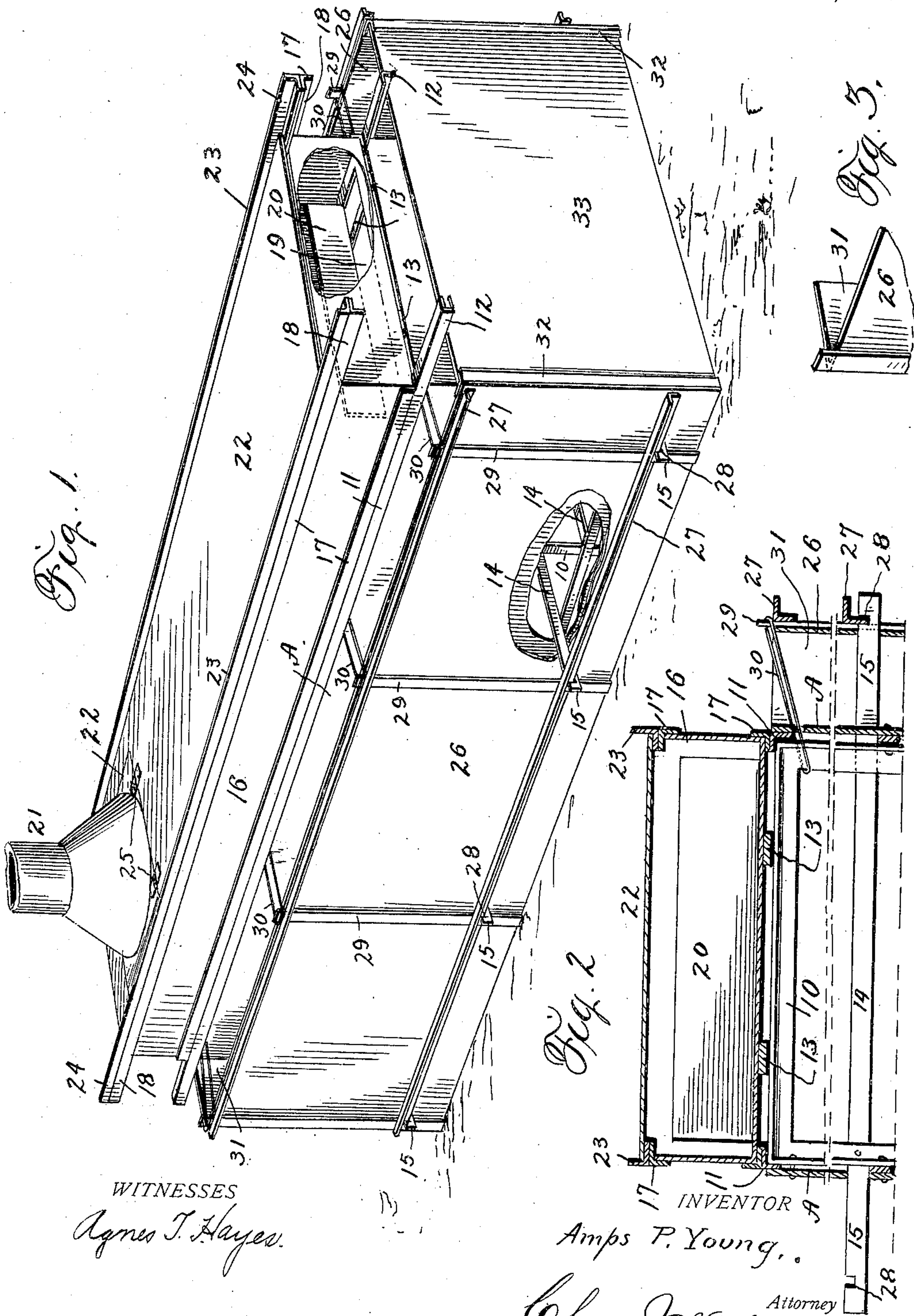


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SOIL STERILIZING FURNACE.  
APPLICATION FILED JUNE 11, 1909.

976,768.

Patented Nov. 22, 1910.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

AMPS P. YOUNG, OF CAVE CITY, KENTUCKY.

## SOIL-STERILIZING FURNACE.

976,768.

Specification of Letters Patent.

Patented Nov. 22, 1910.

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*To all whom it may concern:*

Be it known that I, AMPS P. YOUNG, of Cave City, county of Barren, and State of Kentucky, have invented certain new and useful Improvements in Soil-Sterilizing Furnaces, and do hereby declare that the following is a full, clear, and exact description thereof.

The object of my invention is to reduce the cost of sterilizing soil, and I attain this by the construction of a furnace that will be simple and convenient of manipulation, so that a minimum of labor and time will be required in operating it, and which will utilize to the utmost, so as to be profitable, all the heat generated in the furnace.

For the attainment of my object, my invention consists in the furnace having the features of construction substantially as hereinafter specified and claimed.

Referring to the accompanying drawings, Figure 1 is a perspective view of the furnace embodying my invention in readiness for use, portions being broken to illustrate the pan construction. Fig. 2 is a detail view in cross section of the upper and lower portions of the furnace on a larger scale. Fig. 3 is a detail perspective view of a front end portion of one of the side boards.

In the furnace shown to illustrate my invention, a frame is employed that is composed of a series of legs 10, each preferably formed of a single piece of iron bar bent into an inverted U-shape, the horizontal top members of the legs being connected by several longitudinally extending bars 11 which form the support for the top soil holding pan hereinafter more fully described. The two longitudinally extending bars 11 at the extreme sides of the frame are extended to form handles 12, by which to conveniently move the furnace about. Besides being connected by the longitudinally extending top bars 11, the legs are connected by longitudinally extending bars 13. Secured to the legs 10, as by rivets or bolts, are pieces of heavy sheet iron that form the sides A of the fire box of the furnace.

A furnace embodying my invention may be constructed to use oil, coal, wood, trash, or any other combustible substance, but the furnace I illustrate is for burning wood, it being provided with a grate composed of a number of transverse parallel bars 14 fastened to the legs 10 near the bottoms thereof, say five inches from the ground. Prefer-

ably, alternate ones of the grate forming bars are longer than the others, so that they project on both sides beyond the legs in the form of extensions 15, for a purpose set forth hereafter.

The soil pan 16 is made of heavy sheet iron, stiffened on its edges at top and bottom by angle bars 17, the top angle bars projecting at each end to form handles 18, by which the pan may be conveniently manipulated. In the bottom of the pan 16, near the rear end thereof, is a hole or opening 19, that extends from side to side thereof, and is formed by cutting the bottom longitudinally at each side and then transversely, the partially severed piece being bent upward to form a partition or wall 20 at the front edge of the hole or opening to confine the soil placed in the pan. Said hole or opening is formed for the passage up into the pan of the smoke and products of combustion, which thence pass horizontally through the pan to the front end of the furnace, at which is provided the smoke stack or flue 21, it being mounted on the cover 22 of the pan. Said cover is made of sheet iron, and bound or stiffened on its opposite edges by angle bars 23, that are projected at each end to form handles 24 for the convenient handling of said cover. Preferably, the smoke stack has a hinge connection 25 at its bottom with the pan cover, so that it may be turned to and from a vertical position at will, it being lowered or swung down to facilitate handling.

Besides the holder or pan for soil at the top of the furnace, I provide a holder at each side thereof, so as to utilize the heat at the sides of the furnace, as well as at the top. It is in this connection that I utilize the extensions of certain of the grate bars, such extensions being used to aid in supporting the vertical walls 26 that form the outer sides of the soil holders or receptacles at the furnace side, said walls or side boards being formed of sheet iron with longitudinally extending angle bars 27 at the top and near the bottom at a point where the bottom bar can engage or interlock with notches 28 in the grate bar extensions. At intervals, each side board is braced by vertical posts or bars 29 that extend a short distance above the top of the side board to engage wire loops 30 that are secured to and extend from the fire box side, and thus support the side boards at the top. At its front end, each side board is bent inwardly, to form a wall



31 that closes the soil holder at the front, and at its rear end, each side board has a vertical angle bar 32, one flange of which engages an end wall 33 that provides a soil-space at the rear of the furnace. Said end wall 33, of course, extends from one side board to the other. It will be seen that a soil-receiving space is provided on both sides of the furnace as well as at the rear end thereof.

The procedure in using my furnace is as follows: The soil to be treated is pulverized to the depth desired, and then the furnace is erected thereon with the side boards in position and the pan on top of the furnace. The pulverized soil from around the furnace is taken up, say to a depth of two or three inches, which is suitable for ordinary seed beds, and placed in the side boards to fill the space holders or receptacles which they form, and is placed within a pan to a depth, of, say, six inches. The top or cover is then placed upon the pan and some of the soil is placed thereon, the quantity of soil placed upon the top or cover being according to the fire in the furnace. When the soil being treated is hot enough to burn the hand, which takes usually about twenty minutes, it should be removed from the furnace. To do this, the wire loops 28 which hold the side boards at the top, are disengaged from the tops of the vertical posts or bars 27, and then the side boards are lifted out of engagement with the notches in the grate bar extensions and permitted to slide off said extensions. The hot soil thus discharged from the furnace sides by the removal of the side boards is spaded into a heap, and when this has been done, the side boards are replaced, and a fresh supply of soil placed within the same. Next, the hot soil from the pan top or cover and the pan 16 is removed therefrom by spading or shoveling, and a fresh quantity of soil is supplied to the pan and its top or cover. By the time this second batch of soil is hot enough, the soil under the furnace will be heated sufficiently to kill all seeds therein, and the furnace when emptied of this second batch is removed to another place and the operation above described is repeated. With a furnace burning wood, two men in one day can burn from one hundred and fifty to two hundred square yards of soil, and consume less than a cord of wood.

It is, of course, to be understood that changes in the construction of the furnace I have described may be made, which will involve no departure from the substance of my

invention, and it is therefore to be understood that I do not limit myself to the particular construction of furnace herein shown and described as an illustration of one embodiment of my invention.

What I claim is—

1. In a soil sterilizing furnace, the combination of a box forming a combustion chamber, a soil holding pan at the top thereof, a removable cover for said pan, and a smoke stack carried by said removable cover, the bottom of the pan having an opening for the passage therethrough of smoke and products of combustion into the pan.

2. In a soil sterilizing furnace, the combination of a box forming a combustion chamber, a soil holding pan at the top thereof, a removable cover for said pan, and a smoke stack hinged to and carried by said removable cover, the bottom of the pan having an opening for the passage therethrough of smoke and products of combustion into the pan.

3. In a soil sterilizing furnace, the combination of a box containing a combustion chamber, and removable side boards and an end wall extending from one side board to the other, forming soil holding spaces at the sides and end of the furnace.

4. In a soil sterilizing furnace, the combination of a box containing a combustion chamber, and removable side boards having inturned portions at one end, and an end wall at the other end of the side boards extending from one side board to the other, forming soil holding spaces at the sides and end of the furnace.

5. In a soil sterilizing furnace, the combination of a box containing a combustion chamber, bars projecting on both sides of said box provided with notches, a side board at each side of the box having a notch-engaging member, and detachable connections between the side board and the box.

6. In a soil sterilizing furnace, the combination of a box, having a combustion chamber, a soil pan at the top thereof having near one end a passage for the smoke and products of combustion into the pan, a cover for the pan, and a smoke stack mounted on the cover at the end of the furnace opposite that where the opening is provided in the bottom of the soil pan.

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