

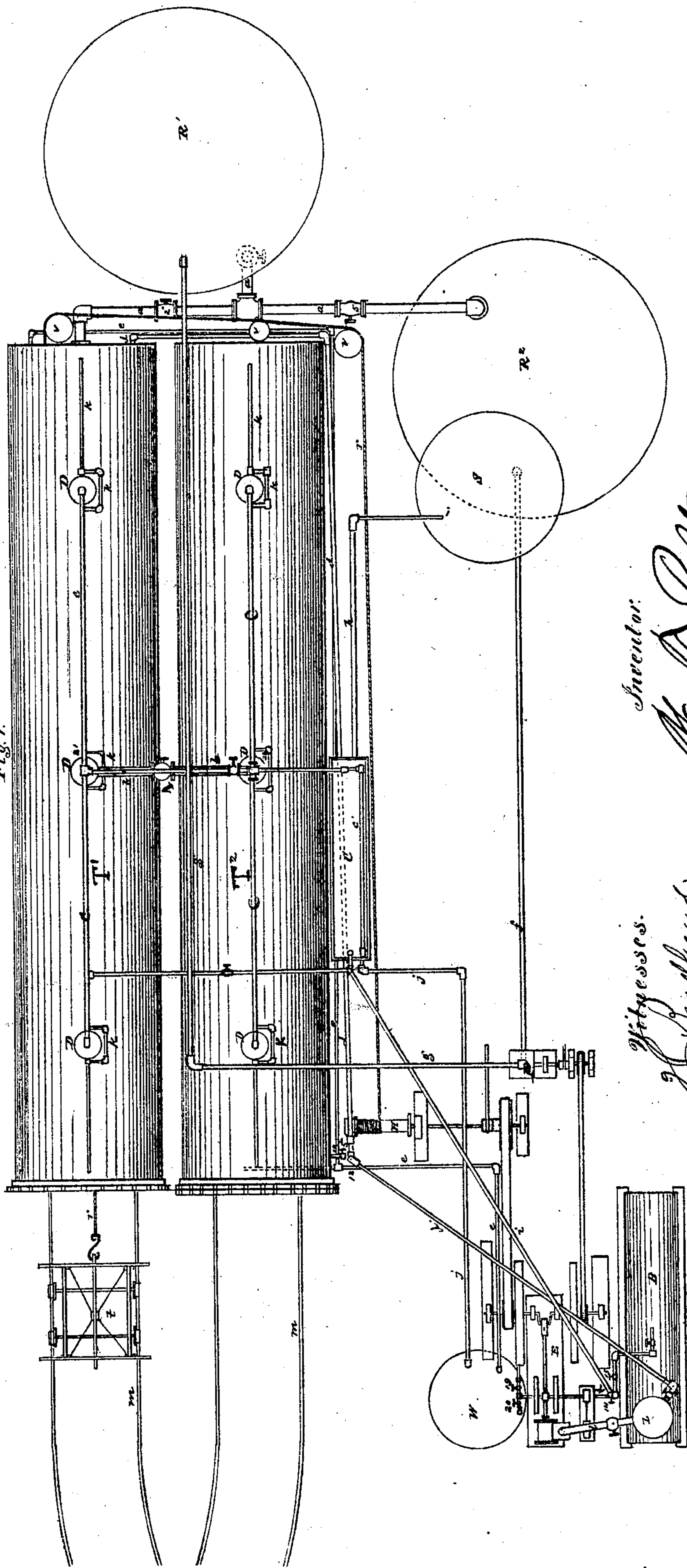
W. T. PELTON.

No. 124,080.

Improvement in Apparatus for Seasoning and Preserving Wood.

Patented Feb. 27, 1872.

Fig. 1.



Witnesses.
J. H. Wood
W. Warren.

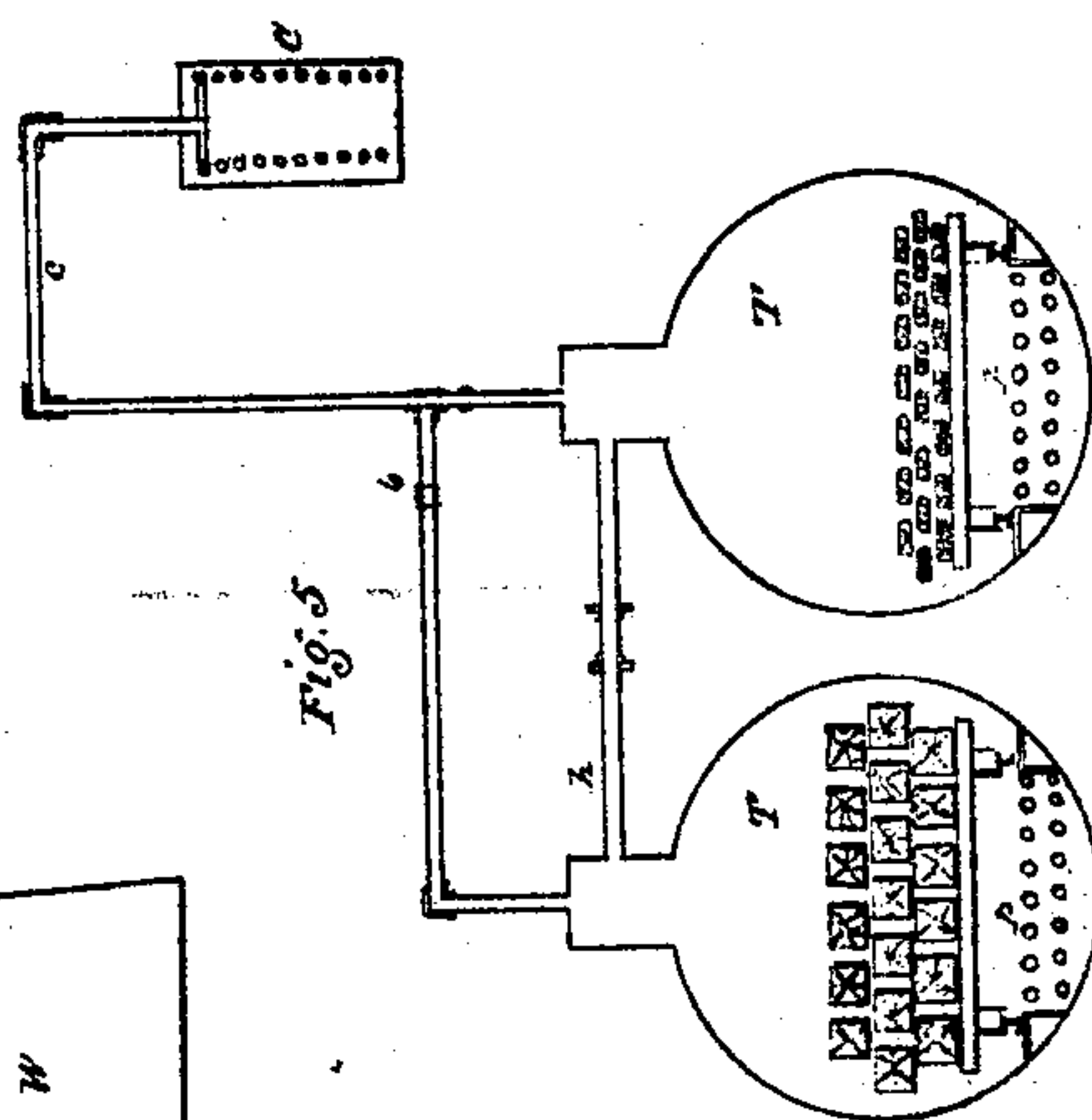
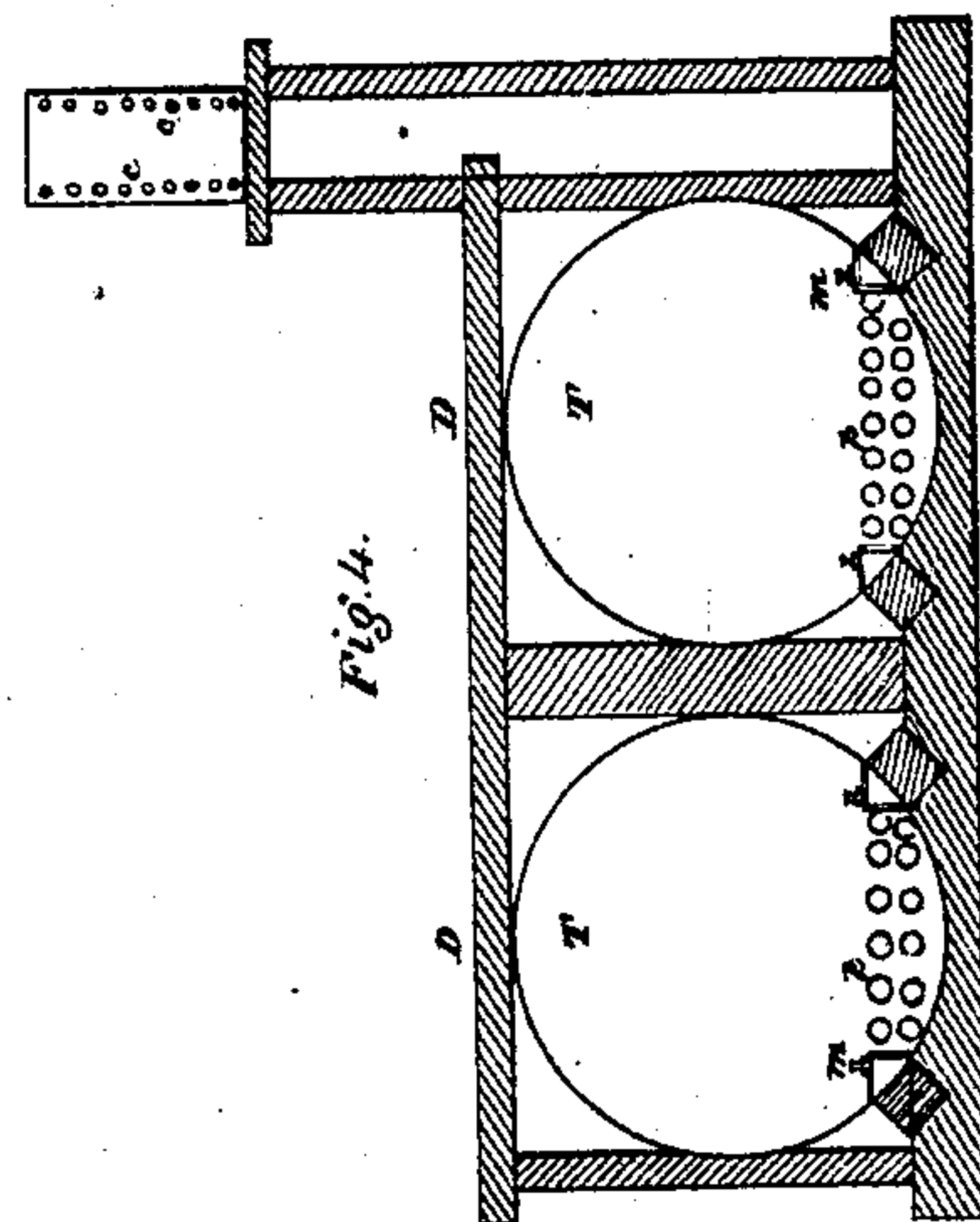
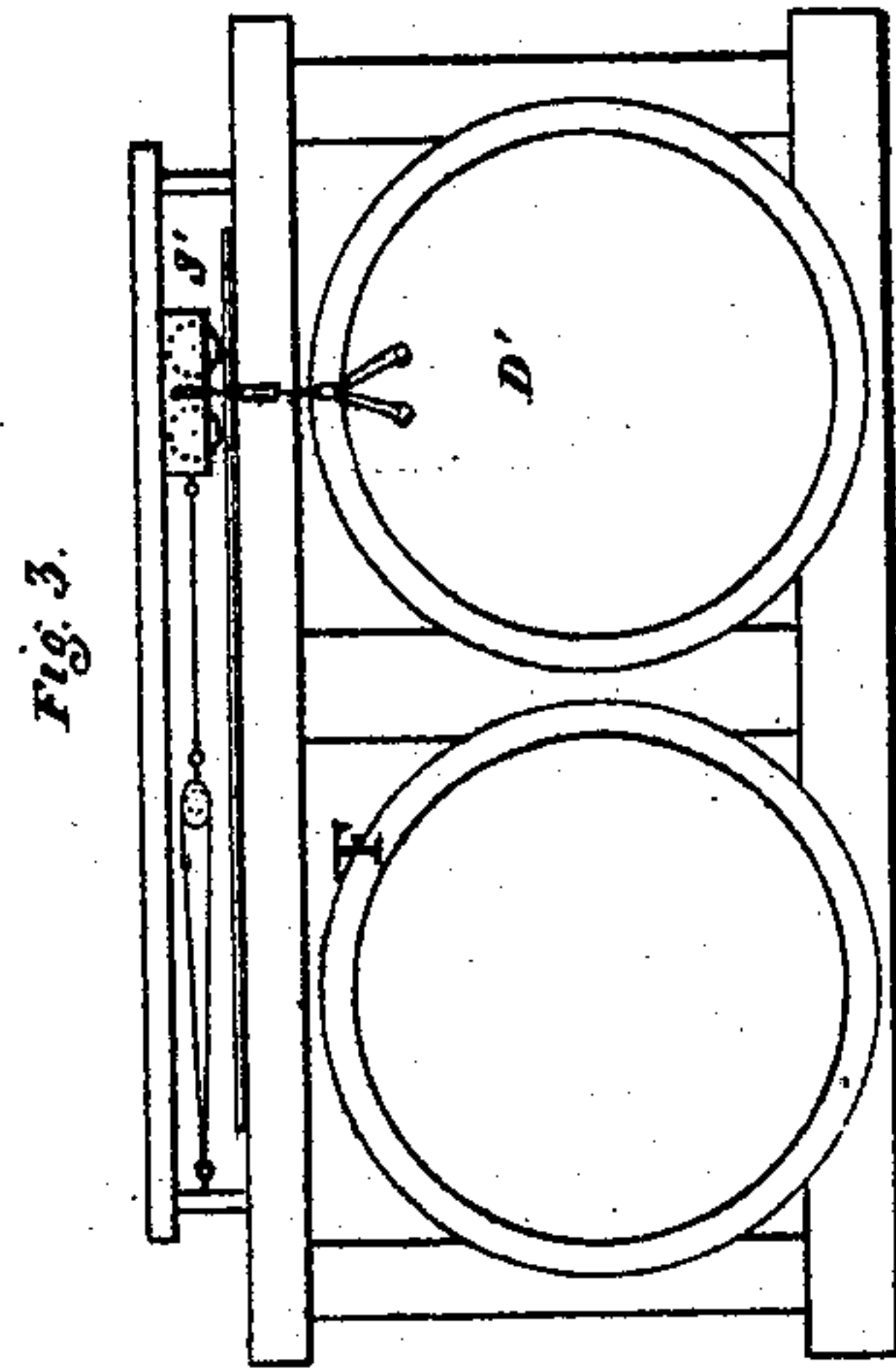
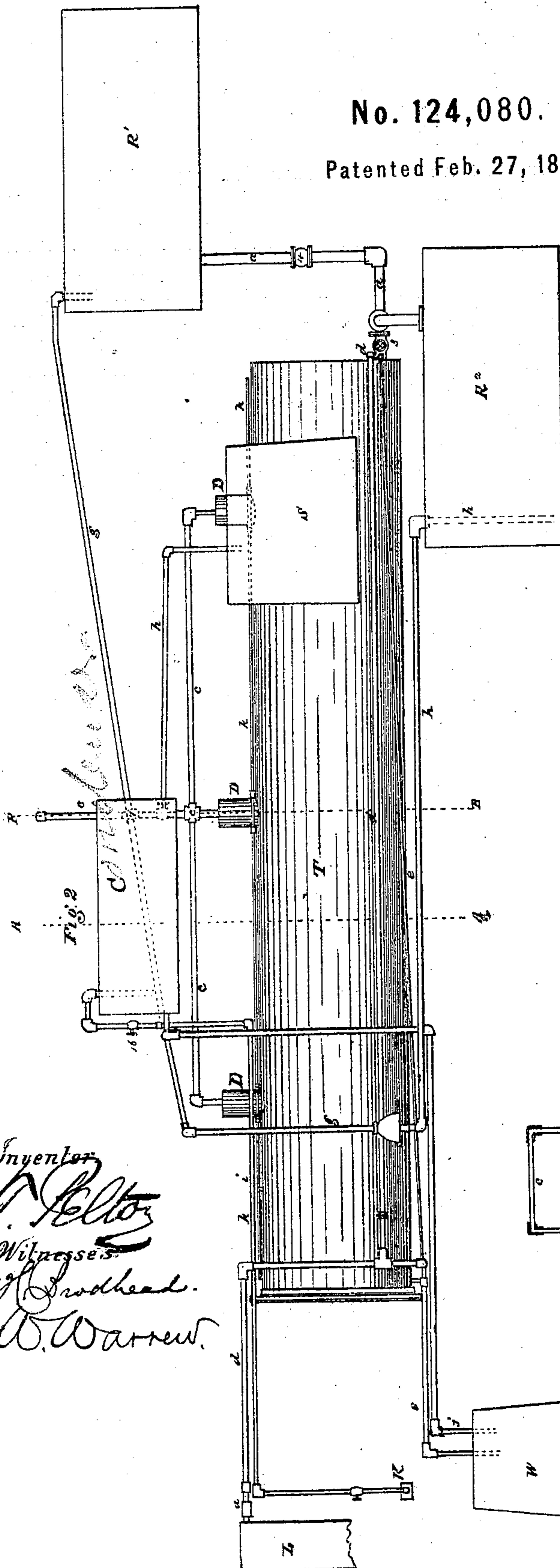
Inventor.
W. T. Pelton

W. T. PELTON.

Improvement in Apparatus for Seasoning and Preserving Wood.

No. 124,080.

Patented Feb. 27, 1872.



Inventor
W. T. Pelton
 Witnesses:
J. D. Rodhead.
W. Warren.

UNITED STATES PATENT OFFICE.

WILLIAM TILDEN PELTON, OF NEW YORK, N. Y.

IMPROVEMENT IN APPARATUS FOR SEASONING AND PRESERVING WOOD.

Specification forming part of Letters Patent No. 124,080, dated February 27, 1872.

To all whom it may concern:

Be it known that I, WILLIAM TILDEN PELTON, of the State, county, and city of New York, have made an invention, of which the following is a full description, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention consists of an apparatus and arrangement of machinery whereby desiccating and antiseptic processes for seasoning wood and impregnating wood and other suitable substances with preservative elements, whether of hydrocarbons, oleaginous, saline, or other materials may be practically applied and rendered effectual and economical.

Number 1 in the accompanying drawing is a plan of the said apparatus and its various parts and adjuncts, and Number 2 is a side elevation of the same.

$T^1 T^2$ represent two closed chambers or cylinders, in which the wood or other substance is treated. The most desirable dimensions, upon actual experiment, I find to be eight feet for the diameter of each and forty-five feet for the length, and the most desirable material light boiler-iron. These chambers or cylinders are provided with movable heads D' , Fig. 3, the most desirable material for the same being cast-iron, and are also provided with three domes, $D D D$, Figs. 1 and 2, closed at the top and opening into the chambers or cylinders. $R^1 R^2$ are vertical receiving and discharge tanks, of which the most desirable material is light boiler-iron, and the most desirable dimensions are seven feet for the height and fifteen feet for the diameter. C is an ordinary condenser, the most desirable dimensions of which I find to be four feet for the height and eleven feet for the length. S is an ordinary tank, which may be wood, and the most desirable dimensions of which are eight feet for the diameter and eight feet for the height, to receive the condensed sap and other volatile parts escaping from the treating-chambers $T^1 T^2$. E is an engine for supplying the power to haul the timber or other substance to be treated into proper position for working the pumps, &c., &c. B is a boiler supplying steam to said engine, and when the process employed requires that the treating material be heated also supplying steam to coils of pipe $p p p$ laid

in the treating-chambers to produce heat. P is a rotary pump for raising the impregnating material, if a liquid, from the lower receiving-tank R^2 to the upper discharging-tank R^1 . W is a tank to receive the water from the condenser C and the condensed steam from the heating-coils $p p p$ when employed in the treating-chambers $T^1 T^2$. K is a steam-pump for supplying water to the boiler B , the condenser C , the pipes $k k$, &c. H is a drum, to which a rope is attached to draw the timber or other substance to be treated into position, both in and out of the treating-chambers. r is the rope running around sheaves $v v v$. There are other sheaves located at a convenient distance in front of the chambers, around which the rope runs when the truck is drawn out. $m m$ is a rail-track. t is a truck or carriage on which the timber or other substance is hauled on said track. $a a$ are pipes connecting the treating-chambers $T^1 T^2$ with the receiving and discharge-tanks $R^1 R^2$. The best material for these pipes is wrought-iron, and the best size six inches in diameter. b is a similar pipe connecting the treating-chambers or cylinders $T^1 T^2$ through their central domes where more than one is employed. $c c$ are pipes to convey the vaporized sap or other volatile products to the condenser C . $c c$ are pipes composing the condensing-coil, and the best size is two inches in diameter. $e e$ are pipes discharging the steam condensed in the heating-coils. $f f$ is a pipe connecting the receiving-tank R^2 with the rotary-pump P . $g g$ is a pipe connecting the rotary-pump with discharge-tank R^1 . h is a pipe connecting the condenser C with the tank S . i is a pipe conveying water from the steam-pump K to the condenser C and through $k k$ distributing jets of water over the treating-chambers $T^1 T^2$. j is the overflow-pipe from the condenser C . $k k$ are pipes perforated along the bottom for distributing water over the treating-chambers to cool them suddenly, when desired. l is a steam-pipe conveying steam to the engine-cylinder. L is a dome, from which steam is introduced at pleasure to the pipes $p p p$ by means of the pipe $d d d$.

Fig. No. 3 shows a front elevation of the treating-chambers or cylinders with a slotted movable head, D' , swung away from one of the

chambers over the head of the adjoining one. F represents the face of a flanged ring, with slots corresponding to those in the head, into which bolts are inserted to close the end of the cylinder hermetically. The best material for the flanged ring is cast-iron. S' represents a carriage, to which the heads or doors D' are attached in turn by means of a tackle and swung by movement of the carriage away from and to the mouth of the treating-chamber or cylinder.

Fig. No. 4 is a cross-section through the treating-chambers or cylinders and condenser in plane A A, showing the condensing-coil *c c*, the rail-track *m m*, the heating-pipes *p p* in the bottom of the treating-chamber or cylinder, and the frame-work and foundation supporting the treating-chambers or cylinders.

Fig. No. 5 represents a cross-section through the treating-chambers or cylinders at their central domes and an end view of the condenser in the plane B B. *c c* are pipes conveying the vaporized sap, &c., to the condenser C. *b b* is the large pipe through which the material first employed flows from one treating-chamber to the other when two are used. Each of the treating-chambers described with the connecting apparatus can be employed whatever the treating material used, and can be advantageously employed, whether the desired treatment be by a cold bath or a hot bath, or by alternate baths of hot and cold, or by baths gradually changing from hot to cold, or whether exposure to the air is desirable at any stage of the process or otherwise. But it is particularly applicable—and your petitioner has by practical experiment not been able to devise or discover any other apparatus by the use of which wood can be seasoned and impregnated—where liquids are the seasoning and impregnating material, and where it is desired to first apply them to the wood heated in a manner to expel the sap or other contents of the pores of the wood, and then where impregnation of the wood is desired to produce a vacuum therein by means of bringing in contact with the wood-impregnating material of a lower degree of temperature, which at the same time supplies itself to fill the pores of the wood without exposure to the air.

The manner in which the apparatus described is employed in said process is evident from the description already given. The wood having been loaded on the truck standing on the track *m m*, extended to any desirable point, is drawn by the rope *r r* attached to the drum H, which is worked by the engine E till it stands within the chamber T¹, which is then hermetically closed by the movable head D' being swung across and bolted upon F. The treating material is then let into the chamber T¹ by opening valves 2 and 4 from the discharge-tank R¹ and heat being applied by means of steam let into the pipes *p p*, the material is heated to any desirable extent, the volatile products passing over through the dome D D D and pipe *c c* to

the condenser C, which is supplied with cold water by the rotary-pump K through the pipe *i*, and whence the condensed oil or other material is conducted to the tank S through the pipes *h*. During this heating process a second load of timber is drawn within the second chamber T², its movable head bolted fast, and the discharge-tank R¹ refilled from the receiving-tank R² by the rotary-pump P. Valves 2 and 4 are now reopened, and also valve 1, whereby the cold material entering the bottom of the chamber T¹ displaces that already heated, which overflows into chamber T² upon the timber already in position to be treated, where the heat is kept up by steam-pipes in the bottom as before.

The timber in T¹ having been subjected a sufficient time to the cold bath the remainder of the impregnating material is drawn off into the receiving-tank R² by opening valves 2 and 5. The movable head D' is then removed and the timber drawn out fully treated and a new load substituted upon which the hot bath of the adjacent chamber overflows in turn. Where it is desired to obtain wood seasoned and not impregnated the wood is removed from T immediately after having been subjected to the hot bath. The manner of employing the apparatus described in other processes would vary slightly with the process.

The superiority of the apparatus invented by your petitioner, and already described, becomes evident on actual trial. With an open tank for the treating-vessel the escaping gases not only make it exceedingly difficult to employ laborers in the vicinity of the tanks and tend to create a dangerous nuisance, but continually waste the material employed. The employment of the condenser as described both saves the material escaping as gas and prevents the danger of explosion by the confinement of the gases. The introduction of the cold fluid at the bottom instead of the top of the treating-chamber greatly aids the production of a vacuum by securing the immediate substitution of a cold bath for a hot bath where impregnation is desired, and whether or not a cold bath is employed, the hot fluid displaced, overflowing into the adjoining chamber, is there employed uncooled.

The movable heads, rail-tracks, truck, rope, and drum enable the operator to introduce the wood to the treating-chamber with no labor or loss of time, and arranged in any desirable shape, and to remove it with the same facility. The closed treating-chamber, with movable head and domes, in connection with the receiving and discharge-tanks, the drum, rail-tracks, truck, rope, engine, pumps, condenser, and all of the apparatus described, except the pipes for the connection of two treating-chambers or cylinders, can be used as a separate apparatus; and by a further connection of pipes in a similar manner to to one described any number of treating-chambers can be combined so that the hot bath, the cold

bath, the drawing off the liquid, and the removal of the wood can be going on simultaneously in different chambers with a minimum of treating material and of labor, of fuel, of time, and of expense.

What I claim as my invention, and petition to have protected by Letters Patent, is—

1. The whole combination of machinery and parts constituting the apparatus, substantially as described, and for the purposes set forth.

2. The introduction, by the aid of the pipes *a a* or equivalent apparatus, of the impregnating material at the bottom of the treating-chamber *T* instead of at the top, for the purpose of an immediate substitution of a cold bath for a hot bath while the material to be treated continues submerged; thus by one instrumentality, without exposure to the air, producing a vacuum in the pores of the wood and immediately furnishing the cold preserving fluid to fill the vacuum.

3. The combination of a closed chamber, wherein the treating material is brought in contact with the substance treated, with a condenser communicating with the closed chamber, whereby the volatile portions of the treating material are controlled and preserved.

4. The combination and arrangement described of the engine *E*, the drum *H* with the

ropes and sheaves, for the purpose of applying steam power to get the substance to be treated within the treating-chamber.

5. The combination of the rail-tracks *m m*, the movable head *D'*, the truck *t*, the engine *E*, the drum *H*, the rope *v v* or their equivalents, arranged substantially as described, whereby the substance to be treated is moved from point to point with great facility.

6. The apparatus described for removing and replacing the movable head—to wit: the rolling-carriage with detachable tackle *s*, in combination with the movable head *D'*, and a chamber, *T*, for treating purposes, otherwise closed.

7. The combination of the movable head *D'* and truck *t*, with the apparatus mentioned in claim fifth, for applying the steam-power.

8. The combination of two or more treating-chambers or cylinders, substantially described, and for the purposes set forth.

9. The domes *D D D* or equivalent apparatus, substantially as described, and for the purposes set forth.

W. T. PELTON.

Witnesses:

H. BRODHEAD,
W. WARREN.