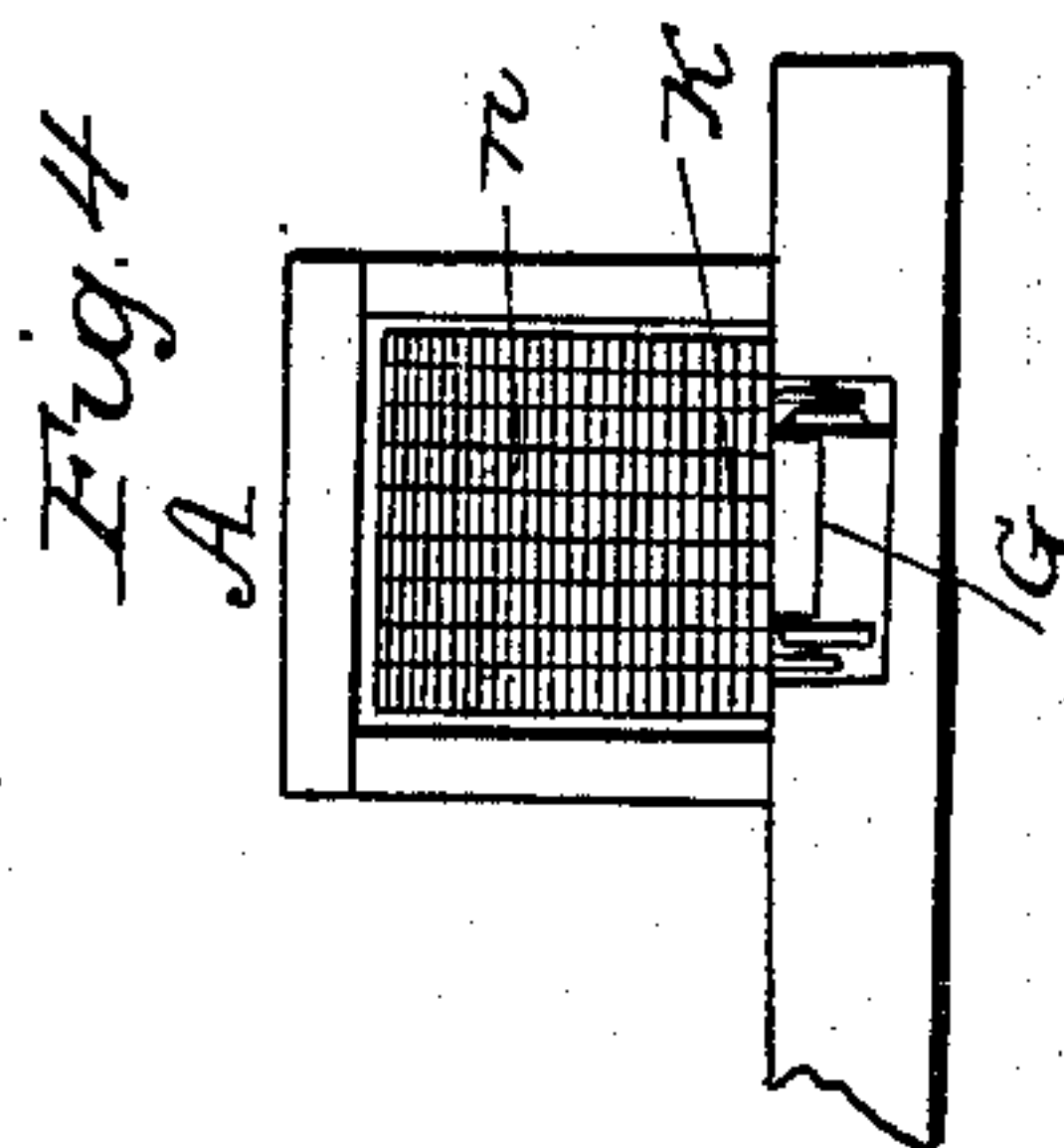
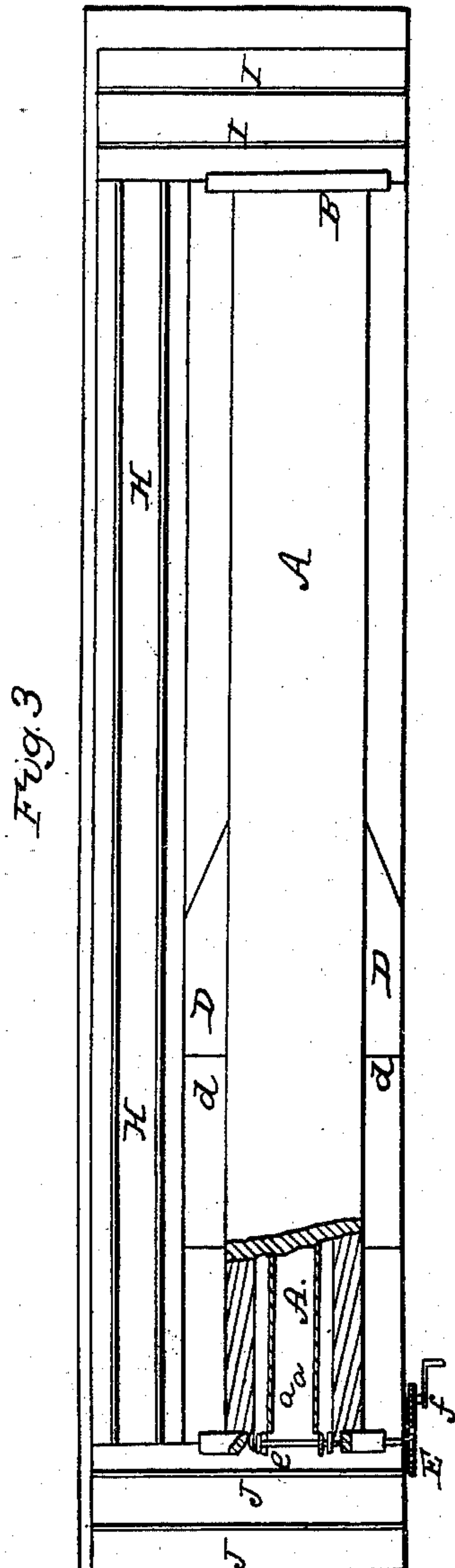
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IMPROVEMENT IN BRICK KILNS.

JOHN McDONALD, OF SARATOGA SPRINGS, NEW YORK.

Letters Patent No. 60,029, dated November 27, 1866.

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN McDONALD, of Saratoga Springs, county of Saratoga, and State of New York, have invented a new and improved Perpetual Brick Kiln; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a side elevation of my invention.

Figure 2 is an end view of the same; and

Figure 3 is a plan.

Figure 4 is a detail view.

Similar letters of reference indicate like parts.

This invention relates to new and useful improvements in brick kilns, known as "perpetual kilns." This class of kiln consists in an inclined tunnel, in which the brick are placed, and are allowed to slide or pass slowly through the tunnel, the whole being so arranged with relation to the fire, that the brick are sufficiently burned by the time they have passed through the tunnel. This class of kiln has heretofore had one serious objection: the brick were placed directly upon the floor of the tunnel, and in sliding through, the friction on the brick, caused by contact with the floor and side of the tunnel, broke and damaged many of the brick. This objection I obviate by placing the brick upon platforms, cars running on wheels, or on cars without wheels, and thus the brick are fully protected against the above-mentioned damage.

A A, in the accompanying drawing, is an inclined tunnel, built of brick or other suitable material, and having gates, B B, for closing its ends; these gates B are suspended by cords, and counterbalances or weights *c c*, (fig. 2,) and the gates slide vertically into or out of position for closing the ends of the tunnel. On each side of the tunnel is a furnace D, (figs. 1 and 3,) in which the fires are made, and the heat passing into the main flue or tunnel A', (fig. 1,) passes to the upper end, and escapes at the chimney S. The bottom or floor of the tunnel is provided with rails *a a*, (fig. 3,) upon which travel cars K K, (fig. 1;) these cars have their platforms constructed in the form of a succession of steps, which afford level surfaces for the brick to rest upon. The tunnel A is constructed with a groove or depression G (fig. 4) in its floor, which is occupied by the running gear of the cars, and as the heat passes through the tunnel above the platform of the cars, their running gear is but little exposed to the baking heat of the kiln. H H (fig. 3) is a side track by which the cars are run to the top of the kiln; *m m* (fig. 1) are secondary cars which run on the lateral tracks J J, I I, (fig. 3,) and convey the brick cars K K from the side-track H to the upper mouth of the tunnel, or from its lower mouth to the said side-track H, and by this means make the track for the cars K circuitous. The cars K (fig. 1) have upon each side and under their platforms a toothed rack *p*, and at the lower mouth of the tunnel there is a cross-shaft, having two pinions, *e e*, which engage with the racks *p*, to ease the cars down the grade when a car is withdrawn from the said lower mouth of the tunnel; the pinions *e e*, with their shaft, are operated or controlled by gears E and crank *f*. In fig. 4, the car K is shown loaded with brick *n*, as it emerges from the lower mouth of the tunnel A.

Its operation is as follows: The tunnel is first filled with cars loaded with unburned brick, and the fires are then started in the furnaces D D, and the heat finding its way through the brick, passes to the upper end of the tunnel, and escapes from the chimney. When the car-load of brick nearest to the fires has been sufficiently burned, then the lower door B is hoisted, and the lower car is run out, and by this means all of the cars move forward or down the tunnel the length of one car, and space is left at the upper end of the tunnel for another car of unburned brick; a car-load of unburned brick is then run up the outside track H, and placed in the upper end of the tunnel; the doors are then closed, and the burning process continued until a second car-load is sufficiently baked, and then the operation is repeated as before; and so the operation of burning is made "perpetual." Such method of burning bricks has important advantages, in saving of fuel, and also keeping up a steady supply of brick for delivery. The wheels on which the cars K are supported, may be dispensed with, and the cars be made to slide by their own gravity down the slope of the tunnel; but the former method I consider preferable. I propose to use these carriages in kilns for burning all kinds of clay goods or manufactures, such as tiles, pottery ware, &c.

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

1. The groove or way G, in the tunnel A, and the cars K K, in combination with their running gear, all arranged to operate substantially as and for the purpose specified.
2. The combination with the cars K K, and the supplemental cars *m m*, tracks *a*, H, I, and J, arranged as herein described, and employed to permit the cars to be moved circuitously, in the manner and for the purpose specified.

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