

J. F. DORNFELD.

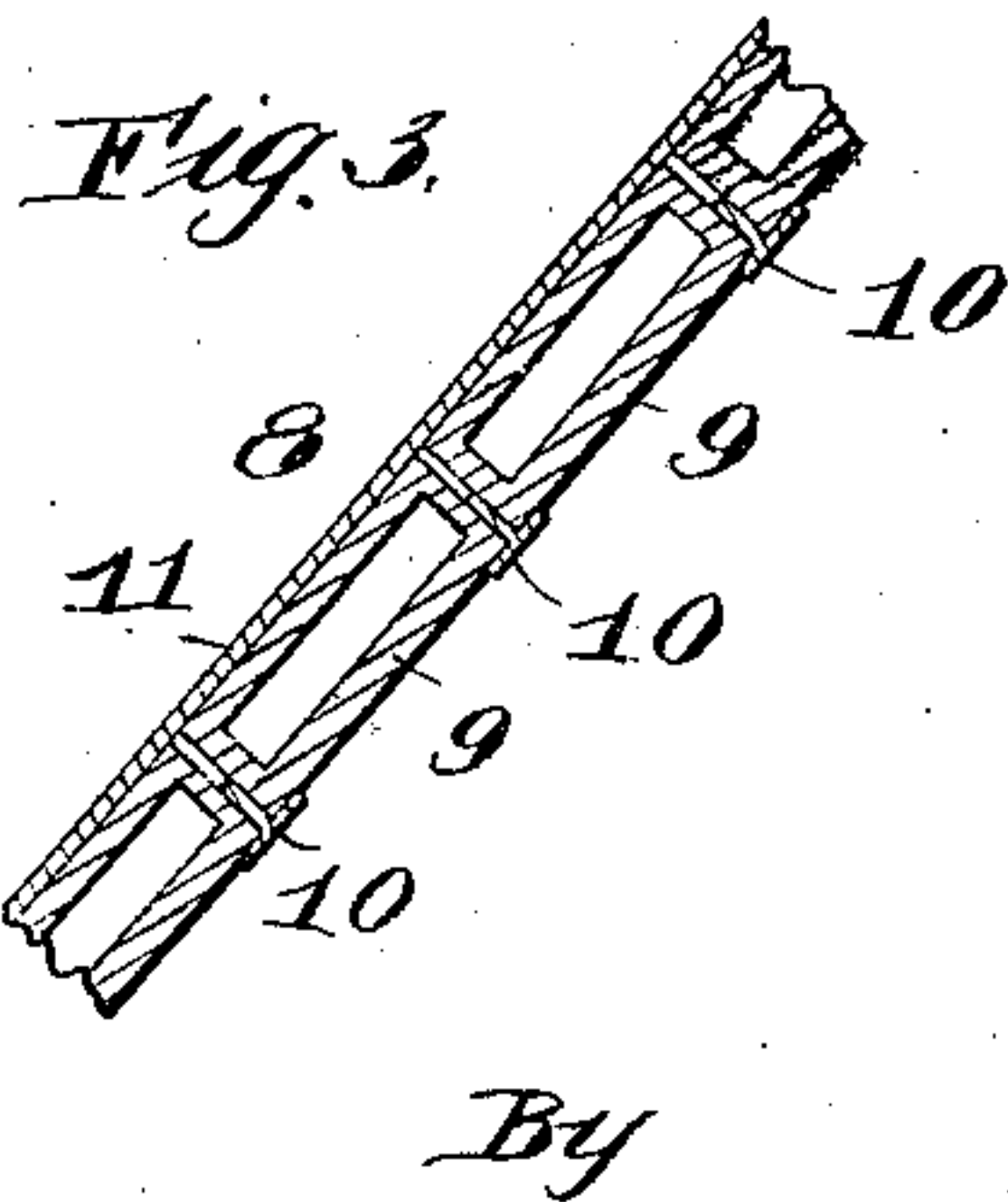
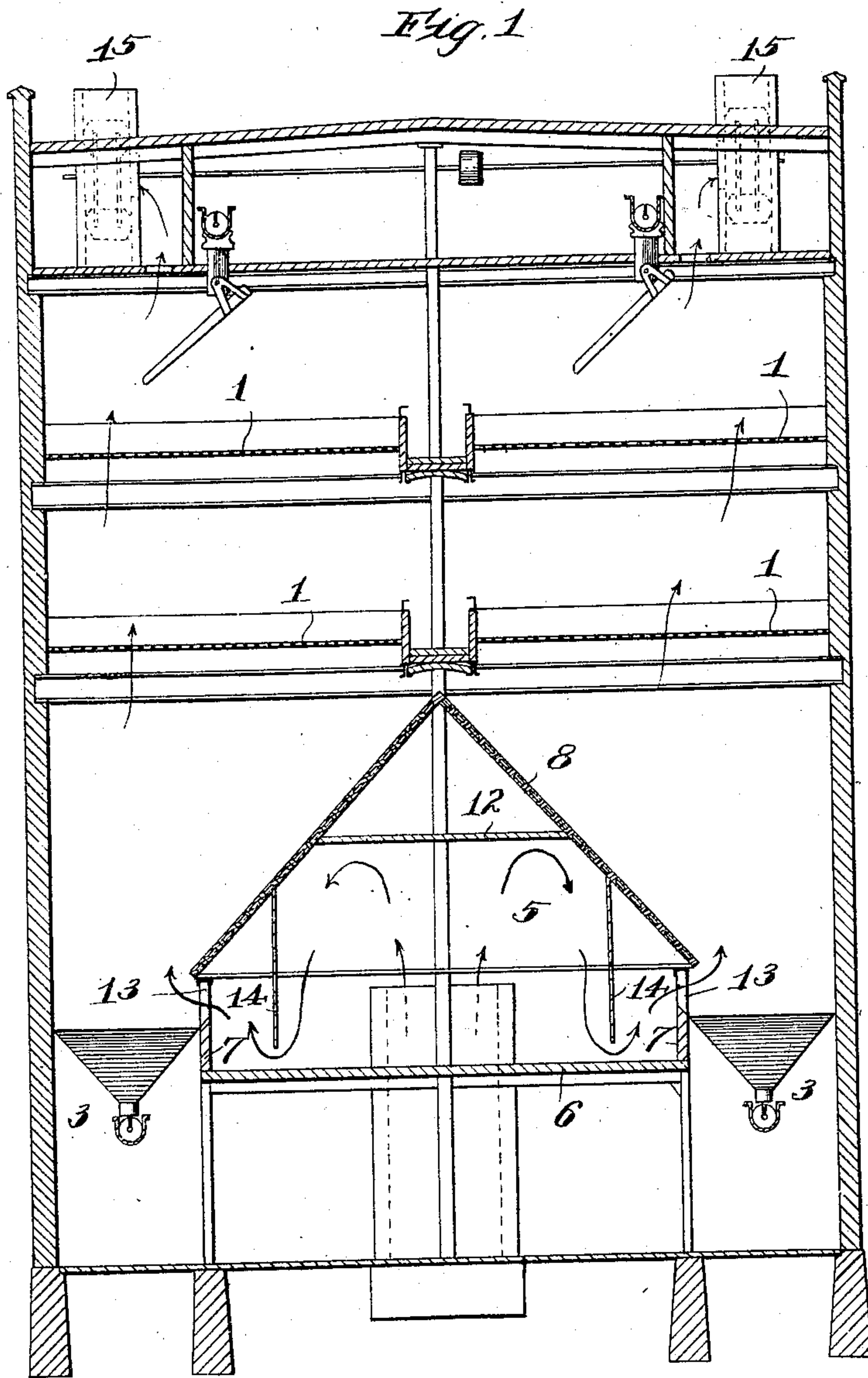
MALT KILN.

APPLICATION FILED DEC. 30, 1907.

966,669.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1.



Witnesses:

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By

Inventor:

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2 SHEETS—SHEET 2.

Fig. 2

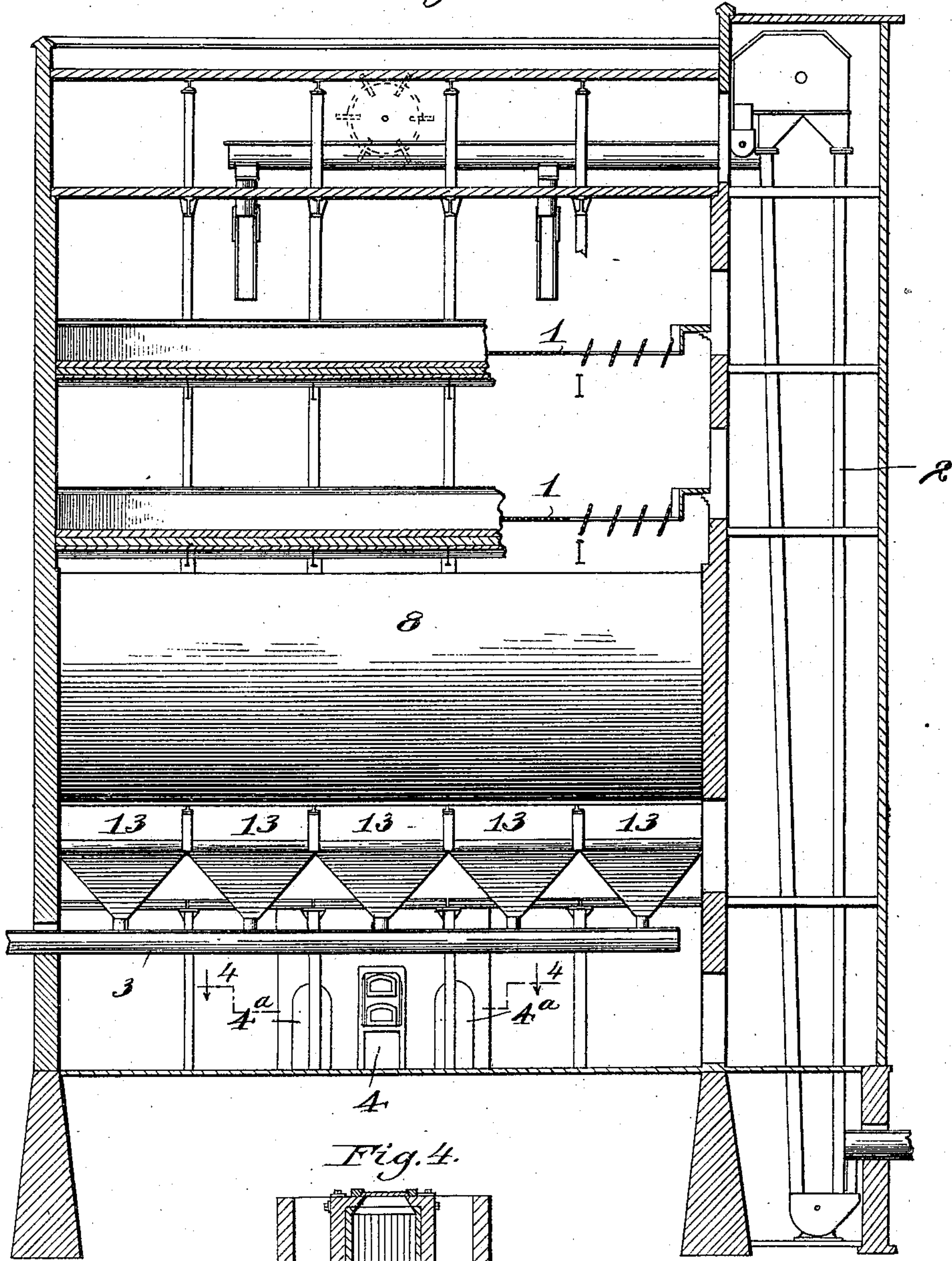


Fig. 4.

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UNITED STATES PATENT OFFICE.

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MALT-KILN.

966,669.

Specification of Letters Patent.

Patented Aug. 9, 1910.

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To all whom it may concern:

Be it known that I, JOHN F. DORNFELD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Malt-Kilns, of which the following is a specification.

This invention relates to malt kilns. As such kilns have heretofore been constructed it has been exceedingly difficult and often impossible to obtain a uniform temperature upon all portions of a given drying floor.

The object of my invention is to provide means for obtaining a thorough commingling of the hot air from the furnace and the cold air; for removing ashes from the current of warm air; for preventing the radiation of heat from the heat-supplying means to the adjacent parts of the drying floors; and in other ways to improve the construction of malt kilns.

In the accompanying drawings, which are largely diagrammatic, Figure 1 is a vertical section through a malt kiln embodying the features of my invention. Fig. 2 is a vertical section through the kiln, said view being taken in a plane at right angles with the plane upon which Fig. 1 is taken. Fig. 3 is a sectional detail of a gable structure comprised in the heat-supplying means. Fig. 4 is a horizontal sectional view of the hot and cold air-supplying means on dotted line 4 4 of Fig. 2.

The embodiment selected for illustration comprises any desired number of dumping floors 1 and suitable means, such as a conveyor 2, for depositing the green malt upon the upper dumping floor. After being exposed upon the upper floor for a proper length of time, the malt is dumped onto the next lower floor. After remaining upon the lowest floor until thoroughly dried the malt is dumped into conveyers 3 extending longitudinally of the building at each side thereof.

The heat-supplying means is located in the lower central portion of the building and comprises in this instance a furnace 4 for supplying heated air, and openings 4^a through which cool air is drawn by the exhaust fans to be hereinafter described. The hot and cold air is discharged into a mixing chamber 5 having a floor 6, vertical side walls 7, and a gable roof 8, this form of roof being adapted to shed the malt dumped from the floor above and to direct the malt

into the conveyers 3. In order to make the building as low as practicable and thus economize in the construction of the building, the lower dumping floor is placed as near the heat-supplying means as possible. The upper portion of the gable roof 8, therefore, extends close to the lower dumping floor. As heretofore constructed it has been common to make the roof of metal, in consequence of which heat has been radiated directly to the adjacent portions of the dumping floor, thus overheating the malt upon said portions of the floor. To prevent such radiation, I make the gable roof 8 as nearly non-conducting of heat as possible, as, for example, by constructing it of hollow tiles 9. Any suitable method of building up the tiling into the structure 8 may be employed. As herein shown, the tiles are laid in horizontal courses upon and supported by T-iron beams 10 extending longitudinally of the roof. The outer sides of the roof are made smooth in any suitable way, as by means of a coat of cement 11 applied to said roof. I further provide within the gable roof a horizontal partition 12, extending from one end of the chamber 5 to the other and cutting off the portion of said chamber above said partition from the portion of the chamber below it. The heated air is thereby prevented from ascending to the peak of the roof, the partition 12 also serving to secure a commingling of the cold and hot air.

In the side walls 7 of the chamber 5 are formed any suitable number of outlet openings 13. Further to assist in a thorough commingling of the cold and hot air, I arrange within the chamber 5 intermediate the furnace 4 and the side walls 7 baffle plates 14, said plates being attached at their upper ends to the roof 8 and extending to within a short distance of the floor 6.

Exhaust fans 15 may be provided in the upper part of the building for inducing an upward movement of the heated air through the various dumping floors.

In operation, the circuitous path provided for the hot and cold air by the partition 12, baffle plates 14, and openings 13 cause the hot and cold air to be thoroughly mixed previous to its discharge from the chamber 5. The changes in direction of flow which the partition 12 and the baffle plates 14 impose upon the air current also afford the ashes carried by said current an opportunity to be deposited in the chamber 5. The partition

12 and the non-conducting roof 8 prevent radiation of heat from the chamber 5 to the adjacent parts of the lower dumping floor, thus preventing such portions of said floor 5 from becoming overheated.

It will be observed that I obtain a thorough mixing of the hot and cold air without the employment of mechanical means and without increasing the distance between the 10 heat-supplying means and the dumping floors, thus obviating the necessity for increased original cost of the building and increased expense in operation.

I claim as my invention:

15 1. A malt kiln comprising a mixing chamber having a gable roof and side walls provided with outlet openings; heat supplying means located approximately centrally of said mixing chamber; a horizontal partition 20 preventing the entrance of the heated air to the upper part of said gable roof; and vertical baffle plates depending from said roof to a point near the floor of said chamber, said plates extending between the heat-supplying means and the side walls of the 25 mixing chamber.

2. A malt kiln having a mixing chamber and a drying floor therein, said mixing

chamber being provided with a roof which approaches close to said drying floor, said 30 roof being constructed of a substantially non-conducting material.

3. A malt kiln having a dumping floor and a mixing chamber therein, said mixing chamber having a gable roof, the peak of 35 which approaches close to the dumping floor and a partition in said chamber for preventing the entrance of the heated air to the upper portion of said gable roof.

4. A malt kiln comprising a mixing cham- 40 ber extending from one end of the kiln to the other, said mixing chamber having a horizontal series of outlet openings in its vertical side walls; air-supplying means located approximately centrally of said mix- 45 ing chamber; and vertical baffle plates extending parallel with the side walls of said chamber to a point near the floor of said chamber, and compelling the current of air to take first a downward and then an up- 50 ward direction of movement.

JOHN F. DORNFELD.

Witnesses:

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