

No. 626,579.

Patented June 6, 1899.

P. B. VIELE.
DRYING APPARATUS.

(Application filed Jan. 29, 1898.)

(No Model.)

Fig. 1.

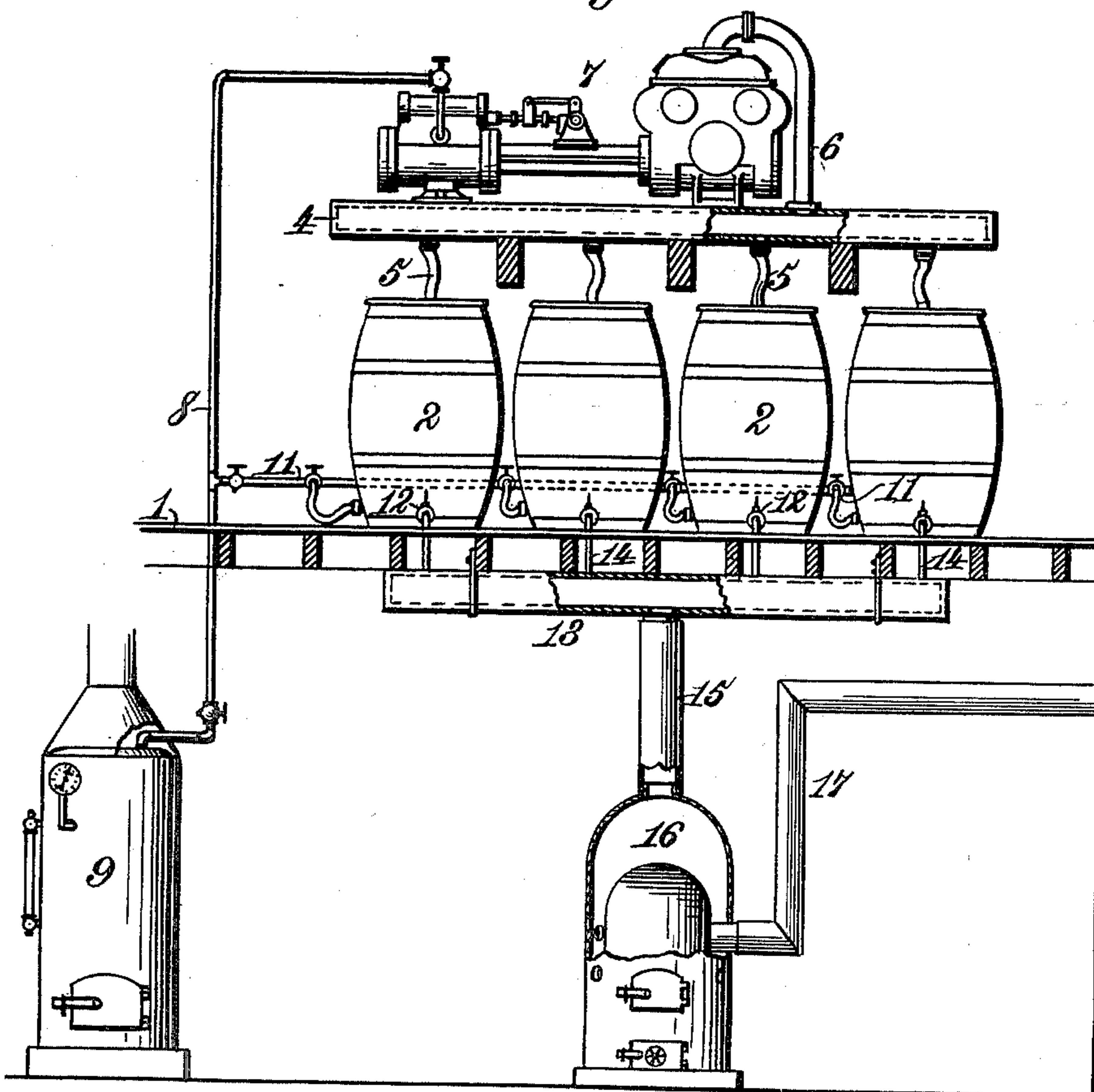
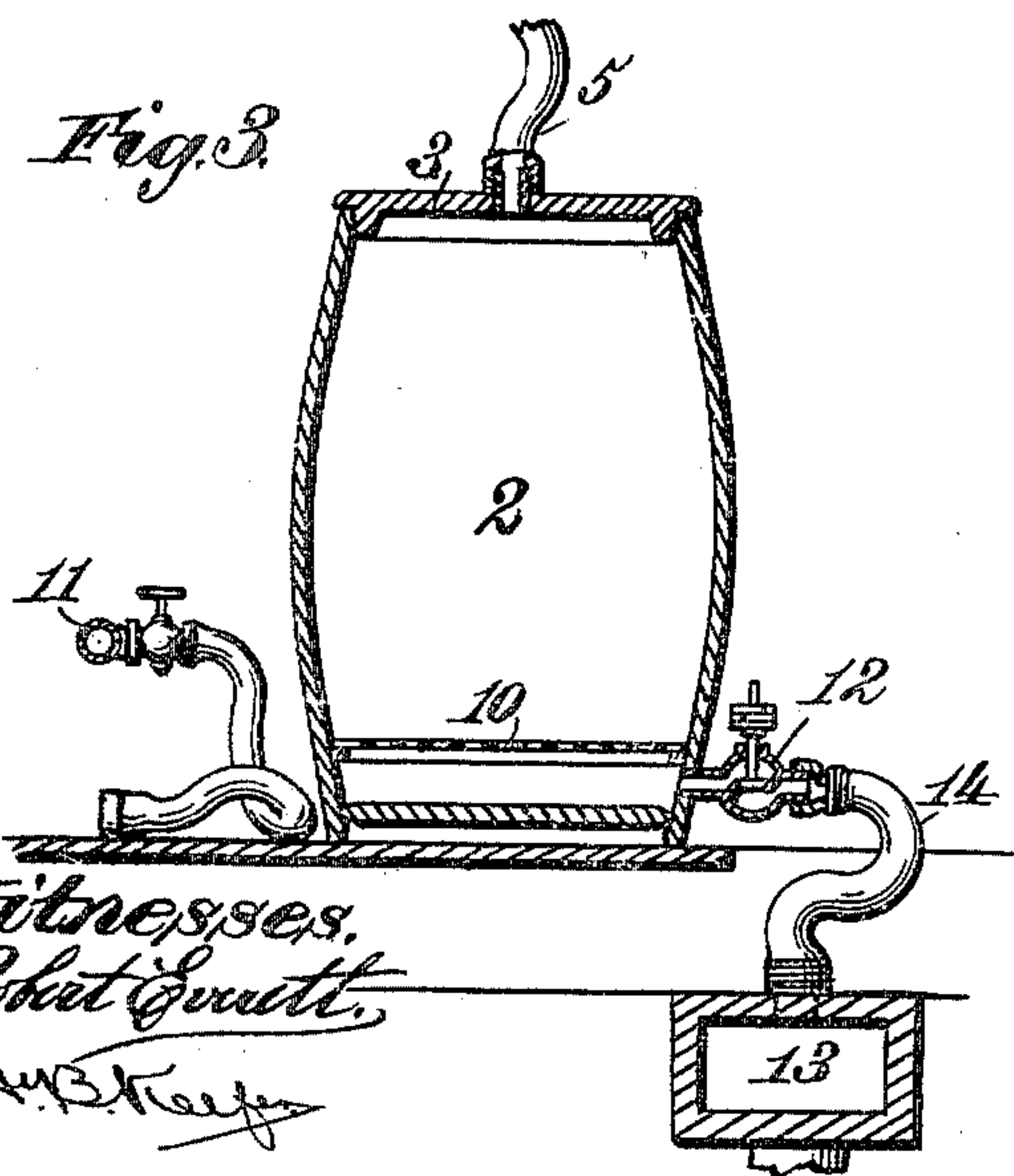
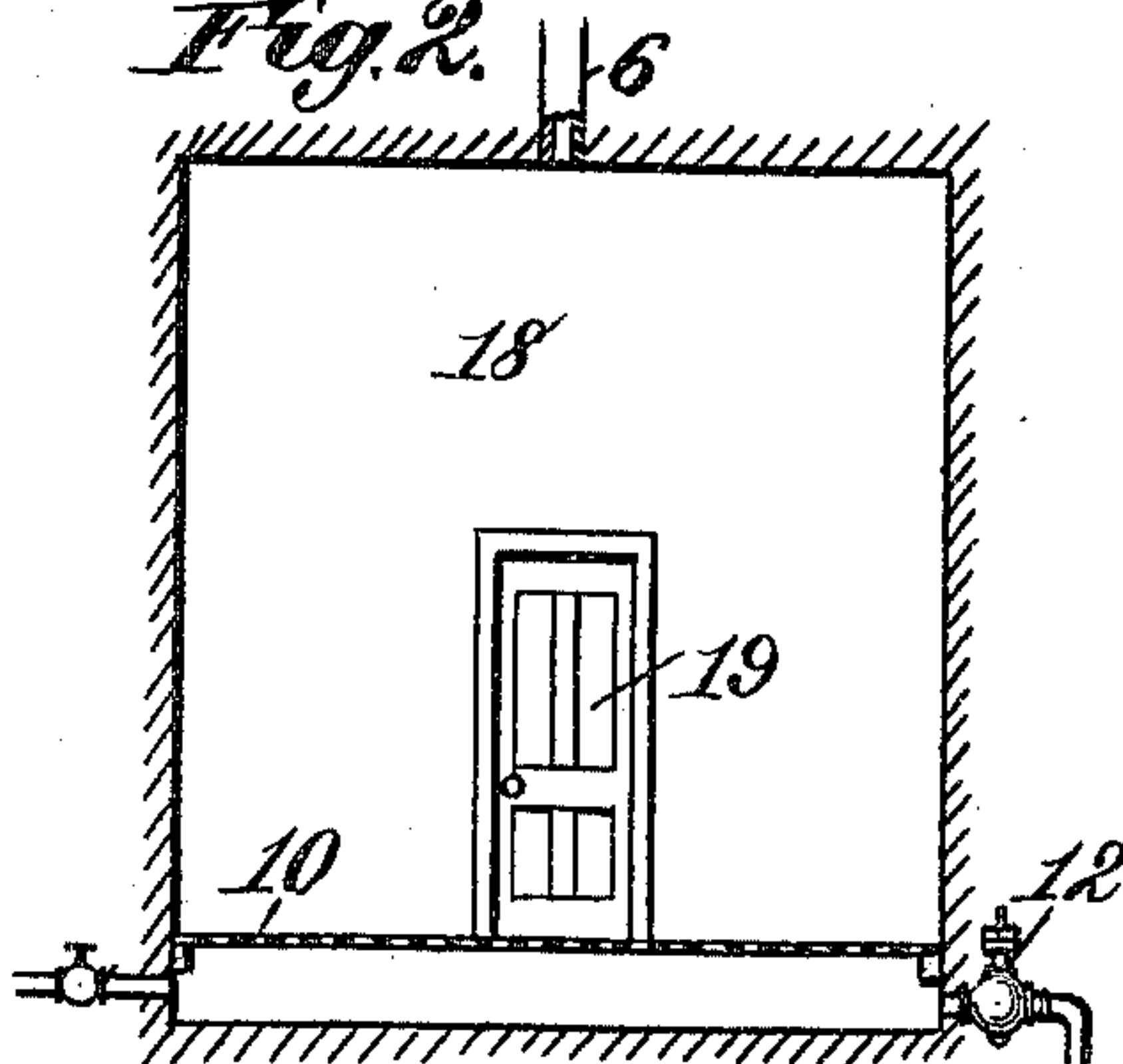


Fig. 3.



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Fig. 2.



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Att'y.

UNITED STATES PATENT OFFICE.

PLATT B. VIELE, OF ROCHESTER, NEW YORK.

DRYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 626,579, dated June 6, 1899.

Application filed January 29, 1898. Serial No. 668,420. (No model.)

To all whom it may concern:

Be it known that I, PLATT B. VIELE, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Apparatus for Evaporating or Drying Various Materials, of which the following is a specification.

This invention relates to apparatus for evaporating or drying various materials, especially for evaporating fruits and vegetables, and for drying tobacco, beans, wool, leather, clothing, &c.

In evaporating fruit it is well known that the quicker it is done the better will be the color, and in drying operations generally it is desirable to effect a saving of time. It is one of the purposes of my invention to accomplish desired evaporating and drying operations by a vacuum process in conjunction with the application of heat, whereby vapors and moisture are speedily eliminated from the substances under treatment.

In carrying out my invention I employ an apparatus of the character illustrated in the annexed drawings, in which—

Figure 1 is a part sectional elevation of my improved vacuum evaporating and drying apparatus. Fig. 2 is a view showing the application of the invention to an apartment or chamber for drying tobacco or bulky material. Fig. 3 is a vertical section of one of the casks or chambers.

Referring to Fig. 1, the reference-numeral 1 designates a floor or platform on which rests a cask, tank, or chamber 2, any number of which may be provided to receive the articles or substances that are to be dried or evaporated. Each cask, tank, or chamber 2 has a strong and tight-fitting cover 3, that may be provided with any suitable packing, if desired. Where a number of casks or tanks 2 are placed together, there is arranged above them an exhaust-chamber 4, with which the top of each tank or cask communicates through a suitable pipe 5 or other connection. This exhaust-chamber 4 connects by a suction-pipe 6 with a vacuum-pump 7, of any suitable construction and which may be mounted on the said exhaust-chamber or elsewhere. For the purpose of operating the vacuum-

pump steam may be taken by a pipe 8 from a boiler 9, located at any convenient point.

By means of the vacuum-pump air and moisture may be quickly and thoroughly exhausted from whatever material may be placed in the casks, tanks, or chambers with which the said pump connects.

In the lower part of each cask, tank, or receptacle 2 there is a perforated false bottom 10, on which may rest the materials to be dried or evaporated.

From the steam-pipe 8 there is extended a branch steam pipe or hose connection 11, leading into the lower part of each cask, tank, or chamber 2 below its perforated false bottom 10, so as to admit live steam for the purpose of heating the contents of the tank or chamber and to free the moisture and facilitate its removal by the vacuum-pump.

The bottom of each cask, tank, or chamber 2 is provided with an opening controlled by a preferably weighted valve 12, so arranged that when the said valve is open hot air will be drawn by action of the vacuum-pump 7 from a hot-air chamber 13 through suitable connections 14 with the valved bottom of each tank or cask. The hot air thus drawn through the material in the casks or tanks will expel all moisture and greatly hasten the evaporating and drying operations. The hot-air chamber 13 is supplied through a pipe 15 from a hot-air furnace 16, located below the floor or platform on which the tanks, casks, or chambers 2 are arranged. A smoke-pipe 17 is connected with the hot-air furnace. By differently weighting the valves 12 or otherwise adjusting them the volume of hot air passed through the evaporating-tanks can be controlled as desired.

The fruits, vegetables, or other materials to be evaporated or dried are placed in the receptacles or chambers 2, and the covers thereof are then made tight. These receptacles are now connected with the exhaust-chamber 4, and the vacuum-pump 7 is put into operation. By this means the air and moisture are exhausted, and while the vacuum-pump is still in operation live steam may be admitted through the pipes or hose connections 11 into the lower part of each cask or tank below its perforated false bottom.

Subsequently, or together with the steam, hot air is admitted from the hot-air chamber 13, the vacuum-pump being still in operation, and thus by the conjoint action of these
5 agents the process of evaporation and drying is quickly effected in such manner as to preserve to a large extent the natural flavor and desirable qualities of the fruits or vegetables under treatment.

10 In Fig. 2 I have shown part of an evaporating and drying apparatus in which a large apartment or chamber 18 is arranged for the drying of tobacco, wool, beans, leather, clothing, and various materials in bulk. A door
15 19 is provided for access to this enlarged drying chamber or apartment, and provision is made for connection with a vacuum-pump and with steam and hot-air supply in the manner already described.

20 It will be obvious that changes may be made in the form, dimensions, and location of the parts of the apparatus, according to the particular requirements of the substances to be subjected to an evaporating or drying operation.
25 By subjecting the materials under treatment to the action of steam and hot air

and exhausting the air and moisture all impurities and germs are destroyed or removed and the operation of drying is facilitated and hastened. Apparatus of this character
30 may be used to advantage for quickly drying lumber, as well as various other materials.

What I claim as my invention is—

In an evaporating and drying apparatus, the combination of a closed drying-chamber
35 having a perforated false bottom and provided with a weighted valve below the said false bottom, a hot-air chamber communicating with said drying-chamber through an opening controlled by said valve, and a vacuum-pump connected with the top of the drying-chamber for exhausting air and moisture
40 from substances placed in said drying-chamber, substantially as described.

In testimony whereof I have hereunto set
45 my hand in presence of two subscribing witnesses.

PLATT B. VIELE.

Witnesses:

H. B. ALLEN,
WM. E. CRAIB.