

W. D. ANDREWS.

Improvement in Apparatus for Heating Gravel.

No. 128,351.

Patented June 25, 1872.

Fig. 1.

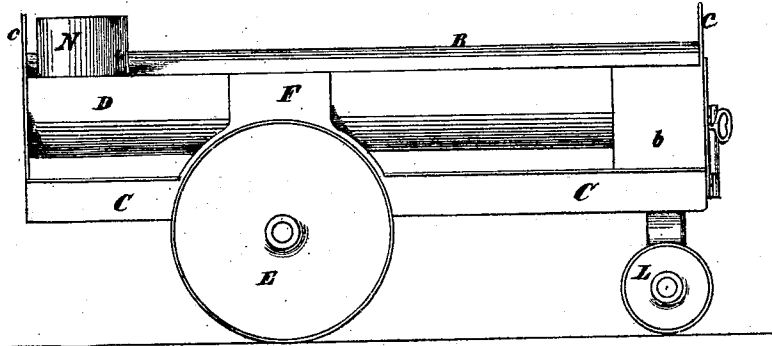


Fig. 2.

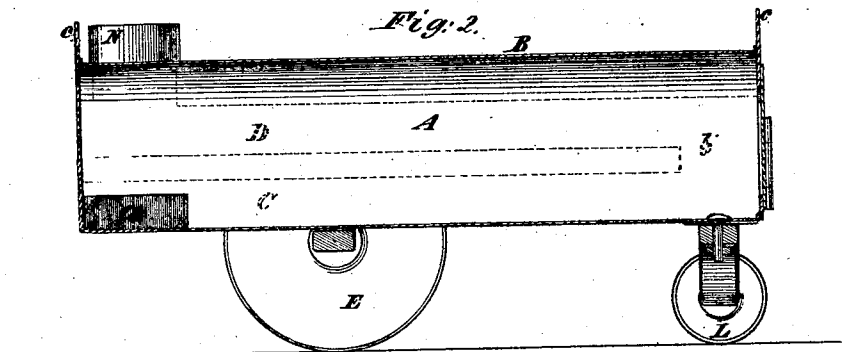
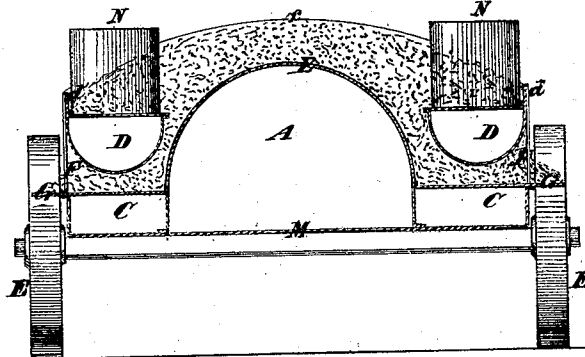


Fig. 3.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN APPARATUS FOR HEATING GRAVEL.

Specification forming part of Letters Patent No. 128,351, dated June 25, 1872.

Specification of a Gravel-Pan for Heating Gravel for Roofing and Paving Purposes, invented by WILLIAM D. ANDREWS, of Brookhaven, in the county of Suffolk and State of New York.

This invention consists in a novel arrangement in relation with the central arch and fire-chamber of return and redirect side flues, whereby the products of combustion are retained till all their available heat is spent, and a consequent saving of fuel is obtained, and also a greater heating-surface is obtained for the gravel. It also consists in a combined wheel-guard and flue-brace, whereby the gravel is prevented from interfering with the wheels and the flues are strengthened. Also, in the construction and arrangement of the tops of the return-flues to form shelves, toward which the hotter portion of the gravel gradually descends from the arch of the furnace to make room for a new supply, and from which it can be conveniently shoveled away as required for use, making the operation of the pan perfectly continuous, so that it yields a constant supply of heated material.

In the accompanying drawing, Figure 1 is a side view of a gravel-pan constructed according to my invention. Fig. 2 is a longitudinal section of the same; and Fig. 3 is a transverse section thereof.

Similar letters of reference indicate corresponding parts in all the figures.

A is the fire-chamber, composed of an arch, B, extending the whole length of the pan, and secured at its base to the bottom plate M. This chamber is provided at the front end with a door for the introduction of fuel, and has on each side, near its rear end, an opening, *a*, communicating with one of two return-flues, C C, which extend along the exteriors of lower parts of the sides of the fire-chamber immediately above the plate M, and which communicate at their front ends, by breechings *b b*, with the redirect-flues D D. These flues are arranged over and at some distance above the return-flues, and at a short distance from the arch B B, leaving an intermediate space, through and into which the gravel settles and passes down from the top of the arch B. The said redirect flues are entirely below the level of the crown of arch B, and they communicate

at the rear end of the pan with two chimneys, N N. The ends of the pan extend considerably above the top of the central arch, as shown at *c c*, and the sides extend some distance above the upper flues D D, as shown at *d d*, but the sides are open between the flues C C and D D. The tops of the return-flues form portions of shelves G G, which are extended laterally beyond the outer sides of the flues, as shown in Fig. 3. The pan is mounted on wheels, in the usual or any suitable manner. The shelves G G are recessed opposite the hind wheels for the passage of those portions of the said wheels that project above them; and from their notched portions plates F F, forming flue-braces, extend from the flues C C to the flues D D, the said plates being parallel with the length of the flues, and having their lower portions arc-shaped, as shown in Fig. 1, to form wheel-guards for preventing the gravel from interfering with the wheels.

The gravel to be heated is spread over the top of the central arch and the flues D D, and a portion of it runs down from the arch into the spaces between the arch and flues D D, and between flues C C and those D D, and onto the shelves G G. The products of combustion escaping from the fire-chamber pass into the return-flues, and through them into the redirect-flues and out of the chimneys. The gravel situated above the central arch and on the top of the flues D D is heated from below, and that on the shelves G, being between the return and redirect flues and on the shelf, is heated both from above and below, as well as from the side next the arch, and will always be the hottest; and it is from these shelves that it is taken in shovels as required for use, the shovels being introduced at the sides of the pan under the flues D D. The fresh gravel is supplied at the top of the arch and the flues D D, and as fast as any is shoveled away from the shelves G G more works down from the arch to take its place, so that by supplying fresh gravel on the top of the arch as fast as that which is heated is shoveled away from the shelves the operation of the pan is made continuous, and an uninterrupted supply of heated gravel is kept up. The gravel on the tops of the flues D D should be raked off toward the arch as fast as it is heated, and

fresh gravel should be spread on the said flues to take its place.

Claims.

1. The gravel-pan, constructed with return and redirect side flues arranged relatively to the central arch and fire-chamber, substantially as and for the purpose herein set forth.

2. The combination, with the flues C D, of the brace E, constructed and arranged substantially as herein described, whereby it is

made to constitute a wheel-guard, substantially as described.

3. The shelves G G formed on the top of the flues C C, and arranged relatively to the central arch or fire-chamber, substantially as and for the purpose specified.

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Witnesses:

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