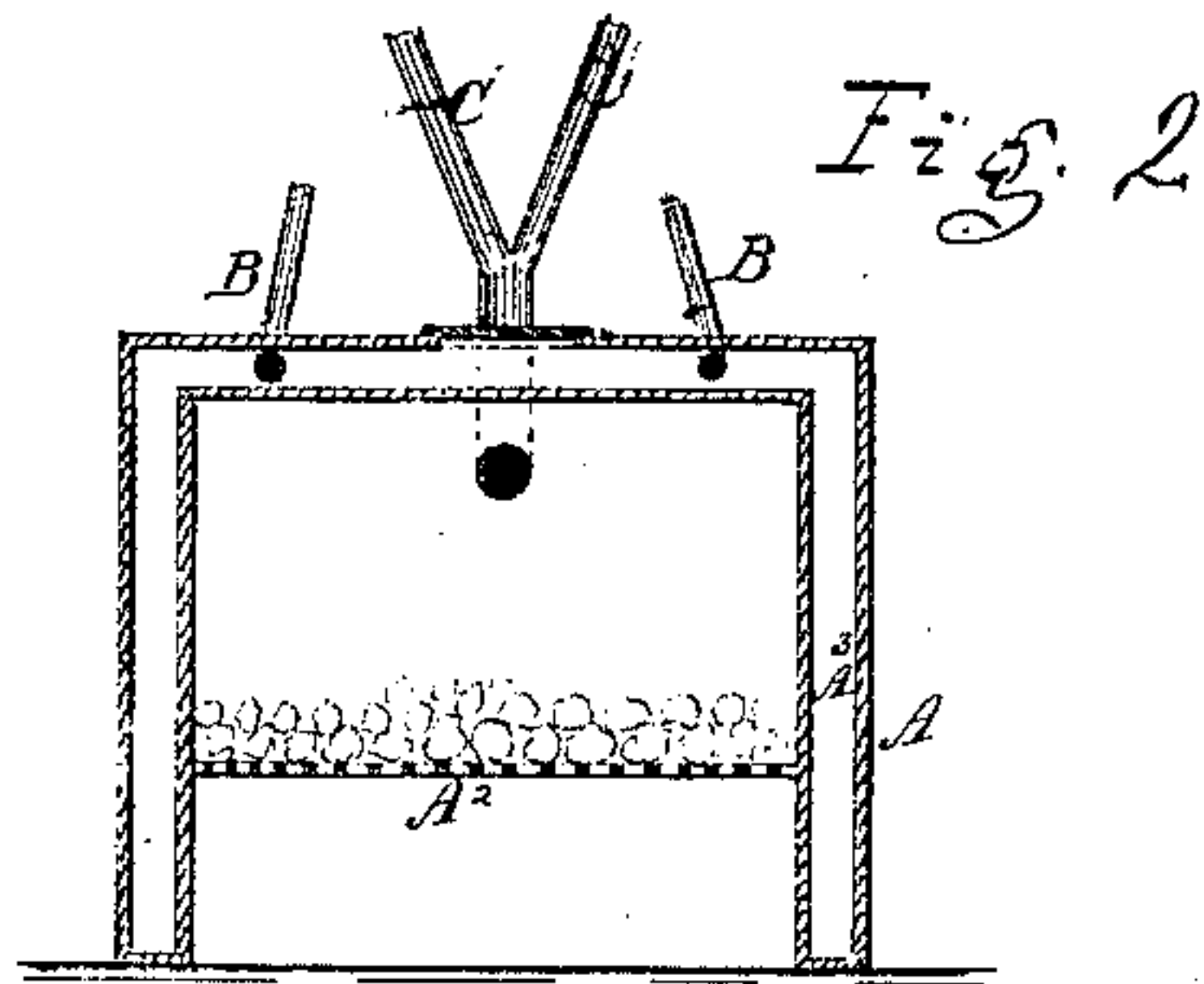
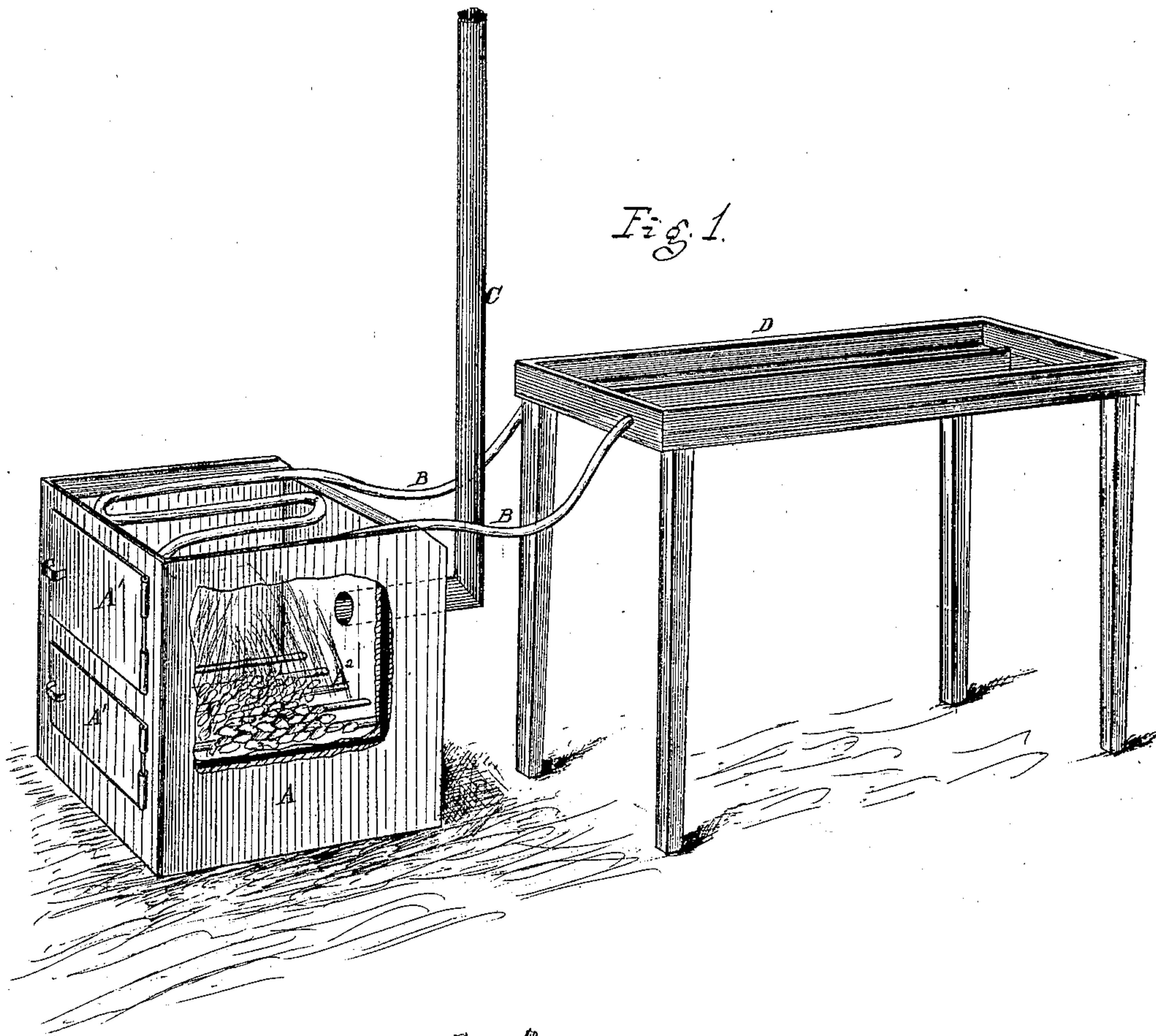


W. CHALMBERS.

APPARATUS FOR HEATING PROPAGATING BEDS.

No. 112,220

Patented Feb. 28, 1871.



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Attys



# United States Patent Office.

WILLIAM CHALMERS, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 112,220, dated February 28, 1871.

## IMPROVEMENT IN APPARATUS FOR HEATING PROPAGATING-BEDS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, WILLIAM CHALMERS, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Heating Propagating-Beds; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing making part of this specification, in which—

Figure I is a perspective view of my improved device, showing the furnace or fire-box in which the fuel is burned, the water-pipes in which the water is heated, and the water-reservoir over or upon which the cuttings or seeds are placed.

Figure II shows a modification of my devices.

Corresponding letters refer to corresponding parts in both figures.

In green-houses, propagating-gardens, and other places where plants are propagated, it is of great importance that some cheap and effective devices should be had by means of which the beds in which the plants or seeds are placed can be readily warmed; and

My object in the present invention has been to provide such an apparatus; and, to this end,

This invention consists in the arrangement of the parts of which it is constructed, as will be more fully described hereinafter.

A in the drawing refers to the furnace or fire-box, which may be of brick or of any other refractory material, but which, as a matter of economy in fuel, I prefer to make of metal, and, when so made, to provide a water-space, A<sup>2</sup>, upon all of its sides, except the lower or bottom side, which is left open for the escape of ashes, and for the admission of air for the support of combustion.

The front or some other side of this box is to be provided with doors for the admission of fuel and for the removal of ashes, as shown at A<sup>1</sup> A<sup>1</sup>, Fig. I. When made of bricks, or of other material other than metal, an iron plate may be provided upon which to erect the structure, so as to make it a portable one, and it may be left open at the top, as shown in Fig. I; but when made of metal it will be closed at the top, as shown in Fig. II, and a water-space provided, as there shown.

A<sup>2</sup> refers to the grates, which may be of the usual kind when a brick furnace is used, but which, when a metal one is used, may consist of a series of pipes communicating with the water-space upon the sides of the same, as shown in Fig. I.

B B refer to a pipe or pipes, which may be arranged, as shown in Figs. I and II, according to the kind of furnace to be employed.

The arrangement, shown in Fig. I, is such that they connect and communicate with the water-space in D, from which point they extend to and pass

through the furnace A, in the manner shown in Fig. I; or that portion which is within said furnace may consist of a coil.

The water which is contained in the reservoir D flows into these pipes and becomes heated, while in that position, which is within the furnace, and, as the point at which, in its circulation, it enters the reservoir is above the point where it is taken out to supply the pipe, it follows that a constant stream will be kept up through such pipe, and that, as a consequence, all the water in the reservoir will be heated to any desired extent.

When a metal furnace is used the circulating-pipes O O will be connected to the water-space, as shown in Fig. II, and thus the entire surface of the box will become heating surface.

O refers to the smoke-pipe or up-take, which, when attached to a metal furnace, as shown in Fig. II, may be branched, as there shown, so that the heat escaping through it may be carried to different parts of the building in which it is placed. By placing dampers in the branches of this pipe the heat may all be turned in one or the other direction, or it may be divided and a portion thereof directed in both directions at the same time.

D refers to the water-reservoir, to which the circulating-pipes are connected. It is mounted upon legs, as shown, and is open at its top, so that any box containing the earths of any kind, which constitutes the bed in which propagation is to take place, may be set thereon, and be heated to any desired extent by the water which circulates through it, first on one side of the dividing partition and then on the other. The depth of this reservoir may be such as to suit the views of the constructor, its dimensions otherwise being such as to render it portable and easily removed from point to point by the men usually in attendance.

It will be apparent that such a device as I have herein described will furnish a cheap and portable means of heating beds for the propagation of plants or seeds, and that it may be placed in any convenient position for a given purpose, and afterwards removed to any other position in the same or any other building.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

The arrangement of the furnace A, circulating-pipe or pipes B B, and the water-reservoir D, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WM. CHALMERS.

Witnesses:

FRED. KOONES,  
B. EDW. J. EILS.