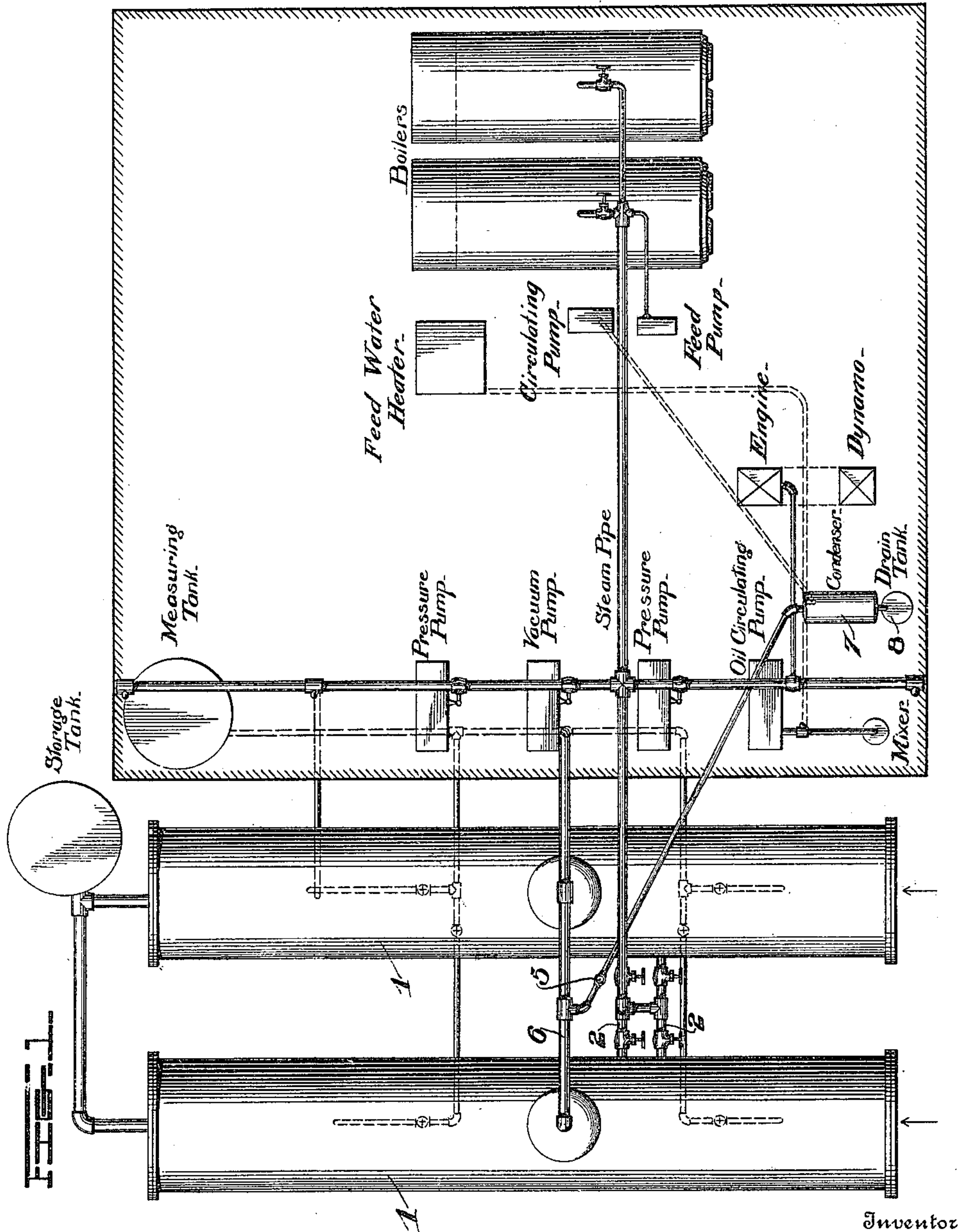


952,888.

Patented Mar. 22, 1910.

3 SHEETS--SHEET 1.



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Witnesses

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Anita J. Morrison

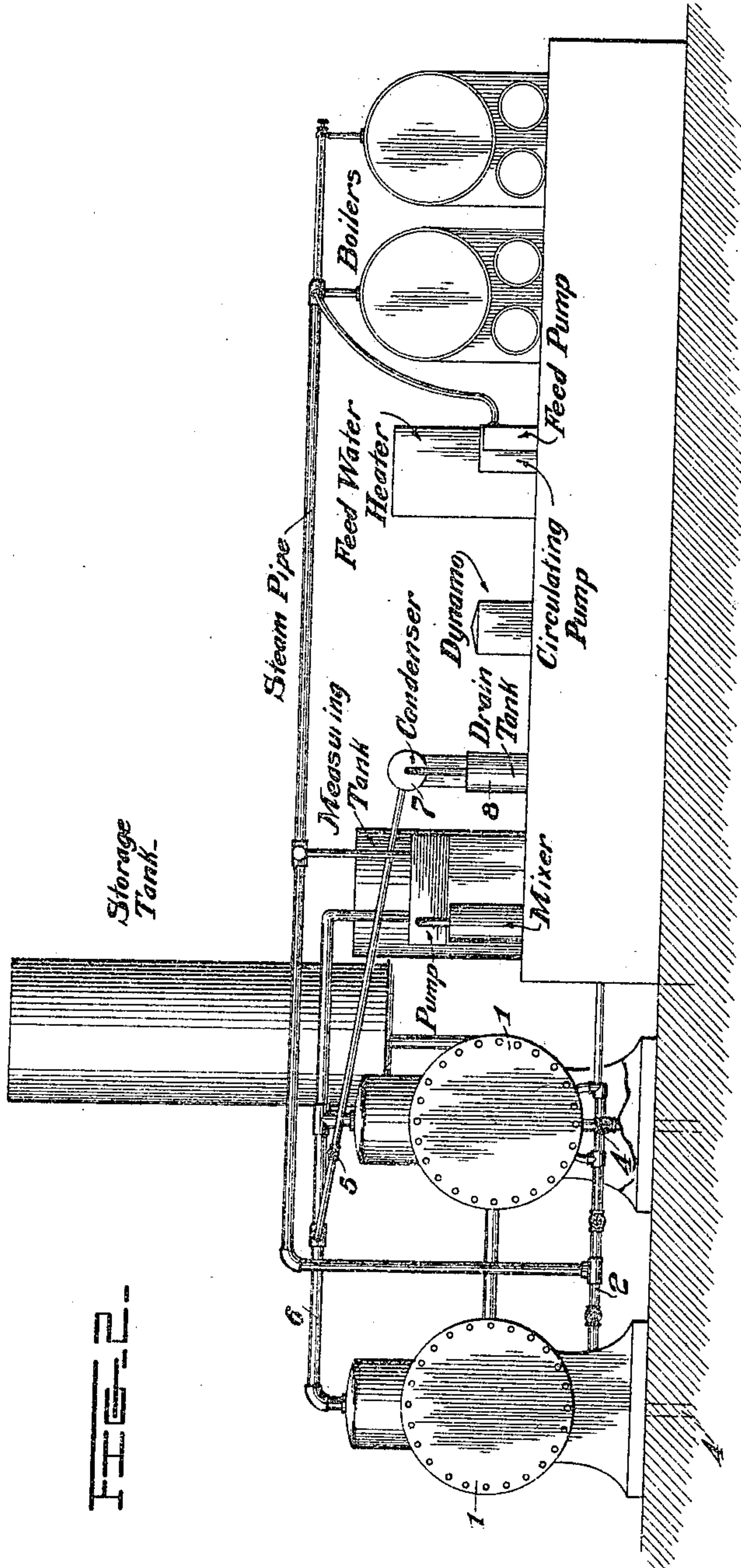
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952,888.

Patented Mar. 22, 1910.

3 SHEETS—SHEET 2.



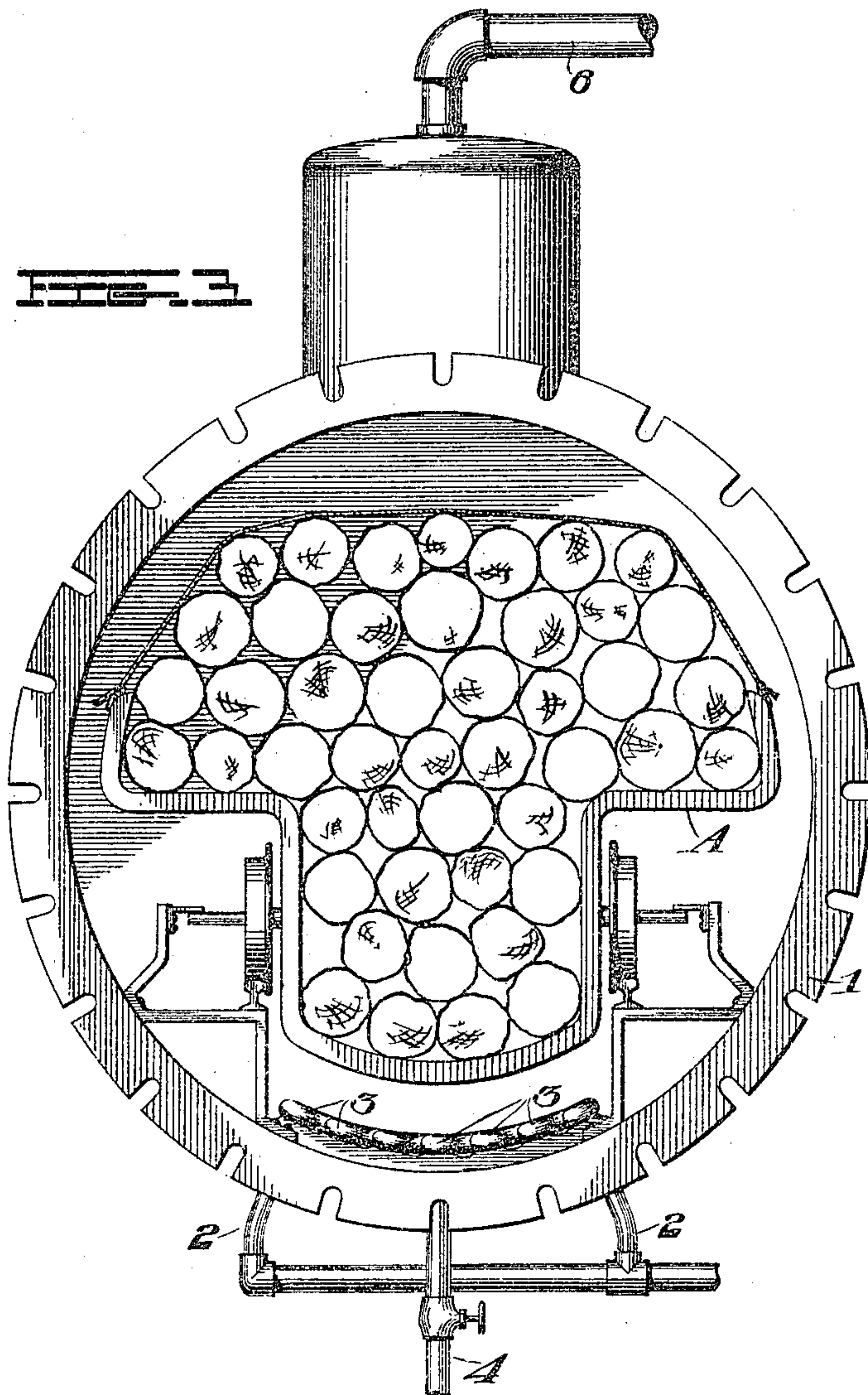
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UNITED STATES PATENT OFFICE.

PATRICK F. DUNDON, OF SAN FRANCISCO, CALIFORNIA.

PROCESS OF CREOSOTING WOOD.

952,888.

Specification of Letters Patent.

Patented Mar. 22, 1910.

Application filed October 23, 1907. Serial No. 398,850.

To all whom it may concern:

Be it known that I, PATRICK F. DUNDON, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Process of Creosoting Wood, of which the following is a specification.

My invention relates to an improvement in a process of creosoting wood.

Heretofore the most common method for treating piles or lumber with creosote was to subject the timber to live or saturated steam when inclosed in a retort. It is well proven by practice and confirmed by experiments of the U. S. Forestry Commission that such a process causes the timber to absorb more water than is normally contained in the cells of the wood, due to the softening of the timber by its contact with the live or saturated steam, and brings it to such a condition that it does more readily absorb water than in its natural state. It is also well known that the only method by which preservative liquids can be forced into timber is to have the cells first freed of the water and sap already contained in them. It has been found in practice that when timber is brought to this condition relatively little pressure is required to force in the preservative liquids. It is the ordinary practice in England and other European countries, where all timber used for railway ties is creosoted, to stack the timber in the open air under temporary sheds and allow it to remain in that condition until it is thoroughly seasoned and free from water or moisture. It then readily absorbs, with the aid of trifling pressure, the preservative liquid.

To bring the timber to this condition is the object of my present invention, and it is proposed by mechanical process to extract sap and water in relatively short period of time, and without injury to the fibers of the wood, and to substitute the creosote or other preservative liquid therefor, the present invention being an improvement on the process described in Letters Patent No. 753,052, granted to me February 23, 1904.

The accompanying drawing is a view showing a suitable plant or apparatus for carrying out this improved process.

Figure 1 is a top plan view; Fig. 2 is a view in side elevation, and Fig. 3 is a sectional view of one of the retorts.

In carrying out my improved process, the piles or timber are placed on cars A, and the latter are drawn into suitable retorts 1. The material is loaded upon the cars A to such a height that a space of from ten to twelve inches is left remaining above the material within the retort. The timber is lashed down to the cars, and the cars and rails are so arranged as to be prevented from floating within the retort when creosote is admitted. After the doors are closed and the joints properly made, steam is admitted into the retort 1 at different points as shown at 2, 2 at the bottom of the retort where it comes in contact with the timber or piles. At the same time heated steam is introduced into the steam coils 3, 3 in the bottom of the retort at a point preferably between the rails for heating. A temperature of about 240° Fahr. is preferably maintained both by the steam discharged into the retort and also by the steam in the coils. It will be readily understood that the live steam entering these large and spacious retorts and coming in contact with raw timber will condense very rapidly and produce a great deal of water, which if not given proper attention would be absorbed by the timber. The heated steam coils in a very great degree prevent this and tend to keep the moisture in a state of vapor. Should there be any water remaining in the bottom of the retort it may be drawn off through the pipe 4. When the live steam is shut off from the retorts, they are drained entirely free of water, and as they still contain a great deal of vapor remaining from the steam itself, and further produced by the radiant heat from the coils, which is still conducted, a vacuum is utilized to draw this vapor away and conducted until all vapors are drawn from the wood leaving the cells vacant.

After the vapor is entirely ejected from the retorts they are then at once filled with heated creosote or other preservative liquid, to a sufficient height to submerge the load. The creosote enters the retorts very rapidly as it comes from an elevated position, flowing by gravity through a large pipe. In a very short time the temperature is brought to about 220° Fahr. A valve 5 in an open pipe 6 leading from the top of the dome or top of the retort to a condenser 7, is then opened to allow a free passage of the vapors from the retorts and condensers. The temperature of the creosote (220°) will volatil-

ize water contained in the timber and the open pipe leading to the condenser will allow these vapors to pass away. When the vapors pass through the condenser they are condensed to liquids and deposit in a drain tank 8 along side the condenser. This drain tank is provided with a water gage glass by which to ascertain the quantity of water coming from the timber. This process is kept up until the quantity of water coming is reduced to such a degree that it can be told from experience when sufficient water and sap has been discharged from the timber to cause it to easily take in the moisture. The steam is then shut off from the coils and a further supply of creosote is allowed to flow into the retort to fill it entirely full, and when the retort or retorts are filled to such a degree that the pressure gage attains a movement, the pressure pumps are connected with the measuring tank having gage boards attached to them. The required amount of creosote is then forced into the load contained in the retort by pressure pumps connected with the measuring tank. After the required quantity of preservative liquid is forced in, it is allowed to remain still for a period of time until the pressure recedes, due to the absorption of the creosote by the wood.

It will be understood that the measuring tank, the two pressure pumps and the oil circulating pump may be connected to the retorts by pipes arranged in any suitable manner, but I preferably arrange them as shown in Fig. 1. When this is completed, the retorts are immediately emptied forcing the oil back into the storage tank by means of air pressure supplied from the pressure pumps. When the retorts are emptied the vacuum is again applied for a period of about thirty minutes to take away the vapors and to induce greater penetration of the creosote in the timber upon breaking the vacuum or when the atmospheric pressure is again allowed to come in contact with the wood.

It is customary to bore holes in a number of the pieces of the treated load to ascertain if there is proper penetration, after which these holes are plugged with creosoted plugs.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The hereindescribed process of treating

wood for preservative purposes, which consists in first extracting the water from the cells by applying steam and radiant heat to the wood in a retort, then applying a vacuum to draw off the water and vapor, then submerging the material under treatment in a preservative liquid, then forcing into the retort an additional quantity of preservative liquid under pressure, then removing the liquid from the retort by means of a gas under pressure, and finally creating a vacuum for removing any surplus liquid.

2. The hereindescribed process of treating piles, timber and the like for preservative purposes, which consists in subjecting the material to live steam and radiant heat thereby keeping the moisture in a state of vapor, then applying a vacuum to draw off the water and vapor, then submerging the material instantly in a preservative liquid, conducting off the vapor created, then introducing more preservative liquid, then removing the preservative liquid and finally again subjecting the material to a vacuum.

3. The hereindescribed process of treating piles, timber, and the like for preservative purposes, which consists in first subjecting it in a closed retort to live steam and radiant heat both at a temperature of substantially 240° Fahr., while so doing keeping the moisture in a state of vapor, applying a vacuum, instantly submerging the material in a preservative liquid, then allowing the material to remain in the liquid, bringing the preservative liquid to a temperature of 220° Fahr. whereby to vaporize the water contained in the cells, then conducting the vapor to a condenser, shutting off the steam, introducing more preservative liquid to completely fill the retort and then applying pressure by a pump to force in the required quantity of preservative into the retort, then allowing the liquid to remain until the pressure recedes so that the material may absorb more of the preservative liquid, and then emptying all liquid from the retort containing the material, and finally again applying a vacuum.

In testimony whereof I affix my signature in presence of two witnesses.

PATRICK F. DUNDON.

Witnesses:

GEO. MENCKE,

HAZEL GIESSEMAN.